

Roll No.

Total Printed Pages - 8

F - 1413

**CBS (Fourth Semester)
EXAMINATION, May - June., 2022
Cell Biology II
(B-401)**

Time : Three Hours]

[Maximum Marks:40

(Section - A)

(Objective/Multiple Choice Questions)

(0.5 mark each)

1. What is the function of tight junctions in epithelial cells?
 - (A) Separation of fluids
 - (B) Biocatalyst to enzymes
 - (C) Protection
 - (D) Support and structure

P.T.O.

[2]

2. Which of the following proteins are abundant in the extracellular matrix?
 - (A) Collagen
 - (B) Actin
 - (C) Myosin
 - (D) Tubulin
3. Which of the following protein is a transmembrane protein responsible for anchoring the extracellular matrix (ECM)?
 - (A) Collagen
 - (B) Fibronectin
 - (C) Integrins
 - (D) Laminin
4. Cellulose is a polymer of D-Glucose linked by :
 - (A) Alpha 1-4 linkage
 - (B) Beta 1-4 linkage
 - (C) Alpha 1-6 linkage
 - (D) Beta 1-6 linkage
5. Which of the following signal molecule is NOT used for extracellular signaling?
 - (A) Autocrine
 - (B) Endocrine
 - (C) Paracrine
 - (D) Cyclic AMP

F - 1413

[3]

6. Name the signaling which requires physical contact between the cells involved.
- (A) Paracrine signaling
 - (B) Intracellular signaling
 - (C) Autocrine signaling
 - (D) Juxtacrine signaling
7. Mark the signal molecule which does not interact with the cell surface receptors.
- (A) Insulin
 - (B) Glucagon
 - (C) Testosterone
 - (D) Gastrin
8. Name the largest family of cell surface receptor?
- (A) GPCR
 - (B) Ion-channel receptor
 - (C) Enzyme-linked receptor
 - (D) Nuclear receptor
9. Meiosis has evolutionary significance due to
- (A) Production of genetically similar cells
 - (B) Four daughter cells
 - (C) Formation of gametes
 - (D) Recombinations

F - 1413

P.T.O.

[4]

10. During cell division, the spindle fibres attached to the chromosome at :
- (A) Mid of the chromosome
 - (B) Centriole
 - (C) Kinetochore
 - (D) Telomere
11. During meiosis, synapsis occurs between:
- (A) Male & female gametes
 - (B) Two homologous chromosomes
 - (C) Two non-homologous chromosomes
 - (D) None of these
12. Bivalent chromosomes appear as tetrads during :
- (A) Zygotene
 - (B) Pachytene
 - (C) Diplotene
 - (D) Diakinesis
13. Which of the following is an active cell death process?
- (A) Apoptosis
 - (B) Necrosis
 - (C) Senescence
 - (D) Lysis

F - 1413

[5]

14. Apoptosis can't kill which of the following ?
- (A) Cell infected with viruses
 - (B) Cell with DNA damage
 - (C) Cancer cells
 - (D) Immune cells
15. Caspases belong to the class of -----
- (A) Serine proteases
 - (B) Cystine proteases
 - (C) Aspartate proteases
 - (D) Hydrolases
16. Epstein Barr virus can cause cancer by -----
- (A) Producing p53 binding protein
 - (B) Inducing cytochrome release from mitochondria
 - (C) producing anti-apoptotic protein
 - (D) Producing adaptor protein in excess
17. Analysis of a sample of DNA found that 20% of the bases were adenine. What percentage of the bases would be pyrimidines?
- (A) 20%
 - (B) 30%
 - (C) 60%
 - (D) 50%

F - 1413

P.T.O.

[6]

18. How many polynucleotide strands are found in a tRNA molecule?
- (A) 1
 - (B) 2
 - (C) 3
 - (D) 4
19. Which of the following is used to lyse the nucleus and release the DNA?
- (A) Sodium dodecyl sulfate
 - (B) Ammonium sulfate
 - (C) Ferric phosphate
 - (D) Fluorine
20. In purification steps of nucleic-acids, phenol is used for-----
- (A) Deproteinization
 - (B) Denaturation
 - (C) Lowering pH
 - (D) Lowering viscosity

F - 1413

[7]

Section - B

(Very Short Answer Type Question)

(0.75 marks each)

Note- Attempt all questions.

Define the followings-

1. Cellulose
2. Glycosaminoglycan
3. Intracine signaling
4. Ligand
5. Heterozygous
6. Interphase
7. Carcinogen
8. Cytokines
9. Probe
10. Transfection

Section - C

(Short Answer Type Question)

(1.25 marks each)

Note- Attempt all questions.

1. What is Keratan sulphate?
2. What is the function of the cell wall?
3. What is the difference between intracellular and intercellular signaling?

F - 1413

P.T.O.

[8]

4. How does the extracellular matrix control the growth of cells?
5. What are the cyclin-dependent protein kinases?
6. What do you mean by the Tumor suppressor genes?
7. What is Necrosis?
8. What do you mean by Tumor Necrosis Factor ?
9. What is the microinjection method of gene transfer?
10. What is the principle of Affinity chromatography?

Section - D

(Long Answer Type Question)

(2 marks each)

Note- Attempt any five questions.

1. Discuss different proteins involved in the intercellular contacts.
2. Describe Extracellular Matrix with suitable diagrams.
3. What is the role of G proteins in a signaling pathway?
4. Discuss different types of cell signaling.
5. Explain mitosis division with suitable diagrams.
6. Write a technical note on cell cycle regulation.
7. Discuss various types of cell death.
8. Explain the difference between Apoptosis and Oncosis.
9. Explain the principle and application of SDS-PAGE.
10. Discuss methods of DNA extraction and quantitation.

F - 1413