

**Andhra University Common Entrance Test**  
(AUCET)  
Now it is

**Andhra University Region**  
**Post Graduation Common Entrance Test**  
(AURPGCET)

**Paper: Biochemistry**

**Year: 2005**

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# Andhra University Common Entrance Test (AUCET)

## Biochemistry – 2005

### PART-A

1. Radioimmuno assay was developed by
  1. Hershey and Chase
  2. Berson and Yalow
  3. Temin and Baltimore
  4. Banting and Best
2. Anaphylaxis is a violent and fatal allergic reaction. The compounds released are
  1. Prostaglandins
  2. Leukotrienes
  3. Prostacyclines
  4. Interleukins
3. The monoclonal antibody technology was devised by
  1. Boyer and Walker
  2. Aron and Jagendorf
  3. Kohler and Milstein
  4. Elton and Hitchings
4. Allergic reactions are related with
  1. IgG
  2. IgM
  3. IgD
  4. IgE
5. Tissue rejection is related with
  1. B-cells
  2. Cytotoxic T cells
  3. Helper T cells
  4. Suppressor T cells
6. Antibodies that have catalytic activity are known as
  1. Ribozymes
  2. Abzymes
  3. Lysozymes
  4. Splisozymes
7. The enzyme used as a therapeutic fibrinolytic agent is
  1. Fibrinogen
  2. Plasminogen
  3. Streptokinase
  4. Enterokinase
8. Hemophilia A is due to the deficiency of clotting factor
  1. X
  2. V
  3. VIII
  4. II
9. Diabetes insipidus is due to insufficient levels of
  1. Prolactin
  2. ACH
  3. ADH
  4. TRH
10. In hemolytic jaundice, van der Bergh reaction is
  1. Indirect positive
  2. Direct positive
  3. Biphasic
  4. Negative
11. The serum enzyme elevated in alcoholism
  1. Alkaline phosphatase
  2. Aspartate transaminase
  3. 5<sup>1</sup> - Nucleotidase
  4. r - Glutamyl transpeptidase
12. The excretory function of liver can be assessed by measuring serum
  1. Albumin
  2. Bile pigments
  3. Hippuric acid
  4. Transaminases
13. Impairment of adrenocortical function results in
  1. Addison's disease
  2. Cushing's syndrome
  3. Pheochromocytoma
  4. Parkinson's disease
14. The natural analgesics that control pain and emotions in the animals
  1. Morphine
  2. Endorphins
  3. Antipain
  4. Pheromones
15. The following element is involved in wound healing
  1. Calcium
  2. Zinc
  3. Sodium
  4. Magnesium
16. The disorders of tetany is due to
  1. hyper calcemia
  2. Hypo calcemia
  3. Hypothyroidism
  4. Hypophosphatemia
17. Metabolic acidosis is primarily due to
  1. Increase in carbonic acid
  2. Decrease in carbonic acid
  3. Increase in bicarbonate
  4. Decrease in bicarbonate
18. The largest contribution to plasma osmolality is due to
  1. Na<sup>+</sup>
  2. K<sup>+</sup>
  3. Mg<sup>+</sup>
  4. Ca<sup>2+</sup>
19. The Na<sup>+</sup>-K<sup>+</sup> pump is inhibited by
  1. Fluoride
  2. Iodoacetate
  3. Ouabain
  4. Oligomycin
20. According to the fluid mosaic model, the biological membranes are composed of
  1. Multiple lipid layer
  2. Lipid bilayers
  3. Protein lipid bilayers
  4. Protein Carbohydrates bilayers
21. Marasmus is predominantly due to the deficiency of
  1. Proteins
  2. Lipids
  3. Calories
  4. Vitamins



