

2020

ZOOLOGY — HONOURS

Fifth Paper

(Unit - I)

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.

Answer *question no. 1* and *any two* questions from the rest.

1. Answer *any two* questions : 10×2
- (a) What is Philadelphia chromosome?
 - (b) Define APC / cyclosome.
 - (c) State the use of SDS in SDS-PAGE.
 - (d) Why P53 is regarded as tumour-suppressor gene?
 - (e) Distinguish Taq DNA polymerase and DNA polymerase-I.
 - (f) What are 'chi sites'?
 - (g) Comment on the function of RecA.
 - (h) What is Cooley's Anemia?
2. Write short notes on (*any two*) : 7½×2
- (a) Western Blot
 - (b) Expression vector
 - (c) Genetic cause of Thalassemia
 - (d) Histone acetylation
 - (e) LINE and SINE
 - (f) Genomic DNA Library.
3. (a) Define restriction endonuclease.
- (b) What are 'iso-schizomer' and 'neo-schizomer'?
- (c) Explain the process and utility of 'Colony hybridization' process in RDT (Recombinant DNA Technology). 3+(3+3)+(5+1)

Please Turn Over

4. (a) Delineate any one process of conversion of proto-oncogene to oncogene.
(b) Explain the extrinsic pathway of apoptosis.
(c) State two important properties of transformed cells. 6+6+3
5. (a) Briefly describe the principle, procedure and application of affinity chromatography.
(b) Explain with suitable diagram, the process of homopolymer tailing and its significance. (3+3+3)+(5+1)
6. (a) Explain the principle of electrophoresis.
(b) State the characteristic features of IS element with diagram.
(c) How does TGE induce 'Inversion'?
(d) State the characteristic features of Ty element. 3+(3+2)+4+3
7. (a) Describe the basic steps of PCR with suitable diagram (allele specific).
(b) Explain catabolite repression with reference to lac operon.
(c) 'O^c' mutation is epistatic but I^s hypostatic. – Explain. (5+3)+4+3
8. (a) Explain with suitable diagram DNA damage checkpoint in eukaryotes.
(b) Explain how sickle cell anemia and sickle cell trait can be distinguished experimentally.
(c) What is transpositional recombination? 6+5+4
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