

MANIPAL UNIVERSITY

MBBS PHASE I STAGE II DEGREE EXAMINATION – MARCH 2016

SUBJECT: MICROBIOLOGY – I (ESSAY)

Monday, March 14, 2016

Time: 09:00 – 11:00 Hrs.

Max. Marks: 60

Answer ALL the questions.

1. Enumerate the various methods of gene transfer occurring in bacteria and describe any one of them.
(2+3 = 5 marks)
2. Enumerate the steps in viral replication. Discuss the various events occurring in the biosynthesis phase of retrovirus.
(2+3 = 5 marks)
3. A 25 year old woman presented to her doctor with a history of burning micturition, urgency and frequency. The mid stream urine collected was cloudy and revealed 30 - 40 WBC/high power field. Urine culture showed Escherichia coli 10^5 CFU/ml of urine.
 - 3A. Comment on her urine report.
 - 3B. List the host predisposing factors associated with UTI.
 - 3C. Mention other types of urine specimens collected for culture.(1+2+2 = 5 marks)
4. James, a 35 year old businessman was hospitalized with complaints of severe weakness, evening rise of body temperature and productive cough with blood tinged sputum. His chest radiograph showed cavities in the upper lobe. Acid fast staining of sputum revealed plenty of pink colored slender bacilli.
 - 4A. Name the microorganism that causes the above mentioned condition.
 - 4B. Explain the pathogenesis and elaborate the role of immune response in the above infection.(1+5 = 6 marks)
5. Explain the pathogenesis of dengue hemorrhagic fever shock syndrome.
(4 marks)
6. Explain the mechanisms of the following:
 - 6A. Acute allograft rejection.
 - 6B. Type I hypersensitivity reaction.(3+4 = 7 marks)

7. Explain the laboratory diagnosis of amoebic dysentery. (4 marks)
8. With the help of a graph, discuss the serodiagnosis of Hepatitis B virus infection. (6 marks)
9. Explain the pathogenesis of poliomyelitis. (4 marks)
10. Discuss the laboratory diagnosis of dermatophytosis. (5 marks)
11. Describe the role of virulence factors in the pathogenesis of Staphylococcal skin infection. (4 marks)
12. Explain the laboratory diagnosis of human immunodeficiency virus infection. (5 marks)



Reg. No.

MANIPAL UNIVERSITY

MBBS PHASE I STAGE II DEGREE EXAMINATION – MARCH 2016

SUBJECT: MICROBIOLOGY – II (MCQs)

Monday, March 14, 2016

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.

Sporotrichosis

- 101. Is caused by a dimorphic fungus
- 102. Results due to the implantation of arthroconidia
- 103. Is an example of systemic mycoses

Organisms causing toxin mediated skin manifestations include

- 104. Bacillus anthracis
- 105. Clostridium perfringens
- 106. Epidermophyton floccosum.

Characteristics of Streptococcus pyogenes include

- 107. Appears as gram positive cocci in chains
- 108. Coagulase positive
- 109. Sensitive to optochin
- 110. Produces enterotoxin
- 111. Forms beta hemolytic colonies on blood agar

Bacteria causing septic arthritis include

- 112. Neisseria gonorrhoeae
- 113. Mycobacterium tuberculosis
- 114. Borrelia burgdorferi

Neisseria meningitidis

- 115. Are gram positive diplococci
- 116. Is oxidase positive
- 117. Gains access to the subarachnoid space through the peripheral nerves

Hemophilus influenzae meningitis is

- 118. Caused by gram negative bacilli
- 119. An example of aseptic meningitis
- 120. Diagnosed by demonstration of satellitism on culture medium
- 121. Prevented by Hib vaccine

Blood culture is done for the diagnosis of

- 122. Osteomyelitis
- 123. Typhoid
- 124. Botulism
- 125. Acute rheumatic fever

Following zoonoses correctly match with their causative organisms

- 126. Hydatid disease: Trichinella spiralis
- 127. Anthrax: Bacillus cereus
- 128. Weil's disease: Leptospira interrogans

Lyme disease is

- 129. Caused by Borrelia recurrentis
- 130. Transmitted by mosquitoes
- 131. Characterized by erythema chronicum migrans

Cell membrane molecules on helper T cells include

- 132. MHC Class II
- 133. B 7 protein
- 134. CD 8
- 135. Surface IgM

Immunoglobulin G

- 136. Crosses the placenta
- 137. Fixes the complement
- 138. Is a pentamer
- 139. Mediates anaphylaxis
- 140. Is the secretory antibody

Following pairs correctly match the serological reactions with their examples.

