



SECTION – D

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

19. Mitosis is an equational cell division. Substantiate.
20. Give a neat diagram of a chloroplast. Label grana, stroma, fret, thylakoid and membranes.
21. Explain the primary structure of proteins with the help of illustrations.
22. Write a note on peroxisomes. Mention their functions in the cell.
23. Explain cell cycle.
24. What do you know about chromosome puffs ?
25. List anomalous features of a Turner's syndrome victim.
26. Draw the structure of ATP and name the components. (6×2= 12)

SECTION – E

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

27. Give a detailed account of the chemistry and structure of DNA.
28. With the help of suitable diagrams, describe the various stages of mitosis in a cell with $n = 4$.
29. Describe the structure and organisation of salivary gland chromosomes of *Drosophila*. (1×4= 4)



Reg. No.:

Name:

IV Semester B.Sc. Degree (CCSS-Regular/Suppl./Imp.)
Examination, May 2014
Core Course in Botany
4B04BOT/PLS : THE ORIGIN OF LIVING THINGS : BIOMOLECULES
AND CELL BIOLOGY
(2011 and Earlier Admn.)

Time : 3 Hours

Total Weightage : 30

SECTION – A

Answer **all** questions in bunches of **four**. Each bunch carries a weightage of 1.

1. Choose the correct answer.
 - i) Which among the following is a secondary bond ?

a) Co valent bond	b) Co ordinate bond
c) Ionic bond	d) Hydrogen bond
 - ii) The components of a nucleoside are

a) Sugar and phosphoric acid	b) Sugar and nitrogen base
c) Nitrogen base and phosphoric acid	d) Sugar, nitrogen base and phosphoric acid
 - iii) The organelle found both in prokaryotes and eukaryotes is

a) Ribosome	b) Mitochondrion
c) Golgi apparatus	d) Endoplasmic reticulum
 - iv) Anticodon is a sequence of three bases found in

a) Messenger RNA	b) Ribosomal RNA
c) Transfer RNA	d) DNA



2. i) Choose the correct statement. The DNA in prokaryotes is structurally
- Similar to that in eukaryotes and are bound to basic proteins
 - Not similar to that in eukaryotes but are bound to basic proteins
 - Similar to that in eukaryotes and are not bound to basic proteins
 - Not similar to that in eukaryotes and are not bound to basic proteins
- ii) Which of the following is universally found in all living cells ?
- Cell wall
 - Cell membrane
 - Nucleus
 - Chloroplasts
- iii) Choose the correct elemental composition of proteins from the following.
- C,H,O,N,P
 - C,H,O,N
 - C,H,O,P
 - C,H,O,N,S
- iv) Anastral mitosis is characteristic of
- Plant cells
 - Animal cells
 - Bacterial cells
 - Viruses
3. State **true** or **false** :
- Chromosome no. in aneuploids is in exact multiples of haploid numbers.
 - The first formed wall in a plant cell is the middle lamella.
 - One molecule of fat contains one fatty acid and one glycerol.
 - The term coacervate was first used by Alexander Oparin.
4. Fill in the blanks :
- The colourless plastids storing starch in tubers are called _____
 - The amount of DNA in a dividing cell gets doubled during _____ of interphase.
 - _____ is also known as invert sugar.
 - In the primitive earth, evolution of _____ occurred prior to evolution of living things.



5. Rearrange column **B** and **C** to match column **A**.

	A	B	C
i	DNA	Nucleotide polymer	Plant cell wall
		Nitrogenous compound	
ii	Protein	Glucose polymer	Ribosomes
		Blue print of life	
iii	RNA	d-Nucleotide polymer	Product of gene action
		Structural carbohydrate	
iv	Cellulose	Amino acid polymer	Chromosomes
		Protein synthesis	

(5×1=5)

SECTION – B

Compare and contrast **any four**. **Each** question carries a weightage of **1**.

- Monosomic and double monosomic.
- Paracentric and pericentric inversion.
- Sucrose and maltose.
- Chromomere and telomere.
- Plant cell and animal cell.
- Bond length and bond strength.

(4×1=4)

SECTION – C

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

- What is c value ?
- What do you mean by a homopolysaccharide ?
- Define a zwitterion.
- Expand PUFA. Name one.
- In a diploid plant with 14 chromosomes, if aneuploidy is induced, what will be the chromosome no. in a nullisomic and a trisomic ?
- Illustrate the chemical bonding between the components in a sucrose molecule.
- What do you mean by sex chromosomal trisomy ? Give an example.

(5×1=5)