

Reg. No.

MANIPAL UNIVERSITY
MBBS PHASE I STAGE II DEGREE EXAMINATION – AUGUST 2013
SUBJECT: MICROBIOLOGY – I (ESSAY)

Monday, August 12, 2013

Time: 09:00 – 11:00 Hrs.

Max. Marks: 60

1. Describe autoclave under the following headings:
 - 1A. Working principle
 - 1B. Uses
 - 1C. Sterilization control

(3+2+1 = 6 marks)
2. Define Hypersensitivity. Explain the mechanism and action of mediators of Anaphylaxis.

(1+2+3 = 6 marks)
3. Enumerate the causative agents of malaria. Discuss the laboratory diagnosis of malaria.

(1+5 = 6 marks)
4. Discuss the pathogenesis and prevention of haemophilus meningitis.

(3+2 = 5 marks)
5. A 11 year old boy is seen by a paediatrician with patchy alopecia of the scalp. On examination, he was found to have circular, erythematous and dry scaly lesions on the scalp. Microscopic examination of the specimen revealed septate hyphae.
 - 5A. What is the diagnosis and causative agent?
 - 5B. Discuss the laboratory diagnosis.

($\frac{1}{2} + \frac{1}{2} + 4 = 5$ marks)
6. Discuss the etiology, pathogenesis and laboratory diagnosis of osteomyelitis.

(1+2+2 = 5 marks)
7. Describe the life cycle and pathogenicity of Entamoeba histolytica.

(3+3 = 6 marks)
8. Discuss the significance of seromarker detection in diagnosing various stages of Hepatitis B.

(6 marks)
9. A 48 year old man was hospitalized with symptoms of malaise, night sweats, weight loss and chronic productive cough. Chest radiograph revealed the presence of lesions in the upper lobe of the left lung. A special stained smear from the sputum sample showed pink bacilli with blue colored polymorphs.
 - i) Identify the causative agent
 - ii) Describe the pathogenesis of the disease.

(1+5 = 6 marks)
10. With the help of a labeled diagram, explain the antigenic structure of HIV virus.

(5 marks)
11. Enumerate the causative agents of non-gonococcal urethritis. Explain the laboratory diagnosis of a cell wall deficient organism causing aforesaid condition.

(2+2 = 4 marks)



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SUBJECT: MICROBIOLOGY – II (MCQs)

Monday, August 12, 2013

Time: 11:30 – 12:30 Hrs.

Max. Marks: 120

INSTRUCTIONS

1. For each statement, select **T** (True) or **F** (False) as your choice.
2. Indicate your choice by darkening the appropriate circle in the answer sheet provided.
3. Use only HB or 2B pencils to darken the circle.
4. Leave blank for Don't Know response.
5. Scoring systems is as follows:

For every **Correct** response 1 mark is awarded
For every **Wrong** response 0.5 mark is deducted
For every **Don't Know** response No mark is deducted
6. Indicate your roll number (Registration Number) clearly and correctly.
7. Do not write anything in the question paper.
8. The true/false statements are numbered 101 to 160 and 201 to 260 (Total 120 statements).
9. This question paper contains **03 pages**. Please make sure that the question paper provided to you has all the pages.

Leptospirosis

101. In humans is caused by *Leptospira interrogans*
102. Causative agent exhibits darting motility
103. Is transmitted by human body louse
104. Complicates to Weil's disease
105. Infection is diagnosed by Paul Bunnell test

Streptococcus agalactiae

106. Belongs to Lancefield Group A
107. Inhabits oropharynx
108. Causes aseptic meningitis in neonates
109. Produces CAMP factor

Polio virus

110. Infection is exclusively seen in primates
111. Exists as a single serotype
112. Infection is transmitted by inhalation
113. Infection is diagnosed by demonstration of specific antigen in stool

Robert Koch

114. Disproved the theory of spontaneous generation
115. Developed the technique of staining
116. Discovered *Mycobacterium tuberculosis*
117. Developed live attenuated anthrax vaccine

Flagella

118. Mediate adherence to host cells
119. In *Shigella* are peritrichous
120. In *Treponema pallidum* are axial filaments
121. Have H antigen

Ig M

122. Is the predominant immunoglobulin produced during secondary immune response
123. Crosses placenta
124. Is present as monomer on surface of B cells
125. Fixes complement
126. Plays a role in local immunity

The following are enveloped viruses

127. Epstein Barr virus
128. Hepatitis A virus
129. Papilloma virus
130. Rubella virus
131. Adenovirus

Post-operative infection can be prevented by

132. Prolonging the preoperative stay in hospital
133. Adequate debridement of dead and necrotic tissue
134. Treatment of intercurrent infections preoperatively

