This question paper contains 4 printed pages]

Roll No. | | | | | | | | | | | |

S. No. of Question Paper : **5297**

Unique Paper Code : **3184002003**

Name of the Paper : **GE : Understanding the Human Body Systems**

Name of the Course : **Common Program Group**

B.Sc. (H) Biomedical Sciences

Semester : **II/IV (NEP-UGCF)**

Duration : **3 Hours** Maximum Marks : **90**

(Write your Roll No. on the top immediately on receipt of this question paper.)

Attempt *five* questions in all.

Question No. **1** is compulsory.

Subparts of the questions should be attempted together.

Draw illustrations or diagrams wherever necessary.

1. (*a*) Differentiate between (any *four*) : 4×2=8

(*i*) Juxtamedullary and Cortical Nephrons

(*ii*) Positive and Negative feedback

(*iii*) Absolute and relative refractory period

(*iv*) Diabetes mellitus and Diabetes insipidus

(*v*) Type-I and Type-II alveolar cells

P.T.O.

(*b*) Define (any *six*) : 6×2=12

(*i*) Spermiogenesis

(*ii*) Keratinization

(*iii*) Hemostasis

(*iv*) Tidal volume

(*v*) Erythropoiesis

(*vi*) Prohormone

(*vii*) Renal plasma clearance

(*viii*) Cerebral dominance.

(*c*) State True/False and justify (any *three*) : 3×2=6

(*i*) A person lying face upwards would be in prone position

(*ii*) Action potential is all or none event

(*iii*) Platelets do not stick to the endothelium in a normal blood flow.

(*iv*) Oral contraceptives work by preventing ovulation.

2. Write short notes on : 4×4=16

(*i*) Digestion and absorption of carbohydrates

(*ii*) General features of connective tissue

(*iii*) Oogenesis

(*iv*) Extrinsic pathway of clotting.

3. (*a*) Discuss the mechanism of muscle contraction. What role do calcium ions have in the process ?

(*b*) Mention briefly the functions and chemical nature of hormones released from posterior pituitary gland.

(*c*) Describe structural and functional differences between arteries, capillaries and veins. 5,5,6

4. (*a*) Describe the pressure and volume changes that occur during a cardiac cycle.

(*b*) Describe various mechanisms by which solutes are absorbed in proximal tubule of kidney.

(*c*) Give the location and function of :

(*i*) Pacinian corpuscles

(*ii*) Tricuspid valve

(*iii*) Chondrocytes

(*iv*) Parietal cells

(*v*) Neutrophils

(*vi*) Corpus luteum. 5,5,6

5. (*a*) What are the functions of the human skin ? Discuss the functions of different types of cells present in the skin.

(*b*) Draw a neat well labelled diagram of adrenal gland showing different zones. Mention hormones secreted by each of the zones and their functions.

(*c*) Give one word for the following :

(*i*) Gaps of exposed axon in the myelin sheath

(*ii*) The phase of heart relaxation

(*iii*) Name the hormone secreted by kidneys

(*iv*) Blood cells with kidney shaped nucleus

(*v*) Gap junctions of the cardiac muscle tissue

(*vi*) Condition in which number of WBCs is low. 5,5,6

6. (*a*) Describe how alveolar surface tension, compliance and airway resistance affect pulmonary ventilation.

(*b*) Describe how action potentials are conducted by unmyelinated nerve fibers. Why is saltatory conduction in myelinated fibers more rapid ?

(*c*) Draw a well labelled diagram of :

(*i*) Structure of the seminiferous tubules

(*ii*) Taste bud. 5,5,6