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Solved Past Paper of Community Medicine By Med-Com



For Quick Review Only

4th Year MBBS

**Made By MBBS Students of
Various Medical Colleges of
Pakistan**

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Acknowledgement

Alhamdulillah Med-Com has earned its reputation as the only medical organization which is always willing to help other students, making everything easier for them as much as possible. We do believe that goodness and badness never disappear completely; rather it's the dominance of one of them that makes an era good or bad. And we are determined to make this era as good as possible by doing good to others, willingly and selflessly.

Treating human beings properly is a great responsibility for a doctor. We do recommend you to study from recommended books and use these papers only for quick revision just before exams, as a patient may present with a disease that is not written in past papers.

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Section 1: Definitions, Concept of Health and Disease , Immunology

Supply 2003

Q1: Write a note on following:

- a) UNICEF
- b) WHO

Ans: a) UNICEF:

The United Nations International Children Emergency Fund (UNICEF) came into existence in Dec, 1946. It was established to provide supplementary nutrition to war effected children. Its headquarter is in New York and regional Office is in New Delhi (India).

Contents of services:

- 1- Child health
- 2- Child nutrition
- 3- Family and child welfare
- 4- Education

b) WHO:

World Health Organization (WHO) came into existence on 7th Aprail, 1948. Its headquarter is in Geneva (Switzerland). The main objective of WHO is "the attainment of highest level of health by all people".

Functions of WHO:

- 1- To assist government upon request, in strengthening their health services.
- 2- To promote standard of education.
- 3- To improve nutrition, housing sanitation and working conditions.
- 4- To promote activities in field of mental health.
- 5- To promote and conduct research.
- 6- To promote cooperation among scientific professional groups.
- 7- To promote family health.

(Page 9, 10 excel)

Annual 2004

Q1: Which LEVELS of prevention are applied in pre-pathogenic phase of the disease? Give example.

Ans:

Primary prevention is applied in pre-pathogenic phase of disease because it includes the actions taken prior to onset of disease, which removes the possibility that a disease will ever occur.

This is done by:

Health promotion &

Specific protection by two different approaches:

- i- Population (mass) strategy
- ii- High risk strategy

for example; basic personal hygiene and public health measures and public health measures have had a major impact in halting communicable diseases.

Immunization prevents many infectious diseases. These are the examples of primary prevention.

(Page no 6; excel)

Q2: What is the role of UNICEF for protecting the health of children in Pakistan?

Ans: Contents of services:

- 5- Child health

- 6- Child nutrition
- 7- Family and child welfare
- 8- Education

UNICEF activities covers programs like child survival, protection and development, infant feeding practices, child growth monitoring, home based diarrhea, birth spacing, education of girls and income generating activities for women.

(Page 10 ; excel)

Q3: Write VACCINATION schedule of a new born.

Ans:

TIME	VACCINE	DOSE	ROUTE	SITE
At birth	Polio-0 BCG	2 drops 0.1ml above 1 month 0.05 ml below 1 month	Orally 1/D	Orally Right deltoid
At 6 weeks	Polio-1 Pentavalent-1 Pneumococcal-1	2 drops ½ ml	Orally I/M	Orally Antero lateral aspect of right thigh and pneumococcal in left thigh
At 10 th week	Polio-2 Pentavalent-2 Pneumococcal-2	2 drops ½ ml ½ ml	Orally I/M I/M	ORALLY Antero lateral aspect of right thigh Antero lateral aspect of left thigh
At 14 th week	Polio-3 Pentavalent-3 Pneumococcal-3	2 drops ½ ml ½ ml	Orally I/M I/M	Orally Antero lateral aspect of right thigh Antero lateral aspect of left thigh
At 9 months	Measles-1	½ cc	S/C	Left deltoid
At 15 month	Measles-2	½ cc	S/C	Right deltoid
Booster dose 20 to 23 months	DPT Polio			

(Chapter 6 page no 141 excel)

Annual 2005

Q1: Write a note on Primordial Prevention

Ans: Primordial prevention is actually prevention against chronic diseases e.g. cancer, coronary heart disease, DM. In primordial prevention efforts are directed towards discouraging children from adopting harmful lifestyles.

Primordial prevention is done through individual and mass education e.g. smoking leads to CHD and it should be discouraged.

(Page no 6; excel)

Q2: Write a note on Cold Chain

Ans:

It is the system of storage and transport of vaccines at low temperature from the manufacturer to the actual vaccination site.

Cold chain equipments:

- Walk-in cold room
- Deep freezer
- Ice-lined refrigerator (ILR)
- Cold boxes
- Vaccine carrier
- Day carrier
- Ice packs

The risk of cold chain failure is greater at sub-center and village level. For this reason, vaccines are not stored at the sub-center level and must be supplied on the day of use.

(Park's chapter 3; page no 102)

Annual 2006

Q1:

- Name LEVELS of PREVENTION.**
- Briefly describe types of REHABILITATION.**

Ans: a)

- Primordial prevention
- Primary prevention
- Secondary prevention
- Tertiary prevention

b) Types of Rehabilitation:

i- Medical Rehabilitation

Means restoration of functions for example in TB spread to knee joint, physiotherapy or surgery is done to correct it.

ii- Vocational Rehabilitation

Restoration of capacity to earn livelihood

iii- Social rehabilitation

Restoration of family and social relationships

iv- psychological rehabilitation

Restoration of personal dignity and confidence

(Page no 8; excel)

Q2:

- Define VERTICAL PROGRAMME.**
- Define HORIZONTAL PROGRAMME.**

Ans:

a) Vertical Program:

"A single program of health service for the community" e.g. EPI because staff is concerned only with one activity i.e. immunization project

AIDS control program

Leprosy control program

Malaria control program

b) Horizontal Program:

A health service delivery program which covers the two dimensions of health i.e. personal health and community health is known as horizontal program e.g

Social action program-I (SAP-I)

Social action program-II (SAP-II)

(Chapter 1 excel)

Supply 2006**Q1: Define Community Diagnosis**

Ans: It is defined as:

"It is the identification and quantification of health problems in a community in terms of mortality and morbidity rates and ratios for the purpose of defining those who are at risk and who are in need of health care".

(Chapter 1, page no 3; excel)

Q2:

a) Define QUARANTINE.

b) List quarantinable diseases internationally.

Ans: a) Quarantine: it is defined as;

The limitation of freedom of movement of such well persons or domestic animals exposed to communicable disease for a period of time not longer than the longest usual incubation period of the disease in such manner as to prevent effective contact with those not so exposed

Q3: Write down the dosage, route of administration and complete schedule of active IMMUNIZATION against tetanus in the following:

a) A new born baby

b) A child bearing age un-married lady aged 20 years.

Ans:

a) For a new born baby:

DPT-1	At 6 week
DPT-2	At 10 weeks
DPT-3	At 14 weeks
Booster dose	20 to 23 month

b) For a lady un-married child bearing age:

1 st dose TT1	At any time
2 ND dose TT2	1 month after TT1
3 RD dose TT3	6 months after TT2
4 th dose TT4	1 year after TT3
5 TH dose TT5	1 year after TT4

Q4: What is difference between TOXIN an TOXOID?

Toxoid: exotoxin produced by certain organisms are defoliated by treating with formalin in such a way that toxicity is destroyed but their antigenicity is retained and used in the preparation of vaccines, this is called toxoid.

Toxin: harmful material produced by the organisms is called toxin.

Q5: What measures are taken in general in SPECIFIC PROTECTION (2nd level of prevention)?

Ans: Measures applicable to a disease or group of diseases, to intercept the cause of disease before it involves man are included in specific protection. It is done by:

- 1-Immunization
- 2-Use of specific nutrients before occurrence of disease e.g
In Scurvy-vit C
In Rickets-Ca and vit D
- 3-Protection against occupational hazards
- 4-The preventive measures in case of cancer includes avoiding carcinogens
- 5-chemoprophylaxis

(Chapter 1, page no 7; excel)

Annual 2007

Q1: A program of IMMUNIZATION of children started in Pakistan during the year 1974 with the objective of reducing morbidity and mortality associated with six childhood diseases initially but another was added later.

- a) What is this program called?
- b) Give the diseases and schedule of immunization.

Ans:

- a) Expanded program of immunization (EPI)

- b) Disease:

- i- TB
- ii- POLIO
- iii- MEASELS
- iv- DIPHTHERIA
- v- PERTUSSIS
- vi- TETANUS
- vii- HEPATITIS B
- viii- PNEUMOCOCCAL MENINGITIS
- ix- INFLUENZA

Schedule:

TIME	VACCINE	DOSE	ROUTE	SITE
At birth	Polio-0 BCG	2 drops 0.1ml above 1month 0.05 ml below 1 month	Orally 1/D	Orally Right deltoid
At 6 weeks	Polio-1 Pentavalent-1 Pneumococcal-1	2 drops ½ ml	Orally I/M	Orally Antero lateral aspect of right thigh and pneumococcal in left thigh
At 10 th week	Polio-2 Pentavalent-2 Pneumococcal-2	2 drops ½ ml ½ ml	Orally I/M I/M	ORALLY Antero lateral aspect of right thigh Antero lateral aspect of left thigh

At 14 th week	Polio-3 Pentavalent-3 Pneumococcal-3	2 drops ½ ml ½ ml	Orally I/M I/M	Orally Antero lateral aspect of right thigh Antero lateral aspect of left thigh
At 9 months	Measles-1	½ cc	S/C	Left deltoid
At 15 month	Measles-2	½ cc	S/C	Right deltoid
Booster dose 20 to 23 months	DPT Polio			

(Chapter 6; page 141 excel)

Annual 2008

Q1: Public health policy in Pakistan aims at avoiding the underlying reasons for the development of environmental and atmospheric concentration of sulphur dioxide (SO₂) to protect the health of people.

- Which LEVEL of PREVENTION is applied in this aim of policy?
- Enlist the other THREE LEVELS of PREVENTION and FIVE MODES of INTERVENTION.

Ans: a) primary prevention

b)

A) Levels Of Prevention:

- Primordial prevention
- Primary prevention
- Secondary prevention
- Tertiary prevention

B) Levels Of Interventions:

- Health promotion
- Specific protection
- Early diagnosis and prompt treatment
- Disability limitation
- Rehabilitation

(Chp 1; excel)

Supply 2008

Q1: What's Immunization for Mumps?

Ans:

- It is given at 12-15 months of the age.
- Dose: ½ ml
- Site: S/C or I/M
- Type: live vaccine

(Chapter 6 page no 138 excel)

Annual 2011

Q1: A person travelling from Africa laded at Karachi Airport. His international vaccination certificate indicates that he had received vaccine against yellow fever two days back.

- Will you put him under quarantine?
- Justify your answer.

Ans:

- a) No
- b) Because this term applied to those people who are exposed to any communicable disease.

Supply 2011

Q1: A mother reports to you with her three years old child limping due to post-polio paralysis of left leg. She asks for vaccination under EPI schedule as she had not got her child vaccinated before against any disease.

- a) Will you include polio vaccine in the schedule?
- b) Justify your answer.

Ans:

- a) Yes
- b) The causative agent poliovirus has three serotypes 1, 2 and 3. Most out breaks of paralytic polio are due to type-1 virus. Therefore polio vaccine is included in the vaccination schedule of this child to give protection against other two serotypes of polio virus.

Annual 2013

Q1: A student of primary class was feeling difficulty in listening which was detected by his teacher. He was provided with the hearing aid to overcome this problem.

- a) Name the mode of intervention used.
- b) What do you mean by "social Rehabilitation"?

Ans:

- a) Mode of intervention is early diagnosis and prompt treatment
- b) **Social Rehabilitation:** Restoration of family and social relationships

(Page no 8; excel)

Q2: Write number and name of three Millennium Development Goals related to health

Ansr:

- GOAL 4: reduce child mortality
- GOAL 5: improve maternal health
- GOAL 6: combat HIV/AIDS malaria and other diseases

(Chapter 2 page no 17 excel)

Q3: Two (one boy, one girl) 4th year MBBS students reported to you to get themselves vaccinated against tetanus. Both had completed EPI schedule in their childhood. Write complete vaccination schedule i.e. primary and booster for both the students mentioning dose, route of administration and number of times vaccine required.

Ans:

Primary course of immunization:

A primary course of immunization consist of two doses of tetanus toxoid absorbed given at interval of 1-2 months.

The longer the interval between two dose better is the immune response.

Dosage: each dose 0.5 ml

Route of administration: deltoid or gluteal region

Booster course of immunization:

1st booster dose- 1 year after the initial two doses

2nd booster dose- 5 year after the third dose

(Park's page no 285)

Supply 2014

Q1: A researcher is interested to compare the health status of people of Punjab with that of Baluchistan.

- a) Name three parameters to be used for this purpose.
- b) Explain any ONE of these.

Answer: a)

- Mortality indicator
- Morbidity indicator
- Disability rate

b) Mortality Indicators:

- i- crude death rate
- ii- life expectancy
- iii- infantile mortality rate
- iv- child mortality rate
- v- under-5 proportionate mortality rate
- vi- maternal mortality rate
- vii- disease-specific mortality rate
- viii- propotional mortality rate

(chapter 2;page 14 excel)

Supply 2015

Q1: Mr. X 22 year old, married working as laboratory technician got a needle stick injury while drawing blood from a known case of Hepatitis B.

- a) Discuss prophylaxis against hepatitis B in this particular case?
- b) What measures should be taken to protect other laboratory workers?

Ans:

a) Prophylaxis:

- i- Passive immunity; HBIG 0.05 ml/kg of body weigh; And should repeat in one month
- ii- Active immunity by three injectons of HbsAg I/M at 0, 1 and 6 months.

b) Measures for other laboratory worker:

Health personels should be alerted to the importance of adequate sterilization of all instruments and to the practice of simple hygienic meaures

Q2: Pakistan is still having cases of Poliomyelitis.

- a) What are the causes of failure in eradication of poliomyelitis in Pakistan?
- b) How can we achieve polio eradication in near future?

Ans:

a) Causes are divided into following sub groups:

1- Related to vaccine:

- a) Faulty preparation
- b) Faulty technique or storage place
- c) Contamination

2- Related to child:

- a) Child is suffering from diarrhea or dysentery
- b) Immunosuppressed child
- c) Inter current enterovirus infection
- d) Presence of non-specific inhibitors in saliva

3- Related to mode of administration:

- a) Faulty technique of administration
- b) Spit out the vaccine in first attempt

4- Related to mother:

- a) Interference of antibodies presence in breast milk
- b) Unawareness of mother about vaccination schedule

c) Lack of education

5- Relating to immunizing staff:

- a) Not properly trained
- b) Careless staff

6- Related to health sector:

- a) Health sector is not providing vaccine in an adequate amount according to need.
- b) Lack of establishment of vaccine center

7- Lack of community participation:

- a) Lack of knowledge and education about vaccination
(Chapter 6; page no 138 excel)

b) Strategies For Polio Eradication:

- Conduct polio immunization days every year until poliomyelitis is eradicated
- Sustain high level of routine immunization coverage
- Monitor OPV coverage at district level or below
- Improve surveillance capable of detecting all cases of AFP due to polio or non polio aetiology
- Ensure rapid case investigation, including the collection of stool samples for virus isolation
- Arrange follow up for all cases of AFP at 60 days to check for residual paralysis
- Conduct out break control for cases confirmed or suspected to be poliomyelitis to stop transmission.

(Park's chapter5; page no 189)

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Section 2: General Epidemiology

Supply 2003

Q1: Write short note on uses of epidemiology

Ans:

- **To study historically rise & fall of disease in population:**
epidemiology provides a means to study disease profile & time trends in human population to make useful projections for further prevention
- **Community diagnosis:**
Generally refers to identification and quantification of health problems in a community in terms of mortality & morbidity rates & ratios, & identification of their correlates for the purpose of defining those individuals or groups at risk or those in need of health care.
- **Planning & Evaluation:**
It is essential for a rational allocation of the limited resources
- **Evaluation of individual risk & chances**
the risk assessment is calculated via measures of risk like odds ratio, relative risk, attributable risk
- **Syndrome identification:**
medical syndromes are identified by observing frequently associated findings in individual patients
- **Completing the natural history of disease:**
studying of diseases pattern in community in relation to agent, host & environmental factors to fill up gaps in natural history
- **Searching for cause and risk factors:**
try to identify cause of disease
e.g. rubella can cause congenital defects,
thalidomide is teratogenic.

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Annual 2004

Q1: What are the merits & demerits of cohort studies

Ans:

- **Merits**
 1. Incidence can be calculated
 2. several possible outcomes related to exposure can be studied simultaneously
 3. it provides a direct estimate of relative risk
 4. dose-response ratio can also be calculated
 5. certain forms of bias can be minimized (as comparison group are formed before the development of the disease so misclassification can be prevented into exposed & un exposed)
- **Demerits**
 1. It involves a large number of people
 2. it is expensive
 3. it takes a long time to complete the study & obtain result (20-30 years or more in cancer studies)
 4. administrative problems (such as loss of experienced staff, loss of funding, extensive record keeping is inevitable)
 5. selection of comparison group is a limiting factor
 6. changes in the standard methods or diagnostic criteria of the disease in long follow-up
 7. the study may alter the subjects behavior
 8. ethical problems of varying importance

Supply 2004**Q1: write a note on temporal association**

Ans: It is a causal association requires that exposure to a putative cause must precede temporarily the onset of a disease which it is purported to produce to allow for any necessary period of induction & latency

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Annual 2005**Q1: Briefly describe the steps required to investigate an epidemic?**

Ans: An epidemic investigation calls for inference as well as description in investigating an epidemic some of the steps can be done concurrently

✓ **Verification of diagnosis**

it is the 1st & most important step as sometimes report may spurious & arise from misinterpretation of signs & symptoms therefore necessary to have verification of diagnosis at spot

✓ **confirmation of existence of epidemic**

the next step is to confirm if epidemic exist it is done by comparing the disease frequency during the same period of previous year

✓ **defining the population at risk**

- obtaining the map of the area to have information about the landmarks and houses in each divided segments of the map
- counting the population, denominator should be the entire population related it may be related to total events

✓ **rapid research for all cases & their characteristics**

It is done by

- Medical survey
- epidemiological case sheet
- searching for more case

✓ **data analysis**

Data collected should be analyzed using the classic epidemiological parameters

- time
- place
- person

✓ **formulation of hypothesis**

on the basis of data analysis by time place & person, formulate a hypothesis to explain the epidemic in terms of

- possible source
- causative agent
- possible modes of spread
- environmental factors

✓ **testing of hypothesis**

it is done by comparing the attack rates in various groups for those exposed & not exposed to each suspected factor

✓ **evaluation of etiological factors**

ecological factors which have made the epidemic possible should be tested

✓ **further investigation of population at risk**

it is needed for additional information & done by

- medical examination
- screening

- blood samples
- biochemical tests
- immune status

✓ **writing the report**

The report should be complete & convincing it should contain all information about the epidemic

<K.PARK 22 ed.pg123>

Q2: Define cold chain.

Ans: The 'cold chain' is the system of storage & transport of vaccines at low temperature from the manufacturer to the actual vaccination site.

It is necessary because vaccine failure may occur due to failure in storing & transportation of vaccine under strict temperature control.

<K.PARK 22 ed. pg 102>

Annual 2006

Q1: a) Enlist steps of conduction of cross-sectional study.

b) name at least six advantages /merits of case control study

Ans: Various procedure involve in conducting a descriptive study

- Defining the population to be studied
- Defining the disease under study
- Describing the disease by
 - time
 - place
 - person
- Measurement of disease
- comparing with known indices
- formulation of an etiological hypothesis

b)

- 1) Relatively easy to carry out
- 2) rapid & inexpensive
- 3) no risk to subjects
- 4) require comparatively few subjects
- 5) no attrition problems
- 6) ethical problems minimal
- 7) risk factors can be identified

<K. Park pg 70>

Q2: a) Define relative risk.

b) Explain relative risk derivation & interpretation of the results with the help of 2x2 dummy table

Ans: a) Relative Risk (RR) is the ratio of the incidence of the disease (or death) among exposed & the incidence among non-exposed it is also known as "risk ratio"

It is a direct measure of the strength of association b/w suspected cause & effect

RR= incidence of disease or death among exposed/ incidence of disease or death among non-exposed

b)

To calculate RR we have to find incidence rates among exposed and non-exposed which can be done by 2x2 table

	Disease	No disease	total
Exposed	A	B	(a+b)
Not exposed	C	D	(c+d)

Incidence rates:**Among exposed= $a/a+b$** **Among not exposed= $c/c+d$** **RR= incidence of disease or death among exposed/ incidence of disease or death among non-exposed****RR= $(a/a+b) / (c/c+d)$** **Results:**

RR<1 -----negative association (e.g. 0.25 RR indicates 75% reduction of disease in exposed persons)

RR=1 ----- no association

RR>1 ----- positive association b/w disease and causative agent/exposure

RR=2 ----- shows two times greater risk and so if the RR is 10 then it shows 10 times greater risk

Supply 2006**Q1: Name six diseases against which chemoprophylaxis can be done. Mention name of drug for each disease as well****Ans:**

	DISEASES	CHEMOPROPHYLAXIS
1	Cholera	Tetracycline for house hold contacts
2	Bacterial conjunctivitis	Erythromycin ointment
3	Diphtheria	Erythromycin+ 1st dose vaccine
4	Influenza	Amantadine
5	Meningitis	Sulphadiazine for 4 days
6	Plague	Tetracycline

<pg 117>

Q2: a) Define community diagnosis ?**b) List five features of cohort study****Ans: a)** Generally refers to identification and quantification of health problems in a community in terms of mortality & morbidity rates & ratios, & identification of their correlates for the purpose of defining those individuals or groups at risk or those in need of health care.