47. An enzyme of purine metabolism associated with immunodeficiency disease  
 1. Adenine phosphoribosyl transferase  
 2. H/G PRT  
 3. Adenosine deaminase  
 4. Guanine deaminase
48. Lesch - Nyhan syndrome is due to the deficiency of the enzyme  
 1. Adenosine deaminase  
 2. H/G PRT  
 3. Xanthine oxidase  
 4. Purine nucleoside phosphorylase (PNP)
49. Gout is a metabolic disease associated with the overproduction of  
 1. Urea  
 2. Uric acid  
 3. Ammonia  
 4. Creatinine
50. The low incidence of cardiovascular disorders is associated with increased plasma concentration of  
 1. Chylomicrons  
 2. Low Density Lipoprotein (LDL)  
 3. High Density of Lipoproteins (HDL)  
 4. Cholesterol
51. Biologically important pentapeptide is  
 1. Glutathione  
 2. TRH  
 3. Substance P  
 4. Enkephalins
52. An inhibitor of mitochondrial ATP synthetase is  
 1. Ouabain  
 2. Oligomycin  
 3. Atractyloside  
 4. Azaserine
53. Parkinson's disease is linked with the decreased synthesis of  
 1. Insulin  
 2. GABA  
 3. Dopamine  
 4. Serotonin
54. Nitric oxide is formed from the amino acid  
 1. Arginine  
 2. Glutamate  
 3. Glycine  
 4. Ornithine
55. The defect in the enzyme Tyrosinase causes  
 1. Phenyl ketonuria  
 2. Alkaptonuria  
 3. Albinism  
 4. Tyrosinosis
56. L-amino acid oxidase is depended on the coenzyme  
 1. FMN  
 2. FAD  
 3. NAD<sup>+</sup>  
 4. NADP<sup>+</sup>
57. Histidene decarboxylase is dependent on the coenzyme  
 1. TPP  
 2. PLP  
 3. Biotin  
 4. FAD
58. Cholesterol can serve as a precursor for the synthesis of  
 1. Ketone bodies  
 2. Coenzyme A  
 3. Bile acid  
 4. Eicosanoids
59. The most predominant unsaturated fatty acid present in fish food is  
 1. Linoleic acid  
 2. Eicosapentanoic acid  
 3. Arachidonic acid  
 4. Prostanic acid
60. The reducing equivalents for the synthesis of fatty acids are supplied by  
 1. FADH<sub>2</sub>  
 2. NADH  
 3. NADPH  
 4. FH<sub>4</sub>
61. The No. of acetyl CoA molecules liberated in the oxidation of palmitic acid  
 1. 8  
 2. 6  
 3. 10  
 4. 12
62. The enzyme glucose - 6 - phosphatase is present in the following organs except  
 1. Liver  
 2. Kidney  
 3. Muscle  
 4. Brain
63. The enzyme pyruvate carboxylase converts pyruvate to  
 1. Malate  
 2. Oxaloacetate  
 3. Acetyl CoA  
 4. Phosphoenol pyruvate (PEP)
64. One of the following enzymes causes substrate level phosphorylation to generate GTP  
 1. Phosphofructokinase (PFK)  
 2. Pyruvate dehydrogenase (PDH)  
 3. Succinate thiokinase  
 4. Succinate dehydrogenase (SDH)
65. Paul Boyer proposed the rotational catalysis mechanism for the enzyme  
 1. PFK  
 2. ATP synthase  
 3. ATC ase  
 4. DNA ligase
66. An inhibitor of oxidative phosphorylation is  
 1. Streptomycin  
 2. Valinomycin  
 3. Erythromycin  
 4. Tetracycline
67. The non-protein compound acting as a biocatalyst is  
 1. DNA  
 2. RNA  
 3. Selenocysteine  
 4. Sn RNA
68. The enzyme ornithine decarboxylase is inhibited by Difluoromethyl ornithine (DFMO). DFMO is a  
 1. Competitive inhibitor  
 2. Non-competitive inhibitor  
 3. Suicide inhibitor  
 4. Allosteric inhibitor
69. An example of an irreversible inhibitor of enzymes containing serine at the act site is  
 1. Iodoacetate  
 2. Diisopropyl Fluorophosphate (DFP)  
 3. Sulphanilamides  
 4. FDNB
70. Most enzymes have the temperature co efficiency  $Q_{10}$  is  
 1. 4  
 2. 6  
 3. 2  
 4. 8

### PART-C

71. A mixture of proteins were separated by SDS-PAGE. The mixture contains proteins X,Y and P having molecular weights 10,000 daltons, 50,000 daltons and 5000 daltons respectively. Predict the order of mobility.  
 1. P, X, Y  
 2. Y, X, P  
 3. X, Y, P  
 4. X, P, Y



