

2017

M.Sc.

3rd Semester Examination

HUMAN PHYSIOLOGY

PAPER—PHY-302

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full 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) Differentiate monera and protista.

(Turn Over)

- (b) What is meant by bacterial species?
- (c) Name the properties used in identification of bacterial species.
- (d) Name two characteristic features of archea.

1(1½+1½)+1

Or

- (a) Give a brief description of cell wall structure of gram-negative bacteria.
- (b) Write down the structural peculiarity of peptidoglycan.

3+2

2. (a) What is Complex media? Give example.
- (b) Briefly give description of a culture media acting both as selective and differential.
- (c) Mention the special culture technique of *Mycobacterium la pral*.

(1+1)+2+1

Or

- (a) Give a brief description of procedure of culture of anaerobic bacteria.

(b) Differentiate obligate aerobes and obligate anaerobes.

(c) Mention the physiological adaptations of psychrophiles. 2+1+2

3. (a) What do you understand by "selective toxicity" property of antibiotics?

(b) Mention the basis of classification of antibiotics according to their mechanism of action.

(c) Write down the mechanism of action of β -lactam antibiotics. Give an example. 1+2+(1+1)

Or

(a) What is meant by resistance development towards antibiotics?

(b) Write down the mechanisms for bacterial resistance development towards antibiotics.

(c) Name two possible alternatives to antibiotic therapy. 2+2+1

4. (a) Write down the type of genome possessed by HIV. Mention the major structural landmarks of HIV genome.

(b) Briefly state the mechanism of host entry of HIV

(1+1,+3)

Or

(a) Write down the general characteristics of *Plasmodium* as parasite.

(b) Discuss in brief the pathogenicity of *Plasmodium falciparum*.

2+3

(Unit—26)

Answer all questions from the following :

1. (a) What are the forces involved in Ag-Ab interaction ?

(b) Write the important criteria of antigenicity.

2½+2½

Or

- (a) What is "M-Cell" ?
- (b) Write the comparison between innate and adaptive immunity.
- (c) What is needed for phagocytosis beside opsonin.

2+2+1

2. Draw the different surface receptors present on the β -cells and mention their functions.

3+2

Or

Describe the functions of T-helper, T-cytotoxic and macrophage in cell mediated immunity.

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3. Write a brief notes on the following :

- (a) Graves' Disease
- (b) Pernicious anaemia
- (c) Rheumatoid arthritis

1½+2+1½

Or

Define pleiotropy, redundancy, synergism antagonism and cascade induction. 5

4. What is fiter? Justify your answer with suitable experiments. 1+4

Or

Differentiate between —

(a) Agglutination and precipitation ;

(b) Affinity and avidity. 3+2