



24. Give an account of mitotic interphase.
25. List the functions of lysosomes.
26. Draw the diagram of a plant cell and label the membrane bound cell organelles.  
(Weightage : 6x2=12)

## SECTION – E

Answer **any one**. (Essay type questions. **Each** question carries a weightage of 4)

27. Name the cell organelles that contain DNA. Describe their structure with the help of well labeled diagrams.
28. Explain the events that occur during prophase I of meiosis. Draw neatly labeled diagrams of each stage.
29. Define aneuploidy. Describe the different types studied by you. (Weightage : 1x4=4)



Reg. No. : .....

Name : .....

**V Semester B.Sc. Degree (CCSS-Reg./Supple./Impro.)**  
**Examination, November 2015**  
**Core Course in Botany/Plant Science**  
**5B09 BOT /PLS : CELL BIOLOGY**  
**(2012 Admn. Onwards)**

Time : 3 Hours

Total Weightage : 30

**Instruction : Draw Diagrams wherever necessary.**

## SECTION – A

Answer **all** (Questions in bunches of **four**. **Each** bunch carries a weightage of 1)

1. Choose the correct answer :

- i) Which of the following is an exception to the cell theory ?
- |                      |                   |
|----------------------|-------------------|
| a) Bacteria          | b) Bacteriophages |
| c) Microscopic fungi | d) Phytoplanktons |
- ii) According to the Fluid Mosaic model, the correct sequence of protein and lipid layers in cellular membranes is
- |            |            |
|------------|------------|
| a) L P P L | b) L P L P |
| c) P P L L | d) P L L P |
- iii) Which among the following is an inter chromosomal structural aberration ?
- |                  |                |
|------------------|----------------|
| a) Deletion      | b) Duplication |
| c) Translocation | d) Inversion   |
- iv) In chloroplasts, chlorophyll is located in the
- |           |                |
|-----------|----------------|
| a) Grana  | b) Inter grana |
| c) Stroma | d) All these   |



2. State **true** or **false** :

- i) In a living plant cell, cell wall is a nonliving structure.
- ii) Mitotic phase is the longest phase in the cell cycle.
- iii)  $2n-1$  represents the chromosome make up of a monosomic.
- iv) The subunits of prokaryotic ribosomes are 50S and 30S.

3. Fill in the blanks :

- i) \_\_\_\_\_ syndrome is an example for autosomal trisomy.
- ii) The terminal part of a chromosome is known as \_\_\_\_\_
- iii) The membrane surrounding the vacuole is called the \_\_\_\_\_
- iv) In \_\_\_\_\_, DNA is not complexed with histone proteins.

4. Answer in **one** word or **one** sentence :

- i) Who proposed the Unit membrane concept of plasmamembrane ?
- ii) What is a polysome ?
- iii) Name the region in chromosomes where nucleolus is formed.
- iv) Define polyteny.

5. Select from column **B** and **C** to match column **A**

A	B	C
i) Mitochondrion	Single membrane bound and polymorphic	Transcription
ii) Lysosome	Not membrane bound	Respiration
iii) Nucleus	Double membrane bound and cylindrical	Cellular digestion
iv) Ribosome	Double membrane bound and spherical	Translation

**(Weightage : 5x1=5)**

#### SECTION – B

Distinguish between **any four** of the following. **Each** question carries a weightage of 1

6. Paracentric and pericentric inversion.

7. Monosomy and double monosomy.



8. Chromomere and centromere.
9. Karyokinesis and cytokinesis.
10. Oxysomes and peroxisomes.
11. Heterochromatin and euchromatin.

**(Weightage : 4x1=4)**

#### SECTION – C

Answer **any five**. (Short answer questions. **Each** question carries a weightage of 1)

12. Define nullisomy. Give the chromosome constitution of a nullisomic.
13. Mention the significance of chiasmata.
14. What are secondary lysosomes ?
15. What is a bivalent ? At what stage can you see a bivalent ?
16. Give an account of histone proteins associated with DNA.
17. Explain endomitosis. What is its consequence ?
18. Give the zygotic number of a plant with 7 pairs of chromosomes. What will be the chromosome number in a nullisomic and trisomic produced from this plant ?

**(Weightage : 5x1=5)**

#### SECTION – D

Answer **any six** (Short answer questions. **Each** question carries a weightage of 2)

19. Give an account of crossing over. Mention its significance.
20. Write a note on chromosome puffs.
21. Explain the different types of meiosis.
22. Draw the diagram of mitotic metaphase and mitotic anaphase in a diploid cell with 12 chromosomes, showing the following characteristics : two pairs metacentric, two pairs submetacentric, one pair acrocentric and the remaining telocentric.
23. Write about the fine structure of cell wall. Add a note on different layers of cell wall.