(It has been extended beyond population distribution, to include understanding of social, cultural, environmental characteristics of community)

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b)

1. cohorts are identified prior to appearance of the disease under investigation
2. study groups ,so identified, observed over a long period of time to determine frequency of disease
3. study proceeds from cause to effect
4. reserved for formulated hypothesis
5. expensive

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Q3: Difference b/w toxin & toxiod**Ans:**

Toxins are produced by the organisms and act as a virulence factor to cause the disease in human body	Toxioids are the detoxicated toxins used to prepare the vaccines
--	---

Annual 2007**Q1: A case control study was conducted to find out association between lung cancer & cigarette smoking****a) which measures gives the strength of association b/w smoking and lung cancer in this type of study?**

b) how will u differentiate this study from cohort study?

Ans: For a case control study Odds Ratio (OR) is a measure of the strength of association b/w risk factor & outcome. It is closely related to relative risk (RR).

b)

	CASE CONTROL STUDY	COHORT STUDY
1	Proceeds from <u>effect to cause</u>	From <u>cause to effect</u>
2	<u>Starts</u> with disease	<u>Start</u> with suspected cause
3	<u>Test</u> whether suspected cause occur more frequently with the disease than without disease	<u>Tests</u> whether disease occur frequently in exposed persons or in those not similarly exposed
4	<u>First approach</u> to test a hypothesis also useful for exploratory studies	<u>Reserved</u> for testing a precisely formulated hypothesis
5	Involve <u>fewer</u> no. of subjects	Involves <u>large</u> no. of subjects
6	Yields relatively <u>quick results</u>	Long follow up period, involving <u>delayed results</u>
7	Suitable for the study of <u>rare</u> disease	Inappropriate when disease or exposure is rare
8	Only yields Odds Ratio	Yields Relative risk RR as well as attributable risk
9	Information about only 1 disease	Can tell us more than 1 disease
10	Inexpensive relatively	Expensive

Supply 2007

Q1: A group of 20 students after the school went to the nearest fast food & had burgers within 3 hrs of eating 10 students develop vomiting & diarrhea ,1 hr later other 07 were also affected sparing 3

a) The distribution of cases in time suggests which kind of epidemic?

b) outline the steps taken to investigate an epidemic

Ans: a) (common source epidemic)single exposure or point source epidemic

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b) In investigating an epidemic some of the steps can be done concurrently

- ✓ Verification of diagnosis
- ✓ confirmation of existence of epidemic
- ✓ defining the population at risk
- ✓ rapid research for all cases & their characteristics
- ✓ data analysis
- ✓ formulation of hypothesis
- ✓ testing of hypothesis
- ✓ evaluation of etiological factors
- ✓ further investigation of population at risk
- ✓ writing the report

<pg 123>

Annual 2008

Q1: A researcher wanted to study the risk of peri natal mortality (PNM FOR 100,000 births) caused by maternal anemia during pregnancy & found following observation
incidence of PNM /100,000 births

Among anemic pregnant women	4000
Among non anemic pregnant women	200

a) calculate the attributable risk (risk difference) & attributable fraction (%)

b) interpret the result

Ans:

AR= incidence of disease(death) among exposed - incidence of disease(death)among non-exposed/incidence among exposed x100

AR=4000-200/4000x100

=3800/4000x100

0.95x100

=95 %

b) it indicates that the association between anemia in pregnant women and peri natal mortality is causal, 95 % of prenatal mortality is due to anemia of mothers in pregnancy

if the anemia can control then 95 % of the peri natal mortality can be prevented

Annual 2010

Q1: a) show the basic structure of case control study in a 2x2 table

b)what is the measure of association in case-control study?

c)how it is calculated?

d) if the measure is 5 how it is interpreted?

Ans:

	Cases (with diseases)	Controls (without disease)	total
Exposed	A	b	a+b
Non-exposed	C	d	c+d
Total	a+c	b+d	

exposure rates

cases= a/a+c

controls=b/b+d

b) Odds Ratio

c) from 2x2 table

= (a/b)/(c/d)

= ad/bc

d) exposed people show a risk of having disease 5 times that of non exposed.

Annual 2011

Q1:

H/O taking coffee	Myocardial Infarction	
	Present	absent
Yes	60	90
No	90	60

a) calculate odds ratio

b) how will you Interpret your result

Ans:

$$\begin{aligned} \text{a) } OR &= ad/bc \\ &= 60 \times 60 / 90 \times 90 \\ &= 3600 / 8100 \\ &= 0.4 \end{aligned}$$

b) this value show negative association of coffee taking with myocardial infarction that coffee taking can prevent from myocardial infarction

Supply 2011

Q1: A cohort study was conducted to determine the association b/w alcohol intake & peptic ulcer

a) name measure used to determine strength of association b/w cause & effect also write down formula to calculate it?

b) what is meant by temporal association?

Ans: a) Relative Risk is used to measure strength of association

RR= incidence of disease or death among exposed/ incidence of disease or death among non-exposed

b)

It is a causal association requires that exposure to a putative cause must precede temporarily the onset of a disease which it is purported to produce to allow for any necessary period of induction & latency

Annual 2012

Q1: In an epidemiological study 1/3rd of 90 subjects with myopia had +ve family history of disease while 10 of the 100 subjects without myopia also has the +ve family history of disease

a) which study best fit this type of scenario?

b) conduct 2x2 table & calculate measure of risk?

c) interpret your result

Ans: a) case control study

b)

	With myopia	Without myopia
Positive family history	30	10
No family history	60	90

odds ratio (OR) is used to measure risk estimation

thus,

$$\begin{aligned} OR &= ad/bc \\ &= 30 \times 90 / 60 \times 10 \\ &= 2700 / 600 \\ &= 4.5 \end{aligned}$$

c) persons with positive family history has a risk of developing myopia 4.5 times that of negative family history

Annual 2013

Q1: In a population of 60,000. there were 250 cases of T.B on 1st January during 1 year period 50 more cases were added during this year 20 patient with T.B died while 40 were cured Calculate

a) prevalence rate of T.B at the end of this year

b) Incidence rate of T.B during the year

Ans: a) **Point Prevalence=** no. of all (new and old) case of a specified disease existing at a given point of time/estimated population at that time $\times 100$

= 250 cases existed addition of 50 cases = 300 cases

20 patients died = 300 - 20 = 280

40 were cured = $280 - 40 = 240$

total existing cases = 240

thus,

$= 240 / 60,000 \times 100$

$= 0.4$ per 100

b) Incidence = no. of new cases of specific disease during a given period of time / population at risk during that time period $\times 1000$

$= 50 / 60,000 \times 1000$

$= 0.83$ per 1000 per year

Supply 2013

Q1:

Cigarette smoking	Lung cancer	
	Present	absent
Yes	70	6930
No	03	2997

a) calculate relative risk & write its significance

b) what is meant by attrition seen in cohort studies? what measure should be taken to overcome this problem as it distorts the result of the study?

Ans: To find out RR calculate incidence rates

- among exposed $= 70 / 70 + 6930 \rightarrow 10$
- among non-exposed $= 03 / 03 + 2997 \rightarrow 1$

RR = incidence of disease or death among exposed / incidence of disease or death among non-exposed

RR = $10 / 1$

= 10

Significance: It implies that smokers are 10 times at greater risk of developing lung cancer than non-smokers

high strength of association b/w smoking and lung cancer.

b) It takes a long time to complete & obtain result from cohort study by which time the investigators may have died or the participants may have change their classification

it is kind of selection bias, caused by attrition (loss of participants) discounting trial subjects/tests that did not run to completion it includes dropout deviators

Heckman correction method is used

or blinding can be used

otherwise randomized controlled studies

Annual 2014

Q1: In a hypothetical cohort study of an association b/w smoking & coronary heart disease (CHD) out of 3000 smokers 84 developed CHD

In 5000 non-smokers 87 develop the disease

a) Make 2x2 table & calculate the measure of risk?

b) interpret the result

Ans:

	CHD	No CHD
Smokers	84	2916
Non smokers	87	4913

Incidence rate

among smokers= $84/84+2916=84/3000=0.028$

among non-smokers= $87/87+4913=87/5000=0.0174$

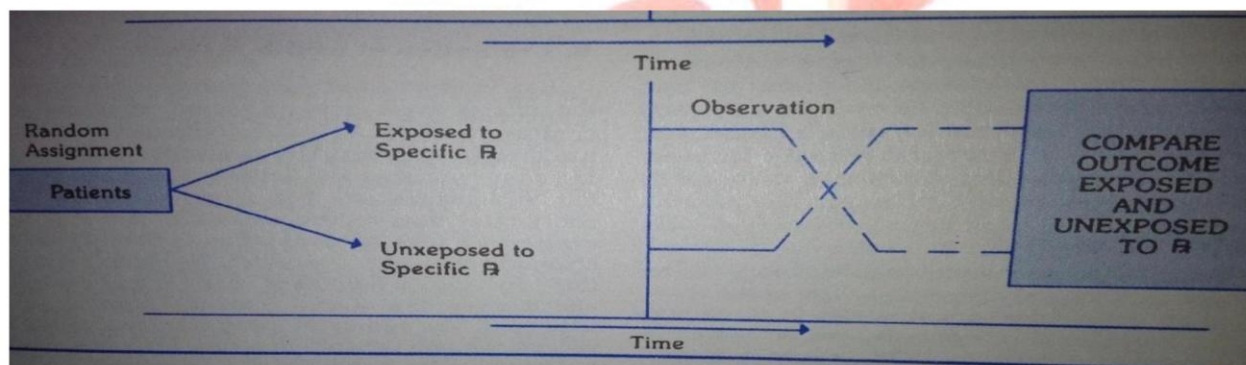
RR= incidence of disease or death among exposed/ incidence of disease or death among non-exposed

RR= $0.028/0.0174$

=1.6

b) Relative risk 1.6 shows that there is positive association b/w smoking & coronary heart disease

Supply 2014



Q:

a) name type of study depicted above

b) list steps of this study

Ans: a) cross-over type of study design

b) The above study design is for randomized controlled trials

The basic step in conducting a RCT include the following:

1. Drawing up a protocol
2. Selecting reference & experimental population
3. Randomization
4. manipulation or intervention
5. Follow up
6. Assessment of outcome

<K.PARK PG 78>

Supply 2015

Q1: a) What are the different epidemiological studies?

b) As a researcher you want to find out burden of malaria in a community which type of study will you prefer to carry out?

c) what are the steps to conduct such study?

Ans: Epidemiological studies can be classified as observational studies & experimental studies

- **observational studies**
 - ✓ descriptive studies
 - ✓ analytical studies
 - I. ecological
 - II. cross-sectional
 - III. case-control
 - IV. cohort
 - **Experimental studies**
 - a) randomized controlled trials
 - b) field trials
 - c) community trials
- <pg 60>

b) Descriptive studies**c)**

- 1) defining the population to be studied
- 2) defining the disease under study
- 3) describing the disease by
 - time
 - place
 - person
- 4) measurement of disease
- 5) comparing with known disease
- 6) formulation of an etiological hypothesis

<K. Park pg 60>

SOLVED BYNADIYA SABIRUNIVERSITY MEDICAL AND DENTAL COLLEGE, FAISALABAD

Section 3: Epidemiology of Communicable & Non-Communicable Diseases

Supply 2003

Q1: Write short notes on Risk factors for STROKE.

Ans:

- 1) Age:** Incidence rates rises steeply with age
- 2) Sex:** The incidence rates are higher in males than females
- 3) Personal factors: Risk factors include:**
 - Hypertension Cardiac abnormalities
 - (e.g. left ventricular hypertrophy, cardiac dilatation) Diabetes
 - Smoking
 - Elevated blood lipid levels High viscosity of blood Oral contraceptives

Signs and Symptoms :

Coma Hemiplegia Paraplegia Monoplegia Nerve paresis
Sensory impairment

Transient Ischemic Attacks:

These are episodes of focal, reversible, neurological deficit of sudden onset and of less than 24 hours duration.

Annual 2004

Q1: A HEPATITIS B positive mother gave birth to a baby. How will you managed that case and what advice would you give to the house hold contacts?

Ans:

It's the condition where we use post exposure prophylaxis is recommended Via, **1)** Give hepatitis B immunoglobulins to child immediately after birth

- Dose : 0.05-0.07ml/kg body weight Schedule: 0 and 30 days
- Active vaccination is done: Vaccine: Plasma derived vaccine. Dose: ½ ml
- Schedule: 0,1 to 6 months Booster dose after five years

Q2: Write a noted on Control of DIPHTHERIA in school.

Ans:

1) Early Detection.

2) Isolation : All cases and carriers should be promptly isolated, preferably in a hospital for at least 14 days or until proved free of infection, because this is the time when passive immunity (which only lasts for 15 days) has faded and active immunity starts developing.

After this period of 15 days of segregation , active immunity rises sufficiently to protect the inoculated person from the risks of infection.

3) Treatment Cases:

a) Diphtheria antitoxin should be given without delay I/M after giving 0.2ml S/C as a test dose: In mild cases 40,000 units

In moderate cases 80,000 units. In severe cases 120,000 units.

b) Benzyl penicillin 2.5 lac units every 6 hours or erythromycin 250 mg every 6 hours for 5 to 6 days.

Carriers: Erythromycin 250 mg every 6 hours for 10 days

Contacts:

☐ If primary immunization or booster dose was received within the previous 2 years no further action

would be needed.

- ② If primary immunization or booster dose of DT was received more than 2 years before, only a booster dose of DT would be needed
- ② Non-immunized close contacts should receive prophylactic penicillin or erythromycin with 10000-2000 units of diphtheria antitoxin and actively immunized against diphtheria.
- ② Contacts should be examined daily for evidence of diphtheria for at least a week.

4) Educational Measures:

Inform the people about: Hazards of Diphtheria Mode of its transmission
Necessity of active immunization.

5) Disinfection:

Disinfection is done for all the articles in contact with patient.

Supply 2004

Q1: Do you think CHICKEN POX is a public health problem? Why?

Ans: Yes, because there is no special treatment for chicken pox, however tetracycline can be given to prevent secondary infection.

Control of Patient:

- 1) Notification of health authorities.
- 2) Isolation from school for only one week after eruption first appears.
- 3) Contact with susceptible is avoided.

Annual 2005

Q1: a) What is the significance of the YELLOW FEVER with special references Pakistan?

b) How can it be controlled?

c) How snake bite can be prevented?

Ans: Pakistan is a yellow fever receptive area i.e. an area where yellow fever does not exist, but where conditions would permit its development if introduced.

The population of Pakistan is unvaccinated and susceptible to yellow fever the vector, *Aedes aegypti* is found in abundance, monkeys here are also susceptible.

The environmental factors are favorable for the growth of *Aedes aegypti* and hence for virus of yellow fever.

The only missing link in the chain of transmission is the virus of yellow fever

b) Control measure against Spread of Yellow fever:

- 1) Travelers from endemic areas must possess a valid international certificate of vaccination against yellow fever before they enter a respective area.
- 2) If he/she does not have this certificate, then he/she is placed in quarantine for 6 days.
- 3) The aircrafts and ships arriving from endemic areas are subjected to aerosol spraying with prescribed insecticides on arrival for destruction of insect vectors.
- 4) Air ports and sea ports are kept free from breeding of insect vectors over an area of at least 400m.
- 5) Vaccination of travelers from Pakistan to yellow fever endemic areas to prevent infection.
- 6) Concurrent disinfection of the articles soiled by discharges.
- 7) Quarantine is not necessary, but child contacts should be kept under observation for 21 days

c) Prevention of Snake Bite.

- 1) Wearing knee high boots.
- 2) Torches should be used at night in snake infested areas
- 3) The residential areas must be kept clean and surveyed for holes
- 4) During camping by military and scouts they must be advised to examine their boots, beddings and sleeping bags
- 5) Stay out of tall grass

- 6) Be alert during climbing rocks
- 7) Leave snakes alone
- 8) Mass public education in first aid management of snake bite
- 9) Antivenin must be made available in health centers where large cases of snake bite present.

Q2: Write notes on Management of a pregnant lady in 1st trimester bitten by a rabid dog, previously vaccinated?

Ans: Management:

- History of bite by a rabid animal.
- Characteristics signs and symptoms.
- Antigen detection using immune fluorescence of skin biopsy & virus isolation .
- Microscopic demonstration of Negri bodies in nerve cells of brain of animal

Treatment:

- Isolation of patient and protection from bright light, noise & cold air.
- Relieve anxiety & pain by liberal use of sedatives.
- If spastic muscular contraction are present, curare like drugs are used to ensure hydration & diuresis
- Intensive therapy in the form of respiratory and cardiac support.
- Vaccine for immunization :
 - Nervous tissue Vaccine
 - Duck embryo vaccine Cell culture

Annual 2006

Q1: a) List the six important risk factors for CORONARY HEART DISEASE (CHD).

b) Name preventive measures against CHD.

Ans: a) Risk factors for CHD :

Non-modifiable:

Age
sex
family history
Genetic factors
Personality

Modifiable

Cigarette smoking
Obesity
Sedentary habits
Diabetes
Serum cholesterol
Stress

Other Minor Factors:

- Hormones (hyperestrogenemia)
- Type A personality
- Alcohol
- Oral contraceptives
- Dietary fibers
- Sucrose
- Soft water

b) Prevention of CHD

1) Population Strategy:

Principle: Small change in risk factor in total population ² Reduce the mortality.

a) Primordial prevention

it involves the preventing emergence and spread of CHD risk factors.

b) Prevention in whole populations:

it includes:

1) Dietary Changes

- Decrease fat intake 20-30% of total energy intake.

- Consumption of saturated fats less than 10% of total energy intake.
- Relation between cholesterol and HDL less than 3.5 is recommended as a goal. A reduction in dietary cholesterol to below 100mg/1000kcal/day.
- An increased complex carbohydrates use. Avoidance of alcohol
- Decrease intake of salt to 5g daily or less.

2) Smoking

The goal is to achieve a smoke-free society

3) Blood Pressure

The goal is to reduce mean population blood pressure levels by healthy lifestyle

4) Physical Activity

Regular physical activity should be a part of normal daily life.

High risk Strategy:

a) Identifying at Risk individuals:

By measuring BP, blood sugar levels, and serum cholesterol or those who have strong family history.

b) Specific Advice:

Motivate at high risk individuals to take positive actions e.g. control BP, cessation of smoking (use of nicotine gum can be tried to wean smoking), serum cholesterol concentration should be reduced

3) Secondary Prevention :

It is a continuation of primary prevention. The aim is to prevent the recurrence and progression of CHD

Principles of Secondary Prevention:

Cessation of smoking, control of HTN and DM, healthy nutrition, exercise promotion. Use of beta-blockers

Supply 2006

Q1: Name the six diseases against which CHEMOPROPHYLAXIS can be done. Mention the name of the drugs as well for each disease.

Ans: 1) Malaria:

Adults : 300mg Chloroquine base once weekly beginning 2 weeks before departure and for 4 weeks after leaving.

Children : 15mg/kg of Chloroquine base weekly. For travelers to Chloroquine resistant

P.falciparum areas:

a) Chloroquine 300mg + Proguanil 200mg daily.

b) 3 tablets of fansidar stat at first sign of fever with chill

2) Cholera:

A single I/M injection is valid for up to 6 months.

3) Yellow Fever:

Attenuated 17D strain of yellow fever virus is used for active immunization. A single dose injection is given to people going to endemic area for coming to Pakistan from yellow fever areas. It produces immunity for 6-10 years.

A single I/M dose is valid for up to 10 years.

4) Hepatitis A for stay less than 3 weeks:

Immune serum globulin 0.02ml/kg. I/M **for stay more than 3 weeks:**

Immune serum globulin 0.06 ml/kg. I/M

5) Tetanus toxoid

It is given in pregnancy and to all women of child bearing age (15-45 years) to protect mother and child

from tetanus.

In Unimmunized pregnant women, two doses are given:

- 1st dose as early as possible during pregnancy after 1st trimester, 1/2ml, I/M
- 2nd dose at least one month later, 1/2ml, I/M.
- 2nd dose should be given at least 3 weeks before delivery so that antibodies are formed.

Schedule: In child bearing age (15-45 years)

1st dose (TT1)	At any time
2nd dose (TT2)	1 months after TT1
3rd dose (TT3)	6 months after TT2
4th dose (TT4)	1 year after TT3
5th dose (TT5)	1 year after TT4

6) Rubella: it is recommended for:

All susceptible children and adolescents. girls at time of leaving school or before marriage.

Dose: A single dose 0.5ml, S/C once only at 15 months

Q2:

(a) Define QUARANTINE.

(b) List quarantinable diseases internationally? Ans:

Ans:

(a) The limitation freedom of movement of such well person or domestic animals exposed to communicable disease for a period of time not longer than the longest usual incubation period of this disease, in such a manner as to prevent effective contact with those not so exposed.

b) Quarantinable diseases :

Cholera
Plaque Yellow fever

Q3: A boy ten years reports to you with a DOG BITE on left leg. What plan of action will you take under following circumstances:

- (a) Bite is by a pet dog available with the owner
- (b) The dog was escaped.
- (c) The dog is dead.
- (d) The boy was immunized 04 month back as he was bitten by a rabid dog. Ans:
- (a) Observe the animal for 10 days

Ans: a)

- if the animal shows the symptoms of rabies, it should be humanely killed and its head removed and sent under refrigeration to a qualified laboratory for rabies examination.
- if the brain is negative by the Fluorescence
- Radio-immuno Assay (FRA) test, one can assume that the saliva contains no rabies virus and the bitten person need not to be treated.
- if the animal remains alive and healthy at the end of 10 days, there is no indication for anti-rabies treatment.

Demonstration of Negri bodies in nerve cells of brain of animal.

Mouse Inoculation Test: Emulsified brain of the suspected animal is inoculated intracerebrally of at least 4 suckling mice. If animal was infected, mice will show rabies between 6 to 8 days.

