Questions

122. All of the following is true about the Herd Immunity for infectious diseases EXCEPT: (AI 2005)
   a. It refers to group protection beyond what is afforded by protection of immunized individuals
   b. It is likely to be more for infectious diseases that do not have subclinical phase
   c. It is affected by the presence and distribution of alternative animal hosts
   d. In the case of tetanus it does not protect the individual.

123. Herd immunity is not important in: (JIPMER 1993, AI 1995)
   a. Tetanus
   b. Pertussis
   c. Diphtheria
   d. All

124. Maternal antibodies are not protective in: (SGPGI 2002)
   a. Tetanus
   b. Pertussis
   c. Diphtheria
   d. All

125. The usual incubation period of Pertussis is: (AIIMS 2005 Nov)
   a. 7-14 days
   b. 3-5 days
   c. 21-25 days
   d. Less than 3 days

126. First in sequence is: (MH PGM CET 2002)
   a. Impairment
   b. Disease
   c. Disability
   d. Rehabilitation
127. Primary level of prevention includes all EXCEPT: (CMC 2001; AI 2000)
   a. Health promotion
   b. Specific protection
   c. Early diagnosis and treatment
   d. Immunization

128. Supplementation of iron and folic acid to a pregnant woman is an example of: (ESIS 2005)
   a. Health promotion
   b. Specific protection
   c. Disability limitation
   d. Rehabilitation

129. Level of prevention that includes Specific protection: (MP 2004)
   a. Primordial
   b. Primary
   c. Secondary
   d. Tertiary

130. Primordial prevention is for: (AI 2000)
   a. Persons without risk factors
   b. Persons with risk factors
   c. Cure of disease
   d. Treatment of complications

131. Primordial prevention is the: (UPSC 1999)
   a. Prevention of diseases among the hill dwelling and tribal people
   b. Prolongation of human life span to the maximum extent
   c. Promotion of health, well-being and efficiency
   d. Prevention of disease through avoiding emergence of risk factors

132. Checking of sputum for AFB comes under: (AIIMS 1995)
   a. Primary prevention
   b. Secondary prevention
   a. Tertiary prevention
   a. Quaternary prevention

133. Prevention of coronary artery disease by changing life style by education is referred as: (SGPGI 2002)
   a. Primary prevention
   b. Secondary prevention
   c. Tertiary prevention
   d. Primordial prevention
134. Inculcating healthy life-style is a type of: (UP 1996)
   a. Primary prevention
   b. Secondary prevention
   c. Tertiary prevention
   d. Quaternary prevention

135. Immunization is which level of prevention? (MP 2002)
   a. Primary level of prevention
   b. Secondary level of prevention
   c. Tertiary level of prevention
   d. Primordial level of prevention

136. The chronic diseases, which are seen in elderly, are all EXCEPT:
     (ESIS 2005)
   a. Degenerative disease if heart and blood vessels
   b. Cancer of prostate
   c. Accidents
   d. Acute diarrhea

137. INTERNATIONAL NOTIFICATION is a must in all the following
     EXCEPT: (TN 2003)
   a. Plague
   b. Cholera
   c. Yellow fever
   d. Paralytic polio

138. Selective screening refers to screening tests applied to a: (UPSC 2005)
   a. Volunteer group
   b. Randomly selected group
   c. High risk group
   d. Non-randomized group

139. The continuous scrutiny of factors that determine the occurrence
     and distribution of disease” is known as: (JIPMER 2002)
   a. Maintenance
   b. Monitoring
   c. Surveillance
   d. Screening

140. True about Sentinel surveillance: (AIIMS 1999)
   a. It is a method of identifying the missing cases
   b. Supplementing the notified cases is difficult
   c. Total numbers of cases cannot be identified
   d. It is performance and analysis of routine measurement aimed at
detecting changes in the environment or health status of population
141. Following is/are the notifiable diseases as well as under surveil-
ance: (DNB 1992)
   a. Epidemic typhus
   b. Relapsing fever
   c. Plague
   d. Cholera

142. Disease under WHO surveillance are all EXCEPT: (SGPGI 2002)
   a. Diphtheria
   b. Relapsing fever
   c. Polio
   d. Malaria

143. Isolation is not carried in one of the following: (JIPMER 2003)
   a. Plague
   b. Cholera
   c. AIDS
   d. Chicken pox

144. All are true about Typhoid EXCEPT: (JIPMER 2004)
   a. Incubation period 10 to 14 years
   b. Most common among males
   c. Carrier are treated by Ampicillin
   d. Highest incidence occurs in 30-40 years age group

145. Which of the following is true of Chicken pox? (AI 1989)
   a. Virus not found in scab
   b. Virus can be grown on chick embryo
   c. Caused by RNA virus
   d. Does not cross the placental barrier

146. Infectivity of chicken pox is seen up to: (UP 2002)
   a. As long as patient has fever
   b. 3 days after the appearance of rash
   c. 6 days after the appearance of rash
   d. Till the scab falls

147. No subclinical infection exists in (JIPMER 2003)
   a. Polio
   b. Mumps
   c. Chicken pox
   d. Hepatitis A
148. In which of the following Subclinical infection is not seen in: (Delhi 2002)
   a. Chicken pox
   b. Measles
   c. Polio
   d. Diphtheria

149. No Subclinical cases are seen in: (MP 2002)
   a. Rabies
   b. AIDS
   c. Polio
   d. Cholera

150. The commonest type of Polio: (AIIMS 1980, AMU 1990)
   a. Inapparent
   b. Abortive
   c. Non-paralytic
   d. Paralytic

151. Lymphatic filariasis is caused by all EXCEPT: (JIPMER 2002; Maharashtra 2006)
   a. Brugia malayi
   b. Brugia timori
   c. Wuchereria bancrofti
   d. Dirofilaria immitis

152. Mass treatment strategy is for treating (JIPMER 2003)
   a. Plague
   b. Filariasis
   c. Cholera
   d. Diphtheria

153. Which one of the following represents “Filaria Endemicity Rate”: (UPSC 1999)
   a. Microfilaria rate
   b. Filaria disease rate
   c. Mosquito infestation rate
   d. Combination of microfilaria and disease rate

154. All of the following are commonly used Filarial indices except: (AI 1994)
   a. Microfilaria rate
   b. Filaria disease rate
   c. Mosquito infestation rate
   d. Filaria endemicity rate
155. Maximum density of Microfilaria in blood is reported to be: (AI 1988, UPSC 2003)
   a. 9 pm to 11 pm
   b. 11 pm to 2 am
   c. 8 pm to 10 pm
   d. 2 am to 5 am

156. Which of the following shows diurnal periodicity? (Maha 2006)
   a. Brugia malayi
   b. Brugia timori
   c. Wuchereria bancrofti
   d. Loa loa

157. Man is a definitive host of: (Kerala 2000)
   a. Echinococcosis
   b. Malaria
   c. Filariasis
   d. Rabies
   e. Leishmaniasis

158. Disinfectant is one which: (MH PGM CET 2000)
   a. Kills bacteria and spores
   b. Kills bacteria only
   c. Kills spores only
   d. Kills viruses

159. Disinfection of water by routine chlorination can be classified as: (KAR 2005)
   a. Sterilization
   b. Concurrent disinfection
   c. Terminal disinfection
   d. Recurrent disinfection

160. The disinfectants, which are used for the disinfection of faeces, are all EXCEPT: (ESIS 2005)
   a. Bleaching powder (500 gm/Lt)
   b. Cresol (50 ml/Lt)
   c. Crude phenol (100 ml/Lt)
   d. Cetrimide (40 ml/Lt)

161. Paris green is a (JIPMER 2004)
   a. Fumigant
   b. Contact poison
   c. Stomach poison
   d. Repellent
162. Which of the following is most dangerous for transmitting plaque: (Orissa 2001)
a. Blocked flea  
b. Partial blocked flea  
c. Both  
d. Unblocked flea

163. Basic cycle of Epidemic of Bubonic plague is: (Orissa 2003)
a. Commensal rat → rat fleas → man  
b. Wild rats → flea → man  
c. Wild rodents → man  
d. Man → man

164. Most contagious type of Plague is: (TN 2003)
a. Bubonic plague  
b. Septicemic plague  
c. Pneumonic plague  
d. Wild plague

165. All the following are transmitted by Flea EXCEPT: (JIPMER 2002)
a. Bacillary angiomatosis  
b. Murine typhus  
c. Lyme disease  
d. Plague

166. Causative organism of Bubonic plague is: (CMC 1997)
a. Yersenia pestis  
b. Xenopsylla cheopis  
c. Xenopsylla astia  
d. Rattus rattus

167. Plague is what type of ZOONOSIS? (Rajasthan 2004)
a. Cyclozoonosis  
b. Direct zoonosis  
c. Sapro-zoonosis  
d. Meta Zoonosis

168. According to WHO for multi-drug resistant TB, resistance should be present at least to: (JIPMER 2002)
a. INH and RMP  
b. INH and ETB  
c. RMP and PZM  
d. ETB and PZM
169. Minimum TB resistance is seen to which drug? (Jharkhand 2003)
   a. Isoniazid
   b. Rifampicin
   c. Streptomycin
   d. None

170. Regarding prevalence of tuberculosis all are correct EXCEPT: (Kerala 1999)
   a. Death occurs one in 500000 population
   b. 40% of cases occur in children
   c. 0.4% children are of 10 years age
   d. Non-specific sensitivity is highly prevalent

171. Best tool for measuring prevalence of TB infection in community is: (DNB 2004)
   a. Sputum positivity
   b. X-ray detection
   c. Tuberculin conversion index
   d. Mortality rate due to TB

172. A positive Mantoux test indicates that the child: (Kar 1989)
   a. Is suffering from active disease
   b. Has had BCG vaccination recently
   c. Had TB infection
   d. Is infected with mycobacterium TB

173. A patient who was initially smear positive, who began the treatment and who remained or became smear positive again at five months or later during the course of treatment is called as: (AIIMS-2001)
   a. Defaulter
   b. Failure case
   c. Relapse
   d. None of the above

174. Treatment of recently sputum positive case of pulmonary TB is: (DNB 98)
   a. RMP+INH+PZM
   b. RMP+INH+PZM+SMC
   c. RMP+INH+PZM+ETM
   d. RMP+INH+ETM
175. In a patient found to have sputum negative but x-ray positive, tuberculous lesions should be treated by which regimen? (SGPGI 2002)
   a. 2 RHZ + 4 HZ for 6 months
   b. 3 EHZ + 4 HZ for 6 months
   c. 3 RHZ + 2 RH for 6 months
   d. E+R for a year

176. True about DOTS is all EXCEPT: (AIIMS 2001, MH PGM CET 2002)
   a. Effective worldwide on a programme basis
   b. Health worker or a trained person watches as the patient swallows the drug in his/her presence
   c. Patient is issued medicine for one day at a time
   d. First dose is swallowed by the patient in presence of health worker or a trained person

177. In the DOTS strategy under National tuberculosis control programme, the letters ‘D’ and ‘O’ stand for which of the following? (AI 2004)
   a. Daily observed
   b. Directly observed
   c. Day out
   d. Dually observed

178. Number of sputum positive cases of tuberculosis per thousand in India is: (AIIMS 2000 June)
   a. 4
   b. 6
   c. 6
   d. 15

179. Under passive surveillance for Tuberculosis under WHO, indication for screening with sputum microscopy is done if patient has persistent cough for _____ weeks or more (PGI 2002)
   a. 3 weeks
   b. 4 weeks
   c. 6 weeks
   d. 8 weeks

180. True about Revised National Tuberculosis Control Programme (RNTCP): (PGI 2003)
   a. Active case finding is done
   b. Active surveillance is done
   c. It has been implemented all over India replacing NTCP
   d. Drugs are dispensed in multi-blister packs
181. **The Pillars of Revised National Tuberculosis Control Programme (RNTCP) are all EXCEPT:** (ESIS 2005; Maharashtra 2006)
   a. Achievement of not less than 85% cure rate amongst infectious cases of tuberculosis through short course chemotherapy involving peripheral health functionary.
   b. Detecting 70% of estimated cases through Quality Sputum Microscopy
   c. Not involving NGO’s in RNTCP
   d. Directly observed therapy (short term), is a community based TB treatment and care strategy.

182. **Lepra bacilli are mainly transmitted by:** (MP 2004)
   a. Skin contact
   b. Droplets
   c. Stool
   d. Urine

183. **The efficacy of anti-leprotic drug treatment is given by:** (JIPMER 2002)
   a. Relapse rate
   b. Disability rate
   c. Conversion index
   d. Proportion of children among the newly diagnosed cases

184. **Which of the following type of Leprosy by Indian classification of Leprosy is not included in Madrid classification?** (JIPMER 2004)
   a. Indeterminate leprosy
   b. Borderline type
   c. Tuberculoid leprosy
   d. Pure neuritic type

185. **The goal of National Leprosy Eradication Programme is to bring the prevalence of leprosy to ≤1 per what population?**
   a. 100
   b. 1000
   c. 10,000
   d. 1,00,000
186. True regarding Leprosy in India: (PGI 2004)
   a. Estimated 10,00,000 cases
   b. Prevalence 3.7/1000
   c. MDT – 99% coverage
   d. Eradicated in Orissa
   e. Vaccine being developed in Bihar

187. According to WHO leprosy is a public health problem if prevalence is more than: (AIIMS 1998)
   a. 0.1%
   b. 0.01%
   c. 0.5%
   d. 1%

188. Best method to control Leprosy is: (AIIMS 1996)
   a. Health education
   b. Chemoprophylaxis
   c. Change in nutritional habits
   d. Vaccination trial

189. Combination chemotherapy in Leprosy is used because of: (Manipal 1999)
   a. Cost-effectiveness
   b. Decreased side effects
   c. To prevent relapse
   d. To prevent resistance

190. The multi-drug regimen under the National Leprosy Eradication Programme for treatment of Multibacillary Leprosy includes: (UPSC 1997)
   a. Clofazamine, Thiacetazone and Dapsone
   b. Clofazamine, Rifampicin and Dapsone
   c. Ethionamide, Thiacetazone and Dapsone
   d. Rifampicin, Thiacetazone and Dapsone

191. Which one of the following statements about Leprosy is true? (UPSC 2004)
   a. Group service to case detection are carried out when prevalence of Leprosy is less than 1/1000
   b. For determining the bacteriological index, ++ in a smear indicates 2 bacilli in every field.
   c. Minimum duration of treatment for Paucibacillary cases is 9 months
   d. Minimum duration of treatment for Multibacillary cases is 12 months
192. What is the treatment of Multibacillary leprosy as directed by WHO? (Manipal 2000)
   a. 24 months treatment in 36 months
   b. 24 months treatment in 30 months
   c. 24 months treatment in 24 months
   d. 6 months treatment in 9 months

193. Treatment of Lepromatous leprosy is (MH PGM CET 2003):
   a. Rifampicin + Dapsone
   b. Rifampicin + Clofazamine
   c. Rifampicin + Dapsone + Clofazamine
   d. Rifampicin + Ofloxacin + Minocycline

194. A person with skin biopsy report shows M. Leprae bacilli in all fields, needs to be followed up for: (ESIS 2005)
   a. 6 months
   b. 1 year
   c. 2 years
   d. 5 years

195. Which of the following statements about lepromin test is not true? (AIIMS 2006 may)
   a. It is negative in most children in first 6 months of life
   b. It is a diagnostic test
   c. It is an important aid to classify type of leprosy disease
   d. BCG vaccination may convert lepra reaction from negative to positive

196. Malaria is transmitted by: (CMC 2003)
   a. Female anopheles mosquito
   b. Male anopheles mosquito
   c. Culex mosquito
   d. Aedes mosquito

197. The control of mosquitoes by genetic methods comprise of all the techniques EXCEPT: (ESIS 2005)
   a. Sterile male technique
   b. Cytoplasmic incompatibility
   c. Chromosomal translocation
   d. Biological control

198. According to NMEP, malaria surveillance should be done every: (Delhi 2005)
   a. Fortnightly
   b. Yearly
   c. Monthly
   d. Weekly
199. Dose of DDT used in residual spray: (ORISSA 2004)
   a. 1–2 gm/sq.foot area
   b. 2-3 gm/sq.foot area
   c. 3-4 gm/sq.foot area
   d. 4-5 gm/sq.foot area

200. All are true regarding DDT, EXCEPT: (AP 2005)
   a. It acts as neurotoxin
   b. It is primarily a contact poison
   c. It does not cause immediate death, but it takes several hours to kill
   d. It has repellent action on insects

201. In an area with API > 2 the dose of pyrethrenoids to be spread (in mg) per sq. meter is: (JIPMER 2002)
   a. 0.25
   b. 0.50
   c. 1
   d. 2

