

**General Instructions:**

1. Question paper consists of 15 questions.
2. The question numbers 1 to 3 carries 1 mark, 4 to 6 carries 2 marks, 7 to 13 carries 3 marks and 14 and 15 carries 5 marks.
3. All questions are compulsory. However, there is an internal choice in one 3 marks question and 5 marks question. You have to attempt any one of the choices.

1. Name the polymer which makes the exoskeleton of insects. (1)

2. Write the function of polysomes. (1)

3. Given figure is the representation of a certain event at a particular stage of a type of cell division. Write the type of cell division and the stage. (1)



4. Write one difference between apoenzyme and co-enzyme. (2)

5. Mr. Shetty was diagnosed with intestinal cancer. His doctor explained that it was due to abnormal growth of cells in the digestive tract. (2)

- (a) As a biology student what do you understand from the words 'abnormal growth of cells'?
- (b) Is normal growth of cells different from its abnormal growth? Justify your answer by writing a scientific reason.

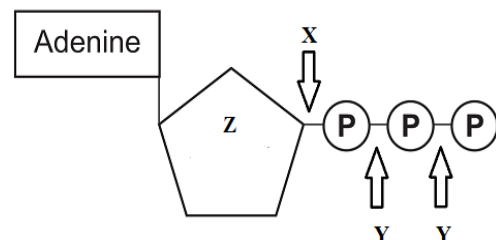
6. Name the following structures of a cell: (2)

- (a) An organelle within an organelle.
- (b) The flattened membranous sacs forming the grana of chloroplasts.

7. (a) Identify the molecule from the given diagrammatic structure. (3)

- (b) Draw the base pairing of given figure and label the parts labeled as X, Y and Z from the given figure.

(c) Write the function of this molecule.



8. Why is meiosis II necessary to complete meiosis? Explain. (3)

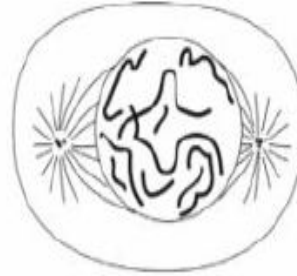
9. Write scientific reason for the following statements: (3)

- (a) Oil generally remains in liquid state even in winters.
- (b) Proteins are called biological polymers.
- (c) Starch in plants and glycogen in animals is more suitable than glucose as storage product.

10. Explain the following statements:- (3)  
 (a) Mitochondria are lacking in anaerobic organisms.  
 (b) Mitochondria are called semi autonomous organelles.
11. Which stages of cell division do the following figures A and B represent respectively? Compare the figures and list two major differences between them. (3)



A



B

12. Classify the chromosome types based on the centromere and explain each. (3)
13. DNA is the genetic material of almost all organisms. (3)  
 (a) Explain why is it so?  
 (b) Write the name of two organisms whose genetic material is not DNA.
14. Describe the ultra structure and function of (a) Nucleus (b) ER. (5)
15. Draw the cell cycle and explain the various events of the cycle. (5)