D. B. J. College, Chiplun.

Class – S.Y. Biotechnology | Semester – IV(ATKT)

Subject name – Applied Chemistry II | Total marks -75

Paper no. – II | Time-2½ hrs.

Note: Attempt all questions.
All questions carry equal marks.
Under Q.2,Q.3 and Q.4 attempt A and B OR C and D

Q.1 **Attempt any fifteen of the following.** (15)

1. State true or false.
   Coning and quartering is a size reduction method.
2. Fill in the blank.
   ---------- technique is used for separation of two immiscible liquids.
3. Define sampling unit.
4. Which thief isused for sampling ofliquids?
5. Give significance of crystallisation process.
6. Which is the physical separation method?
7. Define increment.
8. Draw the structure ofα-ionone.
9. Give any two applications of gas chromatography.
10. What are steroids?
11. Fill in the blank.
    HPLC stands for----------.
12. Give an example of essential oils.
13. State true or false.
    Citral is used for the manufacturing of synthetic α-ionone and β-ionone.
14. What are secondary metabolites?
15. State true or false.
    Nylon is an example of condensation polymer.
16. Give application of nanomaterials.
17. Fill in the blank.
    -------- polymers are used for making hard contact lenses.
18. Give an application of PVC polymer..
19. Enlist different forms of nanomaterials.
20. Give an example of biodegradable polymer.

Q.2 A) Discuss the general procedure for sampling of gases. **(08)**

Q.2 B) Explain the filtration process in detail. **(07)**

OR

Q.2 C) Justify "Distillation is a separation method based on volatile nature of molecule." **(08)**

Q.2 D) Discuss in detail non-random sampling **(07)**

Q.3 A) Explain use of ozonolysis method in structure determination of terpenes. **(08)**

Q.3 B) Discuss synthesis of camphor from α-pinene. **(07)**

OR

Q.3 C) What is the principle of gas chromatography? Give its applications. (08)

Q.3 D) Explain the basic steps in HPTLC. (07)

Q.4 A) What ispolymer? Discussits classification. (08)

Q.4 B) Describe the preparation, properties and uses of polystyrene. (07)

OR

Q.4 C) Describe any two physical methods for synthesis of nanomaterials. (08)

Q.4 D) Write in detail the sol-gel method used in synthesis of nanoparticles. (07)

Q.5 **Write short notes on any three of the following.** (15)

a. Steps involved in sampling
b. Theory of centrifugation
c. Alkaloids
d. Application of HPLC
e. Tacticity of polymer

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ATKT Oct 2022

D. B. J. College, Chiplun.

Class - S.Y. Biotechnology | Semester – IV (ATKT)

Subject name – Biochemistry | Total marks -75

Paper no. - I | Time-2½ hrs.

Note: Attempt all questions.
All questions carry equal marks.
Under Q.2,Q.3 and Q.4 attempt A and B OR C and D

Q.1 **Attempt any fifteen of the following.** (15)

1. Give examples of respiratory poisons.
2. Write the equation for the reaction catalysed by fumarase enzymes.
3. Draw the structure of ATP.
4. Enlist the names of energy rich compounds.
5. State true or false
   The electron transport chain and ATP synthesizing system are located in the mitochondrial matrix
6. Give role of TPP.
7. What is significance of reductive TCA?
8. Give significance of SGOT.
9. Fill in the blank.
   Branched fatty acids are catabolised by ---------- oxidation in peroxisomes of animal cell.
10. Define deamination.
11. Fill in the blank
    ---------- is helps to maintain the sulfhydryl group of protein in the reduced state.
12. Name the enzyme that catalyses the conversion of following reaction
    Norepinephrine to epinephrine
13. Fill in the blank.
    GABA is a neurotransmitter synthesized from ----------amino acids.
14. State true or false.
    The absence of Hypoxanthine –Guanine phosphoribosyl transferase activity is observed in Lesch-Nyhan syndrome.
15. Give role of carnitine.
16. Which precursor is use for fatty acid synthesis?
17. Fill in the blank.
    ----------are the cellular sites for α-oxidation.
18. State true or false.
    Tay-Sachs syndrome is a genetic disorder caused by hexosaminidase enzyme.
19. Enlist the names of ketone bodies.
20. Fill in the blank.
    The complete oxidation of odd chain fatty acid produces ----------

Q.2 A) Explain the gluconeogenesis pathway in detail. **(08)**

Q.2 B) Explain any three electron carriers in ETC chain. **(07)**

OR

Q.2 C) Using neat schematic diagram, explain the structural organization of respiratory chain. **(08)**

Q.2 D) Explain citric acid cycle with structure in brief. **(07)**

Q.3 A) Explain transamination reaction with its mechanism. (08)

Q.3 B) Discuss in brief biosynthesis of serotonin. (07)

OR

Q.3 C) Explain in detail biosynthesis of dopamine from its precursor amino acids. (08)

Q.3 D) Discuss in brief urea cycle with its regulation. (07)

Q.4 A) Discuss in brief degradation pathway of thymine. (08)

Q.4 B) Explain the process of transport of fatty acid in detail. (07)

OR

Q.4 C) Schematically explain the ketolysis process in detail. (08)

Q.4 D) Elaborate reaction involved in β-oxidation of fatty acid. (07)

Q.5 **Write short notes on any three of the following.** (15)

a. Glyoxalate cycle
b. Regulation of glycolysis
c. Biosynthesis of histamine
d. Non oxidative deamination
e. ω oxidation of fatty acid

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