

OPTION-A

(Animal Biotechnology)

Paper : ZOO-HE-5026

1. Answer the following questions as directed :
(any seven) 1×7=7
- (a) GM crops has detrimental effects on human health. (True/False)
 - (b) What is Taq DNA polymerase ?
 - (c) Name a natural media used in plant cell culture.
 - (d) The sheep 'Dolly' is the first mammal cloned from adult somatic cells. (True/False)
 - (e) What is a plaque hybridization ?
 - (f) Vaccine was discovered by _____. (Fill in the blank)
 - (g) Define DNA probe.
 - (h) What is the starting material in construction of genomic library ?
 - (i) Name a restriction endonuclease which produces a blunt cut.

- (j) What is a Ti Plasmid ?
- (k) _____ is the source of stem cell in adults. (Fill in the blank)
- (l) *HeLa* is a mammalian cell line. (True/False)

2. Answer the following questions very briefly :
(any four) 2×4=8

- (a) What is Golden Rice ?
- (b) What are isoschizomers ?
- (c) Name a cryoprotectant used in cell preservation.
- (d) What is electroblotting ?
- (e) What is a knock out mice ?
- (f) Define shuttle vectors.
- (g) What is annealing temperature in PCR ?
- (h) Mention the main disadvantages of YAC.

3. Answer **any three** of the following questions briefly : $5 \times 3 = 15$

- (a) How a retrovirus is used in gene transfer?
- (b) What is a microsatellite marker?
- (c) What are the characteristics of type II restriction enzymes?
- (d) Write a short note on DNA fingerprinting in crime detection.
- (e) How transgenic animals are used as bioreactors?
- (f) Write the principle of Sanger sequencing technique.
- (g) Discuss the utilities of gene therapy for human welfare.
- (h) What are the advantages of serum free media in cell culture?

4. Answer **any three** of the following questions : $10 \times 3 = 30$

- (a) What is DNA cloning? Write a note on methods of construction of large capacity vectors M13 and BAC.

$2 + 8 = 10$

- (b) Illustrate the transformation techniques by calcium chloride method and electroporation in gene manipulation. $5+5=10$
- (c) Discuss the technique of Western blotting and its applications. $6+4=10$
- (d) What is a DNA library? Discuss the method for construction of cDNA library. $2+8=10$
- (e) Who discovered PCR? What is the principle of PCR? Elaborate the use of PCR in biotechnology. $1+3+6=10$
- (f) What is transgenic plant? Write a note on insect resistant and herbicide resistant plants. $2+4+4=10$
- (g) What is Recombinant DNA technology? Discuss about the production of Recombinant insulin and human growth hormone by Recombinant DNA technology. $2+4+4=10$
- (h) What is a primary cell culture? Elaborate different procedure to develop a primary cell line. $2+8=10$