[107] SEAT No._____ No. of Printed Pages: 02

SARDAR PATEL UNIVERSITY

M. Sc. INDUSTRIAL BIOTECHNOLOGY (SEMESTER II) EXAMINATIONS

Day and Date: Wednesday, 20th March, 2019 **Time: 2:00 pm to 5:00 pm**

PS02CIBT22: ANIMAL AND PLANT BIOTECHNOLOGY

MAXIMUM MARKS: 70

Q.1. Select the most appropriate answer. **8x1 = 8 M**

1. Which of the following is an example of narrow range growth factor?
   (a) PDGF (b) FGF (c) EGF (d) NGF
2. The cortex region of cytoplasm is stiffer compared to internal cytoplasm in oocytes because _____.
   (a) It contains high concentrations of globular actin molecules (b) It contains cumulus
   (c) presence of Corona Radiata (d) none of the above is true
3. Which of the following is not appropriate for the use of poly-D-lysine for animal cell culture?
   (a) Poly-D-lysine is used as a growth factor
   (b) Poly-D-lysine is used as an amino acid source
   (c) Poly-D-lysine is used as an adhesive factor
   (d) Poly-D-lysine neutralizes substrate charge
4. Components of the pathogen like Lipopolysacchraide, flagellin, etc. represent
   (a) PRRs (b) PAMPs (c) adjuvants (d) both b & c are true
5. Callus can be regenerated in to the complete plantlets primarily by the altering concentration of _____.
   (a) Sugar (b) Phytohormones (c) Amino acid (d) Vitamins
6. The ability of the competent cells of callus to form a whole plant is known as _____.
   (a) Dedifferentiation (b) Redifferentiation (c) Either (a) or (b) (d) None of the above
7. _____technique was used to eliminate virus to produce virus free plants.
   (a) Shoot tip culture (b) Callus culture (c) Somatic embryo culture (d) None of the above
8. Ti plasmid vector includes _____.
   (a) Binary vector and cointegrate vector (b) Cointegrate and multiple vector
   (c) Multiple vector and binary vector (d) Ti plasmid-based vector

Q.2. Briefly answer the following questions. (Seven out of Nine) **7x 2=14 M**

1. Write the advantages and disadvantages of using serum in animal cell culture media.
2. Define following terms in the context of cell line
   (a)Finite cell line (b) Continuous cell line (c) Passage number (d) Generation number

(1) (P.T.O)

3. Why a new vaccine for influenza needs to be formulated every year? How vaccine manufacturers gets new strain of virus every year?
4. What are DNA vaccines? Give examples.
5. Write the utility of adjuvants in vaccine production.
6. Factors affecting somatic embryogenesis.
7. Write the difference between somatic and zygotic embryo.
8. What is molecular pharming?
9. Write briefly about the importance of callus.

Q.3 (a) Describe the complete protocol for the development of primary culture and subculture from embryonic tissue using cold trypsinization method. **6 M**

(b) Write the limitations of in-vitro toxicity study using cell line; and describe micro-titration assay and survival assay for toxicological analysis. **6 M**

OR

(b) Describe the physiological properties of chemically defined media with appropriate examples. **6 M**

Q.4 (a) Explain modern vaccines in comparison to conventional vaccines. **6 M**

(b) How influenza virus strain is maintained in a lab? Give the complete protocol of influenza vaccine production. **6 M**

OR

(b) Explain the detailed microscopic structure of sperm. **6 M**

Q.5 (a) List out in detail: The factor affecting androgenesis. **6 M**

(b) Justify: Plant cells as the factory of secondary metabolite production. **6 M**

OR

(b) Discuss in detail about chemical agents used for the protoplast fusion. **6 M**

Q.6 (a) Explain the electroporation mediated direct gene transfer method with its advantage and dis advantage. **6 M**

(b) Describe in detail: Role of *vir A* and *Vir G* in virulence gene expression and mechanism of signal perception by *vir A*. **6 M**

OR

(b) Explain the role of *vir* genes involved in the transfer of T-DNA in to the host cell. **6 M**

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