

Reg. No.

MANIPAL UNIVERSITY
MELAKA MANIPAL MEDICAL COLLEGE (MANIPAL CAMPUS)

MBBS PHASE – I STAGE – II DEGREE EXAMINATION – SEPTEMBER 2017

SUBJECT : MICROBIOLOGY – PAPER I (ESSAY)

Wednesday, September 13, 2017

Time : 9.00 a.m. - 11.00 a.m..

Max. Marks : 60

- ✓ **Answer all the questions**
- ✓ **Write the question number clearly in the margin**
- ✓ **Draw diagrams wherever appropriate**

1. Classify fungi based on morphology with appropriate examples. (4 marks)
2. Classify hypersensitivity reactions. Explain the mechanism of T cell mediated hypersensitivity reactions with **TWO** examples. (2+4 = 6 marks)
3. 36-year-old Annie had experienced sudden onset of chills, rigors followed by fever that subsided with profuse sweating. Travel history revealed that she had returned from a central African trip two weeks ago. During investigations, blood smear showed multiple ring shaped structures within red blood cells.
 - 3A. Identify the etiology in the above case.
 - 3B. Describe the pathogenesis of the aforesaid condition. (1+4 = 5 marks)
4. List **FOUR** chemical disinfectants with their modes of action. (4 marks)
5. Explain the role of virulence factors in the pathogenesis of Streptococcus pyogenes infection. (6 marks)
6. Explain the laboratory diagnosis of leptospirosis. (5 marks)
7. Describe the pathogenesis of meningococcal meningitis. (5 marks)

8. Explain the pathogenesis of enteric fever. (5 marks)
9. With the help of a graph discuss the laboratory diagnosis of acute hepatitis B virus infection. (5 marks)
10. A 3 year old child presented to medicine OPD with fever and dyspnoea. On examination, a thick, gray adherent patch was seen in her oropharynx which resembled a membrane. Her history revealed that she had missed her primary immunization. Pharyngeal swab on staining showed organisms in Chinese letter arrangement
- 10A. Identify the clinical condition.
- 10B. Discuss the pathogenesis of the aforesaid condition.
- 10C. Mention the immunoprophylaxis this child should have received. (1+3+1 = 5 marks)
11. Discuss the antigenic variations occurring in influenza virus and their significance (5 marks)
12. Explain the laboratory diagnosis of urinary tract infection. (5 marks)



Reg. No.										
----------	--	--	--	--	--	--	--	--	--	--

MANIPAL UNIVERSITY
MELAKA MANIPAL MEDICAL COLLEGE (MANIPAL CAMPUS)
MBBS PHASE – I STAGE – II DEGREE EXAMINATION – SEPTEMBER 2017
SUBJECT : MICROBIOLOGY – PAPER II (MTF)

Wednesday, September 13, 2017

Time : 11.30 a.m. - 12.30 p.m..

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.

Protozoa

- 101. Have trophozoite form which corresponds to dormant stage
- 102. Possessing pseudopodia is exemplified by *Giardia lamblia*

Taenia solium

- 223. Is also known as dog tape worm
- 224. Inhabits jejunum
- 225. Infection leads to neurocysticercosis in humans
- 226. Infection is diagnosed by the presence of operculated eggs in stool sample

Clonorchis sinensis

- 227. Is known as oriental liver fluke
- 228. Infections are diagnosed by the demonstration of larva in stool
- 229. Adult worms reside in large intestine
- 230. Infection is transmitted through the ingestion of fresh water fish

Measles virus

- 231. Has segmented RNA
- 232. Causes pneumonia
- 233. Has G protein
- 234. Produces owl's eye inclusion bodies
- 235. Infection complicates to aseptic meningitis

Acute rheumatic fever is

- 236. Due to molecular mimicry
- 237. Seen in children suffering from infections due to *Streptococcus viridans*
- 238. Diagnosed by detection of high ASO titre
- 239. Characterised by formation of Aschoff's nodules

Mumps

- 240. Virus belongs to paramyxoviridae
- 241. Complicates to orchitis

- 120. Is the predominant antibody associated with the secondary response
- 121. Acts as opsonin
- 122. Mediates type III hypersensitivity reactions

- 242. Virus is identified using interference phenomenon
- 243. Is prevented by a live attenuated vaccine
- 244. Is characterized by presence of atypical lymphocytes in blood

Gonorrhoea

- 245. Is caused by gram positive diplococcus
- 246. Is characterized by painful ulcers on the genitalia
- 247. In women complicates to watercan perineum
- 248. Causing organism is cultured on nutrient agar

Trichomonas vaginalis

- 249. Is a flagellate
- 250. Has cyst as the infective form
- 251. Infection is diagnosed by wet mount preparation

