RGUHS, BENGALRU- CURRICULUM DESIGN

II B. PHARM (RS4)

APPLIED BIOCHEMISTRY QUESTION BANK

Long Essay: 10 Marks

1. Define enzymes. Write the IUB classification of enzymes in detail with examples.
2. Discuss the factors affecting enzyme activity.
3. Define enzyme inhibition and discuss different types of enzyme inhibitions.
4. Define glycolysis and explain the various reactions involved in it with energetics.
5. Explain TCA cycle and give its significance with energetics.
6. Define gluconeogenesis and explain the reactions involved in it with its significance.
7. Explain glycogenesis and glycogenolysis.
8. Explain the process of β-oxidation of fatty acids with energetic considering palmitic acid as example.
9. Describe the biosynthesis of cholesterol in the body and write its biological significance.
10. Explain the de novo biosynthesis of fatty acids.
11. Explain the general reactions involved in the metabolism of amino acids.
12. Explain urea cycle and give the deficiency symptoms of urea cycle enzymes.
13. Name the aromatic amino acids. Explain the catabolism of any one aromatic amino acid.
14. Describe the biosynthesis of purine nucleotides.
15. Describe the biosynthesis of pyrimidine nucleotides.
16. Explain the biosynthesis of proteins in the body.

Short essays: 5 Marks

1. Define coenzymes. Give the structure and biological role coenzyme NAD and FAD.
2. Define coenzymes. Discuss the different types of coenzymes.
3. Define vitamins. Give the daily requirement, biochemical functions and deficiency disorders of vitamin A.
4. Define vitamins. Give the daily requirement, biochemical functions and deficiency disorders of vitamin D.
5. Discuss the daily requirement, biochemical functions and deficiency disorders of vitamin B1 and B2.
6. Discuss the daily requirement, biochemical functions and deficiency disorders of vitamin B6 and B12.
7. Explain the reactions of HMP pathway with its significance.
8. Describe uronic acid pathway.
9. Explain Glucose tolerance test (GTT) and its significance.
10. Discuss the hormonal regulation of blood glucose level in the body.
11. Discuss the various types of glycogen storage disorders.

12. Explain malate-aspartate shuttle system.
13. Write the formation of ketone bodies in the body.
14. Describe the steps involved in the oxidation of linolenic acid.
15. Explain the biologically important compounds obtained from cholesterol degradation.
16. Explain the important functions of phospholipids.
17. Give the chemical classification of amino acids.
18. Describe the metabolism of sulphur containing amino acids.
19. What are porphyrins. Explain the degradation of heme.
20. Explain the synthesis and significance of creatine.
21. Explain the synthesis and significance of adrenaline.
22. Write the catabolism of purine nucleotides.
23. Describe the double helical structure of DNA.
24. Explain the different types of RNA.
25. Define mutation and discuss the different types of mutations.
26. Explain the semi-conservative mode of replication of DNA.
27. Define genetic code and give its salient features.
28. Explain electron transport chain.
29. What is substrate level phosphorylation and oxidative phosphorylation.
30. Explain any one kidney function test and its significance.
31. Explain any one liver function test and its significance.
32. Enumerate gastric function tests and their significance.
33. Discuss the lipid profile test.
34. Explain the chemiosmotic theory of oxidative phosphorylation.
35. Define vitamins. Give the daily requirement, biochemical functions and deficiency disorders of vitamin E and K.
36. Give the structure, daily requirement, biochemical functions and deficiency disorders of vitamin C.
37. Explain the oxidation of odd number fatty acids.
38. Describe the blood glucose regulation in the body.
39. Explain the posttranscriptional modification of RNA.
40. Explain competitive inhibition with examples.

Short answers: 2 Marks

1. Give the properties of enzymes.
2. What are isoenzymes? Give examples.
3. Give the diagnostic importance of enzymes.
4. Give the therapeutic importance of enzymes.
5. Write the significance of Line-Weaver Burk plot.
6. Define enzyme induction.
7. Define enzyme repression.

8. Give the significance of HMP pathway.
9. Write the types of diabetes mellitus.
10. Write the amphibolic nature of Krebs cycle.
11. What is galactosuria, name the enzymes involved in it?
12. Give the enzymes and coenzymes present in pyruvate dehydrogenase complex.
13. Give the biological significance of carbohydrates.
14. Name the essential fatty acids.
15. What is the role of carnitine in fatty acid metabolism?
16. What is alpha oxidation of fatty acids?
17. Name the bile salts and give their significance.
18. What is ketogenesis?
19. Name the essential amino acids.
20. Give the physiological functions of serotonin.
21. What is phenylketonuria?
22. What is alkaptonuria?
23. What is hyperbilirubinemia?
24. Name the bile pigments.
25. Name the different types of jaundice.
26. Name the different types of porphyrias.
27. Define nucleosides and nucleotides.
28. What is translation and transcription?
29. What are okazaki fragments?
30. Name the chain terminating codons?
31. What are the functions of tRNA?
32. Name the end products of pyrimidine metabolism.
33. Name the end products of purine metabolism.
34. What is gout?
35. Write the inhibitors of ETC.
36. Write the uncouplers of oxidative phosphorylation.
37. What is isoelectric point?
38. Write the properties of proteins.
39. Write the biological significance of proteins.
40. What is denaturation and renaturation of proteins?
41. Write any two biochemical functions of biotin.
42. What is atherosclerosis?
43. What is fatty liver?
44. What are lipotropic factors? Name them.
45. What is glycerol-phosphate shuttle?
46. Name the glucogenic amino acids.
47. Name the ketogenic amino acids.

48. What is ketosis?
49. Write four differences between DNA and RNA.
50. Define V_{max} and write its significance.
51. Define K_m and write its significance
52. Write the composition of lecithin and cephalin.
53. Write two biochemical functions of folic acid.
54. Name energy rich compounds.
55. Define free energy and redox potential.
56. Write the structure and biochemical functions of cyclic AMP.
57. What are cofactors? Give examples.
58. What are holoenzymes? Give examples.
59. Give the coenzymic form of vitamin B6 and its significance.
60. Name the enzyme which converts phenylalanine to tyrosine.
61. What is optimum temperature and optimum pH
62. What is the importance of SGPT and SGOT