ST. JOSEPH'S COLLEGE OF ARTS & SCIENCE (AUTONOMOUS
CUDDALORE – 607001
DEPARTMENT OF BIOCHEMISTRY
SUBJECT: INTERMEDIARY METABOLISM
SUB CODE: PBC703S
SECTION-A

1. What is the carrier of citric acid cycle ?
2. Which aminoacid cannot undergo transamination?
3. Fattyacid synthesis occurs in----------
4. What are uncouplers?
5. Comment on the importance of HMP shunt pathway.
6. What are nucleotide?
7. What is effect of cyclic AMP in cholesterol synthesis?
8. What is SAM?
9. transport chain at ----------
10. Which chemical is used to prevent glycolysis in blood prior to the estimation of glucose is---
11. The major end product of protein catabolism is ----------
12. A lipid bilayer is permeable to ----------
13. Electron transport chain (respiratory chain) is located in ----------
14. What is the major function of TCA cycle?
15. Give two examples of saturated and unsaturated fatty acids?
16. Give the structure of Adenine.
17. In oxidative phosphorylation the oxidation of one molecule of NADPH produces how many ATPs?
18. Which hormones is not involved in carbohydrate metabolism?

19. Which aminoacids on degradation produces a glucogenic intermediate of TCA cycle and a Ketone body?

20. In humans the principal breakdown product of purines is ----------

21. A pathway that requires NADPH as a cofactor is ----------

22. What is meant by free energy?

23. Mention the significance of cori cycle.

24. Define transamination reaction.

25. Write the function of fatty acid synthase.

26. Differentiate between coenzyme and cofactor.

27. TCA cycle enzymes are located in ----------

28. How many ATPs are produced per acetyl coA molecule in TCA cycle

29. Which is used to transport fattyacid from cytosol to mitochondria ----------

30. The N3 and N9 of purine base are derived from the amide nitrogen of ----------

31. What is redox reaction?

32. Define salvage pathway.

33. What is anapleurotic reaction?

34. Name the rate limiting enzyme for fatty acid biosynthesis?

35. What is the source for the acquisition of 6th carbon of purine ring ?

36. Which is involved oxidation-reduction system has highest

37. redox potential?

38. An essential for converting glucose to glycogen in liver is ----------

39. Which compound serve as a primary link between the TCA cycle and the urea cycle?

40. In humans, the prinicipal break down product of purine is ----------

41. Which coenzymes are utilized in β – oxidation of fatty acids----------

42. What is meant by decarboxylation?

43. Mention the importance of sphingomyelin?

44. Which enzyme are catalyzes substrate level of phosphorylation in TCA cycle ----------

45. In Glucogenesis,---------- acts as glycogen primer.

46. Urea is synthesized in ----------

47. The end product of fatty acid synthesis in mammals is ----------

48. Which organic compound contributes nitrogen atoms to both purine and pyrimidine rings ?

49. Name the Key enzymes regulating glycolysis.

50. What is Gluconeogenesis?

51. What is transamination?

52. What are Ketone Bodies?

53. Define: nucleoside

54. The uncoupling agent of oxidative phosphorylation is ----------

55. The synthesis of adenylate cyclase is increased by

56. The process of transamination requires ----------

57. Enzymes responsible for ketone bodies formation are found mainly in

58. The carbon atoms at positions 4&5 and the N atom at position 7 of purine base are supplied from

59. Name the Key enzymes regulating glycolysis.

60. What is Gluconeogenesis?

61. What is transamination?

62. What are Ketone Bodies?

63. Define: nucleoside

64. Give example for inhibitors

65. Which hormone stimulate the conversion of fructose 1,6diphosphate to fructose -6-phosphate?

66. How many ATPS molecule obtained from palmitate by oxidation?

67. What is ketonemia?

68. Give two example for non vitamin coenzymes

69. The free energy is derived from respiratory chain oxidation within

70. Glycogen synthetase activity is depressed by

71. The transaminase activity needs the coenzyme

72. Malonyl CoA reacts with the central --------- of fatty acid synthase

73. Fatty acid synthesis takesplace in the presence of the coenzyme

74. Define standard free energy.

75. What is glycogenolysis?

76. Define oxidative deamination.

77. What is the site of fatty acid β- oxidation pathway?

78. Mention the role of FAD.

79. What are Ionophores?

80. What is the major function of TCA cycle?

81. Give two examples of saturated and unsaturated fatty acids?

82. Phosphogens act as storage forms of

83. The carrier of the citric acid cycle is

84. Urea biosynthesis occurs mainly in the liver involving the number of amino acids ----------

85. ω-oxidation takes place by the hydroxylase in microsomes involving ----------

86. The example of hydrogen transferring coenzyme

SECTION-B

1. Enumerate the various complexes of ETC.
2. Discuss the structure and role of ubiquinone.
3. Bringout the significance of HMP shunt.
4. Describe the regulation of TCA cycle.
5. Define transamination. What are the enzymes involved in transamination reaction. Give example.

6.Mention the role of glutamate dehydrogenase in aminoacid metabolsim.

7.What is the function of Acetyl COA in fatty acid metabolism? How is it regulated?

8. Explain the reactions of triglyceride biosynthesis.

9.Describe the role and mechanism of action of FAD.