Transduction

135. Is a process of transfer of DNA by a plasmid from one cell to another
136. Is responsible for transfer of drug resistance
137. Of specialized type is called lysogenic conversion

Following microbes correctly match with their site of persistence

138. Varicella zoster virus: lymphoid tissue
139. *Salmonella typhi*: gall bladder
140. *Rickettsia prowazekii*: lymph node
141. *Trypanosoma cruzi*: muscle
142. Paramyxovirus: brain

Following pairs correctly match the serological test with its principle

143. Weil-Felix test: neutralization
144. VDRL test: precipitation
145. Antistreptolysin O test: flocculation
146. Wassermann test: complement fixation

Natural killer cells

147. Kill virus infected cells
148. Possess CD3 proteins
149. Are dependent on thymus for their development
150. Counts are normal in Severe Combined Immunodeficiency Disease patients

Following autoimmune diseases correctly match with the target of immune response

151. Rheumatoid arthritis: Heart and joint tissue
152. Goodpasture's syndrome: small and medium sized arteries
153. Grave's disease: TSH receptor

Rabies Virus

154. Is RNA virus having icosahedral symmetry
155. Causes demyelination
156. Produces intranuclear inclusion bodies in the infected cells
157. Infection is diagnosed by demonstration of antigen by immunofluorescence

Dengue virus

158. Is a member of flavivirus family
159. Is transmitted by *Culex* mosquito
160. Causes breakbone fever
201. Reinfection with same serotype leads to dengue haemorrhagic fever shock syndrome
202. Infection is prevented by killed vaccine

Enterotoxigenic Escherichia coli

- 203. Possesses fimbrial adhesins
- 204. Produces heat labile enterotoxin which increases guanylate cyclase activity
- 205. Causes traveler's diarrhoea
- 206. Is identified by detecting the property of adherence to tissue culture cells

Vibrio cholerae

- 207. Have peritrichate flagella
- 208. Are indole positive
- 209. Infection complicates to hemolytic uremic syndrome
- 210. Produces green colonies on TCBS medium

Typhoid fever

- 211. Is caused by Salmonella enteritidis
- 212. Causative agent gives positive H₂S test
- 213. Causative agent has animal reservoir
- 214. Causative agent is isolated using Selenite F broth
- 215. Leading to carrier state is diagnosed by coagglutination test

Campylobacter jejuni

- 216. Is an S-shaped gram positive bacillus
- 217. Grows at 42°C
- 218. Infection is acquired by consumption of contaminated milk
- 219. Infection manifests as bloody diarrhea in humans
- 220. Is cultured using Skirrow's medium

Yersinia enterocolitica

- 221. Is a member of enterobacteriaceae
- 222. Shows bipolar staining
- 223. Infection results in mesenteric adenitis in children
- 224. Is isolated using cold enrichment technique

Rota virus

- 225. Has single stranded RNA genome
- 226. Is an enveloped virus
- 227. Infection results in villous hypertrophy
- 228. Infection is diagnosed by demonstration of specific antigens in stool

Strongyloides stercoralis

- 229. Has fish as an intermediate host
- 230. Is ovoviviparous
- 231. Has rhabditiform larva as infective form for humans
- 232. Causes microcytic hypochromic anemia

Fasciola hepatica

- 233. Adult worm inhabits mucosa of the duodenum in humans
- 234. Has cercaria as infective form for humans
- 235. Infection is associated with duodenal carcinoma
- 236. Infection is diagnosed by detection of non operculated eggs in bile

Cryptosporidium parvum

- 237. Belongs to phylum apicomplexa
- 238. Multiplies intracellularly in the reticuloendothelial system
- 239. Infection manifests as atypical pneumonia
- 240. Oocysts are demonstrated by Kinyoun's method

Trichomonas vaginalis

- 241. Is a ciliated protozoan
- 242. Has cyst as infective form for humans
- 243. Infection is associated with vaginal discharge having fishy amine odor
- 244. Infection is diagnosed by demonstration of trophozoites

Donovanosis

- 245. Causative agent is a gram negative coccobacillus
- 246. Causative agent multiplies in mononuclear cells
- 247. Manifests as soft chancre
- 248. Causative agent shows 'school of fish' appearance in stained smear

Congenital rubella

- 249. Causative agent is a double stranded DNA virus
- 250. Manifests as hydrocephaly
- 251. Is diagnosed by detecting specific IgM antibodies in cord blood
- 252. Is prevented by active immunization of mother during pregnancy

Burkholderia pseudomallei

- 253. Is a gram positive motile bacillus
- 254. Needs anaerobic environment to grow
- 255. Infection is transmitted through inhalation
- 256. Infection complicates to septicemia

Organisms that cause immunosuppression include

- 257. Measles virus
- 258. Cytomegalovirus
- 259. Mycobacterium tuberculosis
- 260. Staphylococcus aureus

