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M. D. Examination, 2010

MICROBIOLOGY

Paper - I

(Virology and Immunology)

Time : Three Hours]

Maximum Marks :100

Note:- Answer all questions in serial order.

1. Discuss briefly: 10x3
 - (a) Out come of complement activation.
 - (b) Genetic variations in RNA viruses.
 - (c) Role of viruses in cervical cancer.
2. Write short notes on: 10x3
 - (a) Swine Flu.
 - (b) Hepatitis C virus.
 - (c) Th1 and Th2 cells.
3. Describe in short: 10x4
 - (a) Phages and bacterial virulence.
 - (b) Quality control of serological assay.
 - (c) Persistent viral infections.
 - (d) Real time qPCR and its application.

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M. D. Examination, 2010

MICROBIOLOGY

Paper - II

(General and Systemic Bacteriology)

Time : Three Hours] Maximum Marks :100

Note:- Attempt all questions.

1. Discuss the classification of chlamydiae the diseases caused by them and the laboratory diagnosis of chlamydial infection. 25
2. Write short notes on: 15x3=45
 - (a) Community acquired MRSA.
 - (b) Newer methods for the diagnosis of tuberculosis.
 - (c) Antibiotic associated diarrhoea.
3. Write briefly about: 15x2=30
 - (a) Mechanism of bacterial pathogenicity.
 - (b) Beta-Lactamases.

2. Describe in brief the differential features of human malarial parasite as seen in Romanowsky stained thin peripheral blood smear. Add a note on the principal mechanisms thought to be responsible for immunity in humans at each stage of the life cycle of parasite.

15

3. Write in brief about :

20

(a) Toxoplasmosis-Role and current status of serological diagnosis in patient management.

(b) Hydatid cyst disease - serology - current methods.

(c) Malaria vaccine - hopes and setbacks.

(d) Common parasitic infections in AIDS patient.

PART- B

4. Describe systemic candidosis as an iatrogenic infection and its detection in laboratory.

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M.D. EXAMINATION, 2010

MICROBIOLOGY

Paper - III

(Parasitology and Mycology)

Time : Three Hours]

[Maximum Marks : 100

Note :- Attempt all questions. Attempt Part-A and Part-B in separate answer sheets provided.

PART- A

1. Enumerate skin infection producing parasites. Outline in brief, life cycle of kala azar and discuss laboratory diagnosis of visceral leishmaniasis. Add a note on role of immune response.

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5. Write in brief about : 20
- Pathogenesis of hair invasion by dermatophytes and its laboratory detection.
 - Mycetoma - causes and differential diagnosis.
 - Pneumocystosis - molecular basis of classification.
 - Nosocomial fungal infections - types and laboratory management.

PART- C

Attempt the following multiple choice questions. 10

- Note :-**
- Total number of questions is ten.
 - In each question select and Tick the best possible answer.
 - Each question carries one mark.
 - No negative marking.

Analysis of a patient's stool reveals presence of small structures apparently resembling rice grains.

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Microscopic examinations reveal these to be proglottids. The most probable cause is :

- Trichuris trichiura*.
 - Ascaris lumbricoides*.
 - Ankylostoma duodenale*.
 - T. solium*.
2. Which one of the following protozoa is known only in trophozoite stage ?
- B. coli*
 - E. histolytica*
 - T. vaginalis*
 - Toxoplasma gondii*
3. Which one of the following infections requires a mosquito for transmission to humans ?
- Bancroftian filariasis
 - Babesiosis
 - Dog tapeworm
 - Guinea worm

4. A helminth that can get naturally transmitted by ingestion of pork, bear or walrus meat could be detected in :

- (a) Blood
- (b) Biopsied muscle
- (c) Sputum
- (d) Vaginal secretions

5. Which one of the following fungi is least likely to cause a pulmonary disease ?

- (a) *A. fumigatus*
- (b) *C. immitis*
- (c) *C. neoformans*
- (d) *S. schenki*

6. In HIV infected patients, the most common penicillium species that can cause opportunistic infection is :

- (a) *P. notatum*
- (b) *P. chrysogenum*

(c) *P. marneffii*

(d) *P. niger*

7. A patient with AIDS has persistent cough and bizarre behavioral changes after eating an undercooked burger in a restaurant. A CSF examination shows presence of encapsulated yeast like organism. Which one of the following is the likely cause ?

- (a) *Candida*
- (b) *Cryptococcus*
- (c) *Cryptosporidium*
- (d) *Toxoplasma*

8. An immuno-compromised patient is suspected to be having an infection with *A. fumigatus*. Which one of the following conditions is most likely to develop?

- (a) Invasive infection leading to thrombosis and infarction

- (d) Thrush
9. In a bone marrow transplant unit one of the following is most dangerous :
- (a) Candida
 - (b) Aspergillus
 - (c) Cryptococcus
 - (d) Wangiella
10. The potassium hydroxide preparation of sputum and its microscopical examination, from a patient of heart transplant with no symptoms reveals presence of occasional budding yeast. The most diagnostic significance is :
- (a) Candida
 - (b) Aspergillosis
 - (c) Histoplasmosis
 - (d) No diagnostic significance

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M. D. Examination, 2010

MICROBIOLOGY

Paper - IV

(Recent Advances)

Time : Three Hours] Maximum Marks :100

1. What is Antigenic Shift and Drift? Describe the genetic structure and laboratory diagnosis of Swine Flu Virus. 20
2. Discuss the management of Hospital waste. 20
3. Write short notes on (any six): 10x6
 - (a) Community acquired MRSA - The Global scenario.
 - (b) Mono-clonal antibodies.
 - (c) Real time PCR and its applications.
 - (d) Opportunistic parasitic infections.
 - (e) Superantigens.
 - (f) Interferon and its uses.
 - (g) CD4 cells.

