2020

PHYSIOLOGY — HONOURS

Paper : DSE-B-2

(Advanced Molecular Biology)

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.

1. Answer ***any five*** questions : 2×5

(a) What is meant by repetitive DNA?

(b) Give the full forms of AFLP and RAPD.

(c) What are retrotransposons?

(d) Mention two uses of carbon nano tubes.

(e) Define genomic imprinting.

(f) What is a repressible operon?

(g) Mention the significance of Taq DNA polymerase in PCR.

(h) What is FISH?

(i) What is Satellite DNA?

(j) What is biological nano motor?

2. Write short notes on ***any two*** of the following : 5×2

(a) Restriction fragment length polymorphism

(b) Tryptophan operon system

(c) Gene knockout technique

(d) Micro array technique

(e) Quorum sensing in bacteria.

3. Answer ***any three*** questions :

(a) Discuss the post translational modifications in eukaryotes. State the merits of polyadenylation. What is meant by 'differential splicing' of RNA? 5+3+2

(b) Describe Edman Degradation process for protein sequencing. State its limitations. What is the use of fluorodinitrobenzene (FDB) in protein sequencing? 5+3+2

(c) (i) Explain, in brief, the steps of ChIP technique with a labelled diagram.

(ii) Mention the applications of FISH. 8+2

(d) (i) Discuss the applications of nano materials in biology.

(ii) What is silver nanoparticle? Mention its application in biology. 6+(2+2)

(e) (i) Describe the DNA methylation process and mention its biological significance.

(ii) Discuss the role of chromatin in gene expression. (3+2)+5

(f) Discuss the molecular basis of apoptosis. How would you detect apoptosis in a cell? 6+4

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