202. The current Global strategy for Malaria control is called: (Kar 2001)
   a. Modified Plan of Operation
   b. Malaria Eradication programme
   c. Malaria Control programme
   d. Roll back malaria

203. Roll back malaria programme is: (JIPMER 2004)
   a. Encourage the development of more effective and new anti-malarial drugs and vaccines
   b. Encourage the proper expanded use of insecticide treated mosquito net
   c. Training of village health workers and mother on early and appropriate treatment of malaria
   d. All
204. Under EMCP (Enhanced Malaria Control Project) launched in 1997, the criteria for selection of PHCs (Primary Health Center) included the following, EXCEPT: (UPSC 2004)
   a. API more than 2 for the last 3 years
   b. Plasmodium falciparum more than 30% of total malaria cases
   c. The area has been reporting deaths
   d. The area has been reporting epidemics

205. In malaria control programme the endemic areas are reclassified according to Modified Operation Plan of Malaria (MOP) depending on which malarial index? (MP 1998)
   a. Infant parasite rate
   b. ABER
   c. Splenic rate
   d. Annual parasite index

   a. Annual blood examination rate
   b. Annual parasite incidence
   c. Splenic rate
   d. Infant parasite rate

207. According Malaria Control programme, single dose Chloroquine _mg is given after taking blood smear (presumptive treatment): (Rohtak 1999)
   a. 300
   b. 400
   c. 600
   d. 800

208. In a locality with Chloroquine resistant malaria the best presumptive treatment would be: (SGPGI 2002)
   a. Sulfadoxin and pyrimethamine
   b. Chloroquine and quinine
   c. Quinine only
   d. Chloroquine in double dose

209. The Safest anti-malarial drug during first trimester pregnancy for Chloroquine resistant malaria is: (JIPMER 2002, Maharashtra 2000)
   a. Mefloquine
   b. Pyrimethamine
   c. Proguanil
   d. Quinine
210. A pregnant lady diagnosed to have malaria due to P. vivax should be treated with: (SGPGI 2002)
   a. Treatment with chloroquine and radical treatment with orbiquin
   b. Presumptive treatment with chloroquine and pyrimethamine
   c. Presumptive treatment with chloroquine
   d. Presumptive treatment with quinine

211. Vector Of Malaria in rural population: (Manipal 1999)
   a. Anopheles culicifacies
   b. Anopheles stephensi
   c. Culex fatigans
   d. All

212. Which of the following is “Nuisance mosquito”? (TN 1998)
   a. Anopheles
   b. Culex
   c. Aedes
   d. Mansonoides

213. All of the following are transmitted by Aedes aegypti EXCEPT: (Delhi 2002)
   a. Dengue hemorrhagic fever
   b. Chikungunya fever
   c. Rift valley fever
   d. Japanese encephalitis

214. All of the following are features of Dengue hemorrhagic fever EXCEPT: (Delhi 2002)
   a. Hemodilution
   b. High grade fever
   c. Hepatomegaly
   d. Thrombocytopenia

215. Rabies does not occur in which of the following part of India? (MP 2003)
   a. Daman and Diu
   b. Andaman and Nicobar Island
   c. Dadra and Nagar Havelli
   d. Pondicherry

216. “Dead end” transmission to humans occurs in: (MP 2002)
   a. Rabies
   b. Malaria
   c. Syphilis
   d. Amoebiasis
217. Usual time for symptoms to appear in Rabid animal (Manipal 2004)
   a. 2 days
   b. 7 days
   c. 10 days
   d. 1 month

218. Which dose of cell culture vaccine is used as pre-exposure prophylaxis of Rabies? (UP 2002)
   a. Single dose
   b. 3 doses
   c. 5 doses
   d. 7 doses

219. What is the correct recommended schedule (on days) for post-exposure treatment of person who has been vaccinated for rabies previously with HDC? (UPSC 2004)
   a. 0, 3 and 7
   b. 0, 3, 7 and 14
   c. 0, 3, 7, 14 and 28
   d. 0 and 3

220. Which of the following statement about Japanese Encephalitis is not true: (AI 1989)
   a. Culex Triantaeniorhyncus is the vector
   b. Epidemic in Karnataka
   c. Pigs are intermediate host
   d. Herons are primary host

221. The Breeding ground for the vector of Japanese B encephalitis (JE) virus is: (UPSC 2004)
   a. Paddy field
   b. Mixed garbage
   c. Cooler water
   d. Stale food

222. In India facilities for isolation of influenza virus are available at all the following institutes EXCEPT: (ESIS 2005)
   a. Haffkine Institute, Mumbai
   b. Pasture Institute Coonor, South India
   c. All India Institute of Medical Sciences, New Delhi.
   d. All India Institute of Hygiene and Public Health, Kolkata.

223. True about Epidemiology of AIDS: (MP 2002)
   a. Increased risk in IV drug abuser, contributing up to 3% approximately
   b. Feto-maternal transmission rate 40-60%
   c. Sexual transmission rate > 10%
   d. Very high rate of transmission percutaneously
224. The highest efficiency of transmission of AIDS is seen in: (Delhi 2002)
   a. Infected mother to child
   b. Heterosexual transmission
   c. Intravenous drug abusers
   d. Contaminated blood transfusion

225. Which of the following is associated with highest risk of HIV transmission? (AP 2003)
   a. Blood transfusion
   b. Disposable needle prick
   c. Sexual transmission
   d. Mother to baby

226. In the heterosexual transmission (from infective to non-infective partner) of HIV infection: (Kar 2003)
   a. There is greater risk of transmission from man to woman
   b. There is greater risk of transmission from woman to man
   c. Risk is equal either way
   d. HIV is not transmitted by heterosexual act

227. From epidemiological point of view of AIDS, which of the following state in India is put in Group I (i.e. general epidemiological cases of HIV > 5 % high risk and HIV > 1 % ANC)? (MH PGM CET 2003)
   a. Assam
   b. Mizoram
   c. Nagaland
   d. Manipur

228. In which of the Indian states the maximum number of AIDS cases have been reported till now: (AIIMS 2004)
   a. Delhi
   b. Kerala
   c. Tamil nadu
   d. Bihar

229. Which of the following is not true about National AIDS Control Programme? (Kerala 2004)
   a. Sentinel surveillance methodology has been adopted
   b. Community based screening for prevalence of HIV taken up
   c. Early diagnosis and treatment of STD is one of the main strategy to control spread of HIV
   d. Formulating guidelines for blood banks, blood donors and dialysis units
Social and Preventive Medicine

230. The highest number of AIDS cases in India has occurred in the age group of: (KAR 2005)
   a. 0-14 years
   b. 15-29 years
   c. 30-44 years
   d. Above 45 years

231. Brucellosis can be transmitted by all of the following modes, except: (AIIMS 2006 may)
   a. Contact with infected placenta
   b. Ingestion of raw vegetables from infected farms
   c. Person to person transmission
   d. Inhalation of infected dust or aerosol

232. Due to epidemiological reasons chemoprophylaxis is most impractical in control of: (PGI 1997)
   a. Measles
   b. Cholera
   c. Diphtheria
   d. Tuberculosis

233. Chemoprophylaxis is done for all EXCEPT: (AI 2002)
   a. Cholera
   b. Taeniasis
   c. Malaria
   d. Leprosy

234. Chemoprophylaxis for cholera is done by administrating: (AI 1988)
   a. Doxycycline 300mg single dose
   b. Metronidazole 300mg 3 tablets
   c. Vancomycin 1mg stat
   d. Kanamycin 500mg stat

235. Chemoprophylaxis for malaria is required in which of the following: (JIPMER 2002)
   a. 30-years pregnant woman
   b. Children < 6 years
   c. Travelers from non-endemic to endemic areas
   d. Adults 20-40 years

236. Tetanus can be prevented by which of the following? (Maha 2006)
   a. Active immunisation with tetanus toxoid with booster every 5-10 years
   b. Adequate wound toilet of contaminated wounds
   c. Consider passive immunisation with hyperimmune immunoglobulin
   d. All of the above
237. With reference to mumps which of the following is true? (AI 2006)
   a. Meningoencephalitis can precede parotitis
   b. Salivary gland involvement is limited to parotids
   c. The patient is not infectious prior to clinical enlargement of parotid.
   d. Mumps orchitis frequently leads to infertility

238. The ORS (oral rehydration solution) requirement for first 4 hours for an 8 months child with moderate dehydration is: (Kar 1993)
   a. 50 –100 ml
   b. 100 – 200 ml
   c. 200 – 400 ml
   d. 400 – 600 ml

239. El tor Vibrio was first found in: (BHU 2002)
   a. Indonesia
   b. India
   c. Bangladesh
   d. Spain

240. How many Guinea worm cases were identified in the year 1999? (AIIMS 2000)
   a. 0
   b. 9
   c. 2000
   d. 4000

241. In India National Guinea Worm Eradication Programme was launched in: (Kerala 2004)
   a. 1972-73
   b. 1975-76
   c. 1980-81
   d. 1983-84

242. Disease that has been eradicated worldwide is/are: (PGI 2003)
   a. Chicken pox
   b. Guinea worm
   c. Measles
   d. Polio
   e. Small pox

243. Which of the following is most common in India? (MP 2002)
   a. Guinea worm infection (Dracunculosis)
   b. Kala azar
   c. Plague
   d. Small pox
244. Among various species of Mosquito belonging to anopheles genus, one that is highly anthropophilic and transmits even at low density is: (Delhi 2005)
   a. Anopheles sundicans
   b. Anopheles fluvitalis
   c. Anopheles stephensi
   d. Anopheles culicifacies

245. Vector for transmission of Kala-azar is: (CMC 2004)
   a. Sand fly
   b. Reduvid bug
   c. Tsetse fly
   d. Louse

246. Incubation period of syphilis: (MP 2004)
   a. 9–90 days
   b. 9–18 days
   c. 80–90 days
   d. 10 days

247. Organism multiplying and developing in the hosts is called as: (AI 2000)
   a. Cyclo-propagative
   b. Cyclo-developmental
   c. Developmental
   d. All

248. The biological transmission in cases of filariasis is: (ESIS 2005)
   a. Mechanical
   b. Cyclo-developmental
   c. Propagative
   d. Cyclopropagative

249. Who is a better Epidemiological reservoir of malaria? (Kerala 2005)
   a. Adult male
   b. Adult female
   c. Child
   d. No difference

250. Reservoir and source of infection are same for: (ESIS 2005)
   a. Hepatitis A
   b. Polio
   c. Enteric fever
   d. Kala azar
251. Elimination of reservoir is possible in: (PGI 1989)
   a. Measles
   b. Rabies
   c. Dracunculosis
   d. Polio

252. Reservoir of tetanus bacilli is (SGPGI 1999)
   a. Human
   b. Soil
   c. Water
   d. Hospital waste

253. “Five clean practices” under strategies for elimination of neonatal tetanus include all EXCEPT: (AI 2004)
   a. Clean surface for delivery
   b. Clean hands of the attendant
   c. New blade for cutting the cord
   d. Clean airway

254. Elimination of neonatal tetanus can said to be achieved when the cases per 1000 births are: (UPSC 2005)
   a. < 0.01
   b. < 0.1
   c. < 1
   d. < 10

255. Infectious diseases whose control is solely based on ACTIVE IMMUNIZATION are all EXCEPT: (MANIPAL 1998)
   a. Measles
   b. Diphtheria
   c. Polio
   d. Tuberculosis

256. Infectious diseases in which ISOLATION is important part of disease management: (MP 2002)
   a. Cholera
   b. Typhoid
   c. Polio
   d. Hepatitis

257. Both active and passive vaccination can be given together in all EXCEPT: (MP 1999)
   a. Diphtheria
   b. Tetanus
   c. Rabies
   d. Hepatitis A
258. Iceberg phenomenon is not seen in: (ORISSA 2004)
   a. Measles
   b. AIDS
   c. Polio
   d. Rubella

259. True about MEASLES is all EXCEPT: (MP state 2002)
   a. Active and passive vaccination cannot be given together
   b. Carriers are the only source of infection
   c. Subclinical infection is not seen
   d. One attack of measles confers life long immunity

260. In an area not covered by measles immunization, the attack rate of measles is: (UPSC 2004)
   a. 70%
   b. 80%
   c. 90%
   d. 100%

261. In all of the following diseases chronic carriers are found except: (AIIMS 2006 Nov)
   a. Measles
   b. Typhoid
   c. Hepatitis B
   d. Gonorrhoea

262. Which of the following statements is true about the epidemiological determinants of measles? (AIIMS 2005 Nov)
   a. Measles virus survives outside the human body for about 5 days
   b. Carriers are important sources of infection
   c. Secondary attack rate is less than that of rubella
   d. Incidence is more in males than females

263. Koplik’s spots are pathognomonic of: (ESIS 2005)
   a. Mumps
   b. Measles
   c. Diphtheria
   d. Typhoid

264. Which disease does not occur as seasonal variation? (Orissa 1999)
   a. Measles
   b. Rubella
   c. Gastroenteritis
   d. Cerebral meningitis
265. If Rubella occurs in 9-10 weeks of pregnancy, what is the chance of transmission to the fetus? (JIPMER 1999)
   a. 10%
   b. 20%
   c. 30%
   d. 40%

266. Risk of the damage of fetus by maternal rubella is maximum if mother gets infected in: (AIIMS 2005 Nov)
   a. 6-12 weeks of pregnancy
   b. 20-24 weeks of pregnancy
   c. 24-28 weeks of pregnancy
   d. 32-36 weeks of pregnancy

267. The correct dose and mode of administration of rubella vaccine to prevent rubella in future pregnancy is by giving: (ESIS 2005)
   a. RA 27/3 vaccine in dose of 0.5 ml intramuscularly
   b. RA 27/3 vaccine in dose of 0.5 ml subcutaneously
   c. RA 27/3 vaccine in dose of 0.5 ml orally
   d. RA 27/3 vaccine in dose of 0.5 ml intradermally

268. Which of the following is true about Meningococcal meningitis? (AI 1991)
   a. Case fatality less than 10% in untreated cases
   b. Cases are the main source of infection
   c. 0.4% children are of 10 years age
   d. The meningococcal vaccine is not recommended for use in infants and children below 2 years of age

269. Murine typhus is transmitted through which of the following? (TN 99)
   a. Mite
   b. Tick
   c. Rat
   d. Flea

270. It is true regarding Endemic typhus that: (AIIMS 2006 may)
   a. Man is the only reservoir of infection
   b. Flea is a vector of the disease
   c. The rash developing into eschar is a characteristic presentation
   d. Culture of the etiological agent in tissue culture is diagnostic modality
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271. Rat flea is vector for all the following diseases EXCEPT: (AFMC 2002)
   a. Endemic typhus
   b. Plague
   c. Leptospirosis
   d. Epidemic typhus

272. Lice are not the vectors of: (AIIMS 2006 may)
   a. Relapsing fever
   b. Q fever
   c. Trench fever
   d. Epidemic typhus

273. All of the following methods are anti-larval measures EXCEPT:
   a. Intermittent irrigation
   b. Paris green
   c. Gambusia affinis
   d. Malathion

274. For the treatment of case of class III dog bite, all of the following are correct EXCEPT: (DNB 2001)
   a. Give immunoglobulin for passive immunity
   b. Give ARV
   c. Immediately stitch wound under antibiotic coverage.
   d. Immediately wash wound with soap and water.

275. A 2yr old female child was brought to a PHC with a history of cough and fever for 4 days with inability to drink for last 12hrs. On examination, the child was having weight of 5kg and Respiratory rate of 45/minute with fever. The child will be classified as suffering from: (UP 2004)
   a. Very severe disease
   b. Severe Pneumonia
   c. Pneumonia
   d. No Pneumonia

276. Vector control of yellow fever in airports is done over what area (in meter) around their perimeter? (AI 2000)
   a. 200
   b. 100
   c. 400
   d. 1000
277. Flying range of Aedes aegypti (Kerala 2005)
   a. 100 meters
   b. 200 meters
   c. 300 meters
   d. 400 meters

278. According to International Health Regulation there is no risk of spread of Yellow fever if the Aedes aegypti index remains below: (AI 2004)
   a. 1%
   b. 5%
   c. 8%
   d. 10%

279. Which of the following mosquito is important regarding the international travel? (JIPMER 2002)
   a. Aedes
   b. Anopheles
   c. Culex
   d. Mansonoides

280. Which of the following is TRUE regarding the Epidemiology of Polio? (MP 2002)
   a. Less than 300 cases reported in India 2001
   b. New cases are now only reported from MP, UP, BIHAR and ORISSA
   c. Type II virus is the most common cause of epidemic
   d. All live vaccines can be given during polio epidemic

281. Criteria for defining polio epidemic are all EXCEPT: (ESIS 2004)
   a. Two or more cases
   b. Cases should occur in same locality
   c. Caused by same virus
   d. Cases occurring during 6 months period

282. True about epidemic of polio is: (MP 2002)
   a. Urban > rural population
   b. Females > males
   c. Subclinical cases > clinical cases
   d. In India most cases are caused by Type 2 poliovirus.