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M. D. Examination, 2011

MICROBIOLOGY

Paper I

(Virology and Immunology)

Time : Three Hours] [Maximum Marks : 100

Note : Attempt all questions.

1. Discuss MHC regulated cellular interactions in a classical immune response. 20
2. Discuss laboratory diagnosis of viral diarrheas in infants. 20
3. Discuss immuno-pathogenesis of HIV infection. 20
4. Discuss in brief : 4x10=40
 - (a) Biosynthesis of virion particle in eukaryotic cells.

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- (b) Viral infections in organ transplant recipients.
- (c) T-Cytotoxic cells.
- (d) Virus as novel agents in therapeutics and genetic engineering.

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M. D. Examination, 2011

MICROBIOLOGY

Paper II

(General and Systematic Bacteriology)

Time : Three Hours]

[Maximum Marks : 100

Note : Attempt all questions.

1. Describe in detail the immuno-pathogenesis of disease caused by Mycobacterium tuberculosis. Discuss laboratory diagnosis of Pulmonary and cryptic tuberculosis. 20
2. Describe the virulence factors of Helicobacter pylori and the potential candidates being considered in vaccine production for diseases caused by this pathogen. 20

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3. Describe the classical and newer methods in the laboratory diagnosis of Human Brucellosis.
4. Write short notes on (300 words each) : 4x10=40
 - (a) Bartonellosis
 - (b) Community acquired pneumonias - Recent advances.
 - (c) Listeria infections.
 - (d) Nosocomial pneumonias.

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M. D. Examination, 2011

MICROBIOLOGY

Paper III

(Parasitology and Mycology)

Time : Three Hours]

[Maximum Marks : 100

Note : Attempt all questions.

1. Discuss Mycotoxicosis and its laboratory diagnosis. 20
2. Discuss parasitic infections in AIDS patients. 20
3. Discuss clinical implications of Candidemia and its current status of antifungal susceptibility. 20

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4. Write short notes on (300 words each) : 4x10=40

- (a) Aspergillosis
- (b) Anomalous fungal and fungal like infections
- (c) Babesiosis
- (d) Newer methods for diagnosis of Malaria infection

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Time : Three Hours]

[Maximum Marks : 100

Note : Attempt all questions.

1. Discuss emerging and re-emerging bacterial infections. 20
2. Define and categorize biomedical waste and its management. 20
3. Discuss role of biofilms formations in microbial infections. 20

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4. Write in brief about :

4x10=40

- (a) Transgenic mice.
- (b) Quality control in Microbiology laboratory.
- (c) Gene therapy - advances and setbacks.
- (d) Value of PCR as a diagnostic tool in Microbiology in developing country like India.

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M. D. Examination, 2012

MICROBIOLOGY

Paper - I

(Virology and Immunology)

Time : Three Hours] [Maximum Marks : 100

Note :- Attempt all questions.

1. Define sterilisation, disinfection and antisepsis. Write in detail about various methods of sterilisation. Briefly discuss about plasma sterilisation.
2. Define hypersensitivity. Classify hypersensitivity reaction. Discuss various type of hypersensitivity reaction with example.
3. Enumerate components of complement. Describe in detail about classical and alternate pathway.

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4. Write short notes on any **four** of the following :
 - (a) Virulence factors of bacteria
 - (b) Anaerobic culture method
 - (c) Autotrophs
 - (d) Transposons
 - (e) Cytokine

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M. D. Examination, 2012

MICROBIOLOGY

Paper - II

(General and Systemics Bacteriology)

Time : Three Hours]

[Maximum Marks : 100

Note :- Attempt all questions.

1. Classify mycobacteria with example. Discuss laboratory diagnosis of extra pulmonary tuberculosis with special reference to automated system.
2. Discuss pathogenesis and laboratory diagnosis of infection caused by haemophilus influenzae.
3. Classify streptococci. Discuss laboratory diagnosis of streptococcus pyogenes infection.

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4. Write short notes on any **four** of the following :
- (a) Chlamydia trachomatis
 - (b) ELTOR vibrio
 - (c) Listeria monocytogenes
 - (d) Laboratory diagnosis of Neocardiosis
 - (e) Coxiella burnetii

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M. D. Examination, 2012

MICROBIOLOGY

Paper - III

(Parasitology and Mycology)

Time : Three Hours]

[Maximum Marks : 100

Note :- Attempt all questions.

1. Classify Hepatitis virus. Discuss laboratory diagnosis of Hepatitis B virus.
2. Describe briefly :
 - (a) Amoeba as a pathogen
 - (b) Opportunistic parasitic infection
3. (a) Laboratory diagnosis of cryptococcal meningitis.
 - (b) Aspergillosis.

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4. Write short notes on any **four** of the following :
 - (a) Difference between antigenic drift and shift
 - (b) Oncogene
 - (c) Polio vaccine
 - (d) Anthropophilic dermatophyte
 - (e) Laboratory diagnosis of Taeniasis

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M. D. Examination, 2012

MICROBIOLOGY

Paper - IV

(Recent Advances)

Time : Three Hours]

[Maximum Marks : 100

Note :- Attempt all questions.

1. Name different type of hospital waste. Discuss in detail method of disposal of hospital waste.
2. Discuss polymerase chain reaction. Describe its application in clinical practices.
3. Enumerate bacterial causes of meningitis. Discuss laboratory diagnosis of Neisseria meningitis and its vaccine.

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4. Write short notes on any **four** of the following :

- (a) Typhoid vaccine.
- (b) Hand hygiene practices in a hospital.
- (c) Chemical sterilant.
- (d) Prevention of catheter associated UTI: UT I
- (e) Real time PCR.