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SEAT No. _____

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5c

SARDAR PATEL UNIVERSITY
M.Sc (IV Semester) Biotechnology Examination (CBCS)
Monday, 18th March, 2019
10:00 am to 1:00 pm
PS04CBIT21 – Animal and Plant Biotechnology

TOTAL MARKS: 70

Q.1 Write the most correct answer for the following questions. (08 Marks)

- The use of EDTA along with trypsinization is not necessary for tissue
(a) Epidermis (b) Urinary bladder (c) Nephron (d) Adipose
- Which component of the oocyte prevents other sperm from entering the egg after the first sperm has entered
(a) Corona Radiata (b) Zona Pellucida (c) Cortical Granule (d) Vitelline envelope
- The subtypes of influenza A viruses are determined by
(a) Antigenic shift (b) Antigenic drift (c) types of H and N proteins (d) none of these
- Ceruloplasmin is involved in
(a) Transportation of Copper (c) Buffering
(b) Antitrypsin activity (d) Giving viscosity to media
- The variation in the *invitro* cultures is called as
(a) In vitro variation (b) Somaclonal variations (c) mutations (d) all of these
- Expression of _____ genes of *Agrobacterium tumefaciens* is responsible for sensing of phenolic Compounds
(a) Vir A and Vir G (b) Vir G and Vir B (c) Vir E and Vir D (d) None of these
- One of the following is not an example of cryoprotectant
(a) Glycerol (b) DMSO (c) Water (d) Ethylene Glycol
- Golden rice is a transgenic crop of the future with the following improved trait
(a) Insect resistance (c) High protein content
(b) High vitamin A content (d) High lysine content

Q.2 Answer any seven of the following questions. (14)

- Write the importance of conditioned media and feeder layer for cell culture.
- Write advantages and disadvantage of use of serum free media for the development of a cell line.
- Mention any two reasons for cryopreservation of gametes.
- Differentiate between prophylactic and therapeutic vaccination.
- Explain: To be effective, vaccine must activate innate as well as adaptive immunity.
- Describe the developmental pathway of androgenesis in the in vitro condition.
- What are different methods to isolate protoplast from plant material?
- Differentiate between somatic and zygotic embryogenesis.
- Describe in brief: somatic hybridization.

P.T.O

- Q.3 (a) Discuss the following points for development of a cell line from epithelial tissue (06)
(i) Histological organization and functions of tissue
(ii) Development of primary culture and sub-culture.
(iii) Characterization of cell line
- Q.3 (b) Write a note on use of cell lines for toxicological study. (06)
OR
- Q.3 (b) Write notes on: (06)
(i) Suspension culture
(ii) Mechanical disaggregation
(iii) Different energy sources and adhesive factors in media
- Q.4 (a) Discuss efficacy and scope of modern vaccines in comparison to traditional vaccines. (06)
- Q.4 (b) Explain the structure of ovum. List its remarkable cytoplasmic constituents with their role. (06)
OR
- Q.4 (b) Explain antigenic shift and antigenic drift occurring in influenza A virus and their effects on emergence of a new strain. (06)
- Q.5 (a) (i) What is callus? List out its significance. (03)
(ii) Explain the importance of auxin-cytokinin relation in plant tissue culture. (03)
- Q.5 (b) Describe the factor affecting the process of androgenesis. (06)
OR
- Q.5 (b) Describe the procedures for protoplasts fusion and their selection. (06)
- Q.6 (a) List out different functions of the *vir* genes of *Agrobacterium tumefaciens*. (06)
(b) Enlist methods used for direct gene transfer in plants. Explain any two methods with merits and demerits. (06)
OR
- (b) Describe about the chloroplast transformation and its application to plant improvement. (06)