Corneal Test: It is used to detect rabies virus antigen in live animals by FRA test.

b)

- 1) Restraint of dogs in public places.
- 2) Immediate destruction of dogs and cats bitten by rabid animal.
- 3) Health education of people regarding the care of dogs and prevention of rabies .

c) Its head removed and sent under refrigeration to a . qualified laboratory for rabies examination.

d) **No**, he didn't need to be vaccinated again because Nervous tissue vaccine: serum anti-bodies appear approximately 7 days after vaccination and it takes at least about 30 days to achieve a maximum level of immunity.

The protection provided lasts for about 6 months from the date of completion of course.

Q4: Write down the dosage, route of administration and complete schedule of active immunization against the TETANUS in the following:

(a) A new born baby.

(b) A child bearing age un-married lady aged 20 years. Ans: a)

Ans:

At 6 weeks: ½ ml IM Anterolateral aspects of thigh

At 10 weeks

At 14 weeks

- Booster dose 20 to 23 months
- if baby is 24 months then DT is given only.

b) **Schedule: In child bearing age (15-45 years)**

1st	dose (TT1)	At any time
2nd	dose (TT2)	1 months after TT1
3rd	dose (TT3)	6 months after TT2
4th	dose (TT4)	1 year after TT3
5th	dose (TT5)	1 year after TT4

Supply 2007

Q1: A boy was delivered by an untrained birth attendant in a village. She cut the cord of the baby with on unsterilized dusty blade, baby dies within the seven days after developing a severe muscular spasms, arching the back and respiratory failure.

(a) What do you think was the possible cause of death?

(b) Could this death be prevented? If yes How?

Ans: a) **Tetanus** is the possible cause of death.

b) **yes**, this can be prevented.

Active Immunization: it stimulates the production of the protective antitoxin.

Preparations Available:

- **Combined Vaccine**
- **Monovalent vaccine**
 - (a) Plain or fluids (formal) toxoid
 - (b) Tetanus vaccine, adsorbed (PTATP, APT)

Two doses of tetanus toxoid adsorbed (each 0.5ml injected into the arm) given at 1-2 months interval, followed by first booster dose a year after

Q2: A man bitten by a snake presents with ptosis, slurred speech and labored respiration.

(a) Name the likely snake?

(b) Outline the steps of the management.**Ans:**

(a) Cobra.

(b) Management:**1) Allaying anxiety and fright:**

- ☐ All snakes are not poisonous
- ☐ Even poisonous snakes are not fully charged
- ☐ Even a fully charged can't always inject lethal dose

2) Prevention of spread of venom:

- ☐ Immobilization
- ☐ Application of tourniquet
- ☐ Cleansing and wounds
- ☐ Incision and suction
- ☐ Cold pack method

3) Shift the victim to the medical center.**4) Antivenin:** Specific and polyvalent 60ml, 20ml SC, 20 ml I/M, 20ml I/V**5) General Measures:**

- ☐ Artificial respiration
- ☐ Blood transfusion
- ☐ Antihistamine, adrenaline corticosteroid
- ☐ Fibrinogens 300-600mg/IV
- ☐ In Viper cases: Heparin 15000 unit
- ☐ In case of Elapids, Neostigmine 0.5mg I/V
- ☐ Anti-gas gangrene serum
- ☐ Antibiotics.
- ☐ Fluid and electrolytes.

Supply 2008

Q1: A couple presents for investigations of infertility, male 30 years old. He smokes around 10 Cigarettes per day whereas the female is only 18 and is slightly underweight. The male gives the history of Mumps infection after reaching the puberty.

a) What is the possible cause of the infertility?**b) Give the mode of "TRANSMISSION" and "IMMUNIZATION" for Mumps.****Ans:****a) Complications of Mumps**

Epididymo-orchitis: In 20 to 30% of post pubertal males, mumps is complicated by orchitis. Testicular enlargement occurs and subsides after some days. Orchitis is followed by progressive atrophy of the testis in 1/2 to 1/3 of the cases.

If bilateral atrophy occurs, subnormal sperm counts are common resulting in infertility.

b) Mode of Transmission:**Direct:**

By direct contact with infected person or by droplet infection.

Indirect:

Through freshly soiled articles with the saliva of infected people.

Immunization for Mumps:**1) Vaccination:**

Live attenuated vaccine (single or MMR) Single dose of 0.5ml I/M at 15 months or anytime later on

2) Immunoglobulins: Not effective

Annual 2009

Q1: A four year old boy was brought by her mother to a general practitioner with the history of low grade fever, Posterior auricular and cervical lymphadenopathy, Maculopapular rash was present on the body, which first appeared on the face and then spread rapidly to the trunk and extremities.

(a) What is likely diagnosis?

(b) Give the primary prevention of this disease.

Ans: a) Chicken pox

b)

- Notification to health authorities.
- Isolation from school for only one week after eruption first appear.
- Contact with susceptible is avoided.
- Concurrent disinfection of the articles soiled by discharges.
- Quarantine is not necessary, contacts should be kept under observation for 21 days.
- Tetracycline can be given to prevent secondary infection.
- Immunoglobulin: Varicella zoster immunoglobulin 1.25-5ml I/M with in 72 hours.

Vaccine: a live attenuated vaccine has approved safe and effective.

Q2: A person currently visiting Pakistan from a neighbouring country presents with severe generalized aches and pains. A maculopapular rash's found on the body with petechiae and purpuric spots. He also complains of intense retro-orbital pain particularly on eye movement.

(a) What is likely diagnosis?

(b) Give the current strategies to eradicate polio from Pakistan as recommended by WHO. |

Ans: a) Dengue fever.

b)

- Traveler should be advised to sleep under impregnated nets and to use topical repellents.
- Adult mosquito should be destroyed by sprays and breeding sites should be eradicated
- Keep flower pots dry
- Cover body and arms especially at sunrise and sunset.
- Apply mosquito repellent lotion on uncovered body parts.
- Wash water containers daily and keep them properly covered.
- So far no effective vaccine has been made.

Annual 2010

Q1: A twelve year old boy is brought to the accident department of a hospital suffering from soiled laceration on limbs after being involved in a road side traffic accident. The further gave history of complete primary immunization under expanded program on immunization (EPI)

(a) What vaccination he might need?

(b) How would you manage the case as a doctor? |

Ans: (a) He will need the vaccine of tetanus.

(b) Prevention of tetanus after injury

- 1) Thoroughly clean the wound soon after injury.
- 2) Keep prepare adrenaline solution 1 in 1000 and hydrocortisone (steroid) 100mg for coverage of anaphylactic reaction.
- 3) 0.1ml ATS is given S/C as test dose.
- 4) Observe the patient carefully at least for half an hour for any evidence of general reaction.
- 5) If there is no reaction, give 1500 IU ATS S/C
- 6) In case of reaction, give TIG I/M
- 7) In case of tetanus spasm give muscle relaxant like diazepam, Phenobarbitone or Phenytoin.
- 8) General care of the patient should be strictly done:
Bed rest In a quiet room.

Avoidance of any stimulus
Airway should be patent.
Adequate fluid and caloric intake
Good nursing care.

Q2:

- (a) What are the five 'Fs' of faeco-oral transmission of disease?
(b) Apply the above five control the typhoid (enteric fever) in a household?

Ans:

- (a)
- flies, feces, fomites, Food, fingers
- (b)
- 1) Control of flies through proper sanitation
 - 2) Control of feces through proper waste disposal system
 - 3) Control of fomites through disinfection
 - 4) Proper cooking of food and use of covered food
 - 5) Hand washing should be frequently done

Q3: A patient with uncontrolled Diabetes Mellitus had to undergo below knee amputation to a gangrene of his right foot

As a junior Doctor with specific health education advise and counseling you will offer before his discharge from the hospital.

Ans:

Treatment is based on diet. Diet and oral antidiabetic drugs.
Taking care of percentage of glycosylated Hb: 6 monthly Self care by adhering to the treatment and drug regimens. Home blood glucose monitoring.
Routine check up of blood pressure, visual acuity & weight no use of alcohol
All means of educating the patient must be applied.

Annual 2011

Q1: A person travelling from Africa landed at Karachi Airport. His international vaccination certificate indicates had received vaccine against yellow fever two days back.

- (a) Will you put him under Quarantine.
(b) Justify your answer.

Ans: (a) No,

- (b) Pakistan is a yellow fever receptive area i.e. an area where yellow fever does not exist, but where conditions would permit its development if introduced.
The population of Pakistan is unvaccinated and susceptible to yellow fever the vector, Aedes aegypti is found in abundance, monkeys here are also susceptible.
The environmental factors are favorable for the growth of Aedes aegypti and hence for virus of yellow fever.
The only missing link in the chain of transmission is the virus of yellow fever

(b) Control measure against Spread of Yellow fever:

- 1) Travelers from endemic areas must possess a valid international certificate of vaccination against yellow fever before they enter a respective area.
- 2) If he/she does not have this certificate, then he/she is placed in quarantine for 6 days.

A strain of 17D strain of yellow fever virus is used for active immunization. A single dose injection is given to people going to endemic area or coming to Pakistan from yellow fever areas. It produces immunity

for 6-10 years.

Q2: A farmer reports to you with breathing difficulty following a snake bite.

(a) Which types of snakes comes in your mind?

(b) Outline the steps of management?

Ans: (a) It's a Cobra Snake due to breathing difficulty or respiratory paralysis.

(b) Management of Snake Bite:

History:

Time of bite Description of snake

Signs and symptoms since bite

Examination:

Examination of bite site

Repeated neurological examination

Repeated check up of natural orifices for bleeding

Diagnosis of Bite:

It is done on the basis of following criteria: Findings of fang marks

- Symptoms and signs raising the suspicion of snake bite.

Laboratory tests done on aqueous washing obtained from the bite area Cholinesterase is present in washing in cases of elapid bites. Thromboplastin in sample reveals viper bite.

In sea snake bite, hyperkalemia is detected at ECG Clotting time and bleeding times are also helpful.

Treatment:

1) Allaying anxiety and fright: Reassure patient that all snakes are not poisonous and even if poisonous they may not be fully charged with the venom or may not injected lethal dose:

2) First Aid/prevention of spread of venom

- Immobilization

- If bite is on any limb apply tourniquet: 5cm towards heart tight enough but two finger may slide under the tourniquet

- Remove tourniquet for 1 min after every 30min so that little amount of venom can enter the circulation where it can be destroyed.

- If bite is on face, neck or trunk apply firm pressure over the bite.

- Cut & Suck Technique:

Make incision across the wound area and suction done with mouth (Only if there is no injury or ulcer in the mouth and also sucker should spit the saliva) or breast pump

- Wash the wounds with plenty of water.

- Cold Pack Method : Cold packs placed over the wound because decreasing temperature will reduce circulation.

3) Shift the victim to the medical center.

- Use of specific Antivenin: Polyvalent antivenin is prepared by hyperimmunising horses against venoms of four common snakes i.e. cobra, common krait, Russell's viper and saw scaled viper. A test dose of 0.1ml must be given I/D.

- 20-50ml diluted in five times normal saline given in I/V drip at the rate of 15 drops/min

- One third of the total dose given S/C at bite site. 1/3 is given I/V

- Immobilization

- Application of tourniquet

- Cleansing and wounds

- Incision and suction

- Cold pack method

4) Antivenin: Specific and polyvalent 60ml, 20ml SC, 20 ml I/M, 20ml I/V

5) General Measures:

- Artificial respiration

- Blood transfusion
- Antihistamine, adrenaline corticosteroid
- Fibrinogens 300-600mg/IV
- In Viper cases: Heparin 15000 unit
- In case of Elapids, Neostigmine 0.5mg I/V
- Anti-gas gangrene serum
- Antibiotics.
- Fluid and electrolytes.

Supply 2011

Q1: A mother reports to you with her 3 year old child limping due to post polio paralysis of left leg. She asks for vaccinations under EPI schedule as she had not got her child vaccinated before against any disease.

- (a) Will you include polio vaccine in the schedule?
(b) Justify your answer.

Ans: (a) No

(b) As, here it's mentioned here about the paralysis of left leg which is the last and 4th stages of clinical manifestation of the poliomyelitis, so now if we give the vaccine then it will be not be effective because it has done already a massive damage to the CNS by the paralysis of one or more muscle groups

Q2: A 4th class student of a school was seen by a school health medical officer with low grade fever and maculo-pappular rash behind the ears on the face.

- (a) What is probable diagnosis?
(b) What measures will you recommend for his classmates and the child himself?

Ans: (a) Measles

(b) Control of Patients and Contacts:

- Notification to the health authorities.
- Isolation for 7 days after the appearance of rash and for 14 days from school and contacts.
- Disinfection of the articles soiled by discharges.
- Thorough cleaning and fumigation of the room
- Quarantine is of no value.
- Immunizations of contacts within 2 days of exposure
- Investigations of contacts under 3 years of age
- Investigations of source of infection

Prevention of Measles:

a) Active Immunization (Vaccination) Type: Live vaccine

Age: At 9 months Route: Subcutaneous Site: Left deltoid

Dose: Single dose of 0.5ml

Reactions: Mild measles illness (fever and rash) 5 to 10 days after immunization. Fever lasts for 1-2 days and the rash for 1-3 days.

Immunity: Develops 11 to 12 days after vaccination and appears to be a long duration probably for life.

Contacts: Susceptible individuals over the age of 9-12 months may be protected against measles provided that the vaccine is given within 3 days of exposure

b) Passive Immunization:

it can be done by the administration of Immunoglobulins (human) early in the incubation period

- Dose if 0.25ml/kg body wt.
- It should be given within 3-4 days of exposure
- Live measles vaccine should be given 8-12 weeks later of passive immunization.

Annual 2012

Q1: A 30 year old I/V drug abuser reported with diarrhea, unexplained weight loss and prolonged fever. Clinical examination revealed oral thrush. Chest X-rays examination showed basal pneumonia.

Ans:

(a) AIDS (HIV)

(b)

- Education
- Blood and blood product safety
- Injection safety
- Protective sexual contacts.

Q2: A low birth weight infant is born with deafness, cardiac manifestations, cataract and cerebral palsy.

(a) What is the most probable diagnosis

(b) What preventive measures will you advised to protect the community against above given problem.

Ans: (a) Congenital Rubella Syndrome.

(b) Prevention:

RA 27/3 Vaccine (produced in human diploid fibroblasts)

Dose: A single dose 0.5ml, S/C once only at 15 months.

Also available as MMR

Contraindicated in pregnancy.

Annual 2013

Q1: Two (one boy, one girl) 4th year MBBS class students reported to you to get themselves vaccinated against tetanus. Both had complete EPI schedule in their childhood. Write complete vaccination schedule i.e primary and booster for both the students monitoring dose, route of administration and number of time vaccine required.

Ans: Combined vaccine. (DPT)

DPT: Yellow color

DT : toxoids

P : Killed vaccine

Dose: 1/2ml

Route: I/M

Site: Anterolateral aspects of right thigh

Dose	Age of Child
1st dose	6 weeks
2nd dose	10 weeks
3rd dose	14 weeks
• Booster dose	20-23 months

Annual 2013

Q1: Two (one boy, one girl) 4th year MBBS class students reported to you to get themselves vaccinated against tetanus. Both had complete EPI schedule in their childhood. Write complete vaccination schedule i.e primary and booster for both the students monitoring dose, route of administration and number of time vaccine required.

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Dose	Age of Child
1 st dose	6 weeks
2 nd dose	10 weeks
3 rd dose	14 weeks
➤ Booster dose	20-23 months

Supply 2013

Q1: A 55 year old lady going to visit her neighbor where a boy is suffering from rubella. Her un-married F.Sc. student daughter wants to accompany her.

- (a) Should the lady take this daughter with her?
 (b) Justify your answer.

Ans:

- (a) No
 (b) She shouldn't take with her because the mode of transmission of rubella is through direct droplets or droplet nuclei.

As all girls at the time of school leaving or before marriage are susceptible to rubella.

Prevention:

RA 27/3 Vaccine (produced in human diploid fibroblasts)

Dose: A single dose 0.5ml, S/C once only at 15 months.

Also available as MMR

Contraindicated in pregnancy.

Annual 2014

Q1: An 18 years old boy involved in road side traffic accident with multiple lacerated wounds was brought in Emergency Room of a tertiary care hospital. The boy was unaware of his vaccination history. What plan of action against will you follow as a casualty Medical Officer with respect to

- (a) Vaccination against tetanus.
 (b) General wound management.

Ans:

Active Immunization :

It stimulates the production of antitoxin. Preparations Available:

Combined vaccine. (DPT)

DPT: Yellow color DT : toxoids

P : Killed vaccine Dose: 1/2ml

Route: I/M

Site: Anterolateral aspects of right thigh

Dose	Age of Child
1st dose	6 weeks
2nd dose	10 weeks
3rd dose	14 weeks
Booster dose	20-23 months

Monovalent vaccine: Two doses of tetanus toxoids adsorbed (each 0.5ml injected into the arm) given at 1-2 months interval, followed by first booster dose a year after the initial two doses and second booster dose at 5th year after the 1st booster dose, providing a much better immune

response.

Tetanus vaccine, adsorbed (PTAP , APT)

Passive Immunization: This can be done by injections:

Human tetanus hyperimmunoglobulin (TIG) it is best prophylactic to use.

Dose is 250-500IU for all ages

It dose not cause serum reactions

Gives a long passive protection of upto 30 days or more.

Anti-tetanus serum (ATS)

It is prepared from horse serum.

Dose is 1500 IU given S/C after test dose.

Gives passive protection for about 7-10 days

Rapidly extracted from the body

Causes sensitivity reaction.

Active and Passive Immunization: Is given to non-immune persons, the purpose of antitoxin is for immediate temporary projections and the purpose of toxoid is for long lasting.

Antibodies: Benzathine Penicilline

(Singal dose of 1.2 mega units I/M)

b) Prevention of tetanus after injury

- 1) Thoroughly clean the wound soon after injury.
- 2) Keep prepare adrenaline solution 1 in 1000 and hydrocortisone (steroid) 100mg for coverage of anaphylactic reaction.
- 3) 0.1ml ATS is given S/C as test dose.
- 4) Observe the patient carefully at least for half an hour for any evidence of general reaction.
- 5) If there is no reaction, give 1500 IU ATS S/C
- 6) In case of reaction, give TIG I/M
- 7) Incase of tetanus spasm give muscle relaxant like diazepam, Phenobarbitone or Phenytoin.
- 8) General care of the patient should be strictly done:

Bed rest In a quiet room.

Avoidance of any stimulus

Airway should be patent.

Adequate fluid and caloric palm

Good nursing care.

Q2: A 45 year old gardener is brought in the Medical Outpatient Department with the history of high grade fever with chills for 5 days, intense headache, muscle and joints pain, retro-orbital pain for last three days and photophobia. He gave a history of spontaneous bleeding from gums. On examination, maculopapular rash was present on the chest and trunk. His lab report showed Thrombocytopenia, platelets < 100,000/mm cube and a raised hematocrit.

(a) Apply epidemiological triad on the disease.

(b) What environmental sanitation measures including roof top management should be taken to prevent the disease epidemic.

Ans:

a) Dengue fever.

Host agent and environment. Host : Man

Agent: dengue virus And female mosquito anopheles Environment usually rainy season

b) Traveler should be advised to sleep under impregnated nets and to use topical repellents.

- Adult mosquito should be destroy by sprays and breeding sites should be eradicated
- Keep flower pots dry
- Cover body and arms especially at sunrise and sunset.

- Apply mosquito repellent lotion on uncovered body parts.
 - Wash water containers daily and keep them properly covered.
- So far no effective vaccine has been made.

Supply 2014

Q1: A nurse (female) 20 years of age was appointed in nursery section pediatrics unit. The professor asked her 1st to get herself tested for "Schick test", which gave positive result. She then got her throat swab cultured, which was negative. In such scenario:

(a) What is the status of the staff nurse against diphtheria?

(b) Write your advice for the nurse in the light of your interpretation.

Ans: (a) As, Schick test is positive for Diphtheria so, she is having a diphtheria. (Cutaneous or Nasal Diphtheria)

(b) Interpretation of Result (Positive Reaction)

- 1) A circumscribed red flush of 10-50mm diameter appears within 24-36 hours reaching its maximum by 4th and 7th day in test arm. This slowly fades into a brown patch and the skin desquamates.
- 2) The control arm shows no change
- 3) The person is susceptible to diphtheria.

Supply 2015

Q1 : Prevalence of coronary heart diseases is increasing in Pakistan. What are the guidelines for preventing coronary heart diseases?

Ans:

Prevention of CHD 1) Population Strategy:

Principle: Small change in risk factor in total population → Reduce the mortality. a) Primordial prevention. It involves the preventing emergence and spread of CHD risk factors. b) Prevention in whole populations:
it includes:

1) Dietary Changes

Decrease fat intake 20-30% of total energy intake.

Consumption of saturated fats less than 10% of total energy intake.

Relation between cholesterol and HDL less than 3.5 is recommended as a goal A reduction dietary cholesterol to below 100mg/1000kcal/day.

An increased complex carbohydrates use. Avoidance of alcohol

Decrease intake of salt to 5g daily or less.

2) Smoking

the goal is to achieve smoke free society

3) Blood Pressure

The goal is to reduce mean population blood pressure levels by healthy lifestyle

4) Physical Activity

Regular physical activity should be a part of normal daily life.

High risk Strategy:

a) Identifying at Risk individuals:

by measuring BP, blood sugar levels, and serum cholesterol or those who have strong family history.

b) Specific Advice:

Motivate at high risk individuals to take positive actions e.g. control BP, cessation of smoking (use of nicotine gum can be tried to wean smoking), serum cholesterol concentration should be reduced

3) Secondary Prevention :

it is a continuation of primary prevention. The aim is to prevent the recurrence and progression of CHD

Principles of Secondary Prevention:

Cessation of smoking, control of HTN and DM, healthy nutrition, exercise promotion. Use of beta-blockers

Complications:

- Heart Failure
- Death.

Q2: a) Why yellow fever is of public health concern in Pakistan? Give comments.

b) What are the measures to control the spread of yellow fever in Pakistan?

