

ZO-552**Animal Biotechnology****M. Sc. Zoology (MSCZO-12)****Second Year, Examination, 2017****Time : 3 Hours****Max. Marks : 80**

Note : This paper is of **eighty (80)** marks containing **three (03)** Sections A, B and C. Learners are required to attempt the questions contained in these Sections according to the detailed instructions given therein.

Section-A**(Long Answer Type Questions)**

Note : Section 'A' contains four (04) long answer type questions of nineteen (19) marks each. Learners are required to answer *two* (02) questions only.

1. Give an explanatory note on the potential of modern biotechnology in India.
2. Write an essay on animal cell tissue culture.
3. What is bioremediation ? In what ways it is good tool for environmental clean up ?
4. Write an essay on micro-organisms producing useful enzymes.

Section-B**(Short Answer Type Questions)**

Note : Section 'B' contains eight (08) short answer type questions of eight (08) marks each. Learners are required to answer *four* (04) questions only.

1. What is fermentation ? Discuss with suitable examples.
2. Write a short note on tumor cells.
3. Give a detailed account of PCR and its applications.
4. What are cell lines ? How are the growth characteristics of cell lines determined ?
5. Give a brief overview of in-vitro fertilization.
6. Describe the role of biosensors.
7. Discuss stem cells.
8. What are wastes ? How can they be used as renewable source of energy ?

Section-C**(Objective Type Questions)**

Note : Section 'C' contains ten (10) objective type questions of one (01) mark each. All the questions of this Section are compulsory.

1. The first vaccine developed from animal cell culture was :
 - (a) Influenza vaccine
 - (b) Polio vaccine
 - (c) Hepatitis B vaccine
 - (d) Small pox vaccine

2. In humans, the babies produced by in-vitro fertilization and embryo transfer were popularly called :
 - (a) Invitro- invivo babies
 - (b) Test tube babies
 - (c) Invitro babies
 - (d) All of these
3. Environmental biotechnology involves :
 - (a) The use of microbes to clean up the environment
 - (b) Bioremediation
 - (c) The study of benefit and hazards associated with GMMs
 - (d) All of these
4. First cloned animal was :
 - (a) Dog
 - (b) Sheep
 - (c) Cat
 - (d) Mule
5. In a developing embryo, stem cells can differentiate into :
 - (a) Ectoderm
 - (c) Mesoderm
 - (b) Endoderm
 - (d) All of these
6. The use of living micro-organism to degrade environmental pollutants is called :
 - (a) Nanoremediation

- (b) Bioremediation
 - (c) Microremediation
 - (d) All of these
7. Which one of the following is called as the brewers yeast ?
- (a) *Saccharomyces ludwigi*
 - (b) *Saccharomyces boulardii*
 - (c) *Saccharomyces cerevisiae*
 - (d) *Saccharomyces pastorianus*
8. Term of biotechnology used to describe aquatic and marine application is known as :
- (a) Green biotechnology
 - (b) White biotechnology
 - (c) Blue biotechnology
 - (d) Red biotechnology
9. PCR technique was discovered by :
- (a) Milstein
 - (b) Altman
 - (c) Karry Mullis
 - (d) Kohler
10. The lowest yield of ATP is in :
- (a) Aerobic respiration
 - (b) Fermentation
 - (c) Anaerobic respiration
 - (d) All of these