

Reg. No.

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MANIPAL UNIVERSITY**MBBS PHASE I STAGE II DEGREE EXAMINATION – AUGUST 2011****SUBJECT: MICROBIOLOGY – I (ESSAY)**

Thursday, August 18, 2011

Time: 09:00 – 11:00 Hrs.

Max. Marks: 60

✍ **Answer ALL questions. Write brief, relevant and legible answers.**✍ **Draw diagram, flow charts wherever appropriate.**

1. An inpatient who was on intravenous infusion in a hospital developed fever, hypotension and shock. Microbiologic investigations indicated that the infusion fluid was contaminated with gram negative bacilli.

1A. Name the pathway of complement that is activated in the above mentioned case.

1B. Explain that pathway briefly.

(1+3 = 4 marks)

2A. Classify acquired immunity with one example for each type.

2B. How does the immune system develop tolerance against self?

(2+2 = 4 marks)

3. Name four rickettsial diseases of human. Mention their etiology and vectors respectively.

(4 marks)

4. Mention the differences between the CSF changes in septic and aseptic type of meningitis.

(4 marks)

5. Write short notes on:

5A. Neurocysticercosis

5B. Transduction

5C. Laboratory diagnosis of histoplasmosis

(3×3 = 9 marks)

6. A 6 year old village girl walking bare footed complained of severe tiredness. On examination she was anaemic. Stool examination revealed plenty of nonbile stained ova. She was treated with mebendazole.

6A. Comment on the etiology of the aforesaid infection.

6B. Discuss briefly the life cycle of the causative agent.

(1+4 = 5 marks)

7. Describe the morphological forms of *Entamoeba histolytica*.

(4 marks)

8. Discuss the role and diagnostic significance of the seromarkers in of hepatitis B virus infection.

(7 marks)

9. Peter was admitted to hospital with 40% burn wounds which later got infected and started oozing blue pus. The treating physician had to send the sample for culture and sensitivity.

9A. What could be the probable etiological agent?

9B. List the pigments, toxins and enzymes produced by the organism.

9C. Write the laboratory diagnosis in the aforesaid case.

(1+2+3 = 6 marks)

10. A 20 year old medical student noticed few painful vesicles on her lips, which later ulcerated. Microscopy of lesions revealed giant cells with intranuclear inclusion bodies. She was put on acyclovir.

10A. What is your diagnosis?

10B. Discuss the pathogenesis of the above disease.

(1+3 = 4 marks)

11. Name four bacteria causing arthritis. Discuss briefly the laboratory diagnosis of any one of them.

(1+3 = 4 marks)

12. Gram positive cocci in chains were isolated from the throat of a 5 year old boy suffering from pharyngitis. The bacteria isolated were beta haemolytic on blood agar and sensitive to bacitracin.

12A. Identify the agent

12B. Discuss the virulence factors of this agent.

(1+4 = 5 marks)



Sept '09 [B]

Reg. No.

MANIPAL UNIVERSITY
MBBS PHASE I STAGE II DEGREE EXAMINATION – AUGUST 2011
SUBJECT: MICROBIOLOGY – II (MCQs)

Thursday, August 18, 2011

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 **04 pages**. Please make sure that the question paper provided to you has all the pages.

Following pairs correctly match the clinical condition with the type of hypersensitivity reaction associated with it.

101. Hay fever: Type I
102. Tuberculosis: Type II
103. Glomerulonephritis: Type III
104. Haemolytic anaemia: Type IV

B lymphocytes

105. Are derived from plasma cells
106. Have IgG as antigen receptors on their surface
107. Are stimulated by interleukin 4
108. Present the processed antigen in association with class II MHC proteins

Counter current immunoelectrophoresis

109. Is a type of agglutination reaction
110. Involves the movement of both antigen and antibody
111. Is used to detect the capsular antigens of microorganisms in CSF

Wuchereria bancroftii

112. Is a cestode
113. Is transmitted to humans by Culex mosquitoes
114. Adult form resides in the subcutaneous tissue of infected persons

Plasmodium falciparum

115. Sporozoites directly enter human red blood corpuscle
116. Has each cycle of erythrocytic schizogony lasting for 72 hours
117. Infection has relapses due to exo-erythrocytic schizogony

Borrelia recurrentis is

118. Non motile
119. Antigenically stable
120. Transmitted by human body louse

Haemophilus influenzae

121. Is a gram negative coccus
122. Causes meningitis in children less than 5 years of age
123. Is demonstrated in the laboratory by satellitism

Cryptococcus neoformans

124. Is a dimorphic fungus
125. Infections are acquired through inhalation
126. Has a capsule made up of D-glutamic acid
127. Produces urease

Yersinia pestis

128. Has F1 protein as its virulence factor
129. Infections are transmitted through Aedes mosquitoes
130. Exhibits bipolar staining

