

[45/A-23]

SEAT No. _____

NO. OF PRINTED PAGES: 02

SARDAR PATEL UNIVERSITY
B.Sc. III Semester Examination
Thursday, 22nd November 2018
02:00 pm to 05:00 pm
Biotechnology: US03CBIT02
Applications of Biotechnology-I

Total Marks: 70

Q.1 Multiple Choice Questions.

[10]

- i) _____ is/are used for sterilization of explants in PTC.
(a) $\text{Ca}(\text{ClO})_2$ (b) HgCl_2 (c) Teepol (d) All of these.
- ii) _____ is less efficient as carbon and energy source for plants.
(a) Sucrose (b) Fructose (c) Glucose (d) None of these.
- iii) Plant tissue and cell cultured in liquid medium is called _____.
(a) Batch culture (b) Suspension culture (c) Primary culture (d) Fed batch culture.
- iv) At regular intervals, a constant volume of spent medium, without cells is withdrawn and equal volume of fresh medium is added is called _____.
(a) Fed batch culture (c) Semi continuous culture
(b) Perfusion culture (d) Sub culture.
- v) For which purpose artificial media is used in animal cell culture?
(a) Immediate and prolonged survival (c) Indefinite growth
(b) Specialized functions (d) All of the above.
- vi) _____ cells do not have the capacity to divide.
(a) Precursor cells (b) Stem cells (c) Differential cells (d) None of these.
- vii) _____ is an individual which has two or more genotypes in its body cells.
(a) Bioreactor (b) Chimera (c) Knockout mice (d) None of these.
- viii) Hela cell line is example of _____.
(a) Finite cell line (b) Continuous cell line (c) Both (d) None.
- ix) Mycorrhiza is a symbiotic association between _____.
(a) Fungus with stem (c) Fungus with leaves
(b) Fungus with fruits (d) Fungus with roots.
- x) _____ are used to manage agricultural pests by means of biological agents.
(a) Herbicides (b) Animopesticide (c) Planticides (d) Biopesticides

①

(P.T.O.)

Q.2 Answer the following questions in short. (Attempt any 10) [20]

- i) What do you mean by somaclones? Who was the first to give the idea for this?
- ii) Write a brief note on role of growth factors in plant tissue culture.
- iii) Define the term Totipotency.
- iv) Enlist the applications of animal cell culture.
- v) Write a note on chemically defined media.
- vi) What are stem cells?
- vii) Define the terms Bioreactors and Gene farming
- viii) Give a note on transgenic sheep.
- ix) Write about electroporation technique.
- x) Define heterocyst and bacterioids.
- xi) Give a flow chart for mass cultivation of azolla.
- xii) Define the terms biological control and bio control agents.

Q.3 a) Define suspension culture and write a short note on types of continuous culture. [06]
b) Give a detail note on pros and cons of PTC. [04]

OR

Q.3 Explain in detail various sterilization techniques in PTC. [10]

Q.4 a) Give an account on various types of culture media for animal cell culture. [06]
b) Write a short note on laboratory facilities for animal cell culture. [04]

OR

Q.4 a) Describe initiation of cell line. [06]
b) Explain in detail substrates used for animal cell culture. [04]

Q.5 a) How can you produce transgenic mice in lab? Explain with suitable steps. [06]
b) Explain various applications of transgenic animals. [04]

OR

Q.5 a) Give a short notes on (1) Importance of gene transfer [06]
(2) Calcium phosphate precipitation method for transfection
b) Discuss vector mediated method for gene transfer in animal cell. [04]

Q.6 a) Describe in detail the mass production of biofertilizer with its significance [06]
b) Give an account on SCP. [04]

OR

Q.6 a) Discuss in detail the process of mushroom cultivation. [05]
b) Differentiate between biopesticides and bioinsecticides with suitable examples [05]

