

Reg. No.

## MANIPAL UNIVERSITY

MBBS PHASE I STAGE II DEGREE EXAMINATION – FEBRUARY 2013

SUBJECT: MICROBIOLOGY – I (ESSAY)

Wednesday, February 13, 2013

Time: 09:00 – 11:00 Hrs.

Max. Marks: 60

1. Explain the pathogenesis of enteric fever. (4 marks)
2. Describe the life cycle of *Strongyloides stercoralis*. (5 marks)
3. A 3 year old boy who had missed his primary immunization was brought to the emergency with complaints of fever and difficulty in breathing. On examination a membrane was found adherent to the posterior wall of pharynx. A swab collected from the membrane revealed Gram positive bacilli.
  - 3A. Discuss the pathogenesis of the aforesaid condition.
  - 3B. Suggest the immediate management of this condition with justifications. (3+3 = 6 marks)
4. Explain the pathogenesis of:
  - 4A. Rota viral diarrhea
  - 4B. Paragonimiasis
  - 4C. Viral warts (3×3 = 9 marks)
5. Describe the clinical manifestations and laboratory diagnosis of congenital rubella. (3+1 = 4 marks)
6. A 45 year old man from outskirts of Kuala Lumpur city presented with complaints of pyrexia and severe myalgia since 4 days. He also noticed maculopapular rashes on lower limbs during the illness. The fever did not respond during the first 4 days of treatment with antibiotics. Blood count revealed mild leucopenia with mild thrombocytopenia which was suggestive of a vector borne viral illness.
  - 6A. Identify the causative agent in the aforesaid case.
  - 6B. Discuss the pathogenesis of the complication if re-infected by different serotype of this virus. (1+3 = 4 marks)
7. Compare and contrast active immunity with passive immunity. (4 marks)

8. Explain the biosynthesis stage of viral replication.

(4 marks)

9. A 60-year-old man presented to the Emergency Department of university hospital with seizures and fever. At the time of presentation he had apparent neck stiffness. Kerning's sign was positive. The cerebrospinal fluid had a cloudy appearance. Gram positive diplococci which were alpha hemolytic grew on CSF culture.

9A. Name the etiology.

9B. Describe the laboratory diagnosis of this condition.

(1+3 = 4 marks)

10. Appraise the role of immune response in the pathogenesis of leprosy.

(4 marks)

11. **Write short notes on:**

11A. Transposons

11B. Oral thrush

11C. Laboratory diagnosis of HSV infections

(4×3 = 12 marks)



Reg. No. 

--	--	--	--	--	--	--	--	--	--

**MANIPAL UNIVERSITY****MBBS PHASE I STAGE II DEGREE EXAMINATION – FEBRUARY 2013****SUBJECT: MICROBIOLOGY – II (MCQs)**

Wednesday, February 13, 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 <b>Correct</b> response	<b>1</b> mark is awarded
For every <b>Wrong</b> response	<b>0.5</b> mark is deducted
For every <b>Don't Know</b> response	<b>No</b> 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.

### **Salmonella gastroenteritis**

- 101. Manifestations are due to release of exotoxin
- 102. Is caused by *Salmonella typhi*
- 103. Is diagnosed by inoculating the specimen on XLD agar

### **Amoebic dysentery is**

- 104. Caused by a protozoan belonging to Mastigophora
- 105. Acquired by ingestion of cysts
- 106. Diagnosed by demonstration of trophozoites in stool specimen
- 107. Characterized by flask shaped ulcers in the small intestine

### **Following pairs correctly match the seromarkers of Hepatitis B virus infection with their diagnostic importance**

- 108. Anti HBsAb: Indicates immunity against infection
- 109. HBeAg: Indicates transmissibility
- 110. Anti HBc Ab: Diagnostic marker during window period
- 111. HBs Ag: Indicates infectivity of the blood

### **Clonorchis sinensis**

- 112. Is a nematode
- 113. Infection results due to the consumption of fish having metacercariae
- 114. Infection is diagnosed by demonstration of non bile stained eggs
- 115. Causes inflammation and dilatation of the bile duct

### **Staphylococcal food poisoning**

- 116. Is caused by an enterotoxin having super antigen mechanism
- 117. Is diagnosed by the demonstration of toxin by latex agglutination test
- 118. Results due to the consumption of contaminated milk products
- 119. Is caused by heat labile toxin

### **Bacteria associated with native valve endocarditis include**

- 120. Viridans streptococci
- 121. HACEK group
- 122. *Streptococcus agalactiae*

### **Acute rheumatic fever is characterized by**

- 123. Previous history of Staphylococcal skin infection

124. Immune complex mediated pathogenicity

125. Raised titres of anti DNAase

### **Aspergillosis is**

- 126. Caused by a dimorphic fungus
- 127. Initiated through inhalation of spores
- 128. Diagnosed by demonstration of sporangiospores

### **Events occurring in the Epstein Barr virus infection include**

- 129. Attachment of the virus to B-cells via C3d receptor
- 130. Formation of auto-antibodies
- 131. Differentiation of lymphoblasts to lymphocytes

### **Haemophilus influenza**

- 132. Causes interstitial pneumonia
- 133. Infection is diagnosed by satellitism
- 134. Possesses a polypeptide capsule

