**PART A**

1. The movement of water across a selectively permeable membrane occurs via phenomenon called\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Osmosis
3. active transport
4. diffusion
5. transport
6. According to Beer–Lambert law, solute’s absorbance A= log (Io/I) = KCL, where K is the Molar extinction coefficient constant, and L is the Path of light through the coloured solution. Then, what are Io, I and c?
7. The intensity of Incident light, the intensity of transmitted light, permittivity
8. The intensity of incident light, the intensity of transmitted light, solute concentration
9. The intensity of transmitted light, Intensity of Incident light, rate constant
10. The intensity of transmitted light, Intensity of Incident light, solute concentration
11. In the paper chromatography experiment performed, which of the following combination of solvents was used as a mobile phase for separating the pigments?
12. Petroleum ether, acetone, and methanol
13. Acetone, water, and methanol
14. Petroleum ether, water, and methanol
15. Acetone, water, and petroleum ether
16. Which of the following organism does not contain chloroplast?
17. Euglena
18. Rhizopus
19. Spirogyra
20. Volvox
21. Glucose has a free \_\_\_\_\_\_\_\_\_\_
22. Carboxylic group
23. Amide group
24. Aldehyde group
25. Sulfide group
26. What is the role of blank in the Protein estimation experiment?
27. To nullify the absorbance of all reagents except the required product generated
28. To subtract the absorbance of pure water used during the experiment
29. To minimize the concentration of Reagent A and B alone
30. To get a straight line in graph
31. Pick the one that is not involved in Protein estimation experiment:
32. Colorimeter
33. CuSO4.5H2O
34. MgSO4
35. Na2CO3
36. Which of the following organisms are non-flagellated?

I. Rhizopus II. Volvox III. Spirogyra IV. Euglena

1. I and II
2. II and III
3. I and III
4. II and IV
5. The relationship between concentration versus optical density follows \_\_\_\_\_\_\_\_\_\_\_ pattern
6. Sigmoid
7. Hyperbola
8. Linear
9. Parabola
10. In Biuret’s reaction, under what conditions does the nitrogen present in the proteins form chelates with copper ions by reduction of cupric ions (Cu2+) to cuprous ions (Cu+).
11. Acidic conditions
12. Alkaline conditions
13. Neutral condition
14. The reaction is not influenced by pH
15. Euglena is \_\_\_\_\_\_\_\_\_\_\_
16. Ciliate
17. Sporozoan
18. Flagellate
19. Sarcodine
20. Which protein used in Lowry method for standard curve?
21. BSA (Bovine Serum Albumin)
22. Bovine Casein
23. Histidine
24. Chlorophyll
25. Which hormone plays key role to maintain glucose level in blood?
26. Cortisol
27. Insulin
28. Estrogens
29. Dopamine
30. Stomatal openings in plants are made up of \_\_\_\_\_\_\_\_\_.
31. Defender cells
32. Guard cells
33. Protector cells
34. Custodian cells
35. Enzymatic method of glucose estimation uses,
36. Glutathione oxidase
37. Glucose oxidase
38. Superoxide dismutase
39. Phenol oxidase
40. What makes the Biuret reagent purple?
41. Peptide bonds
42. phosphodiester bond
43. Hydrogen bond
44. Glycosidic bond
45. The sequence of separation of chlorophyll pigments based on the retention factor is \_\_\_\_\_\_\_.
46. Carotene< Xanthophyll< Chlorophyll a< Chlorophyll b
47. Carotene< Xanthophyll< Chlorophyll b< Chlorophyll a
48. Carotene< Chlorophyll a < Xanthophyll< Chlorophyll b
49. Xanthophyll< Chlorophyll a< Chlorophyll b < Carotene
50. Carbohydrates with 4 carbon atoms and ketone group are called as \_\_\_\_\_\_\_\_\_\_
51. Aldopentoses
52. Ketohexoses
53. Ketotetrose
54. Aldotetrose
55. Which of the following is not part of the immobile phase in a chromatography experiment?
56. Silica gel
57. Polyethylene glycol
58. Acetone
59. Cellulose
60. According to the Beer-Lambert Law, which of the following parameter is independent of the incident light?
61. The amount of light transmitted through the sample
62. solution concentration
63. The amount of coloured material in the light path
64. The nature of the substance
65. List the correct statement
66. Chlorophyll absorbs the blue and red light, and transmit or reflect green light
67. Chlorophyll absorbs the blue and green light, and transmit or reflect green light
68. Chlorophyll absorbs the green light, and transmit or reflect blue and red light
69. Chlorophyll absorbs the green light, and transmit or reflect blue and green light
70. Chlorophyll consists of a tadpole-like structure with a porphyrin head. Which ion is present at the center of the Porphyrin head?
71. Ca2+
72. Mg2+
73. Fe2+
74. Hg2+
75. Beer and Lambert’s law: A= KCL. An analyte at a concentration of 5.0 x 10-3 M gives an absorbance of 0.50 at a specific wavelength and a cell path length of 1.00 cm. What is the Molar extinction coefficient constant?
76. 100 M-1 cm
77. 100 M cm
78. 100 M-1 cm-1
79. 100 M cm-1

