PG/IIIS/H.PHY-302/14

M.Sc. 3rd Semester Examination, 2014

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

UNIT – 27

1. (*a*) Mention the five kingdom classification concept of with brief description of each living organism.

   (*b*) Define bacterial species and type strain. 3 + (1 + 1)

Or

(*a*) Describe bacterial capsule.

(*b*) Mention the importance of capsule in bacterial pathogenesis.

(*c*) What is Peptidoglycan ? 1 + 2 + 2

2. (*a*) What do you understand by "pure culture' ? Name the methods how pure culture can be isolated.

(*b*) Describe differential media with example.

(*c*) Mention the media which can act both as selective and differential media.

(1 + 1) + (1 + 1) + 1

Or

(*a*) Classify the microbes in terms of usage of oxygen.

(*b*) Discuss the underlying reasons for oxygen -mediated death of obligate anaerobes. 2 + 3

3. (*a*) Discuss in brief the properties of antibiotics as chemotherapeutic agents.

(*b*) What are the differences between antibiotics and disinfectants ? 3 + 2

Or

(*a*) Mention the basis of classification of antibiotics.

(*b*) Discuss the mechanism of action of β-lactam antibiotics including their properties. 2 + 3

4. (*a*) What are Retroviruses ?

(*b*) Describe the structure of Env protein of HIV.

(*c*) Discuss in brief the mechanism of host entry of HIV. 1 + 2 + 2

Or

(*a*) State the general properties of plasmodium as malarial parasite.

(*b*) Describe the exo-erythocytic stage of life -cycle of plasmodium. 2 + 3

UNIT – 28

1. Differentiate the following : $2\frac{1}{2}+2\frac{1}{2}$

   (*i*) Agretope, paratope and epitope

   (*ii*) Primary and secondary immune response.

Or

Write about the role of TLR in innateimmune response against microbes. 5

2. (*a*) What are the predominant amino acid in the hinge region of an antibody ? Why is it so important ?

   (*b*) Describe the important properties and function IgG. 1 + 4

Or

Draw the different receptors present on the surface of T-cell and mention their functions. 5

3. (*a*) Define pleotrophy, redundancy and synergestic action of cytokines.

(*b*) Write the biological functions of IFN-r. 1 + 4

Or

Discuss the mechanism of antigen recognition by T-cell with special emphasis the role of MHC molecules. 5

4. (*a*) What do you mean by SRID and ODD ?

(*b*) Why secondary antibodies are used in ELISA ? $2\frac{1}{2}+2\frac{1}{2}$

Or

(*a*) Why monoclonal antibodies are necessary for qualitative and quantitative detection of antigen ?

(*b*) Describe some applications of monoclonal antibodies. 3 + 2
