

**2021**

**ZOOLOGY — HONOURS**

**Paper : DSE-A(2)-1**

**(Animal Cell 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. What are restriction endonucleases? Name two common restriction endonucleases with their cutting site. What is meant by RFLP? 1+2+2
2. What are the essential features of an ideal cloning vector? Compare YAC and HAC. 3+2
3. What is the role of adaptors and linkers in cloning? What do you mean by stringent and relaxed plasmids? 3+2
4. What is transformation frequency and transformation efficiency? Describe the process of DNA hybridization in screening of clones. 2+3
5. Mention the characteristic features of a shuttle vector with a suitable diagram. Mention the utility of RAPD. 2+1+2
6. Write short notes on (**any two**) : 2½×2
  - (a) Phagemid
  - (b) cDNA Library
  - (c) Reporter gene
  - (d) Northern blotting.
7. With the help of a suitable illustration enumerate, how monoclonal antibodies are generated by the Hybridoma Technology? 2+3
8. Describe the technique of recombinant insulin production. What is the objective of constructing second generation insulin? 3+2
9. Narrate different types of fermentations. 5
10. What is primary culture? What is the use of trypsinization in cell culture? Cite one example each of anchorage dependent and anchorage independent cell line. What is passage number? 1+1+2+1

**Please Turn Over**

11. Compare the advantages and disadvantages of using media with serum and serum free media. Mention one cell line which is cultured in serum free media. 2+2+1
12. Write short note on *any two* : 2½+2½
- (a) Co<sub>2</sub> incubator
  - (b) Laminar Air flow
  - (c) Allele specific PCR
  - (d) Cosmid.
13. What do you mean by 'complete culture medium'? Cite one example of the same. What is the principle of moist heat sterilization for tissue culture apparatus? 2+1+2
14. Discuss on *any two* of the following in context to Fermentation : 2½+2½
- (a) Filtration
  - (b) Centrifugation
  - (c) PAGE
  - (d) Lyophilization.
15. What is advantage of solid state fermentation? State the principle of an Airlift Bioreactor. 2+3
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