Coccidioides immitis

131. Forms spherules within the tissue
132. Is an yeast like fungus
133. Infections are acquired through inhalation of arthrospores
134. Have tuberculate macroconidia

Following types of Escherichia coli correctly match with the manifestations they cause

135. ETEC : Bloody diarrhea
136. EIEC : Mesenteric adenitis
137. EHEC : Hemolytic uremic syndrome
138. EPEC : Watery diarrhea

Cholera toxin

139. Is an exotoxin
140. Is acid labile
141. Binds to the ganglioside receptor on enterocytes
142. Acts by increasing cGMP levels in the intestinal cells

Infant botulism

143. Is an example for food poisoning
144. Manifests as floppy baby syndrome
145. Results due to the toxin which inhibits the release of acetylcholine at neuromuscular junction
146. Is caused by a non sporing anaerobe

Enterobius vermicularis

147. Is a hermaphrodite
148. Infection is diagnosed by the demonstration of plano-convex ova
149. Infection leads to rectal prolapse

Microscopic features of stool examination in amoebic dysentery include

150. Erythrocytes
151. Plenty of macrophages and polymorphs
152. Charcot- Leyden crystals

Schistosoma mansoni

153. Belongs to class trematoda
154. Has metacercaria as the infective form for humans
155. Manifestations result due to the inflammatory response to the eggs

Regarding the antigens of HIV

156. p24 is derived from *gag* gene
157. p9 is an envelope protein
158. gp120 helps the virus to bind to the CD4 receptor
159. gp41 is the first antigen to appear following infection
160. Reverse transcriptase enzyme helps in the synthesis of provirus

Clonorchis sinensis

201. Is called oriental liver fluke
202. Has eggs as the infective form for humans
203. Infection complicates to cholangiocarcinoma
204. In heavily infected patients manifests as chronic diarrhoea

Yaws

205. Is caused by *Treponema carateum*
206. Is transmitted through venereal route
207. Manifests as gummas in bones

Congenital rubella is

208. Most fatal if the infection is acquired during the third trimester of pregnancy
209. Diagnosed by detecting rubella specific IgG in cord blood
210. Prevented by administering vaccine during the first trimester of pregnancy
211. Caused by a single stranded RNA virus

Ophthalmia neonatorum is caused by

212. *Neisseria gonorrhoeae*
213. *Treponema pallidum*
214. *Staphylococcus aureus*
215. *Toxoplasma gondii*

JC virus

216. Is a polyoma virus
217. Produces latent infection in kidney cells
218. Enters human beings through ingestion

Regarding vaccines

219. Sabin vaccine is a killed vaccine
220. Measles vaccine is a live attenuated vaccine
221. BCG vaccine consists of *Mycobacterium tuberculosis* strain
222. Pertussis vaccine in DPT acts as an adjuvant

Bacterial spores are

223. Highly resistant dormant forms produced within the cell
224. Produced by *Bacteroides* species
225. Means of reproduction
226. Seen as unstained structures in gram stained preparations

Examples of nematodes include

227. *Paragonimus*
228. *Ascaris*
229. *Echinococcus*
230. *Wuchereria*

A carrier who

231. Has never suffered from the disease is called a paradoxical carrier
232. Acquires the organism from another carrier is called a contact carrier
233. Has recovered from the disease but continues to harbour the pathogen is a convalescent carrier
234. Harbours the pathogen for more than six months is termed chronic carrier

Toxic shock syndrome is

235. Usually associated with vaginal tampon use
236. Due to beta haemolysins released by the bacteria
237. Characterized by desquamation of skin particularly on the soles and palms
238. Due to the production of superantigens

Sporothrix schenckii

239. Causes subcutaneous mycosis
240. Is a dimorphic fungi
241. Infection involves dermal lymph nodes
242. Conidia show daisy flower appearance

Skin warts

243. Are caused by Human parvo virus
244. Complicate as viremia in an immunocompromised individuals
245. Seen in post-organ transplant patients is due to the reactivation of virus from the infected cells

Gas gangrene

246. Is caused by *Clostridium tetani*
247. Results due to multiplication of the organism in necrotised tissues
248. Manifestation is due to the release of alpha toxin
249. Is diagnosed by Elek's test

Cytomegalovirus

- 250. Is a paramyxovirus
- 251. Produces intracytoplasmic inclusion bodies
- 252. Interferes with the transport of Class II MHC proteins on to the cell surface
- 253. Infection is diagnosed using Paul Bunnell test

Respiratory syncytial virus

- 254. Belongs to Picornaviridae
- 255. Pathogenicity is attributed to the pre existing maternal antibodies in the patient
- 256. Infection is diagnosed by fluorescent antibody test
- 257. Forms multinucleated giant cells in the infected tissue

Corynebacterium diphtheriae

- 258. Infection in the throat is characterized by the presence of pseudomembrane
- 259. Is a gram negative bacillus
- 260. Produces an exotoxin that inhibits the release of acetylcholine

