**BIO LAB MID SEM QUESTIONS WITH ANSWERS: PART-B**

1. 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?
2. The intensity of Incident light, the intensity of transmitted light, permittivity
3. The intensity of incident light, the intensity of transmitted light, solute concentration
4. The intensity of transmitted light, Intensity of Incident light, rate constant
5. The intensity of transmitted light, Intensity of Incident light, solute concentration
6. Which of the following organism does not contain chloroplast?
7. Euglena
8. Rhizopus
9. Spirogyra
10. Volvox
11. What is the role of blank in the Protein estimation experiment?
12. To nullify the absorbance of all reagents except the required product generated
13. To subtract the absorbance of pure water used during the experiment
14. To minimize the concentration of Reagent A and B alone
15. To get a straight line in graph
16. Which apparatus is not required for plasmolysis experiment?
17. compound microscope
18. colorimeter
19. sliced onion
20. cover slip
21. 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. In the paper chromatography experiment performed, which of the following combination of solvents was used as a mobile phase for separating the pigments?
6. Petroleum ether, acetone, and methanol
7. Acetone, water, and methanol
8. Petroleum ether, water, and methanol
9. Acetone, water, and petroleum ether
10. The relationship between concentration versus optical density follows \_\_\_\_\_\_\_\_\_\_\_ pattern
11. Sigmoid
12. Hyperbola
13. Linear
14. Parabola
15. Euglena is \_\_\_\_\_\_\_\_\_\_\_
16. Ciliate
17. Sporozoan
18. Flagellate
19. Sarcodine
20. 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 \_\_\_\_\_\_\_\_\_\_.
21. Cytorrhysis
22. Crenation
23. Creatine
24. Cytoplasm
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. 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+).
46. Acidic conditions
47. Alkaline conditions
48. Neutral condition
49. The reaction is not influenced by pH
50. Carbohydrates with 4 carbon atoms and ketone group are called as \_\_\_\_\_\_\_\_\_\_
51. Aldopentoses
52. Ketohexoses
53. Ketotetrose
54. Aldotetrose
55. Which protein used in Lowry method for standard curve?
56. BSA (Bovine Serum Albumin)
57. Bovine Casein
58. Histidine
59. Chlorophyll
60. Which of the following is not part of the immobile phase in a chromatography experiment?
61. Silica gel
62. Polyethylene glycol
63. Acetone
64. Cellulose
65. According to the Beer-Lambert Law, which of the following parameter is independent of the incident light?
66. The amount of light transmitted through the sample
67. solution concentration
68. The amount of coloured material in the light path
69. The nature of the substance
70. List the correct statement
71. Chlorophyll absorbs the blue and red light, and transmit or reflect green light
72. Chlorophyll absorbs the blue and green light, and transmit or reflect green light
73. Chlorophyll absorbs the green light, and transmit or reflect blue and red light
74. Chlorophyll absorbs the green light, and transmit or reflect blue and green light
75. Chlorophyll consists of a tadpole-like structure with a porphyrin head. Which ion is present at the center of the Porphyrin head?
76. Ca2+
77. Mg2+
78. Fe2+
79. Hg2+
80. 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?
81. 100 M-1 cm
82. 100 M cm
83. 100 M-1 cm-1
84. 100 M cm-1