283. Disease that is close to be eradicated in India: (MANIPAL 2001)
   a. Diphtheria
   b. Measles
   c. Polio
   d. Guinea worm disease
284. The most predominant type of Poliovirus epidemics is: (Orissa 1998)
a. Type 1  
b. Type 2  
c. Type 3  
d. Type 2 and 3

285. Chandler’s Index is used for: (Assam 2000)
a. Filariasis 
b. Ascariasis 
c. Guinea worm 
d. Ancylostoma

286. In Chandler Index denominator used is: (CMC 2000)
a. Per gram of stools 
b. Per 100 gram of stools 
c. Average number of eggs 
d. Average number of adult worms

287. Chandler Index is 225. What is the interpretation? (UPSC 2002)
a. Potential danger to community 
b. No danger 
c. Minor public health problem 
d. Major public health problem

288. Reservoir for Hookworm is: (AP 1997)
a. Human beings 
b. Soil 
c. Faeces 
d. Monkeys
Epidemiology of Infectious Diseases

Answers

122. Ans: b (It is likely to be more for infectious diseases that do not have subclinical phase)
(Ref. A.P. Kulkarni Community Medicine 2nd ed. –96)

Herd Immunity

♦ Level of resistance of a community/group of people to a particular disease.
♦ It is group protection beyond that afforded by protection of immunized individual.
♦ It provides immunological barrier to spread of disease in human herd.
♦ The epidemics wave declines with a up-built of herd immunity after natural infection and if high level immunity maintained with immunization disease eliminated, e.g. Polio, Diphtheria.
♦ Elements contributing to herd immunity:
  1. Occurrence of clinical and subclinical infection in herd.
  2. Immunization of herd
  3. Herd Structure, which is never constant and which include host belonging to herd species, insect vector, environmental and social factors that favour/inhibit the spread of infection from host to host and presence and distribution of alternative animal host.
♦ Herd immunity may be determined by serological Epidemiology.
♦ It is neither possible nor necessary to achieve 100% herd immunity. In a population to halt an epidemic or to control disease. E.g. small pox eradication.
♦ In the case of tetanus it does not protect the individual.

123. Ans. a (Tetanus)
(Refer above Q. also)
The epidemics wave declines with a up-built of herd immunity after natural infection and if high level immunity maintained with immunization disease eliminated, e.g. Polio, Diphtheria. It is neither possible nor necessary to achieve 100% herd immunity. In a population to halt an epidemic or to control disease. E.g. small pox eradication.
In the case of tetanus it does not protect the individual.
124. Ans. b (Pertussis)  
(Ref. Park PSM 18th ed.136)  
Herd immunity is not vital in TETANUS and maternal antibodies are not protective in PERTUSSIS.

125. Ans. a (7-14 days)  
(Ref. Ananthanarayan Microbiology 6th ed.- 315)  
PERTUSSIS:  
It is obligate human parasite with motile peritrichate flagella.  
In human beings, after an incubation period of about 1-2 weeks, the disease takes a protracted course comprising 3 stages:  
1. Catarrhal (lasts of 2 weeks)  
2. Paroxysmal (lasts of 2 weeks)  
3. Convalescent (lasts of 2 weeks)  
Onset is insidious.  
Sex: F>M  
Catarrhal stage is difficult to diagnose clinically.  
Catarrhal stage has maximum infectivity.  
Lab features:  
1. Marked Leucocytosis with relative lymphocytosis  
2. Normal ESR  
3. Culture of specimen by: Cough plate method, pernasal swab, and peroral swab using Bordet and Gengou glycerine-potato-blood agar or Lacey’s DFP selective medium.  
Maternal antibodies does not seem to give protection against the disease  
Chronic carriers are not known.  
Complications:  
1. Due to pressure effects during the violent bouts of coughing (subconjunctival hemorrhage, subcutaneous emphysema)  
2. Respiratory (bronchopneumonia, lung collapse)  
3. Neurological (convulsions, epilepsy, paralysis, retardation, blindness, deafness, coma)  
Routine pertussis vaccination is not advisable after the age of 7 years as adverse reactions are likely and the risk of severe disease is low.

126. Ans. a (Impairment)  
(Ref: Park, PSM, 17th ed., 36)  
Concept of health and disease:  
The sequence of event leading to disability and handicap is:  
Disease → Impairment → Disability → Handicap → Rehabilitation center  
WHO definitions:  
Impairment: Any loss or abnormality of psychological, physiological or anatomical structure of function
Disability: Any restriction or lack of ability to perform an activity in manner or within range considered normal for human.
Handicap: A disadvantage for a given individual resulting from an impairment or disability that limits or prevents fulfillment of role that is normal for that individual.
Rehabilitation: It is intervention at the level of psychological, vocational and medical.

127. Ans. c (Early diagnosis and treatment)  
(Ref: Park, PSM, 17th ed., 34, 281, 293; 18th ed. 36)

LEVELS OF PREVENTION

Primordial prevention
- It is first prevention in its purest form i.e. prevention of emergence of development of risk factor in countries or population groups in which they have not yet appeared.
- Efforts taken to discourage children from adopting harmful habits.
- Main intervention is through the individual or the mass education.

Primary prevention
- Action taken prior to the onset of the disease, which removes possibility that a disease will ever occur.
- Intervention is done in a pre-pathogenesis phase of a disease.
- It is accomplished by health promotion, promotion of quality of life and specific protection.
- It is applied to prevention of chronic disease (CAD, hypertension and cancer) based on elimination/modification of the risk factors by two strategies, namely:
  - Population / mass
  - High risk

Secondary prevention
- Action, which halts the progress of disease at its incipient stage and prevents complications.
- Intervention includes early diagnosis and treatment.
- It is largely the domain of clinical medicine, but is an imperfect tool in control of transmission.

Tertiary prevention
- When a disease has advanced beyond its early stage, it is still possible to accomplish prevention by tertiary intervention in late pathogenesis phase.
- All measures available to decrease or limit impairment and disabilities, minimize sufferings and to promote adjustment to irremediable diseases.
128. Ans. b (Specific protection)  
(Refer above Q also for explanation)  
Primary prevention is the action taken prior to the onset of the disease, which removes possibility that a disease will ever occur. Intervention is done in a pre-pathogenesis phase of a disease. It is accomplished by health promotion, promotion of quality of life and specific protection. It is applied to prevention of chronic disease (CAD, hypertension and cancer) based on elimination/modification of the risk factors by two strategies, namely; Population / mass and High risk. Supplementation of iron and folic acid to a pregnant woman is an example of Specific protection.

129. Ans. c (Secondary)  
(Ref: Park, PSM, 17th ed., 34, 281, 293; 18th ed. 36)  
Primary prevention  
Action taken prior to the onset of the disease, which removes possibility that a disease will ever occur. Intervention is done in a pre-pathogenesis phase of a disease. It is accomplished by health promotion, promotion of quality of life and specific protection. It is applied to prevention of chronic disease (CAD, hypertension and cancer) based on elimination/modification of the risk factors by two strategies, namely;  
- Population / mass  
- High risk

130. Ans. a (Persons without risk factors)  
(Ref: Park PSM 18th ed.36; Ref. above Q for explanation)  
Primordial prevention  
It is first prevention in its purest form i.e. prevention of emergence of development of risk factor in countries or population groups in which they have not yet appeared. Efforts taken to discourage children from adopting harmful habits. Primordial prevention is for persons without risk factors 
Main intervention is through the individual or the mass education.

131. Ans. d (Prevention of disease through avoiding emergence of risk factors)  
It is first prevention in its purest form i.e. prevention of emergence of development of risk factor in countries or population groups in which they have not yet appeared.

132. Ans. b (Secondary prevention)  
(Refer above Q. also for explanation)  
Secondary prevention is the action, which halts the progress of disease at its incipient stage and prevents complications.
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Intervention includes early diagnosis and treatment. Checking of sputum for AFB comes under: Secondary prevention.

133. Ans. a (Primary prevention)
It is applied to prevention of chronic disease (CAD, hypertension and cancer) based on elimination/ modification of the risk factors.

134. Ans. a (Primary prevention)
(Ref: Park, PSM, 17th ed., 34, 281, 293; 18th ed. 36)
◆ Action is taken prior to the onset of the disease, which removes possibility that a disease will ever occur.
◆ Intervention is done in a pre-pathogenesis phase of a disease.
◆ It is accomplished by health promotion, promotion of quality of life, i.e. inculcating healthy life style, and specific protection.
◆ It is applied to prevention of chronic disease (CAD, hypertension and cancer) based on elimination/modification of the risk factors.

135. Ans. a (Primary level of prevention)
(Ref: Park, PSM, 17th ed., 34, 281, 293; 18th ed. 36)
It is accomplished by health promotion, promotion of quality of life, i.e. inculcating healthy life style, and specific protection. Specific protection against many infectious diseases is possible by immunization.

136. Ans. d (Acute diarrhea)
Health problems in elderly due to aging
o Senile cataract
o Glaucoma
o Nerve deafness
o Bony changes affecting mobility
o Emphysema
o Failure of special senses
o Changes in mental outlook or mental changes
Health problems in elderly due to chronic diseases
o Degenerative diseases of heart and blood vessels
o Cancer
o Accidents
o Diabetes
o Disease of locomotor system
o Respiratory illness
Behavioural and mental problems
o Genitourinary diseases e.g. BHP, etc
o Sexual adjustment
o Emotional disorders
137. Ans. d (Paralytic polio)
NOTIFICATION OF DISEASES
♦ A disease for which regular, frequent and timely information on individual cases is considered necessary for the prevention and control of the disease.
♦ At the international level the following diseases are notifiable viz. cholera, plague and yellow fever.
♦ The diseases, which are subjected to international surveillance, are louse-borne typhus, relapsing fever, polio, influenza, malaria, rabies and salmonellosis.

138. Ans. c (High risk group)
(Ref. Park’s Textbook of PSM 18th Ed. - 115)
Screening is the search for the unrecognized disease or defect by means of rapidly applied tests, examinations or other procedures in apparently healthy individuals. When search is made within high risk group it is called selective screening.

139. Ans. c (Surveillance)
(Ref. Park PSM 18th 36, 87, 105, 113)
Surveillance is the continuous scrutiny of factors that determine the occurrence and distribution of disease and the other conditions of ill health.
Monitoring is performance and analysis of routine measurement aimed at detecting changes in the environment or health status of population.
Screening is the search for the unrecognized disease or defect by means of rapidly applied tests, examinations or other procedures in apparently healthy individuals.

140. Ans. a (It is a method of identifying the missing cases)
(Ref. Park PSM 18th ed. 36)
Sentinel surveillance is a method of identifying the missing cases and thereby supplementing the notified cases and thus total numbers of cases can be identified.

141. Ans. a, b
(Ref. Park PSM 18th ed. 101)
Notifiable diseases
a. Notifiable diseases subjected to International Health Regulations are →
♦ Yellow fever
♦ Plague
♦ Cholera
(Mnemonic → YPC)
b. Notifiable diseases subjected to/under surveillance by WHO are:
- Paralytic polio
- Relapsing fever
- Influenza
- Malaria
- Epidemic (louse-borne) typhus

(Mnemonic → PRIME)

142. Ans. a (Diphtheria)
(Ref. Park PSM 18th ed. 101)
Notifiable diseases under WHO surveillance:
- Paralytic polio
- Relapsing fever
- Influenza
- Malaria
- Epidemic (louse-borne) typhus

143. Ans. c (AIDS)
Infectious diseases in which ISOLATION is vital:
- Diphtheria
- Plague
- Cholera
- Some Streptococcal infections,
  (However it is not useful in Typhoid, polio and hepatitis A)

144. Ans. d (Highest incidence occurs in 30-40 years age group)
(Ref. Park PSM 18th ed.187)
Typhoid
Incubation period 10-14 days
Typhoid cause a typhoid ulcer, in the lower ileum and the risk of perforation is highest in 3rd week of typhoid fever.
If the muscle sheath is intact, sarcolemmal tubes containing histiocytes appear along the endomysial tube which, in about 3 months, restores properly oriented muscle fibres e.g. in Zenker’s degeneration of the abdominal musculature in typhoid.

145. Ans. a (Virus not found in scab)
(Ref. Park PSM 18th ed. 123)
Chicken pox
- Is an acute highly infectious disease caused by Varicella zoster virus.
- As a rule, infectious diseases are not communicable during the incubation period, except, measles, chicken pox, whooping
cough and hepatitis A, which are common during the later part of Incubation Period.
♦ A painful, vesicular, pustular “dew-drops” like pleomorphic centripetal rash/eruptions in the distribution of one or more sensory nerve roots is characteristic feature (palms and soles usually not affected).
♦ The virus can be readily isolated from the vesicular fluid during the first three days of illness.
♦ Scabs begin to form 4-7 days after rash appears.
♦ The scabs are not infective.
♦ The secondary attack rate in household contacts approaches 90%.
♦ It is transmitted from person to person by droplet infection and nuclei, and most patients are infected by “face to face” contacts.
♦ IP = 14-16 days.
♦ Infectivity of chicken pox and hence the duration of isolation for Chicken pox is until all lesions crusted: usually about 6 days after onset of rash from the onset of catarrhal stage.

146. Ans. c (6 days after the appearance of rash)
(Ref. Park PSM 18th ed. 123; and above Q. for explanation)
A painful, vesicular, pustular “dew-drops” like pleomorphic centripetal rash/eruptions in the distribution of one or more sensory nerve roots is characteristic feature (palms and soles usually not affected). The virus can be readily isolated from the vesicular fluid during the first three days of illness. Scabs begin to form 4-7 days after rash appears. The scabs are not infective.

147. Ans. c (Chicken pox)
Chicken pox
♦ It is caused by varicella zoster virus or Human herpes virus 3.
♦ Period of communicability à 1-2 days before appearance of rash and 4-5 days there after.
♦ It is highly communicable disease with secondary attack rate of 90%.
♦ Scabs are however not infective.
♦ Most patients are infected by ‘face-to-face’ (personal) contact.
♦ Rash comes on the day the fever starts (First disease)
♦ Symmetrical pleomorphic ‘dew drop’ like rash on trunk, face, arms and legs sparing palms and soles.
♦ Inapparent infection is known to occur in <5% of susceptible children.
♦ Incubation period is 7-21 days.
148. Ans. a (Chicken pox) (Ref. Park PSM 18th ed. 161, 175, 217, 271)

As a rule, infectious diseases are not communicable during the incubation period, except, measles, chicken pox, whooping cough and hepatitis A are common during the later part of IP. There is some evidence that Subclinical measles occur more often than previously thought.

149. Ans. a (Rabies) (Ref. Park PSM 18th ed. 129, 161, 169, 175, 217, 271)

♦ Man is the only reservoir of infection in polio and most infections are Subclinical.
♦ Man is the only reservoir of infection in cholera. He may be case or a carrier. Cases range from inapparent subclinical to asymptomatic. In cholera El Tor, most infections are mild and asymptomatic.
♦ The HIV virus can live silent in the body of human for many years. People infected with HIV, who will develop clinical disease is possibly as follows: 10-30% develop AIDS and 25-30% will develop AIDS-related complex.
♦ One attack of mumps, clinical or subclinical, is assumed to induce life-long immunity.
♦ Inapparent and subclinical infection may develop after giving gamma globulin in patients with hepatitis A.

150. Ans. a (Inapparent)

a. Inapparent or subclinical polio

Occurs in 95% of polio virus infection

b. Abortive or minor or self limiting illness

Occurs in 4-8% of polio virus infection

Occurs due to viremia

Clinical diagnosis not possible requires virus isolation or rising ab titre.

c. Non-paralytic polio

Occurs in 1% of polio virus infection

Lasts for 2-10 days, recovery is rapid.

Synonymous with aseptic meningitis.

d. Paralytic polio

Occurs in less than 1% of polio virus infection

Virus invades CNS.

Predominant sign is asymmetrical flaccid paralysis

'Tripod sign' may be present.

