

**M.Sc. 3rd Semester Examination, 2018**

**PHYSIOLOGY**

*( Human Physiology )*

**PAPER — PHY-302(U-25 & 26)**

*Full Marks : 40*

*Time : 2 hours*

*The figures in the right hand margin indicate marks  
Candidates are required to give their answers in their  
own words as far as practicable*

*Illustrate the answers wherever necessary*

**UNIT—25**

**Answer all questions from the following :**

1. (a) Give a brief account of five kingdom concept of life.
- (b) List down the characteristics features used to distinguish strains under a species.
- (c) What is ribotyping? 2 + 2 + 1

*( Turn Over )*

( 2 )

Or

(a) Why bacterial capsule can be considered as virulence factor ?

(b) What is the importance of flagellar 'basal body' structure in bacteria ?

(c) What is colonization of bacteria ?

(d) Write down two major features of fungi.  
2 + 1 + 1 + 1

2. (a) What is meant by microbial culture medium ?

(b) What are chemically defined media and assay media ?

(c) What are the major colony shapes observed in bacteria ?

(d) What are capnophiles ? 1 + (1 + 1) + 1 + 1

Or

(a) Classify bacteria according to the temperature and pH preferences for growth.

(b) Differentiate aerotolerant anaerobes and microaerophiles.

( 3 )

(c) Name one enzyme used in anaerobic media preparation.

$$(1\frac{1}{2} + 1\frac{1}{2}) + 1 + 1$$

3. (a) Define 'antibiosis' and 'antibiotics'.

(b) Name one 'semisynthetic' and one 'synthetic' antibiotic.

(c) Mention two properties of antibiotics as effective chemotherapeutic agent.

Or  $(1+1) + (\frac{1}{2} + \frac{1}{2}) + 2$

(a) Write down the mode of action of aminoglycoside antibiotics with an example.

(b) Write briefly on generation concept in antibiotics with special reference to Cephalosporius.

(c) What is meant by 'efflux' in development of antibiotic resistance? Name one efflux inhibitor.

$$1\frac{1}{2} + 2 + 1\frac{1}{2}$$

4. (a) Write down the main mechanisms of low CD4 + T cell level in HIV infected individuals.

( 4 )

(b) State the general characteristics of HIV.

(c) What is the underlying mechanism of stable two-pronged attachment of HIV with target cell.

$$1\frac{1}{2} + 2\frac{1}{2} + 1$$

Or

(a) Define 'merogony' in Plasmodium.

(b) What is sporogony? Describe in brief the reproductive stages in plasmodium's life cycle.

(c) What is rosetting? What is its importance in pathogenicity of *P. falciparum*?

$$\text{UNIT-26} \quad 1 + \left( \frac{1}{2} + 1\frac{1}{2} \right) + (1+1)$$

Answer all questions from the following :

1. (a) Draw the structure and write down different functions of macrophage in human body.

(b) What are the differences between monocyte and macrophage?

$$2 + 2 + 1$$

( 5 )

Or

(a) Briefly describe the factors affecting immunogenicity.

(b) How platelets is derived from myeloid stem cell ?

(c) What is  $NK_1$ -T cell ? 3 + 1 + 1

2. Write and draw the different receptors and co-receptors present on T-cells. Write down their functions. 3 + 2

Or

(a) Briefly describe the classical pathway of complement activation. Why IgG is potent complement activator than IgM ?

(b) How 5 monomeric subunit of IgM forms pentameric IgM molecule ? 2 + 1 + 2

3. Write brief notes on the following :  $2\frac{1}{2} + 2\frac{1}{2}$

(i) Cytokines

(ii) Type I hypersensitivity.

( 6 )

*Or*

(a) Briefly describe the structure of class I MHC molecule and provide suitable diagram ?

(b) Prove CD4 + T-cell play a major role in allograft rejection ? 3 + 2

4. Write brief notes on the following :  $2\frac{1}{2} + 2\frac{1}{2}$

(i) ELISA

(ii) O.D.D.

*Or*

(a) Briefly describe the procedure of sandwich ELISA ? Provide suitable diagram.

(b) What do you mean by equivalence zone in Ag and Ab reaction ?

(c) What is titre ? 3 + 1 + 1