



**PBM-003-001110**

Seat No. \_\_\_\_\_

**B. Sc. (Sem. I) (CBCS) Examination**

November / December - 2018

**Biotechnology : BT - 101**

**(Introduction to Biotechnology and Cell Biology)**

*(Old Course)*

**Faculty Code : 003**

**Subject Code : 001110**

Time :  $2\frac{1}{2}$  Hours]

[Total Marks : 70

- Instructions :** (1) All questions are compulsory.  
(2) The right side figure indicates total marks of the question.  
(3) Draw the figure wherever necessary.

1 Objective type questions : 20

- (1) In DNA double helix, the two DNA chains are held together by \_\_\_\_\_.
- (2) The common word for bacteria which are helically curved rods is \_\_\_\_\_.
- (3) According to base pairing rules the bases of one strand match-up with the bases of the second strand of DNA and the two strands are said to be \_\_\_\_\_ of each other.
- (4) The protein from which hook and filaments of flagella are composed of, is \_\_\_\_\_.
- (5) Cells that exist in more than one shape are known as \_\_\_\_\_.
- (6) Penicillin was first discovered by \_\_\_\_\_.
- (7) In eukaryotic cells, ribosomes have \_\_\_\_\_ Svedberg unit.

- (8) The fluid contained in the mitochondria is called the \_\_\_\_\_.
- (9) A nucleotide consists of a \_\_\_\_\_, \_\_\_\_\_ and \_\_\_\_\_.
- (10) \_\_\_\_\_ is also known as linker histone.
- (11) During \_\_\_\_\_ stage of development, the three primary tissue layers first appear.
- (12) \_\_\_\_\_ phase of mitosis is associated with chromosomes alignment at the centre of the cell and centromeres divide.
- (13) In the cell cycle replication of the genome occurs in the \_\_\_\_\_ phase.
- (14) Cancers originating from connective tissues, bones, muscles, fat and blood vessels is called \_\_\_\_\_.
- (15) \_\_\_\_\_ pyrimidine base contains an amino group at carbon 4.
- (16) In humans, the stem cells from which all blood cells arise are found in the \_\_\_\_\_.
- (17) The arrangement, in which flagella are distributed all-round the bacterial cell, is known as \_\_\_\_\_.
- (18) The phenomenon of growth of blood vessels in the direction of tumors is called \_\_\_\_\_.
- (19) Cell signals with short-lived local effects are called \_\_\_\_\_.
- (20) Swimming of bacteria in response to chemical is known as \_\_\_\_\_.

**2** (a) Write any **three** out of six :

**6**

- (1) Give definition of Biotechnology.
- (2) Enlist various shapes of bacteria.
- (3) What are the functions of peroxisomes ?
- (4) Explain nucleosome.
- (5) What are stem cells ?
- (6) Explain zona pellucida and give its importance.

(b) Write any **three** out of six : **9**

- (1) Give a status and future of biotechnology in developing country.
- (2) Briefly describe Miller's experiment.
- (3) Discuss differences between cell wall of Gram positive and Gram negative bacteria.
- (4) Write a note on ribosomes.
- (5) Short note on mitosis.
- (6) What is oogenesis ? Discuss in short.

(c) Write any **two** out of five : **10**

- (1) Application of biotechnology in the field of agriculture.
- (2) Short note : Electron microscopy.
- (3) Describe in detail cytoskeleton.
- (4) Short note : DNA packaging in Eukaryotes.
- (5) What is Cancer ? Write a detail note on it.

**3** (a) Write any **three** out of six : **6**

- (1) Give any two applications of biotechnology in the field of medicine.
- (2) What is numerical aperture ?
- (3) Draw a labelled diagram of mitochondria.
- (4) What are lampbrush chromosomes ?
- (5) What is capacitation of sperm ? Give its importance.
- (6) What is metastasis ?

(b) Write any **three** out of six : **9**

- (1) Application of biotechnology in the field of environment.
- (2) Give classification system of prokaryotes.
- (3) Short note : Fluid mosaic model.
- (4) Short note : Fluorescence microscopy.
- (5) Short note : Meiosis.
- (6) Discuss early embryonic development in short.

(c) Write any **two** out of five : **10**

- (1) Write a note on ethical and social issues related to biotechnology.
  - (2) Explain cell theory in detail.
  - (3) Explain the structure of cell wall.
  - (4) Discuss cell cycle in detail.
  - (5) Explain cell-cell interaction.
-