Ans: a) Pakistan is a yellow fever receptive area i.e. an area where yellow fever does not exist, but where conditions would permit its development if introduced.

The population of Pakistan is unvaccinated and susceptible to yellow fever the vector, *Aedes aegypti* is found in abundance, monkeys here are also susceptible.

The environmental factors are favorable for the growth of *Aedes aegypti* and hence for virus of yellow fever.

The only missing link in the chain of transmission is the virus of yellow fever

(b) Control measure against Spread of Yellow fever:

- 1) Travelers from endemic areas must possess a valid international certificate of vaccination against yellow fever before they enter a respective area.
- 2) If he/she does not have this certificate, then he/she is placed in quarantine for 6 days.
- 3) The aircrafts and ships arriving from endemic areas are subjected to aerosol spraying with prescribed insecticides on arrival for destruction of insect vectors.
- 4) Air ports and sea ports are kept free from breeding of insect vectors over an area of at least 400m.
- 5) Vaccination of travelers from Pakistan to yellow fever endemic areas to prevent infection.

Q3: Mr. X, 22 year old, married working as a laboratory technician got a needle stick injury while drawing a blood from a known case of Hepatitis B.

a) Discuss prophylaxis against Hepatitis B in this particularly case?

b) What measures should be taken to protect other laboratory workers?

Ans:

a)

We gave pre-exposure prophylaxis to the high risks people (doctors, nurse and lab technicians)

Vaccination should be done in order to protect others laboratory workers, vaccines available are:

- 1) Plasma derived
- 2) Recombinant DNA

Schedule for Hepatitis B vaccines:

it contains a purified fraction of microorganism sufficient to stimulate protective immunity.

Schedules: Three schedules of vaccination are there

- a) 0,1 and 2 months. Booster dose after 1 year
- b) 0,1 and 6 months. Booster dose after 5 years
- c) 0,7 and 21 days. Booster dose after 1 year

Now hepatitis B vaccines are also include in EPI, EPI follows 1st schedule (0,1,2 months)

b) Prevention Use safety measures. Good personal hygiene. Careful blood handling.

Q4: Pakistan is still having poliomyelitis.

a) What are the causes of failure in eradication of poliomyelitis in Pakistan?

b) How can we achieve eradication of polio in near future?

Ans: a) Three type of stain causes polio. Type 1, 2 and 3. There are two types of vaccines against polio.

OPV (Oral Polio Vaccine) : OPV is given orally and is called sabin It is the cheaper, easily given, more

effective , given both intestinal and systemic immunity.

IPV (Injectable Polio Vaccine) : IPV is given parentally and is called salk. It is costly gives only systemic protection and trained persons are required for its administration. Polio vaccine is also known as polyvalent or trivalent vaccine.

"if a child is suffering from polio, still polio, vaccine is given, as it is not clear which stain of polio virus is active."

Causes of Failure of Oral Polio Vaccine (OPV) in Pakistan

- 1) Related to Vaccine:
 - Faulty preparation
 - Faulty technique or storage place Contamination
- 2) Related to Child:
 - Child is suffering from diarrhea or dysentery
 - Immunosuppressed child
 - Inter current enterovirus infections
 - Presence of non-specific inhibitors in saliva
- 3) Related to Mode of Administration:
 - Faulty technique of administration Spit out the vaccine on first attempt
- 4) Related to Mother:
 - Interference by anti-bodies present in breast milk
 - Unawareness of mother about the immunization schedule
 - Lack of education
- 5) Related to Immunizing Staff:
 - Not properly trained Careless staff
- 6) Related to Health Sector:
 - Health sector not providing vaccine in an adequate amount according to need. Lack of establishment of vaccine centers
- 7) Lack of Community Participation:
 - Lack of education and knowledge about vaccination.

b) The vaccine progeny is secreted in the faeces and secondary spread occurs to the house hold contacts and susceptible contacts in the community. Non-immunized persons may therefore, be immunized. Thus widespread herd immunity results even if only approximately 66% of the community is immunized.

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Section 4: Biostatistics

Supply 2003

Q1: Describe in detail the normal or gaussian curve and its implications in interpretation of statistical data.

Ans:

- The standard normal curve is a smooth, bell shaped, perfectly symmetrical nor curve , based on an in finitely large number of observations
- The total area of the curve is 1 , its mean is zero and its standard deviation is 1.
- The mean , median and mode all coincide.

Interpretation:

It is used to interpret probability of the data falling in within standard deviations

- 68% of values fall in ± 1 SD
- 95% of values fall in ± 2 SD
- 99.7% of values fall in ± 3 SD

For example, if we take area covered by $\pm SD$, then 95% values fall in it. So probability of values to fall outside of this area will be $1/20$ or 0.05

Q2: What are various tests of significance. Describe standard error of proportion.

Ans:

Tests of significance:

- i) Standard error of mean
- ii) standard error of proportion
- iii) standard error of difference
- iv) Standard error of difference between two proportions

Standard Error of Proportion:

It is used to know the significance of difference b/w two proportions. For example, if "p" and "q" are two readings taken differently of a proportion from n population, then standard error of proportion will be

$$\text{Standard Error of proportion} = \sqrt{(pq/n)}$$

Supply 2004

Q1: Construct a frequency distribution table form the following data of patients in a hospital.

Ans:

1,2,3,4,4,5,6,6,7,7,8,9,11,11,12,15,15,18,19,22,25,25,27,28,28,29,32,33,35,37,37,39,39,40,43,43,48,48,50,51,52,52,57,57,58,58,58,59

Age Group	Frequency
0-10	12
11-20	7
21-30	7
31-40	8
41-50	5
51-60	9

Annual 2005

Q1: Write a note on normal distribution curve.

Ans: See Q1 in Supply 2003.

Supply 2006

Q1: Calculate the mean , median , mode of the following data.

8,10,12,12,12,12,13,14,15,16,17,20,22,29

Ans: n=14

Mean:

Mean = Sum of values / number of values

$$= 212/14$$

$$= 15.14$$

Mode: Mode is 12

Median: Median = $(13+14)/2 = 13.5$

Annual 2007

Q1: The total number of students in a private school was 123. There were ten classes with different strength. A survey was conducted to assess the number of students in each class. The data provided was 10,10,10,10,12,12,13,14,15,17

Calculate measure of central tendency in above data

Ans: n=10

Mean: Mean = sum of values / number of values

$$= 123/10$$

$$= 12.3$$

Median: $(12+12)/2 = 12$

Mode: 10

Supply 2008

Q1: a) What are the characteristics of a normal distribution curve?

b) Elaborate the distribution of observations around the mean in the normal distribution curve.

Ans: a)

- The standard normal curve is a smooth, bell shaped, perfectly symmetrical nor curve , based on an infinitely large number of observations
- The total area of the curve is 1 , its mean is zero and its standard deviation is 1.
- The mean , median and mode all coincide.

Distribution of observations:

- 68% of observations fall in ± 1 SD
- 95% of observations fall in ± 2 SD
- 99.7% of observations fall in ± 3 SD

For example, if we take area covered by ± 2 SD , then 95% values fall in it. So probability of values to fall outside of this area will be $1/20$ or 0.05

Annual 2009

Q1: The record of labour room from a hospital showed that in the month of april the total deliveries were 150 and 15 newborns were low birth weight. Their weights were as follows

1.3,1.7,1.8,1.8,1.9,2.0,2.1,2.1,2.2,2.2,2.2,2.2,2.3,2.4,2.4

a) Calculate the measure of central tendencies.

b) Name the type of skewness in data

Ans: n=15

Mean: Mean = Sum/ total number

$$= 30.6 / 15$$

$$= 2.04$$

Median: 2.1

Mode: 2.2

b) Data is positively skewed

Annual 2010

Q1: a) What is the difference b/w data and information?

b) What are the different ways of graphically presenting the quantitative data?

Ans: a)

Data: Collection of observations in a scientific way is called data

Information: A meaningful data is called information

b) Tables, charts, diagrams, pictures, Graphs, special curves

Annual 2013

Q1: A study was conducted on 100 pregnant women to determine the prevalence of anemia in pregnancy. The mean hemoglobin level was 12 gm/dl with standard deviation of +2

a) What will be the variance in this sample?

b) Calculate the standard error

Ans:

a) **Variance = Square of Standard deviation**
 $= (2)^2 = 4$

b) **Standard Error = S/\sqrt{n}**
 $= 2/\sqrt{100}$
 $= 2/10 = 0.2$

Annual 2014

Q1: a) Enlist measures of dispersion

b) Calculate standard deviation

1,2,4,7,10,12

Ans:

a) Measures of dispersion:

- Range
- Mean Deviation
- Standard Deviation

b)

No of Observation (n)	Value (X)	Mean (\bar{X})	$X - \bar{X}$	$(X - \bar{X})^2$
1	1	6	-5	25
2	2	6	-4	16
3	4	6	-2	4
4	7	6	1	1
5	10	6	4	16
6	12	6	6	36

$$\Sigma(X - \bar{X})^2 = 98$$

$$S.D. = \sqrt{\Sigma(X - \bar{X})^2 / n}$$

$$S.D. = \pm 4.04$$

Supply 2015

Q1: a) What is the normal distribution curve?

b) In 9 families , the numbers of children per family were 4,6,2,2,4,3,2,1,7. Calculate the mean , median , mode from this data.

Ans: a)

- The standard normal distribution curve is a smooth, bell shaped, perfectly symmetrical nor curve , based on an in finitely large number of observations
- The total area of the curve is 1 , its mean is zero and its standard deviation is 1.
- The mean , median and mode all coincide.

b)

Mean = Sum/ total no
= $31/9 = 3.44$

Mode = 2

Median= 3

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Section 5: Demography, PHC , Rural Health, Screening & Sampling

Annual 2004

Q1: Write note on demographic trap.

Ans:

Ecosystem:

It is a unit of ecology. It consists of a well-defined area containing living organisms. It may be as big as a desert and as small as a droplet of water. The countries that are at a stage of imbalance, they are endangering their ecosystem. They must rapidly move over into new balance otherwise they will be entrapped in demographic trap which would be disastrous.

1ST PHASE:

The earlier they move into new balance the better it would be for their ecosystem. Normally it should be the ability of environment to support its growth but it is possible only if growth is in limits. The countries that are in stage of imbalance they should rapidly move over into new balance. Now the countries who are in stage of imbalance they face the expanded human demands within the sustainable yield.

2nd PHASE:

In this phase, the expanding human demands exceed the sustainable yield and are still increased. Biological reservoirs are used up.

3rd PHASE:

In this phase population is so increased and forced reduction in human resources. Eventually, the ecosystem collapse.

Annual 2005

Q1: a) Define demography.

b) What do you understand by determinants of fertility?

c) How will you differentiate between general and total fertility rates?

Ans:

a) Demography is defined as:

'The science of population and mathematical knowledge of population changes and is concerned with size, structure, distribution and changes in population'

b)

The factors which promote fertility are denoted as determinants of fertility:

- Age at marriage
- Duration of married life
- Spacing of children
- Education
- Economic system
- Religion
- Nutrition
- Family planning

c)

General fertility rate is a refined measure over CBR, because it only includes those women who are in their reproductive ages.

The average number of children women would have if she was to pass through her reproductive years bearing children at same

	rates as woman now in each age group.
GFR= number of live births in a year/no. of women age 15-49yrs*1000	TFR=sum of ASFR*5

Annual 2006

Q1: Explain demographic transition with the help of diagram.

Ans: 'Moving from a stage of high birth rate and a high death rate to a low birth rate and low death rate is called demographic transition.'

First stage is called as old balance and second stage is called as new balance. in between these two is stage of imbalance.

A. OLD BALANCE:

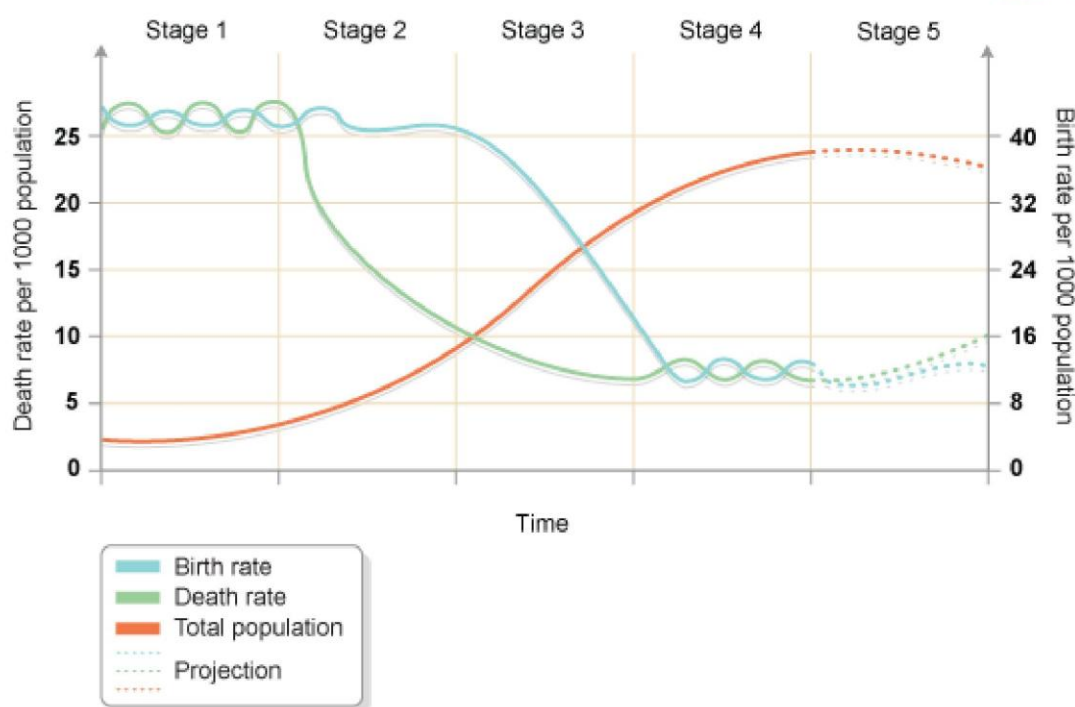
In old balance since death has to be replaced by births a large number of births are required to compensate large number of deaths.

B. NEW BALANCE:

It represents the improved condition of human efficiency and health with few deaths production of health with few and industrial commodities and life style is more comfortable.

C. IMBALANCE:

It is stage of natural increase which leads to population explosion. This growth is helpful for under populated nations which need more manpower expanding market greater military power. When it is too fast it leads to economic political and social chaos.



Q2: Briefly explain the principles of primary health care.

Ans:

1. **Effectiveness:** for a program to be effective :

It should have favorable effect.

It should be extended to which underlying problems has been prevented.

It reflects the degree of achievement.

2. **Equity:** Everyone is entitled to health care but according to need of people irrespective of their ability to pay. Because need is always different for different people.

3. **Efficiency:** It is an experience of the relationship between the result obtained from health program efforts spent in the form of human, financial and other resources.

4. **Accessibility:** Primary health care services should be within an easy access.
5. **Affordability:** It should be of low cost so that the poor can make use of the services.
6. **Acceptability:** Services should be acceptable.
7. **Community participation:** The involvement of individuals, families and communities in promotion of their own health and welfare is an essential ingredient of PHC.
8. **Appropriate:** Technology is appropriate only when it fulfills 4 A,S:
 - Available
 - Affordable
 - Accessible
 - Acceptable

Q3: Explain systemic random sampling with examples.

Ans: Systematic random sampling is a type of probability sampling technique. With the systematic random sample, there is an equal chance (probability) of selecting each unit from the sampling starts by selecting an element from the list at random and then every kth element in the frame is selected, where k, the sampling interval (sometimes known as the skip): this is calculated as:

$$k = N \div n$$

Where n is the sample size, and N is the population size.

Using this procedure each element in the population has a known and equal probability of selection. This makes systematic sampling functionally similar to simple random sampling. It is however, much more efficient (if variance within systematic sample is more than variance of population). within the population when creating the sample.

Example: Suppose a supermarket wants to study buying habits of their customers, then using systematic sampling they can choose every 10th or 15th customer entering the supermarket and conduct the study on this sample.

Q4: Enlist six criteria's which made a disease suitable for screening.

- Ans:**
1. The condition sought should be an important health problem: in general prevalence should be high.
 2. There should be recognizable latent or early symptomatic stage.
 3. The natural history of the condition including development from latent to declared disease should be adequately understood.
 4. There is a test that can detect the disease.
 5. Effective treatment.
 6. Expected benefits of early detection.

Annual 2007

Q1: What is the momentum of population growth?

Ans: It means the greater the growth rate; the greater would be population and difficult to stop population momentum.

Population momentum refers to population growth at the national level that would occur even if levels of childbearing immediately declined to replacement level. For countries with above-replacement fertility (greater than 2.1 children per woman), population momentum represents natural increase to the population.

$$\begin{aligned} \text{Population momentum of Pakistan} &= mv \\ &= 145 \times 2.8 (\text{population} \times \text{growth rate}) \end{aligned}$$

Q2: Enlist the determinants of fertility.

Ans:

- Age at marriage
- Duration of married life
- Spacing of children
- Education
- Economic system
- Religion
- Nutrition
- Family planning

Supply 2007

Q1: Population of Pakistan is expanding at an explosive rate giving rise to many problems giving rise to many problems relating to health education and resources.

A) How will you differentiate between growth rate and natural increase?

B) How will you calculate the population doubling time?

Ans:

a)

Growth rate	Natural increase
It is the difference between crude birth rate and crude death rate. Growth rate=CBR-CDR	In demographics, the rate of natural increase (RNI) is the crude birth rate minus the crude death rate of a population. The formula for the rate of natural increase is: (Crude birth rate – Crude death rate) / 10, where birth and death rates are in per mil.

b)

'It is approximate time during which population of a country will be approximately doubled.'

$$\text{PDT} = 70 / \text{GROWTH RATE}$$

Population growth rate of Pakistan is:

$$\text{PDT} = 70 / 2.8$$

$$= 25 \text{ Years}$$

Annual 2008

Q1: Secondary health, Punjab has recently inaugurated a health care facility in a small village near Gujranwala. It will provide service to a population of 50,000-10,000 in an area of 24-40km.(2)

a) Categorize this health care facility.

b) Enlist the service that will be provided at this center.

Ans: a) BHU

b)

- MCH services and advices on food and nutrition.
- Immunization
- Diarrheal disease control
- Malaria control
- Sanitation
- Family planning
- Health education
- Community diseases control program

Annual 2009

Q1: In a remote village, a basic health unit is present but it is not functional on account of non-availability of staff, so the village people go to a tertiary care hospital if the need arises:(2)

a) Does the situation indicate integration of health system?

b) List the services that should be provided at a BHU.

Ans: a) No because all systems of BHUs and RHCs Tehsil Hospital and finally District Headquarter hospital is designated as integrated rural health complex.

b)

- MCH services and advice on food and nutrition.
- Immunization through EPI.
- Diarrheal disease control.
- Malaria control
- Sanitation
- Family planning.
- Health education
- Community diseases control program.
- Acute respiratory infections control program.
- Outreach services to pregnant mothers through TBA'S and LHW'S.

Q2:A mother with normal obstetric history delivered a baby at her home by a trained birth attendant this birth attendant was in close liaison with the doctors at the rural health care.(2)

a) Name the type of health service

b) Write the advantage and disadvantage of this practice.

Ans: a) domiciliary care

b)

Advantages:

- Less expensive
- No tension of going to hospital
- Mother satisfaction
- Chances of cross infections are rare

Disadvantages:

- Less medical care
- Not fully safe
- Diet may be neglected

Annual 2010

Q1: Demography deals with five demographic processes.

a) Name them?

b) What are implications of high population growth?

Ans: a)

1. Mortality
2. Fertility
3. Migration
4. Marriage
5. Social

b)

- Inadequate amount of food, shelter and clothing.
- Poverty
- Unemployment
- Lack of health facilities

- Insufficient water supply
- Malnutrition
- Insanitation of environment
- Overcrowding of houses
- Global warming
- Deforestation

Annual 2011

Q1: Public health engineering department team visited a village where they were interested to construct latrines to prevent open defecation practice but were facing the problem of shortage of funds. After discussion the people of the village offered all types of help and resources.(2)

a) Which principle of primary health care is operative in above scenario?

b) Write briefly three other principles of PHC with examples.

Ans: a) Community Participation.

b)

- **Equity:** Everyone is entitled to health care but according to need of people irrespective of their ability to pay. Because need is always different for different people.
- **Accessibility:** Primary health care services should be within an easy access.
- **Affordability:** It should be of low cost, so poor can make use of these services.

Q2: In a village with 50,000 population, total annual Births are recorded to be 3,000.while total deaths are 1,000.total infant deaths are 200 in that year. (No migration too place during this year.)(1)

a) Calculate annual population growth rate %(taking migration as zero) and vital index.

b) Interpret your results.

$$\begin{aligned}\text{Vital index} &= \frac{\text{No. of live births in a specified period}}{\text{at a specific place/No. of deaths at the same place and period}} \times 100 \\ &= \frac{3000}{1000} \times 100 \\ &= 3 \times 100 \\ &= 300\end{aligned}$$

$$\begin{aligned}\text{Annual Population growth rate} &= \frac{\text{birth-death} \times 100}{\text{total population}} \\ &= \frac{3000-1000}{50000} \times 100 \\ &= 4\%\end{aligned}$$

b)

Population growth rate is 4% which means that the population is growing at the rate of 4% and will double in 2 years.

Vital index is indicator of population growth.

- **If vital index is 100:** it means birth and death are equal.
- **If vital index is above 100:** it means births are more than deaths and population is increasing.

Q3: To conduct a study in city the population was first divided into different group and sample was taken from each group on proportionate basis.(3)

a) Name sampling technique used in above study.

b) Name any three non-probability sampling techniques.

Ans: a) Cluster sampling

b) Snow ball sampling

- Purposive sampling
- Quota sampling

Annual 2012

Q1: In a village development project, manual labor was provided by the villagers and consultancies were provided by different departments (health, education, agriculture and livestock departments).(2)

a) Which principles of primary health care are operated here?

b) Enlist at least 6 components of primary health care.

