

M.Sc. Examination, 2016
Semester-III
Biotechnology
Course – XII
(Animal Biotechnology)

Time: 3 Hours

Full Marks: 40

Questions are of value as indicated in the margin.

Answer **any four** questions.

1. What do you mean by basal media in animal cell culture? Why is heat-inactivation of serum necessary before its use in cell culture media? Mention the principles of Trypan blue exclusion and MTT assay. 2+3+5=10
 2. Define and compare the following terminology: Transfection, Transformation and Transduction. What is retroviral based vectors? How does recent generation lent viral vector differ from it. 3+4+3=10
 3. What do you mean by 'totipotent' and 'pluripotent' mammalian stem cell? What are iPSCs and how are they generated from human fibroblasts? Describe Molecular Pharming with a suitable example applied in Mammalian system. 2+4+4=10
 4. (a) What is the importance of Triploidy in inland fisheries and how is it achieved? What do you mean by androgenesis and gynogenesis?
(b) Mention the principles of Bee-venom immunotherapy. (4+4)+2=10
 5. 'Spatial and temporal control on transcription and expression of sericin genes are important for the production of silk' – explain. Mention any biotechnological application of fibroin protein. 7+3=10
 6. Write short note on **any four** : 2.5×4=10
 - (a) *In vitro* fertilization
 - (b) Homeobox genes in Lepidoptera
 - (c) Probiotics in aquaculture
 - (d) Adeno associated viral based vectors (AAV)
 - (e) Biosafety cabinet
 - (f) Tetraploidy broodstock
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