2018

BIOTECHNOLOGY

BIT 302

ANIMAL BIOTECHNOLOGY

Full Marks: 80

Time: 3 hours.

The figures in the margin indicates full marks for the questions :

1. Find out the correct answer of the following questions- 1×8=8

A. The autoclave kills the microbes by

(i) dry heat (ii) moist heat

(iii) UV rays (iv) infrared rays

B. The chamber of laminar airflow hood is sterilized by

(i) infrared light (ii) ultraviolet light

(iii) microwave (iv) radio wave

C. Following are produced by animal cells in culture and help to adhese to culture dish except

(i) Glycoprotein (ii) Collagen

(iii) Phospholipase A (iv) Hyaluronic acid

D. Hybridoma is a cell formed by the fusion of

(i) Plasma cell with a plasma cell of another species

(ii) T cell with a myeloma cell

(iii) Macrophage with a myeloma cell

(iv) Plasma cell with a myeloma cell

E. Sodium bicarbonate is added to cell culture media for the following reason

(i) to help keep cells stuck to the plastic

(ii) to promote the uptake of CO_2 into animal cells

(iii) to help maintain the correct pH when CO_2 is present

(iv) it helps keep iron soluble

F. When freezing animal cells it is important to

(i) freeze as rapidly as possible

(ii) freeze slowly, at about 1 degree per minute

(iii) It is not really necessary to freeze animal cells

(iv) keep your -20°C freezer calibrated

G. During the growth of animal cells it is important to keep cells in which phase of the growth curve?

(i) stationary phase (ii) lag phase

(iii) log phase (iv) decline phase

H. L-glutamine is an important amino acid for animal cell culture because

(i) it is an amino acid

(ii) cells get much of their energy from the catabolism of L-glutamine

(iii) it is not important since it is made by some cells

(iv) it is an amine donor

2. Distinguish Between **(any three)** 4×3=12

A. Transfection and Transformation of Cells

B. Lag phase and Log growth phase

C. Primary Culture and Secondary culture

D. Basal media and serum as media

E. Characteristics of Mammary Epithelial cells and Hepatocytes

3. Write Short Notes on **(any four)** 5×4=20

A. Foetal Bovine Serum

B. Cell Line

C. Human Organ Culture

D. Cell culture technology in Vaccine production

E. Cryopreservation

F. Application of stem cells in animal health management

4. Describe the following methods with suitable illustrations **(any two)**- 8×2=16

A. Hybridoma Technology for production of monoclonal antibodies

B. Trypsinization

C. Gene Therapy

D. Sterilization

5. Answer **any two** questions from the following- 12×2=24

A. Describe the CRISPR/CAS9 technology with illustrations. What are the application areas for the technology? 8+2+2=12

B. Write the method in detail of Whole Embryo Culture in a mammalian species with suitable illustrations. 10+2=12

C. What do you mean by in vitro fertilization? Describe the method of in vitro fertilization with suitable diagram. What are the advantages and disadvantages of the technology? 2+8+2=12

D. What is fibroblast? Why fibroblast culture is done? Write the protocol of Chicken Embryo Fibroblast Culture. 2+2+8=12

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