Ans: a) Intersectoral co-ordination.

b)

1. Equity
2. Effectiveness
3. Efficiency
4. Accessibility
5. Affordability
6. Community participation

Q2: Pakistan has reduced both birth rate and death rate, but despite all efforts birth rate is still higher than the death rates.(1)

A) Keeping in view the above transition which state of demographic Pakistan is in?

B) Name the other stages of demographic transition.

Ans: a) 3rd stage late expanding

- b)**
- 1st stage is high stationary
 - 2nd stage is early expanding
 - 4th stage is low stationary
 - 5th stage is declining stage

Q3: To evaluate the teaching methodology, opinion of final year MBBS students is to be assessed. The total number of student in final year class is 150.the desire sample size is 30.(3)

a) Write the most appropriate sampling technique.

b) Write procedure for selected technique.

Ans: a) Systemic random sampling

b) it is done by picking 5th or 10th unit at a regular interval.

- We decide to take 5% sample.
- The students are numbered first
- Then a number is selected at random from 1 to 10 (say 4)
- Then every 10th number is selected from that point onward 4, 14, 24& so on.
- By this method each unit in the sampling frame would have equal chance of being selected.
- But the number of possible samples greatly reduced.
- How to calculate sample interval;

$$K = \frac{\text{TOTAL POPULATION}}{\text{SAMPLE SIZE DESIRED}}$$
 Where K = sample interval

Annual 2014

Q1: a) Define primary health care. Enlist its 8 components.(2)

b) In a village of Sindh where under five mortality was high, a local high up donated a room and furniture to set a child health Centre, local volunteers were trained to provide counselling services to mothers regarding prevention and treatment of diarrhea, breast feeding and weaning. Briefly discuss two principles of PHC that were taken into account for providing these services.

Ans: 'Primary health care is an essential health care made universally accessible to individuals and families in the community by means acceptable to them through their full participation and at a cost that the community and country can afford.'

1. Essential drugs

2. MCH and FP
3. Immunization
4. Nutrition and sanitation
5. Mental health
6. Health education
7. Treatment of common diseases.
8. Prevention and control of common diseases.

b)

1. Community participation: The involvement of individuals, families and communities in promotion of their own health and welfare is an essential ingredient of PHC.

2. Intersectoral coordination: Health cannot be attained by the health sector alone. It requires coordination and cooperation between health sectors and other health related groups.e.g. housing, sanitation, food and agriculture, social welfare.

Q2: The hypothetical population of a developed country is as follows:(1)

1. Population under 15 years of age:11,245,500.
2. Population above 65 years of age:9,015,600.
3. Population in age bracket 15-64 years:38,232,800.

a) Calculate dependency ratio.

b) What does dependency ratio indicates?

Ans: Dependency ratio= children +elderly/working aged*100
$$= \frac{11245500 + 9015600}{38232800} \times 100$$
$$= 52.99\%$$

b) It means that for every 100 persons in economically active ages there are 53 dependents.

SOLVED BY

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Section 6: Environmental Health

Supply 2003

Q1: Write short note on noise pollution?

Ans:

Noise pollution:

Noise is defined as "unwanted sound". A better definition of noise is "wrong sound in the wrong place at the wrong time"

Sources of noise:

- Automobiles
- Factories
- Aircrafts
- Industries
- Use of pressure horns
- Recreational use of loud speakers etc

Effects of noise pollution:

1. Auditory effects:

a) Auditory fatigue: appears in the 90 dB regions and is greatest at 4000 Hz

b) Deafness:

Temporary deafness: appears in frequency range of 4000-6000 Hz. Disappears after sometime

Permanent deafness: appear after repeated or continuous exposure to noise around 100 dB.

Exposure to noise above 160 dB may rupture tympanic membrane.

2. Non-auditory effects:

a) Interference with speech

b) Annoyance

c) Efficiency: it decreases because there is loss of concentration due to noise,

d) Psychological changes:

- I. Rise in blood pressure
- II. Rise in intracranial pressure
- III. Rise in heart rate
- IV. Increased sweating
- V. Giddiness, nausea, fatigue
- VI. Visual disturbances
- VII. Disturbed sleep

Measures to control noise pollution in cities:

1. Careful planning of cities:

- a) Division of city into zones with separation of area concerned with industry and transport
- b) Separation of residential area from main streets by means of wide green belts
- c) Widening of main streets to reduce the level of noise penetration into dwellings

2. Control of vehicles:

- a) Heavy vehicles should not be routed into narrow streets
- b) Vehicular traffic on residential area should be reduced
- c) Indiscriminate blowing of horn and use of pressure horn should be prohibited

3. To improve acoustic insulation of buildings: buildings should be sound-proof where necessary

4. Industries and railways: special areas must be earmarked, outside residential areas, for railways, marshalling yards and similar installations.

5. Protection of exposed person:

- a) Hearing protection is recommended for all workers who are consistently exposed to noise louder than 85 Db.
 - b) Workers must be regularly rotated from noisy areas to comparatively quiet posts in factories
 - c) Periodical audiogram check-ups and use of ear plugs and ear muffs are also essential
6. Legislation: many states have adopted legislation providing for control of noise, which are applicable to wide variety of noise.
7. Education: education through all available media is needed to highlight the importance of noise as a community hazard.

(K. park pg 689)

Q2: Write short note on ionizing radiations effects?

Ans:

1. Somatic effects:

a) Immediate effects:

- Radiation sickness
- Acute radiation syndrome: alopecia, dark complexion, removal of sub-cutaneous fat, softening of muscles

b) Delayed effects:

- Leukemia
- Carcinogenesis
- Fetal developmental abnormalities
- Shortening of life
- Malignancies
- Death

c) Dose and effects:

- <5 rad: no immediate observable effects
- ~5 rad to 50 rad: slight blood changes may be detected by medical evaluation
- ~50 rad to 150 rad: slight blood changes will be noted and symptoms of nausea, vomiting, fatigue etc
- ~150 rad to 1100 rad: severe blood changes. Symptoms appear immediately. Approximately 2 weeks later, some of those exposed may die.
- ~1100 rad to 2000 rad: probability of death increases to 100% within 1 to 2 weeks
- >2000 rad: death is a certainty.
- Above 5000 rad: CNS can no longer control the body functions, including breathing and blood circulation.

2. Genetic effects:

- Manifest in next generation
- Result from injury to chromosome e.g. point mutation
- Example: deformed limbs in children of affected parents

Supply 2004

Q1: which indicators are used to assess the biological and chemical hazards which may be produced by water?

Ans:

Biological indicators:

- Bacteriological indicators:
These are
 - E. coli and coliform group
 - Fecal streptococci
 - Clostridium perfringens

- Viral indicators:
Drinking water should be free from any virus infective to men
- Protozoa:
Drinking water should be free from any pathogenic protozoa
- Helminthes:
Infective stages like mature larva or fertilized eggs should be absent from drinking water.

Chemical indicators:

- Ph: an acceptable pH of drinking water is 6.5 to 8.5
- Chlorides: standard is 200 mg/L. maximum permissible level is 600 mg/L
- Hardness: less than 300 mg/L
- Nitrates: recommended maximum limit of conc. Is 50mg/L
- Nitrites: recommended maximum level of conc. Is 3mg/L
- Ammonia: ammonia levels above 1.5 mg/L will give rise to consumer complaints.
- Dissolved oxygen
- Absorbed oxygen: oxygen absorbed at 37 C in 3 hours should not be more than 1 mg/L

Annual 2005

Q1: a) define Portable water?

b) Enlist the diseases which are transmitted through water?

c) Describe briefly the methods of chlorination of water?

Ans:

a) Portable water:

Water whose quality is such that it can be used for drinking purpose is known as portable water.

b) Diseases:

- Biological:
Those caused by presence of an infective agent
 - Viral: hep. A, hep. B , poliomyelitis, rotavirus
 - Bacterial: typhoid fever, bacillary dysentery, E.coli, cholera
 - Protozoal: amoebiasis, giardiasis
 - Helminthic: round worm, thread worm, hydatid disease.
 - Leptospiral: weil's disease

Those due to presence of an aquatic host

- Snail: schistosomiasis
- Cyclops: fish tape worm, guinea worm

- Chemical:
 - Goiter due to iodine deficiency
 - Dental mottling due to high levels of fluorides
 - Methaemoglobinemia due to high levels of nitrates
 - Nephropathy due to cadmium
 - Black foot disease, skin and lung cancer due to arsenic (K.park pg 659)

c) Methods of chlorination of water:

- By means of chlorine gas
It is a cheaper method, quick in action, efficient and easy to apply. Chlorinating equipment is required to apply chlorine gas to water.
- By means of chloramines:
 - They are loose compounds of chlorine and ammonia in a ratio of 4:1
 - They have slower action than chlorine and give more persistent type of residual chlorine
 - They have less tendency to produce chlorinous taste

- In this method, initially ammonia is added then chlorine is added
- By means of perchloron (high test hypochlorite HTH):
 - It is a calcium compound which carries 60-70% of available chlorine
 - Common preparations are sodium hypochlorite and chlorides of lime or bleaching powder,

Annual 2006

Q1: a) define "safe and wholesome" water?

b) Name four methods along with brief explanation for purification of water at domestic level?

Ans:

a) Safe and wholesome water:

Water intended for human consumption should be both safe and wholesome. This has been defined as water that is

- Free from pathogenic agents
- Free from harmful chemical substances
- Pleasant to taste i.e. free from color and odour
- Usable for domestic purpose

b) Purification of water at domestic level:

- Boiling:
 - Water should be boiled for 5-10 min
 - It removes temporary hardness
 - It kills bacteria, spores, cysts, ova, and yield sterilized water
 - Taste is altered but is harmless
- Chemical disinfection:
 - Bleaching powder:
It is a white amorphous powder with a pungent smell of chlorine.
One cup (250g) of laundry bleach is mixed with 3 cups (750 ml) of water to make 1 liter. 3 drops of soln. is added to 1 L of water for disinfection. Contact period is 30-60 min. if water is badly polluted, 6 drops may be used in 1 L of water
 - Chlorine solution:
This soln. should be kept in dark cool and dry places in a closed container
 - Chlorine tablets:
These are available as Halazone tablets. 1 tablet of 0.5 g is sufficient for 20 liters of water
 - Iodine:
It is used in emergency disinfection
2 drops of 2% ethanol soln. of iodine is used for 1 L of water
Contact period is 20-30 min
 - Potassium permanganate:
Powerful oxidizing agent but not recommended as it alters color, smell and taste
- Filtration:
Following domestic filters are used:
 - Pasteur chamber land filter
 - Berkefeld filter
 - Katadyn filter
 - Meta filter and stellar filter

Supply 2006

Q1: a) what is the difference between toxin and toxoid?

b) how will u detect source of contamination of well water?

Ans:

a)

<u>TOXIN</u>	<u>TOXOID</u>
1. a toxin is a poison made by other organisms which can make us sick or kill us.	1. a toxoid is an inactivated or attenuated toxin
2. a toxin is both toxic and immunogenic	2. a toxoid is no longer toxic but it is still as immunogenic as the toxin from which it is derived
3. when these antibodies react with the toxin, they will inactivate it	3. the immune system is capable of responding to toxoid and producing antibodies that will react with both the toxoid and the original toxin

a) Source of contamination of well:

Sampling must be done in order to find out the source of pollution in a well. For this purpose, tie a sample bottle with a rope. Use a stone or pipe of metal weighing about 500 gm as the weight and attach the tube bottle just above it. After removing the cap aseptically, lower the bottle into the well to a depth of 1m. when no more air bubbles rise to the surface, take the bottle out of the well and carefully replace the cap (excel by naved alam)

A bottle with a string attached to the neck which is fully wrapped in paper and sterilized should be used. Before taking the sample, paper cover should be removed, taking care not to allow the sides of the bottle to come in contact with anything. Another long clean string should be tied to the end of sterilized string. And the bottle is lowered into the water and allowed to fill up. The bottle should be then raised and the stopper with cover replaced. (K.park page 677)

Record the following information on the bottle

- Source of water supply
- Date, place and time of sampling
- Geological information of soil, if available
- Depth and diameter of well
- Any suspected source of pollution in vicinity
- Recent rainfall if there
- Whether any method of purification is used

Sample is then sent for physical, chemical and bacteriological examination

Annual 2007

Q1: a) define ionizing radiations?

b) Enumerate the radiation hazards faced by the health professionals in radiology department of the hospital?

Ans:

a) Ionizing radiations:

The term "ionizing radiation" is applies to radiation which has the ability to penetrate tissue and deposit its energy within them.

Ionizing radiations are divided into 2 main groups:

1. Electromagnetic radiations: X-rays, gamma rays
2. Corpuscular radiations: alpha particles, beta particles

b) Radiation hazards:

I. Somatic effects:

a) Immediate effects:

- Radiation sickness

- Acute radiation syndrome: alopecia, dark complexion, removal of sub-cutaneous fat, softening of muscles
- b) Delayed effects:
 - Leukemia
 - Carcinogenesis
 - Fetal developmental abnormalities
 - Shortening of life
 - Malignancies
 - Death
- c) Dose and effects:
 - <5 rad: no immediate observable effects
 - ~5 rad to 50 rad: slight blood changes may be detected by medical evaluation
 - ~50 rad to 150 rad: slight blood changes will be noted and symptoms of nausea, vomiting, fatigue etc
 - ~150 rad to 1100 rad: severe blood changes. Symptoms appear immediately. Approximately 2 weeks later, some of those exposed may die.
 - ~1100 rad to 2000 rad: probability of death increases to 100% within 1 to 2 weeks
 - >2000 rad: death is a certainty.
 - Above 5000 rad: CNS can no longer control the body functions, including breathing and blood circulation.

II. Genetic effects:

- Manifest in next generation
- Result from injury to chromosome e.g. point mutation
- Example: deformed limbs in children of affected parents

Annual 2008

Q1: According to the research carried out by students of environmental sciences department, conc. Of certain harmful gases was increasing in the atmosphere owing to which the surface of earth had become hotter than it was before:

a) What is this effect called?

b) What are the harmful effects of rising temperature on earth?

Ans:

- a) Green house effect.
- b) Effects of rising temperature on earth:
 - Health:
 - Global warming directly causes loss of life, sunstroke and heat exhaustion.
 - Heart patients are more at risk.
 - Damage to lung tissue which increases the incidence of asthma.
 - Healthy persons complain of chest pain, nausea and pulmonary congestion.
 - Increase risk of infectious diseases and diseases spread by mosquitoes and other insects in warmer areas.
 - Water resources:
 - Dry soil
 - Lakes level decreases
 - Impaired navigation and decreased hydroelectric power generation
 - Poor water quality
 - Coastal resources:
 - Elevation of 1.5 m sea level
 - Polar regions:

Reduction in sea ice and snow cover at arctic is expected which will lead to increase in temperature because ice and snow reflect the sun energy back to space

- Mountains:

They are also affected by global warming

- Forests:

Increase temperature leads to deforestation and decreased wild life.

- Agriculture:

Poor countries are more at risk.

Supply 2008

Q1: examination of tap water sample reveals presence of five coliforms in 100 ml and a raised nitrate level.

a) Is this water fit for drinking?

b) If you want to take another sample from the tap, how will u take it? Elaborate the steps.

Ans:

a) No, this water is not safe for drinking

b) Collection of sample from tap water:

- When sample is to be taken from tap of regular use, the tap should be opened fully and the water run to waste at least for 2 min in order to flush the stagnant water in nozzle and pipe
- If sample is to be taken from tap not in regular use, then the tap should be sterilized by heating it either with a blow lamp or with the ignited piece of cotton soaked in methylated spirit until it is unbearably hot to touch
- The bottle should be held near the base with one hand and the stopper and paper cover over it removed together
- Sample bottle should be filled from a gentle stream of water, avoiding splashing
- Collection of sample from the taps which are leaky should be avoided because water might run down the outside of the tap and enter the bottle causing contamination

Annual 2009

Q1: A well was present in a rural area where an unsanitary bore-hole latrine with lots of flies was present within 10 feet of distance:

a) list the diseases more likely to be transmitted through drinking this well water.

b) what measures can be taken to make this well water safe for drinking?

Ans:

a) Diseases:

- Typhoid fever
- Dysenteries
- Cholera
- Diarrhea
- The

b) Disinfection of wells:

- Find the volume of water in the well.
- Find the amount of bleaching powder required for disinfection: estimate the chlorine demand by horrock's apparatus and calculate the amount of bleaching powder required. Roughly 2.5 g of bleaching powder would be required to disinfect 1000 L of water
- Dissolve bleaching powder in water: make a thin paste of the bleaching powder in a bucket. More water is added till bucket is $\frac{3}{4}$ full. When lime settles down, supernatant i.e chlorine soln. is transferred to another bucket.

- Delivery of chlorine solution into well: the bucket is lowered some distance below surface water.
- Contact period: 1 hr
- Orthotolidine-arsenite test is the used to test the residual chlorine after 1 hr.

Annual 2010

Q1: What are the different effects of excessive noise on human body?

What measures would you take to control noise pollution in cities?

Ans:

Effects of excessive noise on human body:

1. Auditory effects:
 - a) Auditory fatigue: appears in the 90 dB regions and is greatest at 4000 Hz
 - b) Deafness:
Temporary deafness: appears in frequency range of 4000-6000 Hz. Disappears after sometime
Permanent deafness: appear after repeated or continuous exposure to noise around 100 dB.
Exposure to noise above 160 dB may rupture tympanic membrane.
2. Non-auditory effects:
 - a) Interference with speech
 - b) Annoyance
 - c) Efficiency: it decreases because there is loss of concentration due to noise,
 - d) Psychological changes:
 - I. Rise in blood pressure
 - II. Rise in intracranial pressure
 - III. Rise in heart rate
 - IV. Increased sweating
 - V. Giddiness, nausea, fatigue
 - VI. Visual disturbances
 - VII. Disturbed sleep

Measures to control noise pollution in cities:

1. Careful planning of cities:
 - a. Division of city into zones with separation of area concerned with industry and transport
 - b. Separation of residential area from main streets by means of wide green belts
 - c. Widening of main streets to reduce the level of noise penetration into dwellings
2. Control of vehicles:
 - a. Heavy vehicles should not be routed into narrow streets
 - b. Vehicular traffic on residential area should be reduced
 - c. Indiscriminate blowing of horn and use of pressure horn should be prohibited
3. To improve acoustic insulation of buildings: buildings should be sound-proof where necessary
4. Industries and railways: special areas must be earmarked, outside residential areas, for railways, marshalling yards and similar installations.
5. Protection of exposed person:
 - a. Hearing protection is recommended for all workers who are consistently exposed to noise louder than 85 Db.
 - b. Workers must be regularly rotated from noisy areas to comparatively quiet posts in factories
 - c. Periodical audiogram check-ups and use of ear plugs and ear muffs are also essential
6. Legislation: many states have adopted legislation providing for control of noise, which are applicable to wide variety of noise.
7. Education: education through all available media is needed to highlight the importance of noise as a community hazard.

Annual 2011

Q1: The 20th century has been declared as “century of noise”. Noise is resulting in many ill effects on health.

Suggest measures to control this menace.

Ans:

1. Careful planning of cities:
 - d. Division of city into zones with separation of area concerned with industry and transport
 - e. Separation of residential area from main streets by means of wide green belts
 - f. Widening of main streets to reduce the level of noise penetration into dwellings
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(k. park pg 689)

Supply 2011

Q1: a family of 10 persons is living in a two room's house in a rural area with animals and poultry.

a) What health effects may arise in such situation?

b) What is meant by overcrowding?

Ans:

a) Effects of poor housing:

- Respiratory infections: common cold, TB, influenza, diphtheria, bronchitis, measles etc
- Skin infections: scabies, ringworm, impetigo, leprosy
- Rat infections: plague
- Arthropods: houseflies, mosquitoes, fleas and bugs
- Accidents: due to poor construction of house
- Psychological effects: depression, neurosis disorders
- Morbidity and mortality: high rates in poor housing conditions
- Skeleton effects: poor development due to improper light exposure

b) Overcrowding:

Overcrowding refers to the situation in which more people are living within a single dwelling than there is space for, so that movement is restricted, privacy secluded, hygiene impossible, rest and sleep difficulties.

Effects:

- rapid spread of infectious diseases

- high mortality and morbidity
- Respiratory tract infection
- Irritability, frustration, lack of sleep, anxiety, violence, mental disorders
- Unhappy life

Annual 2012

Q1: in a pathology lab, radioactive material is used in Radio Immuno Assay Procedure. What hazards a worker of this lab is exposed to?

Ans:

- i. Somatic effects:
 - a) Immediate effects:
 - Radiation sickness
 - Acute radiation syndrome: alopecia, dark complexion, removal of sub-cutaneous fat, softening of muscles
 - b) Delayed effects:
 - Leukemia
 - Carcinogenesis
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 - Shortening of life
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- ii. Genetic effects:
 - Manifest in next generation
 - Result from injury to chromosome e.g. point mutation
 - Example: deformed limbs in children of affected parents

Supply 2012

Q1: In a village, after consumption of well water, most of the people developed acute gastro-enteritis which indicated that well water is contaminated as well was surrounded by ponds and heaps of filth.

- a) How will you find out the source of pollution in the above well.
- b) Name three diseases which may be transmitted through swimming pool.