1. Diabetes mellitus, the condition in which blood glucose levels are \_\_\_\_\_\_\_\_\_\_\_
2. Elevated (hyperglycemia)
3. Lowered (hypoglycemia)
4. Maintained
5. Uncertain
6. What are the predominant chlorophyll pigments found in higher plants?
7. Chlorophyll a and b
8. Chlorophyll d and e
9. Chlorophyll c and b
10. Chlorophyll a and e
11. What is the mode of sexual reproduction seen among Rhizopus fungi?
12. Zygospore
13. Ascospore
14. Basidiospore
15. No known mechanism of sexual reproduction
16. Which of the following is not a component of a microscope?
17. Objective bulb
18. Eye piece
19. Objective lens
20. Sample stage
21. Mode of nutrition of Rhizopus is
22. Parasitic
23. Symbiotic
24. Saprophytic
25. 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 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. Glucose has a free \_\_\_\_\_\_\_\_\_\_
31. Carboxylic group
32. Amide group
33. Aldehyde group
34. Sulfide group
35. Which of the following reactions leads to a blue-colored complex, while estimating protein concentration by Lowry’s method?
36. Reduction of copper sulfate
37. Oxidation of phosphomolybdate
38. Reduction of phosphomolybdate
39. Oxidation of sodium
40. Pick the one that is not involved in Protein estimation experiment:
41. Colorimeter
42. CuSO4.5H2O
43. MgSO4
44. Na2CO3
45. 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”.
46. Chlorophyll a
47. Chlorophyll b
48. Xanthophyll
49. Carotene
50. The compound that gives positive results for Fehling's solution test is:
51. Sucrose
52. Glucose
53. Protein
54. Starch
55. The cell walls of Spirogyra consist of \_\_\_\_\_\_\_\_
56. Cellulose & Pectin
57. Cellulose & Chitin
58. Only Cellulose
59. Only Chitin
60. Choose the appropriate option.
61. Cytorrhysis is reversible and occurs due to loss in internal pressure.
62. Cytorrhysis is irreversible and occurs due to loss in internal pressure.
63. Cytorrhysis is reversible and occurs due to increase in internal pressure.
64. Cytorrhysis is irreversible and occurs due to increase in internal pressure
65. 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. The movement of water across a selectively permeable membrane occurs via phenomenon called\_\_\_\_\_\_\_\_\_\_\_\_\_
11. Osmosis
12. active transport
13. diffusion
14. transport
15. Glucose exist in cyclized ring forms \_\_\_\_\_\_\_\_\_
16. α- D-glucose (36%) and β-D-glucose (63%)
17. α- D-glucose (63%) and β-D-glucose (23%)
18. α- D-glucose (63%) and β-D-glucose (33%)
19. α- D-glucose (23%) and β-D-glucose (63%)
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. Which of the following is NOT TRUE?
2. Plasmolysis does not occur naturally in nature
3. Plasmolysis is the process in plant cells, where plasma membrane pulls away from cell wall.
4. Plasmolysis occurs due to gain of water through osmosis.
5. Plasmolysis involves plasma membrane.
6. 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 \_\_\_\_\_\_\_\_\_\_\_.
7. 25cm
8. 25mm
9. 25m
10. 25dm
11. 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.
12. 7.3Kcal/mol
13. 73Kcal/mol
14. 730Kcal/mol
15. 7300Kcal/mol
16. Which of the following is not related to functioning of compound microscope?
17. Magnification
18. Resolution
19. Electron density
20. Contrast

1. The sequence of separation of chlorophyll pigments based on the retention factor is \_\_\_\_\_\_\_.
2. Carotene< Xanthophyll< Chlorophyll a< Chlorophyll b
3. Carotene< Xanthophyll< Chlorophyll b< Chlorophyll a
4. Carotene< Chlorophyll a < Xanthophyll< Chlorophyll b
5. Xanthophyll< Chlorophyll a< Chlorophyll b < Carotene
6. Retention Factor (Rf) of a substance in a sample mixture is \_\_\_\_\_\_\_\_\_.
7. Distance traveled by substance or solute/ distance traveled by the solvent
8. Distance traveled by solvent/ distance traveled by substance
9. Distance traveled by the substance A / distance traveled by substance
10. Solubility measure of the sample mixture in the aqueous medium
11. The biuret test is performed for protein estimation. Which of the following should give a positive biuret test?
12. Methionine
13. Albumin
14. Cysteine
15. Lysine
16. \_\_\_\_\_\_\_\_\_ is a primary source of energy in most organisms.
17. Fats
18. Proteins
19. Glucose
20. Starch