151. Ans. d (Dirofilaria immitis) (Ref. Park PSM 18th ed. 213)
## Important Human Filarial Infections

<table>
<thead>
<tr>
<th>Organism</th>
<th>Vectors</th>
<th>Disease produced</th>
</tr>
</thead>
<tbody>
<tr>
<td>W. Bancrofti</td>
<td>Culex</td>
<td>Lymphatic filariasis</td>
</tr>
<tr>
<td>B. Malayi</td>
<td>Mansonia</td>
<td>Lymphatic filariasis</td>
</tr>
<tr>
<td>B. Timori</td>
<td>Anopheles, Mansonia</td>
<td>Lymphatic filariasis</td>
</tr>
<tr>
<td>Onchocercus volvulus</td>
<td>Simulum flies</td>
<td>River Blindness, subcutaneous nodules</td>
</tr>
<tr>
<td>Loa Loa</td>
<td>Chrysops</td>
<td>Subcutaneous nodules (Calabar swelling)</td>
</tr>
</tbody>
</table>

### 152. Ans. b (Filariasis)
(Ref. Park PSM 18th ed.214)

**The current strategy of filariasis control is based on:**
- a. Chemotherapy
  - DEC (6 mg/kg/day orally for 12 days)
  - Mass therapy
  - Selective treatment of those only who are Mf positive
  - DEC medicated salt
  - Ivermectin
- b. Vector control
  - Anti-larval measures
  - Anti-adult measure
  - Personal prophylaxis (avoiding mosquito bite)

### 153. Ans. d (Combination of microfilaria and disease rate)
(Ref. Park PSM 18th ed.214)

**Filaria endemicity rate** is percentage of examined persons showing microfilaria in blood and/or disease manifestation.

### 154. Ans. b (Filaria disease rate)
(Ref. Park PSM 18th ed.214)

**Assessment of Filaria control programmes**
1. Clinical parameters
2. Parasitological parameters
   - Microfilaria rate
   - Filaria endemicity rate
   - Microfilarial density
   - Average infestation rate
3. Entomological parameters
   - Vector density per 10 man-hour catch
   - Percentage of mosquitoes positive for all stages of development
   - Percentage of mosquitoes positive for infective larvae (stage III)
   - Annual biting rate
   - Types of larval breeding places
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155. Ans. a (9pm to 11pm)
(Ref. Park PSM 18th ed. 214)
- The thick film made from capillary blood is still the most commonly used method for epidemiological assessment.
- 20 cu.mm. of blood is collected by a deep finger prick between 8:30 pm to 12 mid-night.

156. Ans. d (Loa loa)
(Ref. Harrison medicine 16th Ed. - 1264)
Loiasis
- Loiasis is caused by Loa loa.
- Adult parasites live in subcutaneous tissues; microfilariae circulate in blood with a diurnal periodicity that peaks between 12.00 Noon and 2.00 Pm.
- Infection may be recognized only after subconjunctival migration of adult worm or may be manifested by episodic calabar swelling – evanescent localized areas of angioedema and erythema developing on the extremities and less frequently other sites.
- Treatment: Diethyl carbamazine (DEC)

157. Ans. c, e
(Ref. Park PSM 18th ed. 214, 244)
Definitive Host →
Either harbours the adult stage of the parasite or where the parasite utilizes the sexual method of reproduction. In the majority of human parasitic infections, man is definitive host. E.g. the Leishmania infect and within macrophages.
Intermediate host →
Harbours the larval stages of the parasite. In some cases larval development are completed in two different intermediate hosts. In malaria and hydatid disease, however, man acts as intermediate host.
Paraentic Host (A carrier or transport host) →
A host where parasite remains viable without further development.

158. Ans. b (Kills bacteria only)
(Ref. Park PSM 17th ed. 101)
Disinfectant/germicide is a substance, which destroys harmful microbes (not usually spores) with the object of preventing transmission of the disease.
Antiseptic is a substance, which destroys or inhibits growth of microorganisms.
Sterilization is a process, which destroys or inhibits growth of microorganisms.
159. Ans. d (Recurrent disinfection)
(Ref. Park’s Textbook of PSM 18th Ed. - 106)
Disinfection is killing of infectious agent outside the body by direct exposure to chemical or physical agent.
Disinfection is of 3 types:
1. Concurrent – disinfection of urine, faeces, vomitus, gloves
2. Terminal – disinfection of room, furniture, beddings
3. Recurrent – disinfection of water by chlorination, milk by pasteurization and hand washing.

160. Ans. d (Cetrimide 40 ml/Lt)
(Ref. Park PSM 18th ed. 108)
The disinfectants, which are used for the disinfection of faeces, are:
o Bleaching powder (500 gm/Lt)
o Cresol 50 ml/Lt
o Crude phenol 100 ml/Lt

161. Ans. c (Stomach poison)
(Ref. Park PSM 18th ed. 590)
Under Vector Control Programme Chemical Control consist of:
The commonly used laricides:
(a) Mineral Oils
(b) Paris green
(c) Synthetic insecticides.

Paris Green:
♦ Copper acetarsenite is an emerald green.
♦ Paris green is a stomach poison.
♦ Paris green kills mainly the *Anopheles* larvae because they are surface-feeders.

Synthetic Insecticides: Fenthion, Clorpyrifos, and Abate are the most effective laricides.
Biological control: The best knowns are the *Gambusia affinis* and *Lebister reticulatus*.

162. Ans. b (Partially blocked flea)
(Ref. Park PSM 18th ed. 234)
Plague
♦ Causative organism of bubonic plague is *Yersinia pestis*
♦ A flea may ingest up to 0.5 cu mm of blood that may contain as many as 5,000 plague bacilli.
♦ The bacilli multiply enormously in the gut of rat flea and may block the proventriculus so that no food can pass through. Such a flea is called “blocked flea”.
In frantic efforts to bite and suck blood the flea inoculates plague bacilli into the bite wound and thus becomes an efficient transmitter of plague.

A partially blocked flea is more dangerous than a completely blocked flea as it can live longer.

Three types of Plague are:

a. Bubonic plague (Most common type)
b. Septicemic plague (Most dangerous type)
c. Pneumonic plague (Most contagious type)

Basic cycle of Bubonic plague is commensal rat → rat fleas → man

Basic cycle of Pneumonic plague is Man → man

163. Ans. a (Commensal rat → rat fleas → man)
(Ref. Park PSM 18th ed.234 and above Q for explanation)

Plague

Agent:

Key microbiologic characteristics of *Yersinia pestis* include:

- Pleomorphic gram-negative bacillus (1.0 to 2.0 mcm x 0.5 mcm); single cells or short chains in direct smears.
- Direct Stains for Bacterial Morphology are Gram stain and the polychromic stains: *Y pestis* stains as a bipolar “closed safety pin” with Giemsa, Wright’s, or Wayson stains. Bipolar morphology may not be evident on Gram stain. Bipolar (“closed safety pin”) staining with Giemsa, Wright’s, or Wayson stains (may not be visible on Gram stain).
- Facultative anaerobe
- Nonmotile, nonsporulating
- Non–lactose fermenter
- Slow-growing in culture (colonies are pinpoint after 24 hours on sheep blood agar [SBA] and much smaller than other Enterobacteriaceae growing for 24 hours on SBA; colonies may not be visible on MacConkey or eosin methylene blue agar at 24 hours)
- Catalase-positive, oxidase- and urease-negative (rarely, strains may be urease-positive)
- Optimal growth at 28°C
- “Stalactite pattern” in broth culture with clumps of cells from the side of the tube settling to the bottom if disturbed
- At 48 to 72 hours of incubation on solid media, colonies have a raised, irregular, “fried egg” appearance under 4x enlargement, which becomes more pronounced as the culture ages; colonies also have been described as having a “hammered copper” shiny surface
- Alkaline slant/acid butt (K/A) on triple sugar iron agar (TSI) without gas or H₂S
Generally susceptible to tetracyclines, chloramphenicol, aminoglycosides, sulfonamides (with or without trimethoprim), and fluoroquinolones.

**Epidemiology (Reservoirs / Vectors / Modes of Transmission)**

**Reservoirs**
- Many different animal species (mostly wild rodents) are natural reservoirs for *Y. pestis*.
- Humans are incidental hosts for *Y. pestis* and are not part of the natural life cycle of the organisms.

**Vectors**
- The organisms most commonly are transmitted between animal reservoirs and to humans via bites of infected fleas. In order to survive in the flea midgut, *Y. pestis* organisms require phospholipase D (PLD; formerly referred to as *Yersinia* murine toxin), which allows the organisms to be resistant to a cytotoxic digestion product of blood plasma in the flea gut.
- Of the more than 1,500 flea species, about 30 are known to be vectors for *Y. pestis*. Example of major flea vector: *Xenopsylla cheopis* (the oriental rat flea; nearly worldwide in moderate climates)

**Plague as a Biological Weapon**
Experience with plague as a biological weapon is limited. Plague is a suitable pathogen for use as a biological weapon because:
- The organisms can be delivered in an aerosol form.
- Pneumonic plague causes a serious illness with a high case-fatality rate.
- Pneumonic plague is communicable, and large outbreaks have occurred in the past.
- A bioterrorist attack involving pneumonic plague would cause widespread fear and panic that would be difficult to contain, partly because of the communicable nature of the disease.
- *Y. pestis* could potentially be genetically altered to enhance virulence or create antibiotic-resistant.

**Clinical Syndromes**
- Bubonic plague
- Primary septicemic plague
- Primary pneumonic plague
- Plague meningitis
- Plague pharyngitis
- Pestis minor
- Subclinical infection

**Postexposure Prophylaxis for Pneumonic Plague**
Antibiotic prophylaxis (with tetracycline, doxycycline, or trimethoprim-sulfamethoxazole) following exposure to a person with primary or secondary pneumonic plague has been recommended as a public health control measure.
Treatment of Plague:
Traditionally, streptomycin, tetracycline, and doxycycline have been used for the treatment of plague and are approved by the FDA for this indication. Gentamicin also has been shown to be efficacious in the treatment of plague (although is not currently approved by the FDA).

164. Ans. c (Pneumonic plague)
(Ref. Ananthanarayan Microbiology 6th ed. 301; Park PSM 18th ed. 234; Ref above Q for explanation)
Pneumonic plague is highly infectious.

165. Ans. c (Lyme disease)
Lyme disease is caused by Borrelia Burgdoferi and transmitted by ticks (Ixodes dammini).

166. Ans. a (Yersenia pestis)
Y pestis causes:
- Bubonic plague
- Primary septicemic plague
- Primary pneumonic plague
- Plague meningitis
- Plague pharyngitis
- Pestis minor
- Subclinical infection

167. Ans. d (Meta Zoonosis)
(Ref. Park PSM 18th ed. 86, 89, 216, 573)
Four categories of ZOONOSIS based on type of life cycle:
- Direct zoonosis (transmitted from infected host to susceptible host by direct contact / fomite / vector e.g. Rabies, trichinosis, Brucellosis).
- Cyclozoonosis (require more that one host species to complete life cycle, e.g. taeniasis, echinococcus, pentastomoid infection)
- Metazoonosis (transmitted biologically by invertebrate vectors): agent multiplies or develops or both in invertebrate hosts and there is always extrinsic incubation period before transmission. E.g. Arbo viral disease, plague and Schistosomiasis.
- Saprozooonosis (Have both, a vertebral host and a non-animal developmental site or reservoir) e.g. Larva migrants and mycosis.

168. Ans. a (INH and RMP)
(Ref: Park, PSM, 18th ed. 159)
MDR TB
- Primary or pretreatment resistance is the resistance shown by the bacteria in a patient, who has not received the drug in the
Social and Preventive Medicine

question before. That it is not always due to infection of the individual with drug resistance bacilli, is well known.

♦ In Secondary or acquired resistance the bacteria were sensitive to the drug at start of treatment but becomes resistant to a particular drug during the course of treatment with it.

♦ WHO defines a MDR strain as one that is at least resistant to INH and RMP.

♦ The primary drug resistance in India is due to INH, of a varying order but below 20%, followed by that to streptomycin below 10% and to RMP around 1%.

169. Ans. b (Rifampicin)
(Ref: Park, PSM, 18th ed. 159)
WHO defines a MDR strain as one that is at least resistant to INH and RMP, although drug resistance is minimum to rifampicin.

170. Ans. d (Non-specific sensitivity is highly prevalent)
(Ref: Park, PSM, 18th ed. 148)

The Tuberculosis Estimates For India (2002)

<table>
<thead>
<tr>
<th>Population</th>
<th>1049 million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global rank</td>
<td>1</td>
</tr>
<tr>
<td>Incidence(all cases/1,00,000 population)</td>
<td>168</td>
</tr>
<tr>
<td>Incidence (new smear +ve cases/1,00,000 population)</td>
<td>75</td>
</tr>
<tr>
<td>Prevalence (smear +ve cases/1,00,000 population)</td>
<td>156</td>
</tr>
<tr>
<td>TB mortality per 1,00,000 population</td>
<td>37</td>
</tr>
<tr>
<td>% of adults (15-49 years) TB cases HIV +ve</td>
<td>4.6</td>
</tr>
<tr>
<td>% of new multi-drug resistant cases</td>
<td>3.4</td>
</tr>
</tbody>
</table>

Prevalence on TB infection in India

<table>
<thead>
<tr>
<th>Age group (years)</th>
<th>Infected (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4</td>
<td>1.0</td>
</tr>
<tr>
<td>4-9</td>
<td>6.4</td>
</tr>
<tr>
<td>10-14</td>
<td>15.4</td>
</tr>
<tr>
<td>15-24</td>
<td>31.9</td>
</tr>
<tr>
<td>25-34</td>
<td>47.3</td>
</tr>
<tr>
<td>35-44</td>
<td>54.8</td>
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<tr>
<td>45-54</td>
<td>60.7</td>
</tr>
<tr>
<td>55+</td>
<td>62.1</td>
</tr>
<tr>
<td>Total</td>
<td>30.4</td>
</tr>
</tbody>
</table>

171. Ans. c (Tuberculin conversion index)
(Ref: Park, PSM, 18th ed. 148)
Best tool for measuring prevalence of TB infection in community is Tuberculin conversion index.
Single most important test for case detection of TB is Sputum microscopy.

172. Ans. d (Is infected with mycobacterium TB)  
*(Ref. Park PSM 18th ed. 150)*  
- The Mantoux test is carried out by injecting intradermally on the flexor surface of the forearm 1 TU of PPD in 0.1 ml.  
- The WHO advocates a preparation known as “PPD-RT-23 with Tween 80”  
- The result of test is read after 72 hours and interpreted as follows:  
  1. Reactions exceeding 10mm are considered “positive”.  
  2. Reactions less than 6 mm are considered “negative”.  
  3. Reactions between 6 and 9 mm are considered “doubtful”, i.e. the reaction may be due to M. Tb or atypical mycobacteria.  
- A positive reaction indicates that a person is infected with M. Tb; it does not prove that he/she is suffering from disease.  
- This test is limited by lack of specificity.

173. Ans. b (Failure case)  
*(Ref. Park PSM 17th ed.-138)*  
**Failure case:** A patient who was initially smear positive, who began Rx and who remained or became smear positive again at five months or later during the course of Rx.  
**Relapse:** A patient who returns sputum smear positive having previously been treated for tuberculosis and declared cured after the completion of his treatment.  
**Return after default:** A patient who returns sputum smear positive, after having left Rx for at least two months.

174. Ans. c (RMP+INH+PZM+ETM)  

<table>
<thead>
<tr>
<th>CAT I</th>
<th>New sputum smear positive</th>
<th>2(HRZE) &lt;sub&gt;3&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Seriously ill sputum smear negative</td>
<td>4(HR) &lt;sub&gt;3&lt;/sub&gt;</td>
</tr>
<tr>
<td></td>
<td>Seriously ill extra-pulmonary</td>
<td>4(HR) &lt;sub&gt;3&lt;/sub&gt;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAT II</th>
<th>Sputum smear positive relapse</th>
<th>2(HRZES) &lt;sub&gt;3&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sputum smear positive failure</td>
<td>1(HRZE) &lt;sub&gt;3&lt;/sub&gt;</td>
</tr>
<tr>
<td></td>
<td>Sputum smear positive treatment after default</td>
<td>5(HRE) &lt;sub&gt;3&lt;/sub&gt;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAT III</th>
<th>Sputum smear negative</th>
<th>2(HRZ) &lt;sub&gt;3&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Extra-pulmonary not seriously ill</td>
<td>4(HR) &lt;sub&gt;3&lt;/sub&gt;</td>
</tr>
</tbody>
</table>
175. Ans. a (2RHZ + 4 HZ for 6 months)

| CAT I          | New sputum smear positive | 2(HRZE)₃ |
|               | Seriously ill sputum smear negative | 4(HR)₃ |
|               | Seriously ill extra-pulmonary   | 4(HR)₃ |

| CAT II         | Sputum smear positive relapse   | 2(HRZES)₃ |
|               | Sputum smear positive failure   | 1(HRZE)₃ |
|               | Sputum smear positive treatment after default | 5(HRE)₃ |

| CAT III        | Sputum smear negative Extra-pulmonary not seriously ill | 2(HRZ)₃ |
|               |                                                            | 4(HR)₃ |

176. Ans. c (Patient is issued medicine for one day at a time.)

**DOTS (Directly observed treatment; short course chemotherapy)**
- Only strategy that has been documented to be effective worldwide on a programme basis.
- Intensive phase: Health worker or a trained person watches as the patient swallows the drug in his/her presence.
- Continuation phase: patient is issued medicine for 1 kW in a multiblister combipack of which first dose is swallowed by the patient in presence of health worker or a trained person. Consumption checked by return of empty multiblister combipack when patient comes to collect medicine for next week. In this programme alternate day treatment is used.
- The DOTS strategy represents the most important public health breakthrough of the decade, in terms of lives, which will be saved.
- DOTS ensures drug intake, improves care and facilitates defaulter retrieval.
- Success of DOTS depends on 5 components:
  - Political commitment
  - Accountability
  - Good quality sputum microscopy
  - Directly observed treatment
  - Uninterrupted supply of good quality drugs

177. Ans.: a (Daily observed)

*(Park’s textbook of PSM – 17th edition – 146)*

DOTS is directly observed treatment; short course chemotherapy for tuberculosis.
The DOTS strategy represents the most important public health breakthrough of the decade, in terms of lives, which will be saved. DOTS ensures drug intake, improves care and facilitates defaulter retrieval.