Ans:

a) Sampling must be done in order to find out the source of pollution in a well. For this purpose, tie a sample bottle with a rope. Use a stone or pipe of metal weighing about 500 gm as the weight and attach the tube bottle just above it. After removing the cap aseptically, lower the bottle into the well to a depth of 1m. when no more air bubbles rise to the surface, take the bottle out of the well and carefully replace the cap (excel by naved alam)

A bottle with a string attached to the neck which is fully wrapped in paper and sterilized should be used. Before taking the sample, paper cover should be removed, taking care not to allow the sides of the

bottle to come in contact with anything. Another long clean string should be tied to the end of sterilized string. And the bottle is lowered into the water and allowed to fill up. The bottle should be then raised and the stopper with cover replaced. (K.park page 677)

Record the following information on the bottle

- Source of water supply
- Date, place and time of sampling
- Geological information of soil, if available
- Depth and diameter of well
- Any suspected source of pollution in vicinity
- Recent rainfall if there
- Whether any method of purification is used

Sample is then sent for physical, chemical and bacteriological examination

b) Swimming pool diseases:

- Athlete's foot
- Plantar warts
- Upper respiratory tract infections
- Conjunctivitis
- Otitis externa
- Otitis media
- Eczema
- Diarrhea

Annual 2013

Q1: lead pollution is the major environmental problem in big cities of Pakistan.

a) Name major sources of lead pollution in these cities.

b) List measures to control lead pollution.

Ans:

- a)**
- Industrial use:
 - Manufacture of storage batteries
 - Glass manufacture
 - Printing and pottery
 - Rubber industry
 - Mining and smelting of lead ores
 - Non-occupational use:
 - Leaded petrol in automobiles (responsible for 80-90% lead in ambient air)
 - Lead pipes

- b)**
- Containment: prevention of escape of toxic substance into ambient air. It can be achieved by a variety of methods such as enclosure, ventilation, air cleaning etc
 - Replacement: use of leadless petrol in automobiles
 - Dilution: establishment of green belts between industrial and residential area is an attempt at dilution
 - Legislation
 - International action

Supply 2013

Q1: In a village, after consumption of well water, most of the people developed acute gastro-enteritis which indicated that well water is contaminated as well was surrounded by ponds and heaps of filth.

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- Recent rainfall if there
- Whether any method of purification is used

Sample is then sent for physical, chemical and bacteriological examination

b) **Swimming pool diseases:**

- Athlete's foot
- Plantar warts
- Upper respiratory tract infections
- Conjunctivitis
- Otitis externa
- Otitis media
- Eczema
- Diarrhea

Annual 2014

Q1: in city of Lahore, high levels of air pollution are being reported during peak rush hours and in areas where factories are located next to residential areas.

- a) Enlist various pollutants causing air pollution in Lahore. What are their associated health hazards?
- b) What measures can be taken to control air pollution in Lahore.

Ans:

a) **Air pollutants:**

- Carbon monoxide
- Sulphur dioxide: asthma, COPD, respiratory tract irritation
- Lead: impaired neuropsychological development in children
- Carbon dioxide
- Hydrocarbons: lung cancer
- Cadmium
- Hydrogen sulphide
- Ozone: cough, substernal discomfort, bronchoconstriction
- Polycyclic aromatic hydrocarbons
- Particulate matter

b) Measures for controlling air pollution:

- Containment: prevention of escape of toxic substance into ambient air. It can be achieved by a variety of methods such as enclosure, ventilation, air cleaning etc
 - Replacement: replacing a technological process causing air pollution by a new process that does not. For example, use of leadless petrol in automobiles
 - Dilution: establishment of green belts between industrial and residential area is an attempt at dilution
 - Legislation
 - International action
-

Supply 2014

Q1: Rapid mechanization and industrialization is resulting into increased concentration of harmful gases like CO₂, SO₂, NO₂ and CFC in the atmosphere; which is causing damaging effects to all forms of life.

- a) Name at least five effects due to this phenomenon.
- b) Name four health hazards associated with swimming pool.

Ans:

a) Effects of air pollution:

- Immediate health effects include nausea, vomiting, fever, annoyance, headache etc
- Delayed health effects most commonly linked with air pollution are chronic bronchitis, lung cancer, bronchial asthma, emphysema, COPD, respiratory allergies etc
- Destruction of plant and animal life
- Corrosion of metals
- Damage to buildings
- Green house effect
- Ozone depletion
- Acidic rain

b) Health hazards associated with swimming pool:

- Fungal and viral infections of skin e.g. athlete's foot and plantar warts
 - Infections of eye, ear, nose and throat
 - Infections of upper respiratory tract
 - Intestinal infections
 - Accidents
-

Supply 2015

Q1: which diseases can occur due to consumption of contaminated water? How these can be prevented?

Ans:

Diseases:

- Biological:
Those caused by presence of an infective agent
 - Viral: hep. A, hep. B, poliomyelitis, rotavirus
 - Bacterial: typhoid fever, bacillary dysentery, E.coli, cholera
 - Protozoal: amoebiasis, giardiasis
 - Helminthic: round worm, thread worm, hydatid disease.
 - Leptospiral: weill's disease
- Those due to presence of an aquatic host
 - Snail: schistosomiasis
 - Cyclops: fish tape worm, guinea worm
- Chemical:
 - Goiter due to iodine deficiency

- Dental mottling due to high levels of fluorides
- Methaemoglobinemia due to high levels of nitrates
- Nephropathy due to cadmium
- Black foot disease, skin and lung cancer due to arsenic (K.park pg 659)

Prevention of diseases:

Diseases can be prevented by purification of water:

1. Purification on large scale
2. Purification on small scale

Purification on large scale:

- Storage:
Storage provides a reserve of water from which further pollution is excluded. As a result of storage, physical, chemical and biological purification of water takes place.
- Filtration:
98-99% bacteria are removed by filtration. Two types of filters are in use:
 1. Slow sand or biological filters
 2. Rapid sand or mechanical filters
- Disinfection:
Various disinfectants are used for this purpose
 - Chlorine
 - Bromine
 - Bromine chloride
 - Iodine
 - Ozone

Membrane processes: reverse osmosis, ultra filtration, microfiltration, and nanofiltration

Purification on small scale:

- Boiling: water must be brought to "rolling boil" for 10-20 min
- Chemical disinfection: using bleaching powder, chlorine soln., high test hypochlorite, chlorine tablets, iodine, potassium permanganate
- Filtration
- Ultraviolet radiations
- Multi-stage reverse osmosis purification of water

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Section 7: Reproductive Health & Family Planning

Annual 2004

Q1: how would u screen a client before prescribing oral contraceptives?

Ans:

Checklist for prescription of oral contraceptives:

Check the following by history and examination

- Above 40 yr of age
- Above 35 yr plus smoker
- Seizures
- Severe pain in calf and thighs
- Severe chest pain
- Swollen legs
- Severe headache
- Shortness of breath
- Symptomatic varicose veins
- Amenorrhoea
- Yellow skin, eyes
- Hypertension
- Mass in breast
- Lactating
- Inter-menstrual bleeding
- Bleeding after sexual intercourse

Annual 2005

Q1: a) define weaning?

b) advantages of breast feeding for a child?

c) what is the role of TBA in prevention and control of Tetanus Neonatrum?

Ans:

a)

Weaning:

It is a gradual process during which child gets accustomed to food other than breast milk

Need for weaning:

Breast milk is sufficient for 4-5 months after which supplementary foods must be added to meet the caloric requirements. It is for the period of 4 months to 2 years during which incidence of malnutrition is highest. By proper weaning, malnutrition can be prevented.

b)

➤ **For baby:**

- Breast milk is safe, clean, hygienic, cheap and available at normal body temp.
- It fully meets the requirements of infant in first few months
- Less chances of malnutrition
- Easily digestible
- Contains anti-microbial factors thus providing protection against diarrheal diseases and respiratory infections
- Reduces the risk of allergies, obesity, and hypomagnesemia

- Helps in development of jaws and teeth
- Reduces IMR
- Prevents development of neonatal hypocalcaemia

c)

TBA should have the information about immunization required during pregnancy and its schedule. If the mother was not immunized earlier, 2 doses of absorbed tetanus toxoid should be given, 1st dose at 16-20 weeks and 2nd dose at 20-24 weeks of pregnancy. If the mother was immunized, a booster dose would be sufficient.

Supply 2006

Q1: a) define infant mortality rate?

b) name 6 activities carried out on a 1st visit of pregnant lady to MCH centre for antenatal care?

Ans:

a)

Infant mortality rate:

"it is the ratio of infant deaths registered in a given year to the total no. of live births registered in the same year and usually expressed as per 100 live births"

- An infant is a child under 1 year
- IMR of Pakistan is 61/1000

b)

Routine at 1st visit:

- Confirm pregnancy
- Know baseline health status
- Complete GPE
- Routine investigations (blood CP, urine complete, BP)
- Special investigations (blood sugar random, Rh factor etc)

Annual 2007

Q1: A 22 yr old primigravida reports to u for antenatal checkup in 7th month of pregnancy for the first visit.

a) which immunization do u give and what is the schedule?

b) how would u provide the antenatal care?

Ans:

a)

Tetanus toxoid

- 1st dose as early as possible during pregnancy after 1st trimester
- 2nd dose atleast 1 month later, 1/2ml, I/M
- Next dose at least 3 weeks before delivery so that antibodies are formed

b)

Antenatal care:

- Know the baseline health status
- Complete GPE
- Routine investigations (blood CP, urine complete, BP)
- Special investigations: blood sugar random, Rh factor etc
- Breast examination
- Fetal heart rate
- Prenatal advice:
 - ✓ Diet
 - ✓ Personal hygiene
 - ✓ Drugs

✓ Immunization

- Mental preparation and family planning
- Making referrals and follow up

Annual 2008

Q1: A married couple with 2 children comes to u for advice on contraception. They want long term contraception for 4 to 5 years. The man is not motivated by using a contraceptive method; the wife aged 35, had been known hypertensive for many years.

- a) which type of contraceptive method would u advice to this lady**
b) how would u counsel the woman regarding use of this method?

Ans:

a) Intra uterine contraceptive method

b) Counseling:

- Give information regarding the role of action of IUCD being inserted
- It is not an absolute method so pregnancy can occur
- Increases the chances of ectopic pregnancy
- Menorrhagia, dysmenorrhea and uterine perforation can occur
- Regular checking for thread of IUCD

Q2: u r working as a medical officer at BHU. A mother brings her 1 yr old child to u growth monitoring. His reported weight is 3kg and present wt. is 6 kg.

- a) what is the opinion about the wt. of this baby?**
b) what advice will u give to this mother keeping the current nutritional status of baby in mind?

Ans:

a) Low birth weight for age

b) Mother is advised to give following things to her baby:

- Cow's milk
- Cereals
- Banana
- Soft cooked rice
- Dalia
- Juice
- Yogurt etc

Supply 2008

Q1: a) what do u understand by safe motherhood?

b) give the advantages of breast feeding?

Ans:

a)

Safe motherhood:

"it is the continuous care provided to the mother started from the pregnancy period, throughout pregnancy, delivery and postpartum period and it should include family planning services"

Aims:

- Reduction in MMR by making basic emergency and obstetric care available to all
- Decrease in incidence of high risk/unwanted pregnancy by fertility regulation
- Antenatal care to decrease no. and proportion of complications of pregnancy
- Trained birth attendants at delivery

Launched:

SMI was launched in 1987

Global target:

To reduce no. of maternal deaths by half of present level and increasing skilled birth attendants to 90% by year 2015

b)

Advantages of breast feeding:

➤ **For baby:**

- Breast milk is safe, clean, hygienic, cheap and available at normal body temp.
- It fully meets the requirements of infant in first few months
- Less chances of malnutrition
- Easily digestible
- Contains anti-microbial factors thus providing protection against diarrheal diseases and respiratory infections
- Reduces the risk of allergies, obesity, and hypomagnesemia
- Helps in development of jaws and teeth
- Reduces IMR
- Prevents development of neonatal hypocalcaemia

➤ **For mother:**

- Helps in child spacing by prolonging period of infertility
- Promotes involution of uterus
- Prevents mastitis
- Decrease chances of breast cancer
- Forms close relationship between mother and child
- Gives psychological satisfaction to mother

Annual 2009

Q1: A mother with normal obstetric history delivered a baby at her home by a TBA was in close liaison with doctors at RHC.

a) Write name given to such deliveries?

b) Name 2 advantages and 2 disadvantages of such deliveries?

Ans:

a) Its called "domiciliary midwifery service"

b)

Advantages:

- Lower cost
- A desire to give birth in a familiar, relaxing environment
- No need to travel to hospital when in labor
- Cultural and religious norms or concerns

Disadvantages:

- No facilities for C sec. are available if required immediately
- Pain relief options are limited when giving birth at home

Annual 2010

Q1: A 30 yr old primigravida in her 1st trimester of pregnancy comes to your community clinic for antenatal checkup and advice.

a) what general and systemic investigation will u perform?

b) what investigations will u order?

c) what nutritional advice will u give her?

Ans:

a)

- Careful and complete obstetric history
- Know baseline health status
- Medical examination
- Complete GPE

b)

Lab investigations:

- Hemoglobin level
- Urine test
- Blood sugar random
- Blood CP
- Tetanus vaccination
- Test for syphilis
- Blood test for Rh type
- Prenatal genetic screening
- Stool examination
- Chest x-ray
- Pap test
- G.C culture

c)

Nutritional counseling:

Weight gain should be 10-12 kg and 60,000 kcal for total during pregnancy. We will advise our patient to take healthy nutrition throughout the pregnancy

- Her diet should include sufficient iron to maintain her Hb level
- Constipation should be avoided by regular intake of green leafy vegetables, fruits and extra fluids
- Light household work is advised but manual physical labour may affect the fetus
- Smoking should be cut down to minimum
- Daily servings include 2-3 serving of vegetables, atleast 3 servings of whole grain bread, 2-3 servings of lean proteins
- All the necessary micro and macronutrients should be included in her diet
- Caffeine: It is recommended to limit your caffeine intake.
- Eat salty foods in moderation
- Do not diet
- Hydration is an important aspect of nutrition throughout pregnancy

Annual 2011

Q1: A 4 month pregnant lady reported first time for antenatal care in a RHC.

a) what essential lab investigations are to be done at first visit?

b) what is the schedule for antenatal visits for remaining period of pregnancy?

Ans:

a)

Lab investigations:

- Hemoglobin level
- Urine test
- Blood sugar random
- Blood CP
- Tetanus vaccination
- Test for syphilis
- Blood test for Rh type

- Prenatal genetic screening
- Stool examination
- Chest x-ray
- Pap test
- G.C culture

b)

Schedule:

- At 24 week for baseline health profile
- At 32-34 weeks to find out position and presenting part
- Last visit at 36 weeks to decide where to deliver the baby

Supply 2011

Q1: A mother visits MCH centre to seek advice regarding feeding of her breast fed 6 month old baby. She wants to know:

a) what is weaning and why needed?

b) what supplementary foods could be advised at his age?

Ans:

a)

Weaning:

It is a gradual process during which child gets accustomed to food other than breast milk

Need for weaning:

Breast milk is sufficient for 4-5 months after which supplementary foods must be added to meet the caloric requirements. It is for the period of 4 months to 2 years during which incidence of malnutrition is highest. By proper weaning, malnutrition can be prevented.

b)

Supplementary foods:

- Cow's milk
- Cereals
- Banana
- Soft cooked rice
- Dalia
- Juice
- Yogurt etc

Annual 2012

Q1: A mother who received a proper antenatal care and was declared fit for normal delivery, underwent a delivery by a trained birth attendant at home.

a) Write name given to such deliveries?

b) Name 2 advantages and 2 disadvantages of such deliveries?

Ans:

a) Its called "domiciliary midwifery service"

b)

Advantages:

- Lower cost
- A desire to give birth in a familiar, relaxing environment
- No need to travel to hospital when in labor
- Cultural and religious norms or concerns

Disadvantages:

- No facilities for C sec. are available if required immediately

- Pain relief options are limited when giving birth at home

Supply 2012

Q1: an 8 months pregnant lady reports to a lady doctor with complaints of giddiness and heavy feet. On examination she exhibit pitting edema and B.P of 155/95 mmHg.

- a) what is ur likely diagnosis?**
b) what are the risks for mother and baby in this case?

Ans:

a) diagnosis:

Pre eclampsia

b) Risks for mother:

- Affects mother's kidney, liver, brain, other organs and blood system
- Preterm delivery
- Pregnancy loss
- Can lead to organ failure or stroke
- Likely to develop hypertension after pregnancy

Risks to fetus:

- Separation of placenta from uterus
- Lack of O₂ and nutrients lead to poor fetal growth
- Stillbirth if placenta abruption leads to heavy bleeding in mother
- Perinatal death

Q2: what advice will u like to impart the lady after insertion of intra uterine contraceptive device?

Ans:

An IUD wearer should be given the following instructions:

- She should regularly check the thread or tail to be sure that IUD is in the uterus; if she fails to locate the thread, she must consult the doctor
- She should visit the clinic whenever she experiences the side-effects such as fever, pelvic pain and bleeding
- If she misses a period, she must consult a doctor

Annual 2013

Q1: A 36 year old pregnant lady, already having 6 kids, reports to u for antenatal checkup at 20th week of pregnancy.

- a) what do u think is she a high risk lady?**
b) list 4 factors which make a pregnant lady high risk?

Ans:

a) Yes, she is a high risk lady because she is 36 yr old and a grand multipara (more than 5 children)

b) Factors:

- Too young (less than 18 yr) and too old (more than 35 yr) primigravida
- Pre-maturity(less than 37 weeks) or post-maturity (more than 41 weeks)
- Grand multipara (more than 5 children)
- Short statured primigravida
- Twin pregnancies
- Mal-presentation
- Pregnancy associated with anemia
- Toxemia of pregnancy
- Pregnancy associated with diseases (DM, epilepsy, heart disease etc)

Supply 2013

Q1: an 8 months pregnant lady reports to a lady doctor with complaints of giddiness and heavy feet. On examination she exhibit pitting edema and B.P of 155/95 mmHg.

a) what is ur likely diagnosis?

b) what are the risks for mother and baby in this case?

Ans:

a) Diagnosis:

Pre eclampsia

b) Risks for mother:

- Affects mother's kidney, liver, brain, other organs and blood system
- Preterm delivery
- Pregnancy loss
- Can lead to organ failure or stroke
- Likely to develop hypertension after pregnancy

Risks to fetus:

- Separation of placenta from uterus
 - Lack of O₂ and nutrients lead to poor fetal growth
 - Stillbirth if placenta abruption leads to heavy bleeding in mother
 - Perinatal death
-

Annual 2014

Q1: a 25 year old primigravida comes to your clinic for her first antenatal check-up. On GPE pallor is positive. Her complete blood exam. Report showed that Hb 10g/dl and MCHC are below 34%.

a) What mineral supplements will u prescribe?

b) What specific nutritional counseling will u do to improve her condition?

Ans:

a) Supplements:

- Folate
- Multivitamins
- Omega 3s and healthy fats
- Probiotics
- Vitamin D3
- Magnesium
- Coconut oil

b) nutritional counseling:

Weight gain should be 10-12 kg and 60,000 kcal for total during pregnancy. We will advice our patient to take healthy nutrition throughout the pregnancy

- Her diet should include sufficient iron to maintain her Hb level
 - Constipation should be avoided by regular intake of green leafy vegetables, fruits and extra fluids
 - Light household work is advised but manual physical labour may affect the fetus
 - Smoking should be cut down to minimum
 - Daily servings include 2-3 serving of vegetables, atleast 3 servings of whole grain bread, 2-3 servings of lean proteins
 - All the necessary micro and macronutrients should be included in her diet
 - Caffeine: It is recommended to limit your caffeine intake.
 - Eat salty foods in moderation
 - Do not diet
-

- Hydration is an important aspect of nutrition throughout pregnancy

Supply 2014

Q1: Pakistan is a developing country where most of the deliveries are conducted at home by traditional birth attendant or trained Dai's.

a) Write name given to such deliveries?

b) Name 2 advantages and 2 disadvantages of such deliveries?

Ans: a) Its called "domiciliary midwifery service"

b)

Advantages:

- Lower cost
- A desire to give birth in a familiar, relaxing environment
- No need to travel to hospital when in labor
- Cultural and religious norms or concerns

Disadvantages:

- No facilities for C sec. are available if required immediately
- Pain relief options are limited when giving birth at home

Supply 2015

Q1: A 28 week primigravida with raised B.P comes to u for her first prenatal check-up. As a community physician, what will u advice her about the required lab investigations and warning signs in pregnancy?

Ans:

Lab investigations:

- Hemoglobin level
- Urine test
- Blood sugar random
- Blood CP
- Tetanus vaccination
- Test for syphilis
- Blood test for Rh type
- Prenatal genetic screening
- Stool examination
- Chest x-ray
- Pap test
- G.C culture

Warning signs in pregnancy:

- Swelling of feet
- Fits
- Headache
- Blurring of vision
- Bleeding or discharge per vagina
- Any other unusual symptoms

She should immediately report in case of above warning signs

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<http://www.facebook.com/MedCom.2011>



Section 8: Occupational health, school health services, Hospital Waste Management, Disaster Management

Supply 2003

Q1: What is "School Health Services ". Describe its objectives. Enumerate the duties of school health officer.

Ans:

- (a) "School health services is a branch of preventive medicine which deals with medical inspection of school children and their health protection, primarily in the environment of the school"
- (b) The objectives are as follow:
 - 1. 1Protection of the positive health
 - 2. Early detection of defects through a program of periodical medical check-up of children.
 - 3. Treatment and follow up of the defects.
 - 4. Minimization of the chances of spread of the communicable diseases.
 - 5. Teaching of the school staff to detect common health related defects
 - 6. Provision of the healthy environment.
- (c) Duties of school health officers are:
 - 1. Periodic routine examination of the children.
 - 2. Annual examination of the children.
 - 3. Immunization.
 - 4. Advise to the parents.
 - 5. Inspect physical training of the students.
 - 6. Educate and treat the teaching staff.

Q2: Write a short note on asbestosis?

It is a lung disease caused by the deposition of asbestos in the lung.

Ans:

Causative agent: Asbestos

Occupations Involved: Manufacturing of asbestos, cement, roof tiles, mining and milling of the mineral manufacturing processes involving asbestos, demolition and shipyard workers.