10.Mention the role of coenzyme involved in the conversion of acetyl CoA to malonyl CoA carboxylation reaction.

11.Explain briefly about the inhibitors of Oxidative phosphorylation.

12.Give an account on High energy compounds.

13.Give an account on regulation of citric acid cycle.

14.Explain briefly about gluconeogenesis.

15.Explain briefly about the role of Pyridoxal phosphate in Transamination.

16.How are pyrimidines degraded in the body?

17.Write a note on the fatty acyl synthase complex.

18. How cholesterol synthesis is regulated?

19. Write a note on mechanism of action of biotin and THF.

20. Give an account on Vitamin B_{12}.
21. Explain in brief inhibitors of ETC.
22. Discuss the chemiosmotic theory of oxidative phosphorylation.
23. Describe the regulation of glycogen metabolism.
24. Explain the stiochiometry and energetic of TCA cycle
25. How is urea formed from aminoacids during catabolism?
26. Explain the catabolism of purines.
27. Elaborate the ω-oxidation of fatty acids.
28. Discuss the fate of propionic acid formed in odd chain fatty acid oxidation.
29. Enumerate the role and mechanism of action of NAD/NADP.
30. Discuss the role of pyridoxal phosphate as coenzyme with example.
31. Explain about high energy phosphate compounds
32. Write a note on electron transport chain
33. Describe the pathway of glycogenesis
34. Describe Cori cycle
35. Give an account on urea cycle
36. Explain the reaction of Transamination,
37. Describe the biosynthetic pathway of tri-acylglycerols
38. Write a note on β-oxidation of fatty acids.
39. Describe the denovo biosynthesis of purines
40. Explain the biosynthesis of pyrimidine nucleotide.
41. Explain the biological oxidation –reduction reaction with example.
42. Give short note on High energy compounds.

43. Explain the reactions of glycogenolysis.

44. Explain the steps involved in glycogenesis.

45. Derive the catabolic pathway of tyrosine.

46. Explain the mechanism involved in transamination.

47. Explain the structure of fatty acid synthase multienzyme complex

48. Write short note on beta oxidation of fatty acids

49. Give a detailed account on pyrimidine biosynthesis and add a note on its regulations.

50. Explain the catabolic pathway of pyrimidines.

51. Explain about high energy phosphate compounds

52. Write a note on electron transport chain

53. Describe the pathway of glycogenesis

54. Describe Cori cycle

55. Give an account on urea cycle

56. Explain the reaction of Transamination,

57. Describe the biosynthetic pathway of tri-acylglycerols

58. Write a note on β-oxidation of fatty acids.

59. Describe the denovo biosynthesis of purines

60. Explain the biosynthesis of pyrimidine nucleotide

SECTION-C

1. Elaborate the theories of oxidative phosphoryation. Give a detailed account of the structure of FR0RFR1R ATPase.

2. Discuss the various steps of TCA cycle and pointout where energy, water and COR2 Rare formed. How many molecules of ATP are produced in the cycle.

3. Enumerate the reactions of pyrimidine biosynthesis in denovo pathway. How is pyrimidine biosynthesis is regulated?

4. What are the requirements for fatty acid biosynthesis. Explain the reactions of palmitate synthesis with stoichiometry.

5. Write in detail the role and mechanism of action of lipoate, TPP and THR4R.

6. Describe the events of glycogen metabolism.

7. Write a note on Electron transport chain.

8. Bring out the functioning of the Glycolysis?

9. Explain the biosynthesis of purine with its regulation?

10. Describe the biosynthesis of cholesterol from acetyl CoA?

11. Explain the biosynthesis of palmitic acid?

12. Explain the role and mechanism of action of
    i) Lipoic acid ii) B_{12} iii) Thiamine pyrophosphate

13. Describe the complexes of ETC and explain the mechanism of electron transfer through the components of ETC.

14. Enumerate the reactions of gluconeogenesis and mention the specific enzymes involved in the pathway.

15. What are purines? How are they synthesized in *denovo* pathway?

16. How are fatty acids activated, transported and oxidized by β- oxidation pathway in mitochondria?

17. Elaborate the role and mechanism of action of coenzymes TH4, Biotin and TPP.

18. Describe the reactions of cholesterol biosynthesis with regulation

19. Describe the glycolysis pathway and its regulation

20. Describe the pentose phosphate pathway

21. Explain briefly about amino acid catabolism with suitable example

22. Describe the Metabolism of cholesterol and its regulation

23. Explain the biosynthesis of NAD
    i) and FAD
24. Explain the pathway and energetics of Citric acid cycle.

25. Comment on pentose phosphate pathway.

26. Explain oxidative and non-oxidative deaminations.

27. Give a detail account on Cholesterol biosynthesis.

28. Explain the denovo synthesis of Purine nucleotides.

29. Give a detail account on Urea cycle.

30. Describe the glycolysis pathway and its regulation

31. Describe the pentose phosphate pathway

32. Explain briefly about amino acid catabolism with suitable example

33. Describe the Metabolism of cholesterol and its regulation

34. Explain the biosynthesis of NAD+ and FAD+.

SUB INCHARGE: SHIFT I & SHIFT II (D.LEEMA ROSE MARY, &J.JOHN ROBERT)