178. Ans. a (4)

*(Ref: Park, PSM, 18th ed.148)*
TUBERCULOSIS
1. Prevalence of infection → 30%: males 35% and females 25%.
2. Incidence of infection: Currently the rate of infection for India is 1–2%.
3. Prevalence of disease was 4 cases per 1,000 population, four times as high as incidence.
4. Incidence of new cases: 1.5 per 1000 (excluding children below the age of 5 years).
5. Non-specific sensitivity is highly prevalent in the entire country, but is lower in areas situated at higher altitudes.
6. Mortality: 500,000 deaths annually due to this disease, addition of about 2–2.5 million sputum positive cases annually.
7. Best tool for measuring prevalence of TB infection in community is tuberculin conversion index. It is also known as annual infection rate. It is percentage of population under study who will be newly infected by Mycobacterium tuberculosis among the non-infected of preceding survey during the course of one year.
8. One ml of expectoration may contain around 10,000 TB bacilli in an active case of TB.

179. Ans. a (3 weeks)
(Ref. RNTPC Key facts and Concepts by DGHS)
Revised National Tuberculosis Control Programme (RNTCP)
♦ TB is leading killer of adults globally.
♦ India accounts for nearly 1/3rd of global burden.
♦ Although exact and current information on TB incidence and prevalence is not available, studies show an incidence rate of more than 200/1,00,000 amongst the highest in the world.
♦ Without HIV, the lifetime risk of developing TB in TB-infected people is about 10%, compared with at least 50% in HIV-infected, TB-infected people.
♦ An estimated 5,00,000 people die from TB in India every year; more than 1000 /day; 1 every minute.
♦ Sputum microscopy is best way to diagnose pulmonary tuberculosis, as microscopy is more accurate than x-ray, and co-relates with infectiousness as well as with risk of death from TB.
♦ Inter-observer variability is much less with microscopy than with x-ray.
♦ Ask all patients if they have had cough for 3 weeks or more.
♦ For all patients with cough for 3 weeks or more, ensure that 3 sputum examinations (spot-morning-spot) are done in a designated microscopy center.
♦ The DOTS strategy represents the most important public health breakthrough of the decade, in terms of lives, which will be saved.
♦ DOTS ensures drug intake, improves care and facilitates defaulter retrieval.
Revised National Tuberculosis Control Programme (RNTCP)

- TB is leading killer of adults globally.
- India accounts for nearly 1/3rd of global burden.
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- An estimated 5,00,000 people die from TB in India every year; more than 1000/day; 1 every minute.
- Sputum microscopy is the best way to diagnose pulmonary tuberculosis, as microscopy is more accurate than X-ray, and correlates with infectiousness as well as with risk of death from TB.
- Inter-observer variability is much less with microscopy than with x-ray.
- Ask all patients if they have had cough for 3 weeks or more.
- For all patients with cough for 3 weeks or more, ensure that 3 sputum examinations (spot-morning-spot) are done in a designated microscopy center.
- The DOTS strategy represents the most important public health breakthrough of the decade, in terms of lives, which will be saved.
- DOTS ensures drug intake, improves care and facilitates defaulter retrieval.

The main pillars of Revised National Tuberculosis Control Programme (RNTCP) (1992) are:
- Achievement of not less than 85% cure rate amongst infectious cases of tuberculosis, through short course chemotherapy involving peripheral health functionary.
- Detecting 70% of estimated cases through quality sputum microscopy.
- Involvement of Non-Government Organizations.
- DOTS

LEPRA BACILLI

Acid-fast bacilli, but less acid fast than TB bacilli.
H₂SO₄ used for decolorization of Lepra bacilli (5%) is of less concentration than that for TB bacilli (25%).

Virchow Lepra or Foam cells in which globi of bacilli occur are large undifferentiated histiocytes.

Leprosy is exclusive human disease and patients are the only source of infection.

Very large numbers of bacilli are shed in nasal secretions (10⁷/day), hence droplet is important mode of spread.

Mode of entry: Respiratory tract or through skin.

IP: 2-5 years (few years to 30 days)

Not a highly communicable disease.

Prevalence in Maharashtra (1971 census) – 5-8 cases per 1000 population.

• Total no. of patients in India – 4 million.

183. Ans. a (Relapse rate)

The relapse rate is best indicator of the efficacy of the drug regimen.

184. Ans.: d (Pure neuritic type)

(Park’s textbook of PSM – 17th edition – 245)

Indian classification | Madrid classification
----------------------|------------------------
Indeterminate         | Indeterminate
Tuberculoid           | Tuberculoid; flat raised
Borderline            | Borderline
Lepromatous           | Lepromatous
Pure neuritic         |

The Indian classification has an additional form, the pure neuritic in which no skin lesion exist.

Ridley and Jopling classification

1. Tuberculoid TT
2. Borderline Tuberculoid BT
3. Conductive BB
4. Borderline Lepromatous BL
5. Lepromatous LL
6. Neuritic type has no place in Ridley and Jopling classification.

185. Ans. c (per 10,000)  (Ref. Park PSM 18th ed. 332)

National Leprosy Eradication Programme:

• In operation since 1955.
• In 1983, the control programme was redesignated as National Eradication Programme with the goal of eradicating the disease by turn of century.
• The goal was to reduce the case to 1 or <1 per 10,000 population.
• The Leprosy Control Units are established in endemic areas with 1 medical officer, to non-medical supervisors and 20 Para-
  medical workers.
• Each unit covers a population of 4-5 lakhs.
• Modified Leprosy Elimination Campaign started in 1997.

186. Ans. c (MDT – 99% coverage)
(Ref. Park PSM 18th ed. 258)
As of March 2004 the prevalence rate in India is 2.5 cases per 10,000 population, reduced from 57/10,000 in 1981.
The elimination level i.e. prevalence rate less than 1 case for 10,000 population has been achieved in 16 states and 7 states are very near to this goal.
During the year 2003-2004 a total of 0.29 million new Leprosy cases were detected.
In Chigleput (Chennai) study BCG afforded 23% protection against non-lepromatous leprosy.
In view of the variable protective effect of BCG vaccine against Leprosy, several alternative vaccines preparations are under development. These should be called “candidate vaccines”

187. Ans. b (0.01%)
(Ref. Park PSM 18th ed. 253, 332)
At the end 2000, leprosy was a public health problem in 10 countries (prevalence rate > 1/10,000), mainly in Africa, Asia and Latin America.
Thus to call it a public health problem prevalence per 10,000 should be 1 and per 100 should be 0.01.

188. Ans. a (Health education)
(Ref. Park PSM 18th ed. 258)
Ultimate prevention of spread of Leprosy is achieved by breaking the chain of transmission, which needs Health education.

189. Ans. d (To prevent resistance)
(Ref. Park PSM 18th ed. 259)
The main objectives of multi-drug chemotherapy of leprosy are:
1. To interrupt transmission of the infection in the community by sterilizing infectious patients as rapidly as possible with bactericidal agents.
2. To ensure early detection and treatment of cases to prevent deformities.
3. To prevent drug resistance.
4. To curtail duration of treatment.
190. Ans. b (Clofazamine, Rifampicin and Dapsone)
(Ref. Park PSM 18th ed. 261)
Multibacillary Leprosy (MB blister pack for 12 months)
Rifampicin → 600 mg, once monthly, under supervision
Dapsone → 100 mg daily, self-administered
Clofazamine → 300 mg once monthly under supervision; and 50 mg daily self-administered.
Paucibacillary Leprosy (PB blister pack for 6 months)
Rifampicin → 600 mg, once monthly, under supervision
Dapsone → 100 mg daily, self-administered
Single lesion Leprosy → ROM
Rifampicin (600 mg) + Ofloxacin (400 mg) + Minocycline (100 mg) → single dose

191. Ans. d (Minimum duration of treatment for multibacillary cases is 12 months)
(Ref. Park PSM 18th ed. 261)
Multibacillary Leprosy (MB blister pack for 12 months)
Rifampicin → 600 mg, once monthly, under supervision
Dapsone → 100 mg daily, self-administered
Clofazamine → 300 mg once monthly under supervision; and 50 mg daily self-administered.

192. Ans. none
(Ref. Park PSM 18th ed. 260)
For Multibacillary Leprosy treatment as advised by WHO includes MB blister pack given for 12 months.

193. Ans.: c (Rifampicin + Dapsone + Clofazamine)
(Ref. Harrison’s principles of internal medicine - 15th edition – 1038)
Lepromatous leprosy is Multibacillary Leprosy, the treatment for which include:
(MB blister pack for 12 months)
Rifampicin → 600 mg, once monthly, under supervision
Dapsone → 100 mg daily, self-administered
Clofazamine → 300 mg once monthly under supervision; and 50 mg daily self-administered.

194. Ans. d (5 years)
A person with skin biopsy report shows M. Leprae bacilli in all fields, needs to be followed up for 5 years.

195. Ans. b (It is a diagnostic test)
(Ref. Ananthnarayan Microbiology 4th ed.- 365)
**LEPROMIN TEST:**
Mitsuda first described Lepromin test.
Intradermal injection in Lepromin antigen is typically biphasic in reaction, early Fernandez reaction characterized by erythema and induration in 24-48 hours and lasting for 3-5 days, analogous to tuberculin test, but of no significance, late Mitsuda reaction in 4 weeks (peak) and subsides with ulceration, it is the measure of CMI.
Principle of the test: Delayed hypersensitivity reaction
Lepromin used:
- Human type
- Armadillo type
- Dharmendra antigen
Purpose of the test:
1. For classification of leprosy
2. For assessment of prognosis and response to treatment (not used for diagnosis).
3. To assess resistance of the individual
4. To verify the identity of candidate Lepra bacillus

196. Ans. a (Female anopheles mosquito)
(Ref: Park, PSM, 18th ed., 330)
Transmission of Malaria is by three modes:
1. Vector transmission – by female anopheline mosquito
2. Direct – IM, IV, Blood transfusion, drug addicts
3. Congenital
Blood transfusion of a person in endemic region and who has had malaria should not be accepted as donor until 3 years later.

197. Ans. d (Biological control)
(Ref. Park PSM 18th ed.579)
The control of mosquitoes by genetic methods comprise of the following:
- Sterile male technique
- Cytoplasmic incompatibility
- Chromosomal translocation
- Sex distortion
- Gene replacement

198. Ans. a (Fortnightly)
(Ref: Park, PSM, 18th ed., 330)
NMEP (national anti malaria programme): 1999.
- Started in 1953 April, but focal outbreaks appeared and hence revised strategy,
- Modified plan of Operation (MPO) was put into operation from 1955 April, which said that with;
API $\geq 2$ should be taken up for spray operation (two rounds of DDT $1\text{g/m}^2$).

API $\geq 2$ with refractory vector (to DDT) $\Rightarrow$ 3 rounds of Malathion $2\text{g/m}^2$.

API $\geq 2$ with vector refractory to both, DDT and Malathion $\Rightarrow$ 2 rounds of synthetic pyrethroids $0.25\text{g/m}^2$.

♦ Collection and examination of blood smears is a key element of MOP.

♦ Both, active and passive surveillance carried out FORTNIGHTLY in all areas with API $> 2$.

♦ Areas with API $< 2$ no regular spraying, only focal spraying during P. falciparum disease, more vigorous surveillance, treatment, follow up and epidemiological investigation for all cases.

♦ Urban malaria scheme (A. stephensi)

♦ P. Falciparum containment programme

♦ District malaria officer

199. Ans. a (1-2/gm²)  
(Ref: Park, PSM, 18th ed., 589)  
Toxicants suitable against malaria vectors as residual spray:

<table>
<thead>
<tr>
<th>Toxicant</th>
<th>Dosage in g/m²</th>
<th>Average duration of effectiveness (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DDT</td>
<td>1–2</td>
<td>6–12</td>
</tr>
<tr>
<td>Lindane</td>
<td>0.5</td>
<td>3</td>
</tr>
<tr>
<td>Malathion</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>OMS-33</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

200. Ans. d (It has repellent action on insects)  
(Ref: Park’s Textbook of PSM 18th Ed. – 589)  
**DDT (Dichloro diphenyl trichloroethane)**

♦ It was first synthesized in by a German chemist, Ziedler.

♦ Its insecticidal action was described by Paul Muller.

♦ It is primarily a contact poison.

♦ It acts on nervous system of insects.

♦ It takes several hours to kill the insect.

♦ The residual action of DDT may last as long as 18 months.

♦ It has no repellent action on insects.

♦ As a residual spray, DDT is applied at a dosage of 100–200 mg/ sq. foot area.

♦ The formulation of choice is a 5 % suspension, 5–10 % strength for the control of lice, fleas, ticks, and bugs.
201. **Ans. a (0.25)** *(Ref: Park, PSM, 18th ed., 308)*  
Strategy according to Modified plan of Operation (MPO) for malaria:  
- If API $\geq 2$, then take up spray operation (two rounds of DDT $1\text{g/m}^2$).  
- If API $\geq 2$ with refractory vector (to DDT), then 3 rounds of Malathion $2\text{g/m}^2$.  
- If API $\geq 2$ with vector refractory to both DDT and Malathion, then 2 rounds of synthetic pyrethroids $0.25\text{g/m}^2$.

202. **Ans. a (Modified Plan of Operation)** *(Ref. Park PSM 18th ed. 329; Refer to above Q. for explanation)*  
Modified plan of Operation (MPO) was put into operation from April, focal outbreaks appeared and hence revised strategy and now it is the current Global strategy for Malaria control. Collection and examination of blood smears is a key element of MOP. Both, active and passive surveillance carried out **FORTNIGHTLY** in all areas with API $> 2$.

203. **Ans. d (All)** *(Ref. Park PSM 18th ed. 202)*  
Malaria control added impetus as **ROLL BACK MALARIA** initiative was launched by WHO, UNICEF, UNDP and the world bank in 1998.  
**The main strategies of it are:**  
1. Ensure proper and expanded use of insecticide treated mosquito nets  
2. Ensure adequate access to basic health care and training of health care workers  
3. Encourage the development of more effective and new anti-malaria drugs and vaccines  
4. Encourage development of simpler and more effective means of administering medicines, such as training of village health workers and mothers on early and appropriate treatment of malaria, especially in children  
5. Strengthen health system to ensure better delivery of health care, especially at district and community level.

204. **Ans. d (The area has been reporting epidemics)** *(Ref. Park’s Textbook of PSM 18th Ed. – 331 and above Q for explanation)*
Under EMCP (Enhanced Malaria Control Project) launched in 1997, the criteria for selection of PHCs (Primary Health Center) include API more than 2 for the last 3 years, Plasmodium falciparum more than 30% of total malaria cases and the area has been reporting deaths.

205. Ans. d (Annual parasite index)

(Ref. Park PSM 18th ed. 329)

MALARIAL INDICES

a) Annual parasite incidence (API): is a sophisticated measure of malaria incidence in a community.

\[
API = \frac{\text{Confirmed cases during one year}}{\text{Population under surveillance}} \times 1000
\]

b) Annual blood examination rate (ABER): is an index of operational efficiency

\[
ABER = \frac{\text{Number of slides examined}}{\text{Population}} \times 100
\]

c) Spleen Rate: is widely used for measuring the endemicity of malaria in a community.

d) Average Enlarged Spleen: is a malariometric index.

e) Infant Parasite Rate: the most sensitive index of recent transmission of malaria in a locality.

· Hint: National programme of malaria control previously called as modified plan of operation, which depends on Annual parasite index, is now changed to approaches to malaria control.

