DCW-003-2011014 Seat No. _____

B. Sc. (Sem. I) (CBCS) (W.E.F. 2019) Examination

August - 2022

BT-101 : Introduction to Biotechnology & Cell Biology

Faculty Code : 003
Subject Code : 2011014

Time : $2\frac{1}{2}$ Hours] [Total Marks : **70**

1 (a) Answer the following : **4×1**

(i) Who is father of Biotechnology?

(ii) What do you mean by classical biotechnology? Give one example.

(iii) Give any one example of Genetically modified Crop.

(iv) Application of biotechnology procedures in medical processes is classified as _____.

(b) What is current status of biotechnology in India? **1×2**

(c) Briefly explain medical application of Biotechnology. **1×3**

(d) Write short note on Recombinant DNA technology with one example. **1×5**

2 (a) Answer the following **4×1**

(i) Write definition of Biotechnology.

(ii) Write any two applications of biotechnology in field of medical.

(iii) What do you mean by Blue Biotechnology.

(iv) Field of biotechnology which is applied to industrial processes is known as _____.

(b) Which are the major ethical and social issues of Biotechnology. **1×2**

(c) Explain application of Biotechnology in Environment with one example. **1×3**

(d) Briefly write history of Biotechnology. **1×5**

3 (a) Answer the following : **4×1**

(i) Define prokaryotic cell.

(ii) Identify the phenomenon of life : "Ability to change over a periods of time"

(iii) What is major difference between light microscopy and Electron microscopy.

(iv) Which organelles present only in plant cell.

(b) Draw well labeled diagram of animal cell. **1×2**

(c) Give statements of Modern Cell Theory. **1×3**

(d) Describe major phenomenon of life. **1×5**

4 (a) Answer the following : **4×1**

(i) Cell wall of bacteria is made up of _____

(ii) List the elements acting as constituents of Macromolecules.

(iii) Write role of conjugation Pili.

(iv) Bacterial Flagella is made up of _____ protein.

(b) Draw labeled diagram of Bacterial Flagella. **1×2**

(c) Describe different arrangements of Bacilli with diagram. **1×3**

(d) Explain gram positive and gram negative bacterial cell wall with diagram. **1×5**

5 (a) Answer the following : **4×1**

(i) What is major function of Chloroplast?

(ii) Define Passive transport of molecule.

(iii) What is composition of plant cell wall.

(iv) Cytochemical, staining differentiate GA in to two parts_____.

(b) Write four differences between RER & SER. **1×2**

(c) Explain structure of plant cell wall. **1×3**

(d) Briefly explain different types of lysosome with diagram. **1×5**

6 (a) Answer the following : **4×1**

(i) What is major function of Mitochondria?

(ii) _____ ribosome is present in prokaryotes, while _____ ribosome is present in Eukaryotes.

(iii) What is function of peroxisome?

(iv) What is composition of Ribosome?

(b) Draw diagram of Chloroplast and explain in 2-3 lines. **1×2**

(c) Briefly explain structure of Mitochondria. **1×3**

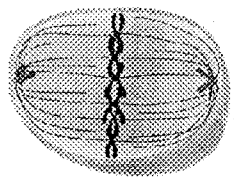
(d) Explain Fluid Mosaic Model of cell Membrane. **1×5**

7 (a) Answer the following : **4×1**

(i) What is difference between DNA & Chromatin.

(ii) Meiosis, is the form of eukaryotic cell division that produces two sex cells or gametes from one parent cell. True or False

(iii) This cell is in which of the stage?



(iv) What is full form of CDK.

(b) Write major events of interphase. **1×2**

(c) Write note on cell cycle. **1×3**

(d) Explain mitotic cell division with diagram. **1×5**

8 (a) Answer the following : **4×1**

(i) DNA replication occurs in _____ phase of interphase.

(ii) Draw meta centric chromosome.

(iii) Spindle fibers attach to _____ in the chromosome.

(iv) Which check points play important role in the cell cycle regulation?

(b) Draw Metaphase of Mitosis and Meosis I. **1×2**

(c) Briefly explain different stages of prophase I of meiosis with diagram. **1×3**

(d) Explain Nucleus structure. **1×5**

9 (a) Answer the following : **4×1**

(i) What is major function of Cytoskeleton?

(ii) Microtubules are formed of the protein named ____

(iii) What is full form of MTOC?

(iv) Name the any one junction present in each of the plant cell and animal cell.

(b) What is difference between malignant tumor and benign tumor of cancer ? **1×2**

(c) Explain briefly tight junction involved in cell interaction with example. **1×3**

(d) Describe amoeboid type of cellular movement with diagram. **1×5**

10 (a) Answer the following : **4×1**

(i) Microtubules, of a dividing cell form the mitotic spindle. True / False

(ii) What is the main cause of cancer?

(iii) Which parts of the cell helps in locomotion in eukaryotic cell.

(iv) Define stem cell.

(b) What is composition of eukaryotic flagella and cilia? **1×2**

(c) Write composition and structure of microtubule. **1×3**

(d) Write brief note on Stem cells and its types. **1×5**