



Name :
Roll No. :
Invigilator's Signature :

**CS/B.TECH/BME(OLD)/SEM-3/BME-302/2011-12
2011**

HUMAN PHYSIOLOGY - I

Time Allotted : 3 Hours

Full Marks : 70

*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
(Objective Type Questions)**

1. Choose the correct alternatives for any *ten* of the following :

10 × 1 = 10

- i) Define cardiac output.
- ii) Write the functions of Neutrophil and Lymphocyte.
- iii) What is rigor mortis ?
- iv) Name the junctional tissue of heart.
- v) What is neuromuscular junction ?
- vi) An A Blood group the agglutinins present in serum is
 - a) α
 - b) β
 - c) α and β
 - d) no agglutinins.



vii) The time required for one normal cardiac cycle is

- a) 0.4 sec
- b) 0.2 sec
- c) 0.8 sec
- d) 0.7 sec.

viii) Einthoven's triangle is associated with

- a) EEG
- b) ECG
- c) EMG
- d) none of these.

ix) Fibrinogen is a

- a) Carbohydrate
- b) Fat molecule
- c) Plasma protein
- d) CNS stimulant.

x) Axon hillock is found in

- a) nephron
- b) neuron
- c) heart valve
- d) DNA.

xi) Gaseous exchange occurs between blood and surroundings body tissues through

- a) Venules
- b) Arterioles
- c) Capillaries
- d) none of these.



GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. What is cardiac cycle ? Write different phases and intervals of cardiac cycle. $2 + 3$
3. What is ESR ? What are the normal rates of ESR in normal men and women ? Briefly explain anemia. $2 + 1 + 2$
4. Explain the functional unit of kidney. What are the important functions of kidney ? $3 + 2$
5. What is synapse ? Describe it with diagram. What are its important functions ? $3 + 2$
6. Write down the composition of blood. Explain the functions of various plasma proteins. $3 + 2$

GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. Discuss the mechanism of cross-bridge during the muscular contraction and write the role of T-system in muscular contraction. $10 + 5$
8. What is mutation ? Define spontaneous mutation and induced mutation. Describe tautomeric and mutagenic substitution methods of gene mutation. $3 + 4 + 8$



9. Write short notes on any *two* of the following :

$2 \times 7 \frac{1}{2}$

- a) ABO system of blood group
 - b) E-C coupling, Chronaxie, Rheobase, Tetanus
 - c) Erythropoiesis
 - d) Sympathetic and Parasympathetic Nervous system.
10. a) Explain briefly the structure, function and circulation through heart with suitable diagram. 3 + 2 + 4
- b) Describe the various heart sounds. 3
- c) What are the various factors which regulate blood pressure ? 3
11. a) Briefly explain the function compounds and derivatives of hemoglobin. 2 + 3 + 2
- b) What do you mean by blood group ? 2
- c) Explain different kinds of blood groups. 6