206. Ans. a (Annual blood examination rate)

Annual blood examination rate (ABER): is an index of operational efficiency

\[
ABER = \frac{\text{Number of slides examined}}{\text{Population}} \times 100
\]

207. Ans. c (600 mg)

Drug policy for Malaria under National anti malaria programme:
1. In high-risk areas
   Presumptive treatment;
   Day 1 → Chloroquine 600mg + primaquine 45mg
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Day 2 → Chloroquine 600 mg
Day 3 → Chloroquine 300 mg

2. Radical treatment for P. vivax → primaquine 45 mg for 5 days
   P. falciparum → no further treatment required.

3. Chloroquine resistance P. falciparum → Sulfadoxin 25 mg/kg and pyrimethamine 1.25 mg/kg combination single dose and then primaquine 0.75 mg/kg.

4. In low-risk areas:
   Presumptive treatment → Chloroquine 600 mg (day 1)
   Radical treatment after confirmation of P. vivax and P. falciparum →
   Chloroquine 10 mg/kg single dose + primaquine 0.25 mg/kg for 5 days.

208. Ans. a (Sulfadoxin and Pyrimethamine)
   For Chloroquine resistance falciparum malaria → Sulfadoxin 25 mg/kg and pyrimethamine 1.25 mg/kg combination single dose and then primaquine 0.75 mg/kg is best treatment.

209. Ans. C (Proguanil)
   (Ref. KD Tripathi 4th ed. – 799; 5th ed. – 742, 744, 745)
   · Mefloquine appears to be safe during pregnancy; but should be avoided in 1st trimester unless absolutely indicated.
   · Quinine occasionally causes hemolysis especially in pregnancy, causing black water fever and renal damage.
   · During pregnancy quinine should be used only for life threatening infection with special care to prevent hypoglycemia.
   · Proguanil can be employed during pregnancy.
   · Pyrimethamine is Folate antagonist and hence absolutely in pregnancy.
   · So, from above explanation proguanil seems to be the best answer.

210. Ans. c (Presumptive treatment with chloroquine)
   Chloroquine is relatively safe during pregnancy, as compared to pyrimethamine and quinine.

211. Ans. a (Anopheles culicifacies)
   (Ref. Park PSM 18th ed. 329)

   Types of mosquito Diseases

   1. Anopheles → Malaria, filariasis (not in India).
<table>
<thead>
<tr>
<th>Mosquito Species</th>
<th>Diseases</th>
</tr>
</thead>
</table>
| **2. Culex**     | Bancroftian filariasis  
|                  | Japanese encephalitis  
|                  | West Nile fever  
|                  | Viral arthritis (epidemic polyarthritis). |
| **3. Aedes**     | Yellow fever (not in India)  
|                  | Dengue, Dengue hemorrhagic fever  
|                  | Chikungunya fever, Chikungunya hemorrhagic fever  
|                  | Rift valley fever. |
| **4. Mansonoides** | Malayan (Brugia) filariasis,  
|                  | Chikungunya fever. |

- Bite of female anopheles is the most common mode of transmission.
- Urban malaria → Anopheles stephensi
- Rural malaria → Anopheles culicifacies → Anthropophilic (Human blood) and transmits at low density → Anopheles fluvitalis
- Zoophilic (animal blood) and transmits at high density → Anopheles culicifacies.

### 212. Ans. b (Culex)
(Ref. Park PSM 18th ed. 329)

**“Nuisance mosquitoes”:**
- It breeds profusely in dirty water collections, viz., stagnant drains, cesspools, septic tanks, burrow pits, and in fact, in all types of water collection.
- *Culex fatigans* is a strong winged mosquito; its dispersal has been found to be 11 km in the rural areas of Delhi.
- The peak biting time is about midnight.
- Distinguished by white stripes on a black body, the first proved vector of a virus disease Yellow fever.
- It breeds in artificial accumulations of water in and around human dwellings, water found in discarded tins, broken bottles, fire buckets, flowerpots, coconut shells, earthen pots, tree holes.
- Eggs singly, cigar-shaped. Females are fearless biters, chiefly during the day usually less than 100 m (110 yards).
- Airports and seaports are kept free from all types of mosquitoes for a distance of 4 meters around the perimeter of the ports.
- Vector Of Malaria: *An. culicifacies* in rural areas and *An. stephensi* in urban areas.
- Anopheles is “tiger mosquito”.

### 213. Ans. d (Japanese encephalitis)
Types of mosquito | Diseases
---|---
1. *Anopheles* | Malaria, filariasis (not in India).
3. *Aedes* | Yellow fever (not in India), Dengue, Dengue hemorrhagic fever, Chikungunya fever, Chikungunya hemorrhagic fever, Rift valley fever.

214. Ans. a (Hemodilution)

*Ref. Park PSM 18th ed. 199*

**Dengue hemorrhagic fever**
- Arboviral disease transmitted mainly by *Aedes aegypti*.
- Three forms known →
  - Classical dengue (Break Bone Fever)
  - Dengue hemorrhagic fever without shock
  - Dengue hemorrhagic fever with shock
- Extrinsic Incubation Period → 8-10 days.
- Intrinsic Incubation Period → 3-10 days.
- The transmission cycle is “Man-mosquito-man”.
- Once the mosquito becomes infective, it remains so for life-long.
- Transovarian transmission demonstrated.
- Dengue is widely prevalent in India and 4 serotypes are known.
- Criteria for clinical diagnosis →
  - Fever (acute, high, continuous, lasting for 2-7 days)
  - Hemorrhagic manifestations (Positive tourniquet test, petechiae, epistaxis, hematemesis and melena)
  - Hepatomegaly
- Laboratory diagnosis (Two distinctive and constant findings) →
  - Rising hematocrit value/polycythemia and
  - Moderate to marked thrombocytopenia
- Treatment →
  - Grade I and II (no circulatory failure): Volume replacement for 12-24 hours
- Avoid aspirin
- Grade III and IV (no circulatory failure): Volume replacement, avoidance of development of DIC, and treatment of stagnant academia.

215. Ans.: b (Andaman and Nicobar Island)  
(Ref. Park PSM 18th ed. 218)  
**Rabies** free area is defined as one in which no case of indigenously acquired Rabies has occurred in man/ any animal species for 2 years. Union Territory of Lakshadweep and Andaman Nicobar Island are free of rabies.

**RABIES VIRUS**  
♦ It is RNA neurotropic virus (Lyssa virus 1)  
♦ Virus recovered from naturally occurring cases of rabies is street virus.  
♦ **Fixed virus** is defined as one that has a short, fixed and reproducible incubation period (4-6 days) when injected intra-cerebrally in to suitable animals. It does not form negri bodies.  
♦ The virus excreted in saliva of affected animals is pathogenic to all mammals and this virus recovered from naturally occurring cases of rabies is called “street virus”. It has long variable incubation period.

216. Ans. a (Rabies)  
(Ref. Park PSM 18th ed. 218)  
**Rabies**  
♦ All warm-blooded animals are susceptible to rabies.  
♦ Rabies in Man is dead end infection and has no survival valves for the virus  
♦ The maximum number of victims in India belong to 1-24 years.

217. Ans. c (10 days)  
(Ref. Park PSM 18th ed. 218)  
**Rabies**  
♦ Also known, as hydrophobia is an acute, highly fatal viral disease of the CNS, caused by *Lyssa virus type1*.  
♦ IP 3-8 weeks (highly variable).  
♦ Pathogenesis spread from peripheral nerves to CNS.  
♦ Rabies in man is a dead-end infection.  
♦ Clinical feature: Prodromal symptoms like headache, malaise, sore throat, tingling at the site of bite, etc last for 3-4 days, which are followed by stimulation of CNS, aerophobia and then hydrophobia, which lasts for 2-3 days.  
♦ Pre-exposure prophylaxis 0.1 ml intradermal.  
♦ Cell culture vaccine
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a. Duck embryo
b. HDCV
c. Tissue culture vaccines.

218. Ans. b (3 doses)

Cell culture anti-rabies vaccine consists of:

1. Pre-exposure prophylaxis
   1ml IM or 0.1ml Id on days 0, 7 and 28.
   Then, after exposure 1ml IM on days 0, 3, 7.
   Booster required every two years until risk of exposure is present.

2. Post-exposure prophylaxis
   a. Intramuscular schedules →
      i. 6 doses; 1ml IM on 0, 3, 7, 14, 28, 90 days
      ii. 2-1-1 schedule; given on 0, 7, 28, 90
   b. Intradermal schedule →
      i. 2 site schedule; doses → 2-2-2-0-1-1 x 0.1ml; days 0, 3, 7, 28, 90
      ii. 8 site schedule; doses → 8-0-4-0-1-1 x 0.1 ml; days 0, 7, 28, 90

219. Ans. a (0, 3 and 7)

If the patient’s antibody titre is unknown, or if the bite is severe,
three 1 ml intramuscular doses of HDC vaccine are recommended
on days 0, 3, and 7. If the titre is known to have been more than 0.5
IU/ml and the bite is not severe only 2 doses are needed.

220. Ans. d (Herons are primary host)

(Ref. Park PSM 18th ed. 228)

Japanese Encephalitis

♦ It is a mosquito borne zoonotic encephalitis caused by group B
  arbovirus (flavi virus) and transmitted by Culicine mosquito (Culex
  Tritaeniorhynchus, C. vishnui and C. gelidus).
♦ About half the population in south India had neutralizing antibodies
to this virus.
♦ The disease is transmitted to man by the bite of infected mosq-
  uitoes.
♦ Man is the incidental “dead end” host.
♦ Man to man transmission has not so far been recorded.
♦ Basic cycles of transmission are:
  a. Pig → Mosquito → Pig
  b. Areid bird → Mosquito → Areid bird
♦ The pigs are considered as amplifiers of the virus.
♦ Other diseases transmitted by Culex are → Bancroftian
  filariasis, Japanese encephalitis, West Nile fever and viral
  arthritis (epidemic/polyarthritis).
221. Ans. a (Paddy field)  
(Ref. Park PSM 18th ed.228)  
The vector of transmission of JE i.e. Culicine mosquitoes (zoophilic) generally breed in irrigated rice field, shallow ditches and pools. The “rice fields/paddy fields” are probably the most important breeding places.

222. Ans. d (AI Institute of Hygiene and Public Health, Kolkata)  
(Ref. Park PSM 18th ed. 132)  
In India, facilities for isolation of influenza virus are available at the following institutes:  
1. Govt. of India, Influenza Centre, Pasture Institute, Coonor, South India  
2. Haffkine Institute, Mumbai  
3. School of Tropical Medicine, Kolkata  
4. All India Institute of Medical Sciences, New Delhi  
5. Vallabhai Patel Chest Institute, Delhi  
6. Armed Forces Medical College, Poona

223. Ans. a (Increased risk in IV drug abuser)  
(Park PSM 18th ed.273)  
The route of transmission of infection of HIV in India, 2004

<table>
<thead>
<tr>
<th>Route of Transmission</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexual</td>
<td>85.72%</td>
</tr>
<tr>
<td>Perinatal transmission</td>
<td>3.14%</td>
</tr>
<tr>
<td>Blood and blood products</td>
<td>2.17%</td>
</tr>
<tr>
<td>Injectable (IV) drug users</td>
<td>2.95%</td>
</tr>
<tr>
<td>Others (non-specified)</td>
<td>6.02%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

224. Ans. d (Contaminated blood transfusion)  
(Park PSM 18th ed.273)  
Efficiency of transmission of AIDS  
Infected pregnant mother to child → 25-35%  
Heterosexual transmission → 1%  
Needle injury → 0.03 %  
Contaminated blood transfusion → 90-100%

225. Ans. c (Sexual transmission)  
(Ref. Park PSM 18th ed. 98, 338)  
Risk of HIV transmission  
Among all sources of HIV heterosexual promiscuity is major route and 85% HIV infection occur due to unprotected and multiple sexual contact.
226. Ans. a (There is greater risk of transmission from man to woman) 
(Park PSM 18th ed.273)

Modes of transmission of HIV

(a) Sexual transmission

The size of risk is affected by factors like, the presence of STD (enhances the chances), sex and age of the uninfected partner (women are more vulnerable because a larger surface is exposed; exposed adolescent girls and women above 45 years of age are more prone), type of sexual act (anal intercourse carries a higher risk than vaginal transmission and risk is more in female who is menstruating), stage of illness of the infected partner and the virulence of HIV strain involved. HIV infected people are more infectious in the very early stages, before ab production i.e. in “window period”.

(b) Blood contact

The risk of contracting HIV infection from transfusion of a unit of infected blood is estimated to be over 95%; the risk of transmission through contaminated needle, syringe or any other skin-piercing instrument is very lower than with transfusion. 4 weeks of treatment with AZT monotherapy after accidental needle stick exposure to HIV decreases the chance of their becoming infected by 79%.

(c) Maternal-foetal transmission

Rate of transmission during breast-feeding vary from 15 to 45%. There is no evidence that HIV is transmitted through mosquitoes, insects, casual social contacts, or by food or water.

227. Ans.: c and d
(Park’s textbook of PSM – 17th edition – 260)

NOTE – Group I includes high prevalence states like Maharashtra, TN, Karnataka and AP also.

- India’s epidemic seems to be following the so-called type 4 pattern (highest risk group → bridge population → General population), 1st pattern described in Thailand.
- Based on sentinel surveillance data, HIV prevalence is divided into 3 group:

  **Group I** (High prevalence state) → Maharashtra, TN, Karnataka (HIV infection > 1% in), AP, Manipur, and Nagaland.
  **Group II** (Moderate prevalence state) → Gujarat, Goa, (HIV infection < 1% in antenatal women but > 5% among high risk group)
  **Group III** (Low prevalence state) : HIV infection in high-risk group < 5% and < 1% among antenatal women.
HIV infection >2% mark – Mumbai
HIV infection >1% mark – Hyderabad, Bangalore, Chennai.
HIV infection >1% mark – Calcutta, Ahmedabad, Delhi.

Total estimation of HIV infection among adult population \( V = \frac{P}{T \times R} \)
- \( P \) – number of HIV positive cases
- \( T \) – number of samples tested
- \( R \) – estimated size of population

228. Ans. c (TN)
(Ref. Park’s Textbook of PSM 18th Ed. – 273)
High HIV prevalence state in India are Maharashtra, TN, Karnataka (HIV infection > 1% in) , AP , Manipur, and Nagaland.

229. Ans. b (Community based screening for prevalence of HIV taken up)
(Ref. Park PSM 18th ed.336)

National AIDS Control Programme
- It was launched in 1987.
- Phase I → 1992 to 1999
- Phase II → 1999 to 2004
- Two main objectives of Phase II:
  1. To reduce spread of HIV transmission in India.
  2. To strengthen India’s capacity to respond to HIV/AIDS on long-term basis.
- The initiatives taken are:
  1. Prevention (Targeted intervention, STD treatment, Condom programming, Multisectoral collaboration and Public private partnership; Social mobilization, Safe blood, Voluntary testing and Counseling, AIDS vaccine, Sensitizing youths and work place interventions)
  2. Care (PPTCT, Management of HIV-TB co-infection and opportunistic infections, Piloting ART and Post exposure prophylaxis)
  3. Surveillance (Annual sentinel surveillance, AIDS case detection, Mapping of high risk groups and Behavioural surveillance)
- For prevention of HIV transmission from mother to child project using Nevirapine, single dose, to the child and mother has been started from 1st October, 2001 at 11 centers in India viz Maharashstr, Chennai, Bangalore, Hyderabad and Imphal.

230. Ans. c (30-44 years)
(Ref. Park’s Textbook of PSM 18th Ed. - 273)
Age distribution of AIDS cases in India up to 31st Aug, 2004
### Table

<table>
<thead>
<tr>
<th>Age group (yrs)</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-14</td>
<td>2062</td>
<td>1357</td>
<td>3419</td>
</tr>
<tr>
<td>15-29</td>
<td>18145</td>
<td>10776</td>
<td>28921</td>
</tr>
<tr>
<td>30-49</td>
<td>37033</td>
<td>10576</td>
<td>47609</td>
</tr>
<tr>
<td>&gt; 50</td>
<td>4810</td>
<td>1269</td>
<td>6079</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>62050</td>
<td>23978</td>
<td>86028</td>
</tr>
</tbody>
</table>

231. Ans. c (Person to person transmission)
(Ref. Ananthanarayan microbiology 6th ed. 320)
The modes of infection are by ingestion, inhalation, contact or accidental inoculation.
Person to person spread does not ordinarily occur, but very rarely transmission has been reported through the placenta, breast feeding and sex.
Milk products, meat from infected animals, raw vegetables or water supplies contaminated by feces or urine of infected animals may also be responsible, however, the most important vehicle of infection is raw milk.