- 141. Agglutination : VDRL test
- 142. Precipitation : Widal test
- 143. Immunofluorescence : Western blot

Diphtheria toxin

- 144. Is an endotoxin
- 145. Is coded by a bacteriophage
- 146. Inhibits DNA synthesis in the host cells

Bordetella pertussis

- 147. Is a gram positive bacillus
- 148. Produces tracheal cytotoxin
- 149. Is isolated by "cough plate" method
- 150. Has filamentous hemagglutinin for adhesion

Paragonimus westermanii

- 151. Is a cestode
- 152. Enters humans by skin penetration
- 153. Manifests as pneumonitis

Epstein Barr Virus

- 154. Belongs to the family paramyxoviridae
- 155. Is characterized by polyclonal activation of B cells
- 156. Is associated with Burkitt's lymphoma
- 157. Infection is diagnosed by Paul-Bunnell test

Mumps virus

- 158. Has double stranded DNA
- 159. Infection leads to aseptic meningitis
- 160. Has a single serotype

Helicobacter pylori

- 201. Is a gram positive bacillus
- 202. Is microaerophilic
- 203. Infections are associated with peptic ulcers
- 204. Infection is diagnosed by 'urea breath' test

Trichuris trichiura

- 205. Adult worms inhabit the small intestine of human beings
- 206. Enter the human host through larval penetration of the skin
- 207. Has cat as its intermediate host
- 208. Produces non bile stained ova

A stool sample from a case of bloody diarrhea revealed non-sorbitol fermenting Escherichia coli. Respond to the following statements

- 209. Etiological agent is enteroinvasive E.coli
- 210. Manifestation is due to the bacterial cytotoxin
- 211. The serotype associated is O:157
- 212. Complicates to hemolytic uremic syndrome

Rota viral diarrhea

- 213. Is caused by an enveloped virus
- 214. Results due to the destruction of cells at the tip of villi in large intestine
- 215. Is diagnosed by demonstration of viral specific antigen from patient's stool sample

Cholera

- 216. Is caused by gram positive bacilli
- 217. Manifestations are due to the action of endotoxin
- 218. Is characterized by bloody diarrhea
- 219. Causing organism produces green colored colonies on TCBS
- 220. Is prevented by a killed vaccine

Hydatid cyst

- 221. Is seen in the definitive host of the parasite
- 222. Primarily involves the liver
- 223. Disease results due to the consumption of contaminated food with eggs
- 224. Disease in humans is diagnosed by Sabin Feldman dye test

Bacterial spores are

- 225. Means of reproduction
- 226. Rich in dipicolinic acid
- 227. Demonstrated by negative staining
- 228. Are seen in Bacillus species

Fungi

- 229. Are prokaryotes
- 230. Have cell walls made up of chitin
- 231. Of dimorphic type are exemplified by Histoplasma capsulatum
- 232. Having yeast form produce cottony growth on culture medium

Louis Pasteur

- 233. Supported the theory of spontaneous generation
- 234. Introduced anti rabies vaccination
- 235. Invented autoclave
- 236. Discovered Vibrio cholerae

Following methods of sterilization correctly match with their holding temperature and time

- 237. Autoclave : 100°C for 1 hour
- 238. Hot air oven : 160°C for 1 hour
- 239. Inspissation : 80°C for 1 hour
- 240. Pasteurization : 73°C for 30 min

Organisms causing perinatal infections include

- 241. Escherichia coli
- 242. Treponema pallidum
- 243. Hepatitis B virus
- 244. Streptococcus agalactiae

Congenital rubella is

- 245. Characterized by cataract
- 246. Diagnosed by demonstration of IgM antibodies from cord blood
- 247. Prevented by vaccinating the mother during pregnancy
- 248. Causing organism forms syncytium in cell cultures

Candida albicans

- 249. Causes oral thrush
- 250. Is a mold
- 251. Produces germ tube
- 252. Is cultured on Sabouraud's Dextrose Agar

Chlamydia trachomatis

- 253. Is an obligate intracellular organism
- 254. D-K serotypes cause trachoma
- 255. Infection complicates to pelvic inflammatory disease
- 256. Infection is diagnosed by Whiff's test
- 257. Produces intracytoplasmic inclusion bodies

Herpes Simplex Virus type 2

- 258. Remains latent in the lymphocytes
- 259. Causes glandular fever
- 260. Upon reactivation leads to genital cold sores

