

Reg.No.....
Name.....

FYCBTA22/6

FIRST YEAR HIGHER SECONDARY PRE MODEL EXAMINATION

Part – III
BIOLOGY
PART – A: BOTANY
(Maximum: 30 Scores)
Cell cycle and cell division

Time: I Hour
Cool-off time: 10 Minutes

PART I

Answer any seven questions from 1 to 10. Each carries 1 score.

(7x1=7)

1. Select the stage of interphase during which DNA synthesis takes place.

(a) *G₁ phase*

(b) *S phase*

(c) *G₂ phase*

(d) *G₀ phase*

2. Observe the relationship of the first pair and fill in the blank.

Meiosis: *Reduction division*

Mitosis: _____

3. During metaphase spindle fibres attach to _____ of the chromosome.

4. What is synapsis?

5. Select the stage at which morphology of chromosomes is most easily studied.

(a) *Prophase*

(b) *Metaphase*

(c) *Anaphase*

(d) *Telophase*

6. The enzyme involved in crossing over is _____

7. Observe the given relationship and fill in the blank

Division of nucleus: *Karyokinesis*

Division of cytoplasm: _____

8. Identify the stage of mitosis from the hints given below:-

- Centromeres split and chromatids separate.
- Chromatids move to opposite poles.

9. What is interkinesis?

10. What is the average cell cycle span for a human cell?

PART II

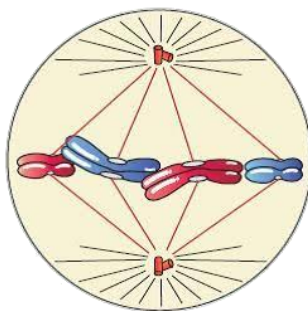
Answer any seven questions from 11 to 20. Each carries 2 scores.

(7x2=14)

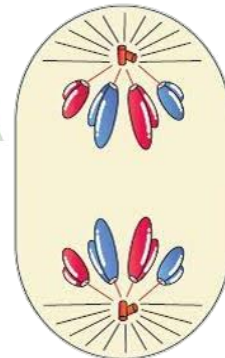
11. Match the following:-

(A) G ₂ phase	(1) Inactive stage
(B) S phase	(2) Resting phase
(C) Interphase	(3) Centriole duplicates
(D) G ₀ phase	(4) Protein synthesis

12. Identify the stage A and B of Mitosis given below.

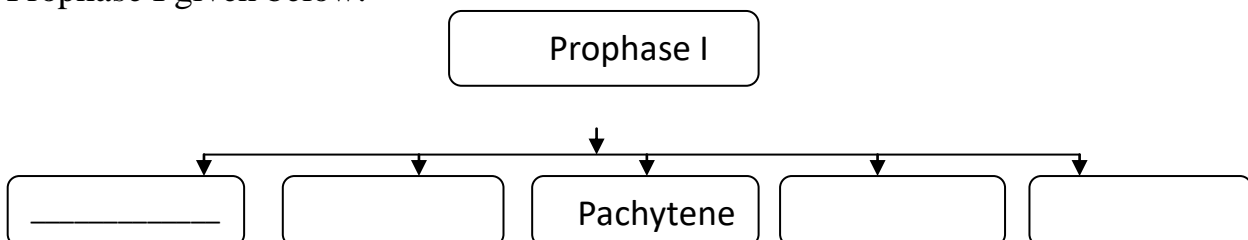


A



B

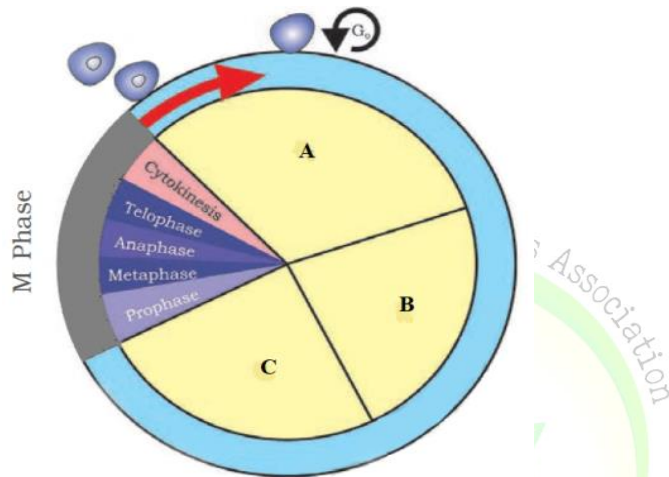
13. Prophase I has been further subdivided into the five phases. Complete the flow chart of Prophase I given below.



14. List the four stages of karyokinesis of mitosis.

15. Write any two significance of mitosis.

16. Observe the diagram of cell cycle given below.



- (a) Identify the stages A, B and C of the cell cycle.
(b) Which stage of the cell cycle is quiescent stage?

17. Define syncytium.

18. Describe the following:-

- (a) *bivalent* (b) *chiasmata*

19. A cell has 16 chromosomes in its G₁ phase.

- (a) What will be the chromosome number after S phase?
(b) What will be the DNA content after S phase, if the initial amount of DNA denoted as 2C ?

20. State any two events of prophase of mitosis.

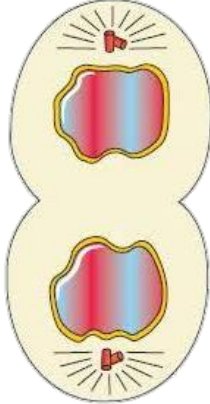
PART III

Answer any three questions from 21 to 25. Each carries 3 scores.

(3x3=9)

21. Write any three significance of Meiosis.

22. Diagram of a stage of mitosis is given below.



(a) Identify the stage

(b) Write any two peculiarities of this stage.

23. How does cytokinesis in plant cells differ from that in animal cells?

24. Distinguish anaphase of mitosis from anaphase I of meiosis.

25. Different events of meiosis are given below. Write its stage.

	Events	Stages
(a)	<i>Formation of synaptonemal complex</i>	
(b)	<i>Chromosomes gradually visible under the light microscope</i>	
(c)	<i>Appearance of recombination nodules</i>	
(d)	<i>Dissolution of the synaptonemal complex</i>	
(e)	<i>Terminalisation of chiasmata.</i>	
(f)	<i>Chromosomes are moved to spindle equator</i>	

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