232. Ans.: d (Tuberculosis)
(Ref. Park’s textbook of PSM – 18th ed. 104)
**Indications for chemoprophylaxis**

<table>
<thead>
<tr>
<th>Disease</th>
<th>Chemoprophylaxis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bacterial conjunctivitis</td>
<td>Erythromycin ointment</td>
</tr>
<tr>
<td>Diphtheria</td>
<td>Erythromycin and 1st dose vaccine</td>
</tr>
<tr>
<td>Influenza</td>
<td>Amantadine</td>
</tr>
<tr>
<td>Malaria</td>
<td>Chloroquine 300mg/wk Proguanil 200mg/wk</td>
</tr>
<tr>
<td>Meningococcal meningitis</td>
<td>Mefloquine 250mg/wk Doxycycline 100mg/day</td>
</tr>
<tr>
<td>Plague</td>
<td>Sulphadiazine</td>
</tr>
<tr>
<td>Cholera</td>
<td>Tetracycline (Doxycycline) or Furazolidine</td>
</tr>
</tbody>
</table>

233. Ans. b (Taeniasis)
(Park’s textbook of PSM – 18th ed. 104)
**Disease in which chemoprophylaxis is advisable**
1. Bacterial conjunctivitis
2. Diphtheria
3. Influenza
4. Malaria
5. Meningococcal meningitis
6. Plague
7. Cholera
234. Ans. a. (Doxycycline 300mg single dose)
Chemoprophylaxis for Cholera consist of: Tetracycline (Doxycycline 300 mg) or Furazolidone.

235. Ans. c (Travelers from non-endemic to endemic areas)
(Ref. Park PSM 18th ed. 194)
Chemoprophylaxis of malaria is done in:
♦ Travelers from non-endemic to endemic areas
♦ Pregnant woman in highly endemic area
♦ Mass prophylaxis in highly endemic area with API > 5/1000 population
♦ Mass prophylaxis in children under 5 years is no longer recommended by WHO.

236. Ans. d (All of the above)
Tetanus can be prevented by:
o Active immunisation with tetanus toxoid with booster every 5-10 years
o Adequate wound toilet of contaminated wounds
o Consider passive immunisation with hyperimmune immunoglobulin

237. Ans. a (Meningoencephalitis can precede parotitis)
(Ref. CMDT 2004 - 1307)
Meningoencephalitis usually follow parotid enlargement, but may precede it or occur without salivary gland involvement, in about 30% cases.
Other complications of mumps include:
o Orchitis
o Pancreatitis
o Oophoritis
o Thyroiditis
o Neuritis
o Hepatitis
o Myocarditis
o Thrombocytopenia
o Arthralgias
o Nephritis
o Endocardial fibroelastosis
Rare ones are:
o Encephalitis
o GBS
o Ataxia
o Transverse myelitis
o Deafness
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238. Ans. d (400 – 600 ml)
(Ref. Park PSM 18th ed. 180)

<table>
<thead>
<tr>
<th>Age</th>
<th>Under 4 months</th>
<th>4-11 months</th>
<th>1-2 years</th>
<th>2-4 years</th>
<th>5-14 years</th>
<th>15 years or over</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (kg)</td>
<td>Under 5</td>
<td>5.7.9</td>
<td>8-10.9</td>
<td>11-15.9</td>
<td>16-29.9</td>
<td>30 or over</td>
</tr>
<tr>
<td>ORS Solution (ml)</td>
<td>200-400</td>
<td>400-600</td>
<td>600-800</td>
<td>800-1200</td>
<td>1200-2200</td>
<td>2200-4000</td>
</tr>
</tbody>
</table>

239. Ans. a (Indonesia)
(Ref. Park PSM 18th ed. 177)

**Epidemiology of Cholera**
- Cholera is an acute diarrheal disease, caused by V.cholerae 01 (classical or el tor).
- It is now commonly due to el tor biotype.
- The Case fatality may be as high as 30-40%.
- Cholera has been in India since ancient times.
- Currently the 7th pandemics which began in 1961 in Indonesia is still continuing.
- This pandemic is due to el tor Vibrio which has replaced the classical type of cholera.
- West Bengal has lost its reputation as the “home” of cholera.
- Most of the el tor biotype isolated today belongs to serotype Ogawa.
- It is well known that the elimination of contaminated water does not immediately bring an outbreak to an end, but a so-called “tail of epidemic” is produced. This is due to the continuation of transmission through contacts.
- El tor biotype appears to have greater “endemic tendency” than its classical counter part in that it causes a higher infection-to-case ratio i.e. inapparent infection and mild cases.

240. Ans. a (0)
(Ref. Park PSM 18th ed. 346)

**National Guinea Worm Eradication Programme**
- In India, the last reported case of Guinea worm disease was in July 1996.
- India reported zero cases since August 1996.
- On completion of 3 years of zero incidence, India was declared free of it in February 2000 by the International commission for certification of Dracunculosis eradication.
(Ref. Park PSM 18th ed. 346)  
- In India National Guinea Worm Eradication Programme was launched in 1984.

242. Ans. e (Small pox)  
(Ref. Park PSM 18th ed. 121,197; Refer above Q. for explanation)  
Small pox is eradicated world-wide. While in India, Guinea worm is also eradicated.

243. Ans. b (Kala azar)  
(Ref. Park PSM 19th ed. 244)  
- Leishmaniasis is a group of protozoal diseases (Kala azar or visceral leishmaniasis, cutaneous leishmaniasis, mucocutaneous leishmaniasis, Post-Kala azar Dermal Leishmaniasis) caused by Leishmania and transmitted to man by bite of female phlebotome sandfly.  
- It has been known to occur epidemically, and endemically in well-defined areas in India viz., Assam, West Bengal, Bihar, UP, Sikkim, TN and Orissa.  
- The increasing trend of Kala azar was evident from the fact that the total number of cases which were 17,806 with 72 deaths in 1986 to total of 77, 102 cases with 1419 deaths in 1992.

244. Ans. b (Anopheles fluvitalis)  
(Park's textbook of PSM – 17th edition – 544; Community medicine by A. P. Kulkarni 2nd ed. 17)  
- Bite of female anopheles is the most common mode of transmission.  
  1. Urban malaria → Anopheles stephensi  
  2. Rural malaria → Anopheles culicifacies  
  3. Anthropophilic (Human blood) and transmits at low density → Anopheles fluvitalis  
  4. Zoophilic (animal blood) and transmits at high density → Anopheles culicifacies.  
- There are 4 stages in the life history of mosquitoes:  
  Egg (1-2 days)  
  Larva (5-7 days)  
  Pupa (1-2 days)  
  Adult (7-10 days)  
- Under favorable conditions of temperature and food supply life cycle from egg to adult takes 7-10 days and normal adult mosquito lives for about 2 weeks.  
- Culex is nuisance mosquito.  
- Culex fatigans is strong winged mosquito, highly anthropophilic, found to be common in rural area.
245. **Ans. a (Sandfly)**  
*(Ref. Textbook PSM by Park 17th ed. 90, 574)*  
**Sandfly is vector of transmission in following diseases:**  
1. Kala-azar  
2. Oriental sore  
3. Sand-fly fever  
4. Oraya fever  

246. **Ans. a (9–90 days)**  
*(Ref: Harrison, Principles of internal medicine, 15th ed., 375, 400)*  
**SYPHILIS**  
a) *T. Pallidum* enters foetal circulation after 20th week of gestation with disappearance of cytotrophoblast in villi *(Kerala-2001).*  
b) Basic pathology is obliterative endarteritis.  
c) Placenta becomes bulky and spirochaete can hardly be found in placenta.  
d) Spirochaete can however be detected from maculopapular rash in baby.  
e) Irrespective of the serology, treatment should be repeated in subsequent pregnancies.  
f) Incubation period of syphilis is 9-90 days  

247. **Ans. a (Cyclo-propagative)**  
*(Ref. Park PSM 17th ed.-543)*  
**BIOLOGICAL TRANSMISSION**  
**Propagative:** Disease agent undergoes no cyclical change, but only multiplies in the body of the vector.  
E.g. Plague bacillus (Rat flea)  
**Cyclo-Propagative:** Disease agent undergoes both, cyclical change as well as multiplication in the body of the vector.  
E.g. Malarial parasite (Anopheline mosquito)  
**Cyclo-Developmental:** Disease agent undergoes cyclical change only, but does not multiply in the body of the vector.  
E.g. Filarial parasite (Culex mosquito), Guinea worm (Cyclops)  

248. **Ans. b (Cyclo-developmental)**  
*(Ref. Park PSM 17th ed.-543)*  
Cyclo-Developmental: Disease agent undergoes cyclical change only, but does not multiply in the body of the vector.  
E.g. Filarial parasite (Culex mosquito), Guinea worm (Cyclops)  

249. **Ans. c (Child)**  
*(Ref. Park’s Textbook of PSM 18th Ed. - 204)*  
With the possible exception of chimpanzees in tropical Africa, which may carry the infection with P. malariae, no other animal reservoir of human plasmodia is known to exist.
A human reservoir is one who harbours the sexual forms (gametocytes) of the parasite. A patient can be a carrier of several plasmodial species at the same time. Children are more likely to be gametocyte carriers than adults and thus child is the better epidemiological reservoir of malaria than adult.

Certain conditions that must be met by a person before serving as reservoir:
1. The person must harbour both the sexes as a reservoir
2. The gametocytes must be mature, which takes 2-4 days for them after their appearance in blood
3. The gametocytes must be viable and infective (anti-malarial drugs cause non-viability)
4. The gametocytes must be present in sufficient density to infect the mosquitoes (i.e. at least 12/cu mm of blood)

250. Ans. c (Enteric fever)
(Ref. Park’s Textbook of PSM 18th Ed. 161, 167, 187, 211)
Man is the only known reservoir of typhoid infection, including the cases as well as carriers. A case or carrier is infectious as long as bacilli appear in stools or urine. The primary source of typhoid infection is (faeces and urine of) man i.e. cases and carriers. The secondary sources of infection are contaminated water, food, fingers and flies. There is no evidence that typhoid bacilli are excreted in sputum or milk.

251. Ans. c (Dracunculosis)
(Ref. Park PSM 18th ed.197)
Dracunculosis is amenable to eradication because:
- Provision of safe drinking water
- Control of Cyclops
- Surveillance
- Health education of public in matters relating to boiling/sieving drinking water through double thickness cotton clothe.
- Treatment of cases with niridazole, mebendazole or metro-nidazole.

252. Ans. b (Soil)
(Ref. Ananthanarayan Microbiology 4th ed.- 245)
TETANUS
- Caused by gram-positive Clostridium tetani bacilli.
- Soil is the most vital reservoir of tetanus bacilli.
- Tetanus toxoid is not only protective for mother but also for baby. In unprotected mother 0.5 ml TT IM at 6 weeks interval for 2 times such that first one to be given at 16–24 months of gestation.
Women who are immunized in past should receive a booster
dose of 0.5 ml of TT intramuscularly in last trimester.
♦ Both active and passive vaccination can be given together in
Tetanus
♦ Herd immunity is not vital in TETANUS.
All wounds receive surgical toilet.
Wounds less than 6 hr old, clean, non-penetrating and with
negligible tissue damage.

<table>
<thead>
<tr>
<th>Immunity Category</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Nothing more required</td>
</tr>
<tr>
<td>B</td>
<td>Toxoid 1 dose</td>
</tr>
<tr>
<td>C</td>
<td>Toxoid 1 dose + Human Tet.lg.</td>
</tr>
<tr>
<td>D</td>
<td>Toxoid complete course + Human Tet.</td>
</tr>
</tbody>
</table>

Other wounds

<table>
<thead>
<tr>
<th>Immunity Category</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Nothing more required</td>
</tr>
<tr>
<td>B</td>
<td>Toxoid 1 dose</td>
</tr>
<tr>
<td>C</td>
<td>Toxoid 1 dose</td>
</tr>
<tr>
<td>D</td>
<td>Toxoid complete course</td>
</tr>
</tbody>
</table>

A = Has had a complete course of toxoid or a booster dose within
the past 5 years.
B = Has had a complete course of toxoid or a booster dose more
than 5 years ago and less than 10 years.
C = Has had a complete course of toxoid or a booster dose more
than 10 years ago.
D = Has not had a complete course of toxoid or immunity status is
unknown.

253. Ans. d (Clean airway)
(Ref. Park PSM 18th ed.251)
Most programmes of prevention of neonatal tetanus have
concentrated on training the traditional birth attendants, providing
health delivery kits and educating pregnant women about the ‘three
cleans’ →
♦ Clean hands
♦ Clean delivery surface
♦ Clean cord care (clean blade for cutting the cord + clean tie for the
cord + no application on the cord stump)

254. Ans. c (1)
(Ref. Park’s Textbook of PSM 18th Ed. - 249)
Neonatal tetanus is a killer disease, second only to measles among
the six target disease of the EPI. However, tetanus is now
comparatively rare disease in the developed countries mainly due to significant increase in immunization coverage of pregnant women with a protective dose of tetanus toxoid. The greatest decline in neonatal mortality in SEAR was observed in Indonesia (70%). In 1989, World Health Assembly resolved to eliminate neonatal tetanus by 1995, by aiming to reduce the incidence of neonatal tetanus by 1995, by aiming to reduce the incidence to less than 1 case/1000 live births for each health block. This goal was reaffirmed in 1999 and a new target date was set for elimination of neonatal tetanus by the year 2005.

255. Ans. d (Tuberculosis)  
(Ref. Park PSM 18th ed. 69)  
Infectious diseases whose control is solely based on active immunization include:  
- Measles  
- Diphtheria  
- Polio  
- Tetanus

256. Ans. a (Cholera)  
(Ref. Park PSM 18th ed.175)  
Infectious diseases in which ISOLATION is vital:  
- Diphtheria  
- Plague  
- Cholera  
- Some Streptococcal infections

257. Ans. d (Hepatitis A)  
Both active and passive vaccination can be given together in Diphtheria, Tetanus, Rabies and Hepatitis B.

258. Ans. a (Measles)  
(Ref. Park PSM 18th ed.35, 113, 125, 295, 312)  
Iceberg of disease:  
Disease in a community can be compared with an iceberg. The “floating tip” of iceberg → represents what the physician sees in the community (Clinical cases).  
The vast “submerged” portion → represents the hidden mass of disease (latent inapparent, pre-symptomatic, undiagnosed cases and carriers).  
The “water-line” → represents the demarcation between apparent and inapparent diseases.  
The “hidden” part → represents an important undiagnosed reservoir of infection or disease in the community, and its detection and control is challenge to modern techniques in PSM. In some diseases
(e.g. hypertension, DM, anaemia, malnutrition, mental illness) the unknown morbidity (submerged part of iceberg) far exceeds the known morbidity.

The “bottom” of iceberg → one of the major deterrents in study of chronic diseases of unknown etiology in absence of methods to detect the subclinical state.

259. Ans. b (Carriers are the only source of infection.)

*(Ref. Park PSM 18th ed. 125)*

**Measles (Rubeola)**
- Secondary attacks are very rare
- The only source of infection is a case of measles
- Incubation period is 10-14 days.
- Measles is a winter disease because people crowd together indoors.
- Incidence is slightly more in females than males
- Koplik’s spots are seen in the oral cavity in measles
- Carriers are not known to occur.
- There is some evidence that Subclinical measles occur more often than previously thought.
- WHO’s measles strategy comprises of 3 parts vaccination strategy, i.e. catch-up, keep-up and follow up, two of which are supplementary vaccinations. Catch-up is defined as one time, nation wide vaccination campaign targeting usually all children aged 9 months to 14 years.
- One attack of measles generally confers life long immunity
- Active and passive vaccination cannot be given together.

260. Ans. b (80%)

*(Ref. Park PSM 18th ed. 125)*

**Eradication of measles:**
It is believed that measles, like smallpox, is amenable to eradication, especially because only one dose of measles vaccine is needed and now more heat stable measles vaccine has developed. But in area not covered by measles immunization, the attack rate is 80%. One attack of measles generally confers life-long immunity (second attacks are rare).

**WHO’s measles elimination strategy** comprises 3 part vaccination strategy:

1. **Catch-up** (targeting all children between 9 months to 14 years irrespective of history of measles or vaccination status)
2. **Clean-up** (routine services aimed at vaccinating more than 95% of each successive birth cohort)
3. **Follow-up** (subsequent nation wide vaccination campaign conducted every 2-4 years targeting all children born after the catch-up campaign)
261. Ans. a (Measles)
(Ref. Park PSM 18th ed. 125; Ananthanarayan 6th ed. 210)
♦ Carriers are not known to occur in measles.
♦ 90% of babies infected with hepatitis B become chronic carriers.
♦ In pertussis, chronic carriers are not known.
♦ Man is the only reservoir of infection in cholera. He may be case or a carrier.
♦ A patient can be a carrier of several plasmodial species at the same time.
♦ Man is the only known reservoir of typhoid infection, including the cases as well as carriers. A case or carrier is infectious as long as bacilli appear in stools or urine. They are treated by Ampicillin
♦ Carriers are the most vital source of infection in meningococcal infection.
♦ The only source of infection for gonorrhea is a human – carrier or less often a patient. The existence of asymptomatic carriage in women makes them a reservoir serving to perpetuate infection among their male contacts.