1. Retention Factor (Rf) of a substance in a sample mixture is \_\_\_\_\_\_\_\_\_.
2. Distance traveled by substance or solute/ distance traveled by the solvent
3. Distance traveled by solvent/ distance traveled by substance
4. Distance traveled by the substance A / distance traveled by substance
5. Solubility measure of the sample mixture in the aqueous medium
6. Diabetes mellitus, the condition in which blood glucose levels are \_\_\_\_\_\_\_\_\_\_\_
7. Elevated (hyperglycemia)
8. Lowered (hypoglycemia)
9. Maintained
10. Uncertain
11. What are the predominant chlorophyll pigments found in higher plants?
12. Chlorophyll a and b
13. Chlorophyll d and e
14. Chlorophyll c and b
15. Chlorophyll a and e
16. What is the mode of sexual reproduction seen among Rhizopus fungi?
17. Zygospore
18. Ascospore
19. Basidiospore
20. No known mechanism of sexual reproduction
21. Which of the following is not a component of a microscope?
22. Objective bulb
23. Eye piece
24. Objective lens
25. Sample stage

1. Mode of nutrition of Rhizopus is
2. Parasitic
3. Symbiotic
4. Saprophytic
5. Autotrophic

1. The brownish color of the solution formed in glucose estimation experiment is due to the presence of:
2. Cupric oxide
3. Sodium potassium tartrate
4. Cuprous oxide
5. Phosphomolydic acid.
6. Match the following.
7. Hypertonic a) has the same solute concentration compared to that in a cell
8. Hypotonic b) has a higher solute concentration compared to that in a cell
9. Isotonic c) has a lower solute concentration compared to that in a cell
10. 1)-b, 2)-c, 3)-a
11. 1)-c, 2)-b, 3)-a
12. 1)-a, 2)-b, 3)-c
13. 1)-b, 2)-a, 3)-b
14. Lateral conjugation in Spirogyra leads to formation of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
15. Two filaments
16. One filament
17. Many filaments
18. Three filaments
19. Glucose is a reducing sugar, because \_\_\_\_\_\_\_\_\_
20. It has a free ketone group which is readily oxidized to gluconic acid at neutral pH by mild oxidizing agents.
21. It has a free aldehyde group which is readily reduced to gluconic acid at neutral pH by mild oxidizing agents.
22. It has a free aldehyde group which is readily reduced to gluconic acid at high pH by mild oxidizing agents.
23. It has a free aldehyde group which is readily oxidized to gluconic acid at neutral pH by mild oxidizing agents.
24. At which wavelength absorption maxima is observed for protein samples?
25. At 680nm
26. At 570nm
27. At 640nm
28. At 550nm
29. Each stoma in leaves of plants is formed by \_\_\_\_\_\_\_\_\_\_\_\_.
30. One guard cell
31. Two guard cells
32. Three guard cells
33. Four guard cells

1. Smith has turned up late to the class and forgot to bring his lab manual. He has Folin-Ciacolteu, Biuret solution (Sodium salts), working standard, and water on his working bench. His team members already added the required water and working standard solution to the test tubes. Help him identify the right order of protocol in estimating protein using Lowry’s method.
2. 5ml of Biuret solution, Incubation: 10mins, 0.5ml of Folin-Ciacolteu, Incubation: 20mins, OD at 640nm
3. 5ml of Biuret solution, Incubation: 10mins, 0.5ml of Folin-Ciacolteu, Incubation: 20mins, OD at 410 nm
4. 5ml of Folin-Ciacolteu, Incubation: 10mins, 0.5ml of Biuret Solution, Incubation: 20mins, OD at 640 nm
5. 5ml of Folin-Ciacolteu, Incubation: 10mins, 0.5ml of Biuret Solution, Incubation: 20mins, OD at 410 nm
6. Adaptations in plants to prevent excess water loss are:

