

2021

ZOOLOGY — HONOURS

Paper : DSE-A(2)-2

(Animal Biotechnology)

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 **any ten** questions.

1. How plasmid differs from cosmid? Mention the advantages of using bacteriophages as vectors. Comment of use of transgenic animal in pharmaceutical products. 2+1+2
2. What is the difference between a genomic library and a cDNA library? Discuss the process of cDNA library formation with a neat diagram. 1+4
3. What is the principle of gel electrophoresis? What is the significance of addition of SDS and beta marcapto-ethanol/DTT in sample buffer of SDS PAGE? 2+1+2
4. State the differences between southern and northern blotting. Mention applications of Southern blot in forensic science. 3+2
5. Describe the process by which Dolly the sheep was cloned. 5
6. Add a note on genetically modified economically important animal. Write differences between ex vivo and in vivo gene therapy. 2+3
7. What is primary cell culture? State the disadvantages associated with retroviral method of transgenesis. 2+3
8. Mention the principle of RT PCR. Write the advantages and disadvantages of RAPD. 2+3
9. What do you mean by 'blunt' and 'staggered' cut? Define Neo-schizomer and Isoschizomer with examples. 2+2+1
10. Describe the basic features of pBR322 vector. How does it differ from pUC vectors? 3+2
11. Describe blue-white screening method in gene cloning with a flow chart. Comment on role of IPTG in B-W screening. 4+1
12. What is the use of Allele specific PCR? Write the applications of DNA Fingerprinting. 2+3

Please Turn Over

13. What is HAC (Human Artificial Chromosome)? What is shuttle vector? 2+3
14. Briefly describe the process of molecular diagnosis of Sickle cell Anaemia and Cystic fibrosis. 2½+2½
15. Write short Notes on *any two* : 2½×2
- (a) Advantages of use of linker over adaptor
 - (b) Type II restriction endonuclease
 - (c) Knock-out mice preparation
 - (d) DNA microinjection
 - (e) Western Blot.
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