262. Ans. c (Secondary attack rate is less than that of rubella)
(Ref. Park PSM 18th ed. 125)
Measles (Rubeola)
♦ Secondary attacks are very rare
♦ The only source of infection is a case of measles
♦ Incubation period is 10-14 days.
♦ Measles is a winter disease because people crowd together indoors.
♦ Carriers are not known to occur.
♦ There is some evidence that Subclinical measles occur more often than previously thought.
♦ One attack of measles generally confers life long immunity
♦ Active and passive vaccination cannot be given together.

263. Ans. b (Measles)  (Ref. Park PSM 18th ed. 125)
Measles (Rubeola)
♦ Incubation period is 10-14 days.
♦ Incidence is slightly more in females than males
♦ Koplik’s spots are seen in the oral cavity in measles
♦ Complications: Diarrhoea, Pneumonia (giant cell or Hoest pneumonia), Otitis media, and SSPE.
♦ SSPE is least common complication.

264. Ans. None of the above
(Ref. Park PSM 18th ed. 125, 128, 138 and 185)
Measles is a winter disease because people crowd together indoors.
Rubella usually occurs in a seasonal pattern i.e. in temperate zones during the later winter and springs. The seasonal variation of the meningococcal meningitis is well established, outbreak occur more frequently in dry and cold months. Distinct seasonal pattern of diarrhea occur in many geographical areas. In temperate climates, bacterial diarrhea occurs more frequently during warm season, while viral diarrhea especially by Rotavirus peak during winter.

265. Ans. None
(Refer. Park PSM 18th ed. 129)
♦ The most vital factor in pathogenicity of Rubella for fetus is gestational age at the time of infection.
♦ The first trimester of pregnancy is the most disastrous time for the fetus as the organs are developing.
♦ During 1st trimester → 50% cases fetal infection
♦ During 2nd trimester → 33% cases fetal infection

<table>
<thead>
<tr>
<th>Week of gestation when mother infected</th>
<th>% of fetuses infected</th>
<th>% of infected fetuses damaged</th>
<th>Overall risk of damage to fetus (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;11</td>
<td>90</td>
<td>100</td>
<td>90</td>
</tr>
<tr>
<td>11-16</td>
<td>55</td>
<td>37</td>
<td>20</td>
</tr>
<tr>
<td>17-26</td>
<td>33</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>27-36</td>
<td>53</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
♦ Fetal malformations not only more common after maternal infection in 1st trimester but also tend to more severe and involve more organs.
♦ During 4th week of gestation → many defect
♦ After 20 weeks of gestation → isolated deafness.
♦ Thus, Infection in 2nd trimester may cause deafness.
♦ But those infected after 16 week of gestation suffer no major abnormalities.
♦ Rubella vaccine is contraindicated in pregnancy.
♦ If the infection is serious spontaneous abortion and stillbirth may occur or the infant may develop multiple defects such as the classical triad of PDA, cataract and deafness. Extended rubella syndrome consists of hepatosplenomegaly, purpura, myocarditis and bone lesions.

266. Ans. a (6-12 weeks of pregnancy)
♦ In Rubella, Fetal malformations not only more common after maternal infection in 1st trimester but also tend to more severe and involve more organs.
♦ During 4th week of gestation → many defect
After 20 weeks of gestation → isolated deafness.

Thus, Infection in 2nd trimester may cause deafness.

But those infected after 16 week of gestation suffer no major abnormalities.

267. Ans. b (RA 27/3 vaccine in dose of 0.5 ml subcutaneously)

**Rubella vaccine**
RA 27/3 produced in 1979 in human diploid fibroblast has relapsed all other vaccine because it induces higher antibody titres and produces an immune response more closely paralleling natural infection and also it largely prevents subclinical superinfection with wild viruses.

It is administered in dose of 0.5 ml single dose subcutaneously. Seroconversion occurs in more than 95% vaccines. Vaccine induced immunity persists for atleast 14-16 years and probably life long.

Rubella vaccine also available as combined vaccine i.e. MMR vaccine is also equally effective.

268. Ans. d (The meningococcal vaccine is not recommended for use in infants and children below 2 years of age)

Meningococcal meningitis (cerebrospinal fever)

It is an acute communicable disease caused by gram-negative diplococci, N. meningitidis. The fatality of typically untreated case is about 80%.

With early diagnosis and treatment, case fatality rates have been declined to less than 10%.

The zone lying between 5 and 15 degree N of the equator in tropical Africa is called the “meningitic belt”. Groups A and C and to some extent Group B meningococci are capable of causing major epidemic. Carriers are the most vital source of infection. Clinical cases present only a negligible source of infection. It is predominantly a disease of children and young adults of both sexes.

Seasonal variation is well-established dry and clod months. The disease spreads mainly by droplet infection. The portal of entry is nasopharynx. A powerful antibiotic like Rifampicin is needed to eradicate the carrier state (chemoprophylaxis). Penicillin is drug of choice for treatment of disease. Effective vaccines prepared from purified Group A, C, Y, and/or W135 meningococcal polysaccharides are now available.
The meningococcal vaccine is not recommended for use in infants and children below 2 years of age.
The vaccine is contraindicated in pregnant women.

269. Ans. d (Flea)
(Ref: Park, PSM, 17th ed., 230)

**Arthropod-borne diseases:**

<table>
<thead>
<tr>
<th>Arthropod</th>
<th>Diseases transmitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Housefly:</td>
<td>Typhoid and paratyphoid fever</td>
</tr>
<tr>
<td></td>
<td>Diarrhea, dysentery</td>
</tr>
<tr>
<td></td>
<td>Cholera</td>
</tr>
<tr>
<td></td>
<td>Gastroenteritis</td>
</tr>
<tr>
<td></td>
<td>Amoebiasis</td>
</tr>
<tr>
<td></td>
<td>Helminthic infestations</td>
</tr>
<tr>
<td></td>
<td>Poliomyelitis</td>
</tr>
<tr>
<td></td>
<td>Conjunctivitis</td>
</tr>
<tr>
<td></td>
<td>Trachoma</td>
</tr>
<tr>
<td></td>
<td>Anthrax, Yaws, etc.</td>
</tr>
<tr>
<td>2. Sandfly:</td>
<td>Kala-azar</td>
</tr>
<tr>
<td></td>
<td>Oriental sore</td>
</tr>
<tr>
<td></td>
<td>Sand-fly fever</td>
</tr>
<tr>
<td></td>
<td>Oraya fever</td>
</tr>
<tr>
<td>3. Tsetse fly:</td>
<td>Sleeping sickness</td>
</tr>
<tr>
<td>4. Louse:</td>
<td>Epidemic typhus</td>
</tr>
<tr>
<td></td>
<td>Relapsing fever</td>
</tr>
<tr>
<td></td>
<td>Trench fever, and Pediculosis</td>
</tr>
<tr>
<td>5. Rat flea:</td>
<td>Bubonic plague</td>
</tr>
<tr>
<td></td>
<td>Endemic typhus</td>
</tr>
<tr>
<td>6. Black fly:</td>
<td>Onchocerciasis</td>
</tr>
<tr>
<td>7. Reduviid bug:</td>
<td>Chagas disease</td>
</tr>
<tr>
<td>9. Hard tick:</td>
<td>Tick typhus</td>
</tr>
<tr>
<td></td>
<td>Tick paralysis</td>
</tr>
<tr>
<td></td>
<td>Viral encephalitis</td>
</tr>
<tr>
<td></td>
<td>Viral hemorrhagic fevers (e. g. KFD)</td>
</tr>
<tr>
<td></td>
<td>Tularemia</td>
</tr>
<tr>
<td></td>
<td>Babesiosis</td>
</tr>
<tr>
<td>10. Soft tick:</td>
<td>Q fever</td>
</tr>
<tr>
<td></td>
<td>Relapsing fever</td>
</tr>
<tr>
<td>11. Trombiculid mite:</td>
<td>Scrub typhus</td>
</tr>
<tr>
<td>12. Itch mite:</td>
<td>Scabies (sarcopti scabi)</td>
</tr>
</tbody>
</table>
270. Ans. b (Flea is a vector of the disease)

Rickettsial diseases:

<table>
<thead>
<tr>
<th>Disease</th>
<th>Caused by</th>
<th>Vector of transmission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epidemic typhus</td>
<td>R. prowazekii</td>
<td>Louse</td>
</tr>
<tr>
<td>Endemic typhus</td>
<td>R. typhi</td>
<td>Rat flea</td>
</tr>
<tr>
<td>RMSF</td>
<td>R. rickettsii</td>
<td>Tick</td>
</tr>
<tr>
<td>Rickettsial pox</td>
<td>R. akari</td>
<td>Mite</td>
</tr>
<tr>
<td>Scrub typhus</td>
<td>R. tsutsugamushi</td>
<td>Mite</td>
</tr>
<tr>
<td>Trench fever</td>
<td>R.oxiella Quintana</td>
<td>Louse</td>
</tr>
<tr>
<td>Q fever</td>
<td>Coxiella burnetti</td>
<td>Tick</td>
</tr>
</tbody>
</table>

271. Ans. d (Epidemic typhus)

(Ref: Park PSM, 17th ed., 224, 552, Ananthanarayan microbiology 5th ed. 384)

Rat flea is an arthropod responsible as a vector for transmission of diseases like:
Bubonic plague,
Endemic typhus and
Leptospirosis.

272. Ans. b (Q fever)

(Ref: Park, PSM, 17th ed., 230)

Louse-borne infections include:
1. Pediculosis
2. Epidemic typhus
3. Relapsing fever
4. Trench fever

Q fever is caused by Coxiella burnetii and vector of transmission is soft tick.

273. Ans: a (Intermittent irrigation)

1. Biological:
e.g., Brabel fish and Gambusia fish.
These fish were used successfully in eradicating guinea worm in parts of Kar state.
The best known are the Gambusia affinis and Lebister reticulatus.
2. Chemical Control:
The commonly used larvicides are:
(a) Mineral Oils
(b) Paris green
(c) Synthetic insecticides.
Paris Green: Copper acetoarsenite is an emerald green. Paris green is a stomach poison. Paris green kills mainly the Anopheles larvae because they are surface-feeders.
Synthetic Insecticides: Fenthion, Clorpyrifos, and Abate are the most effective larvicides.

274. Ans: c (Immediately stitch wound under antibiotic coverage.)
- If possible, suturing of wound should be avoided; however, if suturing is necessary, rabies immunoglobulin should be infiltrated around the wound.
- Any surgical manipulation of possibly rabies-infected animal bite wounds increase the risk of death.
- If required, good daily wound care and secondary closure after 1 week is recommended.

275. Ans. b (Very Severe Pneumonia)
(Ref. Park PSM 18th ed. 142)
Very Severe Pneumonia
- Not able to drink
- Inability to suck
- Inactivity
- Convulsions
- Hypotension/collapse

276. Ans. c (400 meters)
(Ref. Park PSM 18th ed. 228)
Aedes aegypti is the vector of yellow fever.
- Females are fearless biters, chiefly during the day usually less than 100 meters (110 yards). Airports and seaports are kept free from all types of mosquitoes for a distance of 400 meters around the perimeter of the ports.
- Aedes (Butaex index) aegypti index is defined as “The ratio, expressed as percentage, between the number of houses in a limited well defined area on the premises of which actual breeding of Aedes aegypti are found, and the total number of houses examined in that area”.
- The index should be kept below 1.
- Quarantine period of yellow fever is 6 days.
- Yellow fever is a notifiable disease subjected to International Health Regulations.
Epidemiology of Infectious Diseases

277. Ans. a (100 meters)  
(Ref. Park’s Textbook of PSM 18th Ed. – 577)  
- Aedes aegypti female mosquito are fearless biters, chiefly during the day usually less than 100 meters (110 yards). Airports and seaports are kept free from all types of mosquitoes for a distance of 400 meters around the perimeter of the ports.

278. Ans. a (1%)  
(Ref. Park PSM 18th ed. 228; refer above Q. for explanation)  
- Aedes (Butaex index) aegypti index is defined as “The ratio, expressed as percentage, between the number of houses in a limited well defined area on the premises of which actual breeding of Aedes aegypti are found, and the total number of houses examined in that area”.  
- According to International Health Regulation there is no risk of spread of Yellow fever, if the Aedes aegypti index is kept below 1.

279. Ans. a (Aedes)  
(Ref. Park PSM 18th ed. 228)  
Aedes is the most important mosquito with regard to the international travel, hence airports and seaports are kept free from all types of mosquitoes for a distance of 400 meters around the perimeter of the ports.

280. Ans. a (Less than 300 cases reported in India 2001)  
(Ref. Park PSM 18th ed. 166)  
Epidemiology of Polio  
- 189 cases have been reported in India in year 2001.  
- Type 1 is the most common cause of epidemics.  
- Highest number of cases were found in 2002 in West Bengal, UP and Bihar.  
- New cases have been found in 2003 in Kar, AP and TN.

281. Ans. d (Cases occurring during 6 months period)  
(Ref. Park PSM 18th ed. 166)  
POLIO  
- An epidemic of polio is defined as two or more local cases caused by the same virus in any 4-week period  
- Within an epidemic area, OPV should be provided for all persons over 6 weeks of age who have not been completely immunized or whose immune status is not known.  
- Strategies for Polio eradication in India include:  
  1. Conduct Pulse Polio Immunization ‘days’ every year for 3-4 years or until polio is eradicated.  
  2. Ensure rapid case investigation, including the collection of stool samples for virus isolation.
3. Arrange follow up of all cases of AFP at 60 days to check for residual paralysis.
4. Monitor OPV coverage at district level and below.
5. Improve surveillance capable of detecting all cases of AFP due to polio and non-polio etiology.
6. Conduct outbreak control for cases confirmed or suspected to be polio to stop transmission.
7. Sustain high levels of routine immunization coverage.

282. Ans. c (Subclinical cases > clinical cases)  
(Ref. Park PSM 18th ed.166)  
POLIO
- Most outbreaks of paralytic polio are due to Type 1 virus.
- Man is the only known reservoir of infection
- M:F is 3:1
- Most infections are Subclinical
- Cases are most infectious before 7-10 days before and after 1 set of symptoms
- The most vulnerable age is between 6 months to 3 years
- IP=7-14 days
- It is more likely to occur in rainy season

283. Ans. c (Polio)  
(Ref. Park PSM 18th ed.197)  
In India Disease that is close to be eradicated is polio. Since 2000, India has exceeded the WHO established AFP surveillance quality targets, i.e. a non-polio AFP rate of > 1/100000 population aged <15 years and adequate stool specimen taken from > 80% AFP. Only 8 confirmed cases of polio were reported in India during Jan-April 2004.

284. Ans. a (Type I)  
(Ref. Park PSM 18th ed.196 and Ananthanarayan Microbiology 6th ed. 454)  
- By neutralization test, poliovirus strains have been classified into 3 types: type 1, 2 and 3.
- Type 1 is the most common.
- Type 1 causes most epidemic.
- Type 2 causes endemic infections.
- Immunity is type specific.
285. Ans. b (Ascariasis)
(Ref. Park PSM 18th ed.195)

Chandler Index
It is the average number of hookworm eggs per gram of faeces for the entire community.

286. Ans. a (Per gram of stools)
(Ref. Park PSM 18th ed.195)

Chandler Index is the average number of hookworm eggs per gram of faeces for the entire community.

287. Ans. a (Potential danger to community)
(Ref. Park PSM 18th ed.195)

Chandler Index
This is the average number of hookworm eggs per gram of faeces for the entire community (Average number of eggs per gram of stools).
Below 200 → Hookworm is not much significance
200 – 250 → May be regarded as potential danger
250 – 300 → Minor public health problem
Above 300 → Important public health problem

288. Ans. a (Human beings)
(Ref. Park PSM 18th ed.195)

♦ Ancylostoma duodenale (predominant in south India) and Necator americans (predominant in south India) are the main nematodes causing hookworm infection and iron deficiency anaemia in man.
♦ Adult worms live in small intestine, mainly jejunum where they attach themselves to the villi and mature sexually.
♦ Although skin penetrating 3rd stage in infective larval stage and these infective larvae enter the body, usually feet by penetrating skin, larval stage is also infective by mouth.
♦ Incubation period → 7 weeks
♦ Prevention and control involves:
  1. Sanitary disposal of faeces
  2. Chemotherapy
  3. Correction of anaemia
  4. Health education.