I. Stomata II. Wax lining III. Protoplasmates IV. Pellicle

1. I and II
2. II and III
3. III and IV
4. IV and I
5. Which chlorophyll pigment(s) is/are absent in blue-green algae and red algae?
6. Chlorophyll a and c
7. Chlorophyll a, c, and d
8. Chlorophyll b and c
9. Chlorophyll b
10. Which of the following organism forms spherical colonies?
11. Rhizopus
12. Volvox
13. Spirogyra
14. Euglena
15. Excess glucose is stored as \_\_\_\_\_\_\_\_\_\_\_ in animals and as \_\_\_\_\_\_\_\_\_\_\_\_ in plants.
16. Glycogen, Starch
17. Starch, Glycogen
18. lactose, maltose
19. Sucrose, Starch
20. While studying the phenomenon of plasmolysis in onion peel, you place the onion peel in a hypertonic solution. What kind of morphological change do you visualize in the cells?
21. Protoplasm of the cell shrinks, leaving gaps between the cell wall and the membrane.
22. The cell wall bursts due to turgor pressure
23. Protoplasm of the cell swells up, leaving no gaps between the cell wall and the membrane.
24. No changes
25. If a cell is placed in a solution whose osmotic concentration is equal to that in a cell, then
26. Water moves outside the cell
27. Cell undergoes shrinkage
28. Water moves inside the cell
29. There is no net movement of water
30. Which of the following reactions leads to a blue-colored complex, while estimating protein concentration by Lowry’s method?
31. Reduction of copper sulfate
32. Oxidation of phosphomolybdate
33. Reduction of phosphomolybdate
34. Oxidation of sodium
35. Which one of the following is most hydrophilic in nature? Answer the question based on your understanding of the experiment, “separation of four main pigments using paper chromatography”.
36. Chlorophyll a
37. Chlorophyll b
38. Xanthophyll
39. Carotene
40. The compound that gives positive results for Fehling's solution test is:
41. Sucrose
42. Glucose
43. Protein
44. Starch
45. The cell walls of Spirogyra consist of \_\_\_\_\_\_\_\_
46. Cellulose & Pectin
47. Cellulose & Chitin
48. Only Cellulose
49. Only Chitin
50. Choose the appropriate option.
51. Cytorrhysis is reversible and occurs due to loss in internal pressure.
52. Cytorrhysis is irreversible and occurs due to loss in internal pressure.
53. Cytorrhysis is reversible and occurs due to increase in internal pressure.
54. Cytorrhysis is irreversible and occurs due to increase in internal pressure
55. Fill the blanks with the most appropriate set of words.

In plasmolysis, \_\_\_\_\_\_\_ moves away from cell wall due to \_\_\_\_\_\_ of water.

1. Vacuole, Loss
2. Chloroplast, Gain
3. Plasma membrane, Loss
4. Vacuole, Gain
5. After performing paper chromatography, four different chlorophyll pigments, a, b, c, and d, had Rf values of 0.72, 0.47, 0.87, and 0.53, correspondingly. Determine the solubility order of the pigments in the mobile phase used in paper chromatography.
6. c<a<d<b
7. b>a>d>c
8. c>a>d>b
9. b<a<d<c
10. Glucose exist in cyclized ring forms \_\_\_\_\_\_\_\_\_
11. α- D-glucose (36%) and β-D-glucose (63%)
12. α- D-glucose (63%) and β-D-glucose (23%)
13. α- D-glucose (63%) and β-D-glucose (33%)
14. α- D-glucose (23%) and β-D-glucose (63%)
15. Which of the following is NOT TRUE?
16. Plasmolysis does not occur naturally in nature
17. Plasmolysis is the process in plant cells, where plasma membrane pulls away from cell wall.
18. Plasmolysis occurs due to gain of water through osmosis.
19. Plasmolysis involves plasma membrane.
20. The property of a microscope through which it increases the apparent angle subtended by the eye within the microscopic field is called \_\_\_\_\_\_\_\_\_\_.
21. Resolution
22. Magnification
23. Optical density
24. Refractive Index
25. During Osmosis, the solvent moves from a region of lower concentration to a region of higher concentration through \_\_\_\_\_\_\_\_\_\_\_\_\_.
26. Semi-permeable membrane
27. Impermeable membrane
28. No membrane
29. Through Pores

1. Glucose is a primary source of energy in most of the organisms. It is broken down stepwise to give carbon dioxide and water and produces \_\_\_\_\_\_\_\_ net energy per mole.
2. 7.3Kcal/mol
3. 73Kcal/mol
4. 730Kcal/mol
5. 7300Kcal/mol
6. Which of the following is not related to functioning of compound microscope?
7. Magnification
8. Resolution
9. Electron density
10. Contrast
11. Which apparatus is not required for plasmolysis experiment?
12. compound microscope
13. colorimeter
14. sliced onion
15. cover slip

1. The biuret test is performed for protein estimation. Which of the following should give a positive biuret test?
2. Methionine
3. Albumin
4. Cysteine
5. Lysine
6. \_\_\_\_\_\_\_\_\_ is a primary source of energy in most organisms.
7. Fats
8. Proteins
9. Glucose
10. Starch
11. Human eye has an intrinsic limitation of focus, which limits its ability to focus on any object brought close to it, approximately, at a distance \_\_\_\_\_\_\_\_\_\_\_.
12. 25cm
13. 25mm
14. 25m
15. 25dm
16. The red blood cells start to shrivel and form abnormal spikes and notches on the cell membrane to prevent intercellular water loss in hypertonic environment. The process is known as \_\_\_\_\_\_\_\_\_\_.
17. Cytorrhysis
18. Crenation
19. Creatine
20. Cytoplasm