Respiratory Disorders:

Asbestos inhalation causes following lung injuries

- 1. Benign pleural plaques
- 2. Benign pleural effusions
- 3. Progressive pulmonary fibrosis
- 4. Malignant diseases of pleura

Diagnosis: Sputum microscopy shows asbestos bodies which are asbestos fibers coated with fibrin.

Q3: What is disaster? Give its types And discuss briefly steps/organizational structure of disaster control planning?

Ans: Any occurrence that causes damage, ecological disruption, loss of human life or deterioration of health services on a scale sufficient to warrant an extraordinary response from outside the affected community or area is called disaster

Types:

- 1. Meteorological disasters

- 2.topological disasters
- 3.telluric and tectonic disasters
- 4.accidents
- 5.atomic explosion
- 6: bio-terrorism disaster

➤ **Disaster control planning:**

- Pre-disaster management: -
 1. Planning: Determination of situation by: .regulation . Information on area and population about geography, population, transportation and communication. personnel .material .information on previous disaster
 - 2.organization
 - 3.staffing
 - 4.training
 - 5.coordination
 - 6.reporting
 - 7.budgeting
- During disaster management : search, rescue and first aid .field care .information centre triage .tagging .identification of dead .transportation Post disaster management epidemiological surveillance .vaccination .nutrition .rehabilitation

Annual 2004

Q1: Write a note on control of diphtheria in school.

Ans:

Diphtheria in the school can be controlled by following steps:

1. Educating the teachers about the disease and its symptoms and educate them about looking for them closely in students
2. Educating the parents of the children through seminars and lectures
3. Emphasizing on the importance of its vaccination.
4. Conducting vaccination of diphtheria in school on NID'S
5. Educating children about personal hygiene and its importance
6. Maintaining healthy and clean environment in the school and its strict regulation
7. Picking out any case of the diphtheria in school and its treatment on priority bases.

Supply 2004

Q1: Define ergonomics. What advice would u give to protect health of workers in cotton industry?

Ans:

- (a) Ergonomics is defined as fitting the job to the worker.
- (b) Following measures would be taken to ensure health maintenance of the workers:
 1. Medical Measures:
 - Application of the ergonomics
 - Regular medical checkup
 - Health education
 - Notification of the any disease case and its treatment.
 2. Engineering Measures:
 - Good ventilation
 - Isolation of the process
 - Cotton dust control
 - Substitution of the complex procedure if possible
 3. Legislation:

- Proper laws should be implemented which are in the favor of the workers.
- Workers should be provided with medical facilities (free of cost)

5. General Measures:

- Workers should wear masks and protective gear while working
- There should be enough per person moving space in the working area

Proper ventilation and general health measures should be adopted.

Annual 2006

Q1: Define pneumoconiosis? Enlist six pneumoconiotic diseases along with the causative agents?

Ans:

(a) Pneumoconiosis: "A group of diseases resulting from inhalation of respirable fraction of different chemical dusts (organic/inorganic) leading to irreversible fibrosis is called pneumoconiosis.

(b)

1. Silicosis (Silica)
2. Anthracosis (Coal dust)
3. Asbestosis (Asbestos)
4. Siderosis (Iron)
5. Baggasosis (Cane fiber)
6. Byssinosis (Cotton dust)

Supply 2006

Q1: Describe six general measures against OCCUPATIONAL HAZARDS.

Ans:

Following measures should be adopted against occupational hazards

- Nutrition
 - Good nutrition
 - Separate place for eating
 - Food must be available at reasonable cost

Communicable disease control

- Immunization
- Early detection of cases
- Preventive measure

Environmental sanitation

- Sufficient and safe water supply
- Safe food supplementation
- Sufficient number of latrines for workers
- Proper ventilation
- Proper light facilities
- Provision of clean environment

Mental Health

- Recreation Facilities
- Sports tournaments
- Festivals
- Holidays

Health education

- Proper health education must be given to all health workers along with methods to avoid health related Hazards.

Annual 2007

Q1: A patient presented with shortness of breath and cyanosis. He gave history of exposure to silica dust as he worked in sand blasting

- a) What is likely diagnosis?
- b) Outline measures to prevent this problem.

Ans:

a) He is suffering from silicosis

b)

Following measures would be taken to ensure health maintenance of the workers:

1. Medical Measures:

- Application of the ergonomics
- Regular medical checkup
- Health education
- Notification of the any disease case and its treatment.

2. Engineering Measures:

- Good ventilation
- Isolation of the process
- Cotton dust control
- Substitution of the complex procedure if possible

3. Legislation:

- Proper laws should be implemented which are in the favour of the workers.
- Workers should be provided with medical facilities (free of cost)

4. General Measures:

- Workers should wear masks and protective gear while working
- There should be enough per person moving space in the working area
- Proper ventilation and general health measures should be adopted.
- Any worker with deteriorating health should be given immediate treatment and care
- Substitution of the process causing harm should be done if possible.

Q2: Vast area in Pakistan was stricken by floods this year, disrupting lives of many people

A. Give type of disaster and health problems that occurred in those areas?

B. What do you understand by disaster preparedness?

Ans: a) topological disaster, drinking contaminated water can cause gastroenteritis or food poisoning.

b) Disaster preparedness: Emergency preparedness is a program of long term development activities whose goals are to strengthen the overall capacity and capability of a country to manage efficiently all types of emergency. It should bring about an orderly transition from relief through recovery and back to sustained development.

Objective: To ensure that appropriate systems, procedure and resources are in place to provide prompt effective assistance in disaster victims.

- Tasks:**
1. to evaluate risk of country to disaster
 2. adopt standards and regulations
 3. Organize communication, information and warning systems
 4. ensure coordination and response mechanisms
 5. develop public education programs.

Supply 2007

Q1: (a) Enumerate four different types of pneumoconiosis.

(b) Give various measures for prevention of occupational diseases

Ans: a) 1. Silicosis (Silica)

2. Anthracosis (Coal dust)

3. Asbestosis (Asbestos)

4. Siderosis (Iron)

(b) Following measures would be taken to ensure health maintenance of the workers:

1. Medical Measures:

- Application of the ergonomics
- Regular medical checkup
- Health education
- Notification of the any disease case and its treatment.

2. Engineering Measures:

- Good ventilation
- Isolation of the process
- Cotton dust control
- Substitution of the complex procedure if possible

3. Legislation:

- Proper laws should be implemented which are in the favour of the workers.
- Workers should be provided with medical facilities (free of cost)

4. General Measures:

- Workers should wear masks and protective gear while working
- There should be enough per person moving space in the working area
- Proper ventilation and general health measures should be adopted.
- Any worker with deteriorating health should be given immediate treatment and care
- Substitution of the process causing harm should be done if possible.

Q2: A forty year old pottery industry worker presented with the complaints of fever and weight loss, he also complained about cough and blood stained sputum. X-Ray of chest confirmed fibrosis of lungs and hilar lymphadenopathy.

a) What is the diagnosis ?

b) Outline general measures for prevention of the condition.

Ans:

a) The patient is suffering from silicosis

b) General Measures:

- Workers should wear masks and protective gear while working
- There should be enough per person moving space in the working area
- Proper ventilation and general health measures should be adopted.
- Any worker with deteriorating health should be given immediate treatment and care
- Substitution of the process should be done if possible.

Annual 2008

Q1: On account of heavy rain during monsoon season enormous area in Southern Punjab had been flooded. Numerous people became homeless and suffered infections

- i. **What is the type of CALAMITY?**
- ii. **What strategies should have been adopted by health and related departments to prevent the loss of life and property during and after the catastrophe.**

Ans: a: Topological Disasters

b: Strategies:

During the flood:

- i. Turn off the electricity to reduce the risk of electrocution.
- ii. Protect people and property:

- As soon as flood begins, take any vulnerable people to an upper floor
 - Whenever possible, move personal belongings upstairs or go to raised shelter
- iii. Beware of water contamination-if the taste, color or smell of the water is suspicious, is vital to use some means of purification.
- iv. Evacuate danger zones as ordered by local authorities.

After the Flood:

- i- Wait until the water is declared safe before drinking any that is untreated
- ii- Clean and disinfect any room that has been flooded
- iii- Sterilize or wash with boiling water all dishes and kitchen utensils
- iv- Get rid of any food that has been in or near water, including canned foods or any kept in refrigerators and freezers
- v- Get rid of all consumables (drinks, medicines etc) (Park pg 744)

Annual 2009

Q1: The war against terror has displaced millions of people from Swat and Buner mainly in 2009. These people are adjusted in relief camps of different areas:

- a. Categorize the event, is it an accident or a disaster
- b. What measures can be taken to make this stay safe?

Ans: a. Disaster

b. Measures:

1. Information Centre
2. Epidemiological surveillance and diseases control
 - i- implement public health measure as soon as possible
 - ii- investigate all reports of disease outbreaks rapidly
 - iii- organize a reliable disease reporting system to identify outbreaks and to promptly initiate control measures
3. vaccination
4. nutritional support
5. rehabilitation
 - i- water supply
 - ii- food safety
 - iii- basic sanitation
 - iv- vector control
 - v- psychological treatment
6. Health education

Q2: A school purchased furniture for a new section of class four. After a month school medical officer noticed that many pupils of this section had complaints of backache and eye strain.(2009 Annual)

What type of desks has been there in this section ?

List 8 objectives of school health services.

Ans:

- (a) There has been positive or plus type of desks being used in this class.

Same as 2003 supply question's answer

Additional 2 objectives are as follow

1. Awakening health consciousness in school children
2. Getting better academic performance from the students in the response.

Q3: A person aged 40 years who had been working in the grain market for the last 25 years presented with the history of repeated attacks of respiratory infections from the last 1 year, X-Ray showed pulmonary fibrosis.

a) Give the likely diagnosis ?

b) What is the role of occupational health service in the prevention of the given problem ?(2009 Annual)

Ans:

(a) The person is suffering from "Farmer's Lung"

(b) Occupational health services provide the basic outline for the standard working environment and guides about the common problems faced while working in a industry or a place, preventing steps about these problems and their solution.

It gives basic outline to improve the mental, physical and social status of the workers. By adopting the principles of occupational health services one can not only work easily but also with more efficiency and output results.

Annual 2010

Q1: A worker in a storage batteries manufacturing factory came to the O.P.D of hospital complaining of colicky abdominal pain, constipation and loss of appetite. On examination is a blue line on gums was visible. Blood examination showed anemia and stippling of RBC'S.

a) What is your likely diagnosis?

b)As an occupational health officer what preventive stratigies will you suggest to the management to prevent such cases in future?

Ans: a) The person is suffering from lead poisoning.

b) Following measures would be taken to ensure health mantainance of the workers:

1. Medical Measures:

- Application of the ergonomics
- Regular mediacd checkup
- Health education
- Notification of the any disease case and its treatment.

2. Engineering Measures:

- Good ventilation
- Isolation of the process
- Cotton dust control
- Substitution of the complex procedure if possible

3. Legislation:

- Proper laws should be implemented which are in the favour of the workers.
- Workers should be provided with medical facilities(free of cost)

4. General Measures:

- Workers should wear masks and protective gear while working
- There should be enough per person moving space in the working area
- Proper ventilation and general health measures should be adopted.
- Any worker with deteriorating health should be given immediate treatment and care
- Substitution of the process causing harm should be done if possible.

Q2: Pakistan faced the worst floods in its history in July 2010. The human death toll was more than 1000 with extensive damage to houses and livestock. As a member of disaster management team make a disaster management plan to deal with such calamity in future.

Ans: Disaster Management Plan

Pre-disaster management

- i. Proper planning

- ii. Organization under direction of highest local administrator
- iii. Staffing
- iv. Training of team members
- v. Co-ordination
- vi. Reporting
- vii. Budgeting

During disaster management

- i. Search, rescue and first aid
- ii. Field care
- iii. Information centre
- iv. Triage
- v. Tagging
- vi. Identification of dead
- vii. Transportation

Post disaster management

- Epidemiological surveillance
- vaccination
- nutritional support
- rehabilitation
 - water supply
 - food safety
 - basic sanitation
 - vector control
 - psychological treatment
 - health education

Annual 2011

Q1: Recently a violent storm struck Japan resulting in mass destruction of all types

- a. What type of disaster was it?
- b. What is meant by Triage?

Ans:

a. Meteorological storm

b. Triage consists of rapidly classifying the injured on the basis of severity of their injury and likelihood of their survival with prompt medical intervention. High priority is granted to victims whose immediate and long term prognosis can be dramatically affected by simple intensive care. Moribund patients who require a great deal of attention with questionable benefit, have the lowest priority.

Color code system:

- i- Red: indicated high priority treatment or transfer
- ii- Yellow: signal medium priority
- iii- Green: indicates ambulatory patient
- iv- Black: for dead or moribund patient.

Advantage: triage is only approach that can provide maximum benefits to the greatest number of injured in a major disaster.

12: A worker aged 45 working in a cardboard industry for the last 17 years complains of dyspnoea, irritating cough, hemoptysis, slight fever and clubbing of fingers.

What is the most probable condition in this worker?

- a) Name the specific picture of x-ray in such patient
- b) Name three preventive measures to protect the other workers from this problem.

Ans:

- a) Worker is suffering from asbestosis

X- ray picture shows progressive pulmonary fibrosis in the lung and specific ground glass appearance in the lower 2/3rd of the lungs.

- b)
1. Medical Measures:
 - Application of the ergonomics
 - Regular medical checkup
 - Health education
 - Notification of the any disease case and its treatment.
 2. Engineering Measures:
 - Good ventilation
 - Isolation of the process
 - Cotton dust control
 - Substitution of the complex procedure if possible
 3. Legislation:
 - Proper laws should be implemented which are in the favour of the workers.Workers should be provided with medical facilities(free of cost)
-

Supply 2011

Q1: A worker who is working in roof tiling industry for the last 15 years reports to you with the presenting complaints of cough and dyspnoea. On examination clubbing of fingers and cyanosis is observed. Chest X-Ray shows ground glass appearance in the lower 2/3rd of the lung field.

- a) What is your most probable diagnosis?
b) What preventable measures would you suggest for other people working in the industry?

Ans:

- a) Asbestosis
- b)
1. Medical Measures:
 - Application of the ergonomics
 - Regular medical checkup
 - Health education
 - Notification of the any disease case and its treatment.
 2. Engineering Measures:
 - Good ventilation
 - Isolation of the process
 - Cotton dust control
 - Substitution of the complex procedure if possible
 3. Legislation:
 - Proper laws should be implemented which are in the favour of the workers.
-

Annual 2012

Q1: About 3yrs back a vast population of Sindh province was struck by heavy rains and floods. They were forced to leave their areas in search of safe shelter.

- a- Name the type of disaster
b- Enlist the responsibilities of health authority in the recovery phase of such floods.

Ans: a- Topological disaster

- b-**
- i- information centre
 - ii- epidemiological surveillance and disease control
 - iii- implement public health measures as soon as possible
 - iv. investigate all reports of disease breakout rapidly
 - v- Vaccination
 - vi- Health education

vii- Psychological support.

Q2: A worker from brake lining industry reported to you with complaints of chronic cough, dyspnoea and clubbing of fingers.

What is the most probable diagnosis?

Name the specific picture of x-ray in such patients?

Name three preventive measure

Ans: Same as Annual 2011

Annual 2013

Q1: A medical officer, in charge of social security health outlet attended about six patients with fibrotic lung disease. History revealed that they were working in a gas kit industry for the last ten years.

Name the most likely disease and its causative agent

List three preventive measures

Ans: Asbestosis, Agent : Asbestos

Prevention same as Annual 2011

Q2: Due to heavy rains and floods last year, millions of people of Sindh province were displaced. They were accommodated in camps in different areas.

a- Name the type of disaster

b- What measures are to be taken to prevent possible health problems in these people?

Ans:

A-Topological disaster

B- i- information centre

ii- epidemiological surveillance and disease control

iii-implement public health measures as soon as possible

iv.vaccination

v.health education

vi. psychological support.

Supply 2013

Q1: A worker aged 45 years is engaged in building and construction work, reports with cough, dyspnoea on exertion and chest pain. Chest X-Ray shows "Snow storm" appearance in the lung field.

a) What is the likely diagnosis

b) What measures should be taken to avoid same problem in other workers.

Ans:

(a) Silicosis

(b) 1.Medical Measures:

- Application of the ergonomics
- Regular medical checkup
- Health education
- Notification of the any disease case and its treatment.

2. Engineering Measures:

- Good ventilation
- Isolation of the process
- Cotton dust control
- Substitution of the complex procedure if possible

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- Any worker with deteriorating health should be given immediate treatment and care
- Substitution of the process causing harm should be done if possible.

Q2: A worker in ship building industry suffered from anorexia, intestinal colic, persistent headache, abdominal cramps and constipation. On examination there was a blue line on gums and his haemoglobin level was less than 11g/dl.

a) What is the probable diagnosis

b) How would you prevent this condition

Ans:

a) Lead poisoning

b) Same as above

Annual 2014

Q1: what minimum standards should be set to maintain healthful environment in schools?

What specific health education should be provide to students of school going age to prevent transmission of diseases via feco-oral route?

Ans:

- (a)** Location: School should be centrally situated with proper road approach from busy areas
- (b)** Site: Should be suitably on high land, and not subject to inundation and dampness
- (c)** Structure: Nursery and secondary schools as far as possible, must be single storied
- (d)** Classroom: Verandhas should be attach to classroom, one classroom should only contain upto 40 students
- (e)** Furniture: Desks should be of minus type
- (f)** Doors and Windows must be 25% of the floor area, adequate for ventilation.
- (g)** Lightning should be adequate in the class rooms for reading and writing purposes
- (h)** Lavatory: must be separate for boys and girls, clean and adequate in number according to strength of the students
- (B)** Wash hands before and after leaving washrooms.
 - Take immunization of communicable diseases
 - Use soap for washing hands
 - Leave the school if health condition is poor
 - Don't eat unhygienic eatables

Supply 2014

Q1: Pakistan is a developing country where most of the deliveries are conducted at home by traditional birth attendant or trained Dai's.

a) Write name given to such deliveries?

b) Name 2 advantages and 2 disadvantages of such deliveries?

Ans: a) Its called "domiciliary midwifery service"

b)

Advantages:

- Lower cost
- A desire to give birth in a familiar, relaxing environment
- No need to travel to hospital when in labor
- Cultural and religious norms or concerns

Disadvantages:

- No facilities for C sec. are available if required immediately
- Pain relief options are limited when giving birth at home

Q2: a) Define pneumoconiosis**b) Which control measures should be taken to prevent pneumoconiosis in the industries? (supply 2014)****Ans:**

(a) Pneumoconiosis is a group of lung diseases resulting from inhalation of respirable fraction of different chemical dusts (organic/inorganic) leading to irreversible fibrosis called pneumoconiosis.

b) 1. Medical Measures:

- Application of the ergonomics
- Regular medical checkup
- Health education
- Notification of the any disease case and its treatment.

2. Engineering Measures:

- Good ventilation
- Isolation of the process
- Cotton dust control
- Substitution of the complex procedure if possible

3. Legislation:

- Proper laws should be implemented which are in the favour of the workers.
- Workers should be provided with medical facilities (free of cost)

4. General Measures:

- Workers should wear masks and protective gear while working
- There should be enough per person moving space in the working area
- Proper ventilation and general health measures should be adopted.
- Any worker with deteriorating health should be given immediate treatment and care
- Substitution of the process causing harm should be done if possible.

Q3: As in charge of School health programme of a secondary school, what logistics will you carry out for school health services?**Ans:** Objectives of school health services are :

1. The promotion of positive health
2. Prevention of communicable diseases
3. Early diagnosis, treatment and follow up of defects
4. Awakening of health consciousness in children
5. Provision of healthful and clean environment to the students

Aspects of school health services are :

1. Health appraisal of school children and school personnel
2. Remedial measures and follow up
3. Prevention of the communicable diseases
4. Nutritional services
5. Mental and physical health of children
6. Health education
7. Proper maintenance of health records of students
8. Ensuring the provision of all school health services to all the students.

Supply 2015**Q1: Famine is present in Thar region of Pakistan.**

a- What consequences can be faced by people living over there?

b- How will you manage the disaster?

Ans : a. Consequences:

- Overcrowding and poor sanitation in temporary resettlement
- Population displacement may lead to induction of communicable diseases
- Shortage of water, food and shelters
- Disruption and contamination of water supply
- Ecological changes may favor breeding of vectors and increase the vector population density.
- Displacement of domestic and wild animals who carry with them zoonosis that can be transmitted.
- Provision of emergency food, water and shelter from new source may itself be a source of infection
- Disruption of routine control programs as funds and personnel are diverted to relief work.

B: Management:

Pre-disaster management

- Proper planning
- Organization under direction of highest local administrator
- Staffing
- Training of team members
- Co-ordination
- Reporting
- Budgeting

During disaster management

- Search, rescue and first aid
- Field care
- Information centre
- Triage
- Tagging
- Identification of dead
- Transportation

Post disaster management

- Epidemiological surveillance
- vaccination
- nutritional support
- rehabilitation
- water supply
- food safety
- basic sanitation
- vector control
- Psychological treatment

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Section 9: Food & Nutrition

Supply 2003

Q1:

- a) Define "BALANCED DIET" and explain. Dietary requirements in INFANCY and CHILDHOOD and OLD AGE.
- b) What are the MACRONUTRIENTS? Explain their role in diet.

Ans:

a) **Balanced Diet**

A diet which contains variety of foods in such quantities and proportions that need for energy, amino acids, vitamins, minerals, fats, carbohydrates and other nutrients is adequately met for maintaining health, vitality and general well-being and also makes a small provision for extra nutrients to withstand short duration of leanness.