Human papilloma virus

- 252. Has DNA genome
- 253. Infections are transmitted through breast milk
- 254. Serotype '18' infection complicates to cervical carcinoma
- 255. Infection is diagnosed by demonstration of koilocytes

Histoplasma capsulatum

- 256. Is a dimorphic fungus
- 257. Produces tuberculate macroconidia
- 258. Is transmitted by inhalation
- 259. Exists as yeast forms within macrophages
- 260. Causes systemic mycosis

Toxoplasma gondii

- 142. Has tissue cyst as the infective form for human beings
- 143. Belongs to sporozoa
- 144. Is diagnosed by Sabin-Feldman dye test
- 145. Congenital infection is manifested as hydrocephalus

Prions

- 146. Have single stranded DNA genome
- 147. Infection results in T cell mediated immune response
- 148. Cause Creutzfeldt Jacob disease
- 149. Are destroyed by autoclaving

Cutaneous larva migrans

- 150. Is caused by *Ancylostoma braziliense*
- 151. Manifests as granulomatous lesions on the skin
- 152. Is also referred to as "swimmer's itch"

The CSF changes in septic meningitis include

- 153. Infiltration of neutrophils
- 154. Increased glucose level
- 155. Turbid appearance

HIV

- 156. Attaches to susceptible cells using gp41
- 157. Surface antigens undergo variations
- 158. Has *vif* as its structural gene
- 159. Is a lentivirus
- 160. Infection is diagnosed during the window period by demonstrating p24 antigen

Clostridium perfringens

- 201. Is a gram negative bacillus
- 202. Causes food poisoning in humans
- 203. Type A strains produce enterotoxin mediated diarrhea

- 204. Strains producing β toxin causes pig-bel
- 205. Toxicogenicity is detected by Elek's test

Vibrio cholerae

- 206. Causes bloody diarrhea
- 207. Has 139 serotypes based on 'O' antigen specificity
- 208. Of classical biotype forms hemolytic colonies on sheep blood agar
- 209. Produces enzyme cytochrome oxidase
- 210. Has selenite F broth as its enrichment medium

Following pairs correctly match the strains of Escherichia coli with their pathogenic mechanisms/virulence factors

- 211. Enteropathogenic *E. coli* : Bundle forming pili
- 212. Enterotoxigenic *E. coli* : Heat stable toxin
- 213. Enteroinvasive *E. coli*: Verotoxin production
- 214. Enterohemorrhagic *E. coli*: Attaching effacing mechanism

Protozoan parasites causing diarrhea in immunocompromised patients include

- 215. *Naegleria fowleri*
- 216. *Toxoplasma gondii*
- 217. *Isospora belli*
- 218. *Cryptosporidium parvum*

Features seen in the stool specimen of amoebic dysentery include

- 219. Plenty of polymorphs
- 220. Charcot-Leyden crystals
- 221. Blood and mucus
- 222. Presence of bi-nucleate cysts

Taenia solium

- 223. Is also known as dog tape worm
- 224. Inhabits jejunum
- 225. Infection leads to neurocysticercosis in humans
- 226. Infection is diagnosed by the presence of operculated eggs in stool sample

Clonorchis sinensis

- 227. Is known as oriental liver fluke
- 228. Infections are diagnosed by the demonstration of larva in stool
- 229. Adult worms reside in large intestine
- 230. Infection is transmitted through the ingestion of fresh water fish

Measles virus

- 231. Has segmented RNA
- 232. Causes pneumonia
- 233. Has G protein
- 234. Produces owl's eye inclusion bodies
- 235. Infection complicates to aseptic meningitis

Acute rheumatic fever is

- 236. Due to molecular mimicry
- 237. Seen in children suffering from infections due to Streptococcus viridans
- 238. Diagnosed by detection of high ASO titre
- 239. Characterised by formation of Aschoff's nodules

Mumps

- 240. Virus belongs to paramyxoviridae
- 241. Complicates to orchitis

- 242. Virus is identified using interference phenomenon
- 243. Is prevented by a live attenuated vaccine
- 244. Is characterized by presence of atypical lymphocytes in blood

Gonorrhoea

- 245. Is caused by gram positive diplococcus
- 246. Is characterized by painful ulcers on the genitalia
- 247. In women complicates to watercan perineum
- 248. Causing organism is cultured on nutrient agar

Trichomonas vaginalis

- 249. Is a flagellate
- 250. Has cyst as the infective form
- 251. Infection is diagnosed by wet mount preparation

Human papilloma virus

- 252. Has DNA genome
- 253. Infections are transmitted through breast milk
- 254. Serotype '18' infection complicates to cervical carcinoma
- 255. Infection is diagnosed by demonstration of koilocytes

Histoplasma capsulatum

- 256. Is a dimorphic fungus
- 257. Produces tuberculate macroconidia
- 258. Is transmitted by inhalation
- 259. Exists as yeast forms within macrophages
- 260. Causes systemic mycosis