### **Genital cold sores**

- 135. Results due to the reactivation of the virus present on the skin
- 136. Manifests as crops of vesicles in the genital organs
- 137. Are caused by a DNA virus

### **Gonorrhoea**

- 138. Causing bacterium attaches to the epithelium using its outer membrane protein
- 139. Is characterized by purulent urethral discharge
- 140. Complicates to arthritis

### **Cryptosporidium parvum**

- 141. Undergoes sporogony and schizogony in a single host
- 142. Infection manifest as protractile diarrhoea in immunocompromised patients
- 143. Is characterized by the production of flask shaped oocysts

### **Features associated with vaginal candidiasis include**

- 144. Demonstration of pseudohyphae from secretions
- 145. Clue cells
- 146. Discharge that is cheesy white in color

**Conditions where significant bacteriuria is NOT applicable include**

- 147. Organisms causing descending UTI
- 148. Female patients who are asymptomatic
- 149. Urine sample collected by supra pubic aspirate
- 150. Renal tuberculosis

**Congenital toxoplasmosis manifests as**

- 151. Hydrocephalus
- 152. Patent ductus arteriosus
- 153. Chorioretinitis

**Regarding disinfectants**

- 154. 2% Iodine is used to prepare skin prior to blood culture
- 155. Ethyl alcohol acts by inactivating sulphhydryl containing enzymes
- 156. Ethylene oxide is used in sterilization of heat sensitive articles
- 157. Phenol acts by modification of nucleic acids
- 158. Glutaraldehyde gas is used in fumigation of hospital wards

**Following pairs correctly match the stages of bacterial growth with the events**

- 159. Lag phase: DNA replication
- 160. Log phase: Active multiplication
- 201. Stationary phase: Spore formation
- 202. Phase of decline: Formation of autolytic enzymes

**The following pairs correctly match the survival strategies with corresponding organism**

- 203. Concealment of antigens: Herpes Simplex virus
- 204. Colonizing privileged sites: Echinococcus granulosus
- 205. Interfering with ciliary action: Bordetella pertussis
- 206. Producing iron binding molecules: Neisseria gonorrhoeae
- 207. Immunosuppression: Mycobacterium tuberculosis

**Hypersensitivity of**

- 208. Type I is mediated by IgM
- 209. Type III is exemplified by Arthus reaction
- 210. Type II is exemplified by Rheumatoid arthritis
- 211. Atopic type is due to increased activation of IL-4

**Examples of Complement immunodeficiency include**

- 212. Chronic granulomatous disease
- 213. Chediak Higashi syndrome
- 214. Hereditary angioedema
- 215. Ataxia telangiectasia
- 216. Paroxysmal nocturnal haemoglobinuria

**Adjuvant**

- 217. Derived from plants is exemplified by catechol
- 218. In human vaccines is exemplified by aluminium hydroxide
- 219. Enhances the immune response to an immunogen

**Regarding cytokines**

- 220. IL-1 is produced by cytotoxic T cell
- 221. IL-4 is responsible for B cell differentiation
- 222. IL-12 induces production of Th1 cells
- 223. Gamma interferon activates macrophages
- 224. Tumor necrosis factor alpha has antiviral property

**Lyme disease is**

- 225. Caused by Borrelia recurrentis
- 226. Transmitted to humans by tick bite
- 227. Characterized by erythema nodosum
- 228. Diagnosed by Weil Felix test

**Plasmodium falciparum**

- 229. Causes benign tertian malaria
- 230. Infection complicates to acute renal tubular necrosis
- 231. Infected red cells bind to endothelium of the cerebral capillaries

**Poliomyelitis**

- 232. Is caused by enterovirus 71
- 233. Involves sensory neurons of the spinal cord
- 234. Of bulbar type involves the brainstem

**Cryptococcus neoformans**

- 235. Is a dimorphic fungus
- 236. Has pigeons as reservoir host
- 237. Produces germ tube when incubated in pooled human serum

**Rabies virus**

- 238. Has double stranded RNA genome
- 239. Reaches CNS by retrograde axonal flow
- 240. Produces intra nuclear inclusion bodies

## Plague

- 241. Is caused by *Yersinia enterocolitica*
- 242. Is characterized by eschar formation
- 243. Is transmitted to humans by *Xenopsylla cheopsis*
- 244. Bacillus produces 'Yops' proteins
- 245. Complicates to disseminated intravascular coagulation

## Gas gangrene

- 246. Is caused by *Clostridium difficile*
- 247. Causative agent has lecithinase as its virulence factor
- 248. Results due to bacteremia

## Dermatophytosis

- 249. Is an example of subcutaneous mycoses
- 250. Is acquired by inoculation of arthrospores
- 251. Of hair is diagnosed by wood's lamp examination
- 252. Of nails is termed as tinea manuum
- 253. Caused by *Microsporum* species is diagnosed by demonstration of club shaped macroconidia

## Measles

- 254. Is characterized by vesicular lesion
- 255. Virus has F protein on its surface
- 256. Complicates to sub acute sclerosing panencephalitis
- 257. Is prevented by killed vaccine

## Parasites causing skin infections include

- 258. *Dracunculus medinensis*
- 259. *Loa loa*
- 260. *Trichinella spiralis*

