2020

PHYSIOLOGY — HONOURS

Paper : CC-1

Full Marks : 50

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

1. Answer *any five* questions from the following :　　　　　　　　　　　　　　　　2×5

   (a) What are ribozymes?

   (b) What are the main components of extra cellular matrix?

   (c) What do you mean by 'Flip-Flop' movement in cell membrane?

   (d) What is nuclear lamina?

   (e) Mention the different types of 'gated channels' in cell membrane.

   (f) What is an 'epistatic gene'?

   (g) What is 'Check point' in cell cycle?

   (h) State the importance of centromere.

   (i) What is 'Pinocytosis'?

   (j) What is 'Packing ratio'?

Group - B

Answer *any two* questions.

2. (a) Write a brief note on 'Mitochondrial functions'.

   (b) Differentiate between 'Nuclear DNA' and 'Mitochondrial DNA'.　　　　　3+2

3. (a) State Michaelis–Menten equation.

   (b) Define K_m.　　　　　　　　　　　　　　　　　　　　　　　　　　　3+2

4. (a) Distinguish between 'Expressivity' and 'Penetrance' in genetics.

   (b) What is 'Pleiotropism'?　　　　　　　　　　　　　　　　　　　　　　3+2

5. Write short note on *any one* of the following :　　　　　　　　　　　　　　　5

   (a) Fluid mosaic model of cell membrane

   (b) Isozyme

   (c) Different molecular motors and their cellular association.

Please Turn Over

(2)

Group - C

Answer *any three* questions.

6. (a) Differentiate among uniport, symport and antiport in cellular transport.

   (b) What are the significance of tight junctions?

   (c) What is autophagy?   6+2+2

7. (a) Give an account on the structural components of the cell membrane.

   (b) Write the functional importance of lysosome and peroxisomes.

   (c) What are the 'GPI-Anchored Proteins'?   3+(2½+2½)+2

8. (a) What is meant by 'Chromatin'?

   (b) Distinguish between 'Heterochromatin' and 'Euchromatin'.

   (c) Briefly state the role of cyclin in cell cycle regulation.   2+4+4

9. (a) Discuss the effects of temperature and pH on enzyme catalyzed reaction.

   (b) Differentiate between active site and allosteric site of enzyme.

   (c) What is the significance of activation energy in relation to the enzyme activity?   (2½+2½)+2+3

10. (a) List the different stages of meiosis.

    (b) Mention the major events that take place in each stage.   2+(4×2)

11. (a) Distinguish between K and M series of allosteric enzymes.

    (b) What are ionophores? Give an example.

    (c) State Hill-coefficient.

    (d) What is Karyotyping?   4+(1+1)+2+2

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