Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/M.Sc.(GE)/SEM-3/MSGEN(MBT)-304A/2012-13

2012
HUMAN PHYSIOLOGY

Time Allotted : 1 ½ Hours *Full Marks :* 35

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A
(Multiple Choice Type Questions)

1. Choose the correct alternatives for any *five* of the following : 5 × 1 = 5

   i) Sertoli cells take part in

      a) producing ICSH

      b) producing testosterone

      c) stimulating spermatogenesis

      d) supplying nutrients to the sperms.

ii) Middle piece of human sperm contains

a) Centriole b) Mitochondria

c) both of these d) none of these.

iii) Glucose and amino acids are reabsorbed only in

a) proximal convoluted tubules

b) distal convoluted tubules

c) Henle's loop

d) collecting duct.

iv) Which of the following cells is phagocytic in nature ?

a) Schwann cells

b) Astrocytes

c) Oligodendrocytes

d) Microglia.

v) Callosal fibres connect cortex to

a) cortex in the same hemisphere

b) cortex in the opposite hemisphere

c) subcortical structures

d) none of these.

vi) Which of the following portions of the neuron can be visualized by Nissl stain ?

a) Cell body b) Axon

c) Dendrites d) Axon terminal.

vii) The average stroke volume in adults is

a) 50 ml b) 60 ml

c) 70 ml d) 80 ml.

GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. 3 × 5 = 15

2. Why is the glomerular filtrate alkaline but the final urine acidic ?

3. State briefly about the role of hormones in Ovarian cycle.

4. Discuss the cellular organization of human cerebral cortex.

5. Discuss the propagation of action potential in a myelinated nerve fibre.

6. Discuss the organization of smooth muscles.

GROUP – C

(Long Answer Type Questions)

Answer any *one* of the following. 1× 15 = 15

7. Discuss about the role of hormones in spermatogenesis. How does an ovum become structurally adapted for the fertilization reaction ? In what ways are the sperms adapted structurally for fertilization ? 5 + 5 + 5

8. Discuss the cellular organization of human retina. Discuss how metarhodopsin II, the activated form of rhodopsin is formed. Discuss the mechanism of phototransduction.

4 + 4 + 7

9. Describe the structure of a sarcomere with suitable diagram. What is a triad ? How does it contribute to skeletal muscle contraction ? What is rigor mortis ? 5 + 3 + 5 + 2