

M.Sc. 3rd Semester Examination, 2019

HUMAN PHYSIOLOGY

PAPER – PHY-302

Full Marks : 40

Time : 2 hours

Answer all questions

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

Write the answers to questions of each Unit in separate books

UNIT – PHY-302.1

1. Answer any *two* questions of the following : 2×2
- (a) Define bacterial species. 2
- (b) On which basis bacteria and archea was differentiated ? 2

(Turn Over)

(c) Name one double stranded DNA and double stranded RNA virus. 1 + 1

(d) What is pure culture ? 2

2. Answer any *two* questions from the following : 4 × 2

(a) Define selective media. Explain it with specific example. 1 + 3

(b) What is peptidoglycan ? Mention its significance. What are peculiarities of gram-negative bacterial cell-wall. 1 + 1 + 2

(c) What is the difference between pili and flagella ? Why pilus is considered as virulence factor in bacteria. 2 + 2

(d) (i) Give a brief description exo-erythrocytic stage of life-cycle of plasmodium.

(ii) What is rosetting ? 3 + 1

3. Answer any *one* question from the following : 8 × 1

(a) (i) Classify antibiotics on the basis of mechanism of actions.

(3)

- (ii) What is meant by 'selective toxicity' in antibiotic action ?
- (iii) Discuss the mechanisms of resistance development in microbes towards antibiotics. 2 + 2 + 4
- (b) (i) Give a brief description of the HIV genome.
- (ii) Discuss in brief the interplay of HIV genome inside the host cell upon entry.
- (iii) Mention the modes of transmission of HIV. 3 + 3 + 2

UNIT—PHY-302.2

4. Answer any *two* questions from the following : 2×2
- (a) Name two innate immunity mechanism in our system. 1 + 1
- (b) Write down the difference between potential pathogens and opportunistic pathogen. 2

(c) What is autoimmunity? 2

(d) Describe the lectin pathway of complement system. 2

5. Answer any *two* questions from the following : 4 × 2

(a) Describe with a neat diagram how does TLR membrane receptor take the responsibility to initiate innate immunity. 4

(b) What is meant by inflammation? Explain with a diagram the role of different inflammatory mediators for inflammation response. 1 + 3

(c) Describe the different receptors present on the surface of B-cell and mention its functions. 4

(d) Write down the principle of competitive ELISA. What is SRID? 3 + 1

6. Answer any *one* question from the following : 8×1

(a) (i) Write down the differences between classical and alternative complement systems. What is membrane attack complex ?

(ii) Draw the detailed structure of immunoglobulin. $4 + 1 + 3$

(b) (i) Describe the structure of class II MHC molecule and its function with suitable diagram.

(ii) Briefly write the mechanism of mast cell degranulation. $(3 + 1 + 1) + 3$