Dietary requirement

In INFANCY: 110 kcal/day

In CHILDHOOD:

1.5 to 2 years= 1200 kcal/day

4 to 6 years = 1690 kcal/day

10 to 12 years= 2190 kcal/day

(Excel page no 279)

b) **Macronutrients:**

- i- Carbohydrates
 - Energy provision
 - Essentials for synthesis of amino acids
 - Oxidation of fats
- ii- Proteins
 - Body building
 - Repair and maintenance of tissues
 - Synthesis of substances like antibodies, plasma proteins, haemoglobin, enzymes and hormones, etc
- iii- Fats and oils
 - Stores proteins for being used as part of energy
 - Support viscera such as heart, kidney and intestine
 - Provides insulation against rapid body temperature changes
 - Fatty acids

(Excel page no 280)

Annual 2004

Q1: **Nutritional status of one year old child?**

Ans: Nutritional status of one year old child is assessed by following ways:

Direct Method

Indirect Method

Direct Method

Anthropometric Indices:

- a) Weight for age (wt/age)
- b) Height for age (Ht/age)
- c) Weight for Height (wt/ht)
- d) Skin fold thickness

- e) Chest/Head Circumference Ratio
- f) Upper (mid) Arm Circumference

Indirect Method

- a) Morbidity
 - i- Diarrhea
 - ii- Measles
 - iii- TB
 - iv- PEM
 - v- Anemia
- b) Mortality
 - I- IMR
 - II- Prenatal MR
 - III- Neonatal MR
 - IV- Postnatal MR
 - V- LBW
- c) life expectancy

(Excel page 291, 292)

Annual 2006**Q1:****a) Define MALNUTRITION****b) Define IATROGENIC DISORDERS with examples****Ans:**

- a) Malnutrition is defined as "A pathological state resulting from a relative or absolute deficiency or excess of one or more essential nutrients".(excel page 292)
- b) Disorder resulting from the activity of a health care provider or institution; said of any adverse condition in a patient resulting from treatment by a physician, nurse or allied health professional are called iatrogenic disorders.

Q2: Enlist and briefly explain aetiological factors related to MALNUTRITION.**Ans: House Hold Factors:**

- i- Erroneous weaning by ignorant mother
- ii- Early weaning due to 2nd pre
- iii- Poor sanitation
- iv- Poor MCH care due to careless parents
- v- Wrong distribution of food among family members

Psychological factors**Cultural factors:**

Type of food consumed and weaning products

Other factors:

- i- High cost of protein food
- ii- Shortage of food in community
- iii- Poor environmental sanitation
- iv- Shortage of curative and preventive services

Excel page 293, 294

Annual 2007

Q1: A child of 1 year presented with muscle wasting, loss of subcutaneous fat with no sign of edema and weight below 60% of WHO standard. the mother gave history of not giving enough proteins and other nutrients to the child after six months of the age.

- a) Name the likely condition and give it causes.

B) Write the primary prevention of the condition.

Ans: a) Marasmus because of deficiency of food intake and utilization.

Cause: due to total protein calories deficiency with infection and diarrhea.

b) Prevention:

i- Provision of adequate nutrient

ii- Provision of protein

iii- high energy food during pregnancy and lactation

iv- education of the Govt. and individual on the importance of good nutrition

v- good surveillance to avoid periods of famines

vi- food supplements for at risk groups.

Annual 2008

Q1: A research was conducted in obstetrics department regarding the effects of nutritional status of pregnant women on their deliveries and outcomes. It was observed that 60% of women who presented during pregnancy with pallor, palpitations and dyspnea on exertion. They developed complications at the time of delivery and their babies were below 2.5kg of weight at birth.

a) Which nutritional condition is hinted in these women?

b) Suggest the measures to decrease the prevalence of this condition among pregnant women?

Ans: a) nutritional anemia

b)

- Iron and folic acid supplementation, this is based on daily supplementation of iron and folic acid tablet to prevent mild and moderate cases of anemia.
- Iron fortification- addition of ferric ortho-phosphate or ferrous sulphate with sodium bisulphate in salt.
Iron fortification has many advantages over iron supplementation. As salt is universally consumed dietary item, all segment of population stand to benefit. no special delivery system is required.
- Changing dietary habits
- Control of parasites and nutrition education, these are longterm measures applicable to situations where the prevalence and severity of anemia are low. (Page : 596 park)

Q2: A man is brought to you with history of inadequate dietary intake and signs of thiamine deficiency. Upon further interviewing he is found to be taking 30 units of alcohol weekly. (one unit=9 gms)

a) What is your opinion about the quality of alcohol intake in this person?

b) What social and psychological effects are likely in this person?

Ans: a) patient should stop all alcohol.

B) Thiamine deficiency effects in following ways:

loss of appetite

exhaustion and fatigue

psychological: wernick's encephalopathy characterized by ophthalmoplegia, depression, polyneuritis, ataxia and mental deterioration.

Supply 2008

Q1: A 7 year old child present with a complaint of inability to see in the dark. Examination of the eyes reveals conjunctival xerosis, bitot's spots and corneal haziness:

A) Which NUTRITIONAL FACTOR is responsible for this condition?

b) What will be the primary prevention for this?

Ans: a) vitamin A deficiency

c)

Child should take vitamin a containing food which are following:

Animal food: whole milk, fish liver oil and meat.

Plant foods: green leafy vegetables also in most green and yellow Animal food: food rich in retinol are liver, eggs, butter, cheese, fruits and vegetables like papaya, mango, pumpkin and in some roots like carrots.

Fortified foods: food fortified with vitamin A (vanaspati, margarine, milk) can be an important source.

(Chapter 6 page no 138 excel)

Annual 2009

Q1: Ten boys went to hotel to celebrate their friends birthday. They ate salad and burgers. Within four hours of meal eight boys develop severe vomiting and profuse diarrhea with mild fever and chills.

a) Give the likely diagnosis?

b) Which health promotive measures will you adopt regarding the above condition?

Ans: a) Food poisoning

b)

1. people should be educated to wash the vegetables before eating them raw.

2. Following standard are suggested for restaurants and eating houses:

i. Location: they shall not be near any accumulation of filth and open drain.

ii. Floors: to be higher than adjoining land and made with impervious material and easy to keep clean.

iii. Lightening and ventilation: ample natural lighting facilitates aided by artificial lighting with good circulation of air are necessary.

iv. Storage of cooked food: separate room to be provided. .for long storage control of temperature is necessary.

v. Storage of uncooked food stuff: perishable and non perishable food stuff should be kept separate in rat proof and vermin proof space.

vi. Disposal of refuse: collected in covered bins and disposed off twice a day.

vii. Water supply: independent source, continuous, adequate and safe.

viii. Washing facilities: cleaning done in hot water followed by disinfections.

3. Food handlers: i. complete medical examination should be done **food handlers** before employment.

ii. Education of food handlers in matters of personal hygiene, food handling ,utensils and dish washing and insect and rodent control is the best means of promoting food hygiene.

4. Meat inspection:

The characteristics of good meat are that it should be

i. neither pale pink nor deep purple tint

ii. Firm and elastic to touch,

iii. Should not be slimy

iv. and have an agreeable odour. (park page no 609)

Annual 2010

Q1:

a) What do you understand by the term iodine deficiency disorder?

b) What are the different strategies to prevent iodine deficiency nationwide?

Ans: a) there is wide spectrum of disorder And it includes following

1. Hyperthyroidism

2. Retarded physical development and impair mental function

3. Increased rate of spontaneous abortion and still birth

4. Neurological cretinism including deaf-mutism

5. myxadematous cretinism including dwarfism and severe mental retardation

b)

1. iodized salt

this most economical ,convenient and effective means of mass prophylaxis in endemic area

2. iodized oil in sanflower and safola oil
3. Iodine monitoring
4. Manpower training-workers should be fully trained
5. Mass communication for creation of public awareness.(park page no 578,596)

Q2:A 30 year old primary gravida in her first trimester of pregnancy comes to your community clinic for ante-natal checkup and advice.

- a) what general and systematic examination will you perform?
- b) what investigation will you perform?
- c) what nutritional advice you will give her?

Ans: a)

b) Complete blood count

Hemoglobin level

Blood sugar level

Total leukocyte count

Differential leukocyte count

Urine complete

Scanning test for hepatitis B & C

c) 1- All women should be counseled to eat a well balanced and varied diet that includes meats, dairy products, fruits , vegetables and grains.

2-It is important that women and their physicians understand that baseline caloric requirements do not increase until the second and third trimesters of pregnancy – and then only by 340-450 calories a day.

3-Pregnant women should be counseled for alcohol, cigarette smoking and drug use.

4-They should avoid unpasteurized milk and milk products as pregnant women have increase susceptibility to listeria and toxoplasmosis, and should also avoid raw eggs because of the risk of salmonella leading to intrauterine sepsis.

Annual 2011

Q1:A passenger was travelling from Rawalpindi to Lahore. He stops at chakri resort and buys a tin of preserved food. He checks its expiry but it is still in valid period. At the time of opening he noticed that covering on both sides of tin are bulging.

a) should he use that food?

b) justify your Ans.

Ans: a) no

b) food borne botulism results from contaminated foodstuffs in which Clostridium botulinum spores have been allowed to germinate and produce botulism toxin, and this typically occurs in canned non acidic food substance .and it causes bulging of the both sides of the tins due to production of gas by the organism. Botulism is a rare paralytic illness, leading to paralysis of muscles which sometimes causes respiratory failure. Therefore this food tin must be discarded and should not be used.

Supply 2011

Q1: A mother reports to you with her two year child with the complain of skin pigmentation and cracks and changes in hair colour. Examination showed weight slightly below the standard for age but it was marked by generalized body edema.

a) What will be your probable diagnosis?

b) What measures should be taken to overcome this problem in children?

Ans: a) Kwashiorkor

b) i. Health promotion

- 1.nutritional education: promotion of correct feeding practices
- 2.promotion of breast feeding.

3.measures directed to pregnant and lactating women about education and distribution of supplements.

4.the child should be made to eat more food at frequent intervals

ii. specific protection

1.child diet must be contain protein and energy rich food milk, egg and fresh fruits should be given if possible.

2.Immunization

3.Food fortification

iii. Early diagnosis and treatment

1.early diagnosis of any lag in growth.

2.development of supplementary feeding programmes during epidemics.

3.Early diagnosis and treatment of infection and diarrhea.

iv. rehabilitation

1.nutritional rehabilitation services

2.hospital treatment

3.follow up care.

(park pg no 594)

Annual 2012

Q1: A mother reported to you with her two year old child with the complaint that her son walks with difficulty. On examination, knock knees, pot belly, curving of legs were noted.

A) What is your most likely diagnosis and factor responsible?

b) Enlist three measures to combat this problem.

Ans: a) Rickets

Factor responsible for this is vitamin D deficiency

b)

1- administration of vitamin D

2-use of vitamin D rich diet like milk, butter, egg yolk, fish, oil & ghee

3-educating parents to expose their children regularly to sunshine

Annual 2013

Q1: A mother brought her six years old son with complaints of repeated chest infection, difficulty of vision in dim light and anorexia. On examination, his conjunctiva found dry and dull. Skin was toad like.

a) What is the most probable diagnosis?

b) Write down sources of this deficient item.

Ans: a) Vitamin A deficiency

b) Vitamin A is widely distributed in animal and plant foods- in animal food as preformed vitamin A (retinol), and in plant foods as provitamins (carotenes).

i- whole milk, fish liver oil and meat.

ii- Plant foods: green leafy vegetables also in most green and yellow Animal food: food rich in retinol are liver, eggs, butter, cheese, fruits and vegetables like papaya, mango, pumpkin and in some roots like carrots.

iii- Fortified foods: food fortified with vitamin A (vanaspati, margarine, milk) can be an important source.

(Park's page no 285)

Annual 2014

Q1: You are asked to assess the nutritional status of under five children in your with the objective to identify prevalent nutritional problems.

a) Which anthropometric measurements are required to be done in this age group?

b) How these measurements are used to determine the nutritional status?

Ans: a)

- i. weight
- ii. Height
- iii. Length
- iv. arm circumference
- v. skin fold thickness
- vi. chest/head circumference ratio

b) Gomez classification of malnutrition

Wt/age	Status
90-110%	Normal
75-89%	Grade 1 (mild malnutrition)
60-74%	Grade 2 (moderate)
<60%	Grade 3 (severe)

Q2: A 25 year old comes to your clinic for her first antenatal checkup. On general physical examination pallor is positive. Her complete blood examination report showed Hb 19g/dl and MCHC below 34%.

a) What mineral supplement will you prescribe?

b) what specific nutritional counseling will you do to improve her condition?

Ans: a) Iron and folic acid supplement

b)

- 1- All women should be counseled to eat a well-balanced and varied diet that includes meats, dairy products, fruits, vegetables and grains.
- 2-It is important that women and their physicians understand that baseline caloric requirements do not increase until the second and third trimesters of pregnancy – and then only by 340-450 calories a day.
- 3-Pregnant women should be counseled for alcohol, cigarette smoking and drug use.
- 4-They should avoid unpasteurized milk and milk products as pregnant women have increase susceptibility to listeria and toxoplasmosis, and should also avoid raw eggs because of the risk of salmonella leading to intrauterine sepsis.

Supply 2014

Q1: A 25 year old male sedentary person weighing 80 kg reports to you for dietary advice. On enquiry it estimated that he is taking approximately 600gms of carbohydrates, 140gms of fats and 100gms of proteins per day.

a) What do you think he is taking required amount of energy?

b) How much calories he should take per day and what should be the proportion of macronutrients, as he is interested to reduce weight to the reference level.

Ans: a) no he is taking more than his need.

b) He should take average 2600kcal/day and the proportion of the macronutrient should be following:

Carbohydrates: 300gm/day

Proteins: 1gm/kg

Fats: 90-130gm/day

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<http://www.facebook.com/MedCom.2011>



Section 10 : Medical Parasitology, Radiation, Health Education, IMCI, Social Science, Mental Health

Annual 2007

Q1: a) Define ionizing radiation

(b) Enumerate the radiation hazard faced by the health professionals in radiology department of a hospital

Ans: (a) Radiation is the emission of energy in a radiant way that ionizes the substance

(b) Immediate Effect:

- 1) radiation sickness, nausea, vomiting, fatigue, diarrhea
- 2) acute radiation syndrome: alopecia, dark complexion, removal of subcutaneous fat, softening of muscles

Delayed Effect:

- 1) leukemia
- 2) carcinogenesis
- 3) malignancies
- 4) fetal development abnormalities
- 5) shortening of life
- 6) Death

Genetic effects:

These are produced in next generation. Results from injury to chromosomes, which lead to mutations in them e.g. deformed limbs in children of affected parents

Q2: A young boy is brought to a hospital by his parents. The boy is unable to react normally to life situations; he exhibits morbid fears, compulsions and obsessions

(a) Does this boy appear mentally healthy? If not, then enlist the characteristics of mentally healthy people to support your assessment

(b) What are the possible causes leading to a mental illness?

Ans: (a) Three main characteristics

- 1) He feels comfortable about himself. He neither underestimates nor overestimates his own ability. He accepts his shortcomings
- 2) The mentally healthy person feels right towards others. He is able to be interested in others and love them. He has friendships that are satisfying and lasting. He is able to like and trust others
- 3) The mentally healthy person is able to meet the demands of life. He does something about the problems as they arise. He is able to think for himself and to take his own decisions. He is not bowled over by his own emotions of fear, anger, love, guilt etc

(b) causes:

- 1) Organic conditions
- 2) hereditary
- 3) social pathological causes e.g. nutritional factors, toxic substance, mineral deficiency, traumatic factors, radiation

Supply 2007

Q1:

(a) list four factors to start tobacco smoking?

(b)What are the adverse effects of tobacco smoking?

Ans: (a)

- 1) To cope with stress
- 2) As a social habit
- 3) peer influence
- 4) To control their weight

(b)

Adverse effects:

- lung cancer
- tobacco dependence syndrome
- respiratory infections
- Asthma

Annual 2008

Q1: A man is brought to you with history of inadequate dietary intake and signs of thiamine deficiency. Upon further interviewing he is found to be taking 30 units of alcohol weekly (one unit 9 gms)

(a) What is your opinion about the quantity of alcohol intake in this person?

(b) What social and psychological effects are likely in this person?

Ans: (a) weekly safe consumption limit for men is 21 units/week. Any more than this is not good.

(b)

- Crime
- traffic accidents
- broken family
- absences
- suicide
- injuries
- deaths due to domestic violence.

Annual 2009

Q1: An 18 year old farmer who works barefooted for 10-12 hours on his fields daily ,complains of weakness,breathlessness on exertion and diminished capacity for sustained hard work. On examination he looks pale.

(a) Diagnosis?

(b) How you prevent and control this problem?

Ans:(a) Hook worm infection

(b)

- 1) sanitary disposal of faeces
- 2) chemotherapy
- 3) treatment of anemia
- 4) health education.

Q2: A 40 year old man came to hospital the complaints of gastritis. He also reported his dependence on a substance .on examination he had signs of peripheral neuropathy and cirrhosis of liver. His gait was ataxic and speech slurred

(a) name the likely abused substance?

(b) list factors responsible for the substance used?(annual 2009)

Ans: (a) Alcohol

(b)

- economic factors
- cultural factors

- social factors
 - unemployment
 - living away from home
 - broken homes
 - areas with high rates of crime
 - certain occupations
 - area where are drugs using gangs
-

Annual 2011

Q1: In pakistan addiction is increasing in alarming rate

(a) name four substances used by these addicts?

(b) name at least six factors leading to addiction

Ans: (A)

- Alcohol
- Cocaine
- Cannabinoids
- Barbiturates
- Tranquilizers

(b)

- economic factors
 - social factors
 - cultural factors
 - unemployment
 - living away from home
 - Areas where drugs are sold, traded or produced
 - Broken homes
 - Areas with high grade of crime
-

Q2: As a social structure of our society is disintegrating, the mental illness are on an increase day by day.

Apply three levels of prevention to prevent this menace.

Ans:

1) Primary prevention:

- eliminate causative agents
- enhancing host resistance
- reducing risk factors
- interfering with mode of disease transmission
- mental health education programme

2) secondary prevention:

- early diagnosis of mental illness through screening programs in schools universities industry etc
- in this regard, family-based health services have much role to play
- The family service agencies should identify emotional problems and early symptoms
- They prepare individual family members for psychiatric care

3) Tertiary prevention:

Its aim is to reduce the duration of mental illness. It involves rehabilitative efforts to enable those who have a chronic mental illness to reach the highest level of feasible functioning.

Annual 2012

Q1: In pathology laboratory ,radioactive material is used in radio immune assay procedure.What hazards a worker of this lab is exposed to?

Ans:

Immediate Effect:

- 1) radiation sickness, nausea, vomiting, fatigue, diarrhea
- 2) acute radiation syndrome: alopecia, dark complexion, removal of subcutaneous fat, softening of muscles

Delayed Effect:

- 1) leukemia
- 2) carcinogenesis
- 3) malignancies
- 4) fetal development abnormalities
- 5) shortening of life
- 6) Death

Genetic effects:

These are produced in next generation. Results from injury to chromosomes, which lead to mutations in them e.g. deformed limbs in children of affected parents

Annual 2013

Q1: A mother brought her only daughter to a psychiatrist. She told that she reacts abnormally to different situations. She exhibits fears, compulsions and obsessions.

(a) Diagnosis?

(b) Write down Four environmental factors affecting mental health?

Ans: (a) Obsessive compulsive disorder

(b)

Toxic substances: mercury, manganese

psychotropic drugs: barbiturates

nutritional factors: thiamine deficiency

mineral deficiency: iodine

Q2: A patient reports to you complaining of abdominal discomfort, anorexia and chronic indigestion. On inquiry, he gave history of passing segments of parasite during defecation.

(a) Most probable diagnosis

(b) List at least four measures against the parasite?

Ans:

(a) Taeniasis

(b)

1) Strict inspection of meat

2) Avoid eating raw or undercooked beef

3) pickling and salting of infected meat is unsafe

4) meat should be thoroughly cooked to destroy cysticercus.

Supply 2013

Q1: An 8th class boy was brought by his parents to you. The boy exhibits fears, compulsion and obsessions.

(a) Do you think he is mentally healthy? Enlist characteristics of a mentally healthy person.

(b) What are the possible reasons of mental illness in adolescents? (supply 2013)

Ans: (a) Three main characteristics

1) He feels comfortable about himself. He neither underestimates nor overestimates his own ability. He accepts his shortcomings.

2) The mentally healthy person feels right towards others. He is able to be interested in others and love them. He has friendships that are satisfying and lasting. He is able to like and trust others.

3) The mentally healthy person is able to meet the demands of life. He does something about the problems as they arise. He is able to think for himself and to take his own decisions. He is not bowled

over by his own emotions of fear, anger, love, guilt etc

(b) The transition from adolescence to adulthood is often stormy and requires affection and full support or otherwise may lead to mental ill health and juvenile delinquents.

Annual 2014

Q1: (a) Enumerate smoking related disorders

(b) Discuss psycho-socio-cultural and economic factors that promote smoking in teenagers (annual 2014)

Ans: (a)

- lung cancer
- tobacco dependence syndrome
- respiratory infections
- Asthma

(b)

- approval of use by parents
- To look cool
- peer pressure
- product placement in TV and films
- stress
- anxiety and depression
- poor housing
- low income
- nicotine exposure
- To lose weight

Supply 2014

Q1: A young man was brought by his father with the complaints that he his son shows extreme suspicions and faces state of delusions.

(a) What is the most likely diagnosis?

(b) Apply three levels of prevention to mental illness in general

Ans: (a)

(b)

1) Primary prevention:

- eliminate causative agents
- enhancing host resistance
- reducing risk factors
- interfering with mode of disease transmission
- mental health education programme

2) secondary prevention:

early diagnosis of mental illness through screening programs in schools universities industry etc in this regard, family-based health services have much role to play

The family service agencies should identify emotional problems and early symptoms

They prepare individual family members for psychiatric care

3) Tertiary prevention:

Its aim is to reduce the duration of mental illness. It involves rehabilitative efforts to enable those who have a chronic mental illness to reach the highest level of feasible functioning.

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