22. The essential amino acid limiting in rice is  
 1. Methionine 2. Tryptophan  
 3. Lysine 4. Histidine
23. The protein with highest biological value  
 1. Milk protein 2. Fish protein  
 3. Meat protein 4. Egg protein
24. The calorific value of proteins (Cal/g) is  
 1. 2 2. 4 3. 6 4. 9
25. One curi (Ci) is equal to  
 1.  $3.7 \times 10^{12}$  dpm 2.  $2.2 \times 10^{12}$  dpm  
 3.  $5.9 \times 10^{12}$  dpm 4.  $6.1 \times 10^{12}$  dpm
26. Liquid scintillation counter is used to measure the radioactivity of the isotope  
 1.  $^{131}\text{I}$  2.  $^{125}\text{I}$  3.  $^{60}\text{Co}$  4.  $^{35}\text{S}$
27. The genetic material of the human immunodeficiency virus (HIV) is  
 1. Single stranded DNA 2. Double stranded DNA  
 3. RNA 4. hn RNA
28. The serum of an individual with the blood group A has antibodies of type  
 1. Anti-A 2. Anti-B  
 3. Anti-A and Anti-B 4. Anti-O
29. The most effective buffer in plasma is  
 1.  $\text{K}_2\text{HPO}_4$  and  $\text{KH}_2\text{PO}_4$   
 2.  $\text{NaHCO}_3$  and  $\text{H}_2\text{CO}_3$   
 3.  $\text{NH}_4^+$  and  $\text{NH}_3$   
 4. Haemoglobin and Albumin
30. Non-coding intervening sequences of DNA are called  
 1. Exons 2. Introns  
 3. Prions 4. Transposons
31. The transfer of DNA from agarose gels to nylon membrane is known as  
 1. Western blotting 2. Northern blotting  
 3. Southern blotting 4. Electroporation
32. A key enzyme in gene cloning is  
 1. DNA Helicase  
 2. Restriction endonuclease  
 3. DNase  
 4. Modification Methylase
33. The codon that terminates protein biosynthesis  
 1. AUG 2. UGA 3. GUA 4. AAG
34. An inhibitor of transcription is  
 1. Puromycin 2. Streptomycin  
 3. Actinomycin-D 4. Chlorophenicol
35. The total number of codons available to code for 20 amino acids  
 1. 20 2. 32 3. 64 4. 61
36. Mild protease treatment of DNA polymerase I yields  
 1. Okazaki fragment  
 2. Klenow fragment  
 3. Telomere fragment  
 4. DNA polymerase with  $5'$ - $3'$  exonuclease
37. In eukaryotic cells the synthesis of tRNA is carried out by  
 1. RNA polymerase I 2. RNA polymerase II  
 3. RNA polymerase III 4. RNA polymerase IV
38. The enzymes with the sole function of unwinding or relaxing DNA are:  
 1. DNA ligases 2. DNases  
 3. Topoisomerases 4. Telomerases
39. The enzyme responsible for the replication of mitochondrial DNA:  
 1. DNA polymerase  $\alpha$  2. DNA polymerase  $\beta$   
 3. DNA polymerase  $\gamma$  4. DNA polymerase  $\delta$
40. The experimental evidence for the semiconservative DNA replication was provided by:  
 1. Watson and Crick  
 2. Meselson and Stahl  
 3. Jacob and Monod  
 4. McLeod and McCarty
- PART-B**
41. During the biosynthesis of catecholamines, dopamine is converted to norepinephrine by dopamine  $\beta$ -hydroxylase. This enzyme requires  
 1. Tetrahydrobiopterin 2. SAM  
 3. Ascorbic acid 4. Tetrahydro folate
42. Liver cannot utilize ketone bodies due to lack of the enzyme  
 1. Thiolase  
 2. Thioesterase  
 3. HMG CoA lyase  
 4.  $\beta$ -hydroxy butyrate dehydrogenase
43. Chemically folic acid is composed of  
 1. Pyrimidine, p-amino benzoic acid, glutamate  
 2. Imidazole, p-amino benzoic acid, aspartate  
 3. Pteridine, p-amino benzoic acid, glutamate  
 4. Pyridine, p-amino benzoic acid, aspartate
44. Provitamin of Vitamin A is  
 1. Retinol 2. Retinoic acid  
 3.  $\beta$ -Ionone 4.  $\beta$ -Carotene
45. The metabolic waste excreted in urine in thymine deficiency  
 1. Pyruvate 2. Glucose  
 3. FIGLU 4. Uric acid
46. The fat soluble vitamin required for carboxylation reaction  
 1. Vitamin A 2. Vitamin K  
 3. Vitamin D 4. Vitamin E



72. An amino acid mixture consisting of phenyl alanine, glycine and glutamic acid is to be separated by HPLC. The stationary phase is aqueous and the mobile phase is less polar than water. Predict the order of elution  
1. Phe, Gly, Glu 2. Gly, Glu, Phe  
3. Glu, Gly, Phe 4. Phe, Glu, Gly
73. You have a mixture of proteins A, B and C having the molecular weights 12,000 daltons, 68,000 daltons and 9000 daltons respectively. Predict the order of emergence of these proteins by gel exclusion chromatographic column.  
1. C, B, A 2. B, A, C 3. A, B, C 4. C, A, B
74. A biochemical technique that can offer a one-step purification of a protein is  
1. Gel filtration chromatography  
2. Ion exchange chromatography  
3. Affinity chromatography  
4. Reverse phased column chromatography
75. Proteins can be cleaved at specific sites by chemical reagents. The sites of cleavage cyanogens bromide are  
1. At internal Arginine residues  
2. At internal Methionine residues  
3. At internal Lysine residues  
4. At internal Aromatic amino acid residues
76. One syvedberg unit (S) value is equals to  
1.  $1 \times 10^{-23}$  sec 2.  $1 \times 10^{-13}$  sec  
3.  $6.3 \times 10^{-23}$  sec 4.  $3.7 \times 10^{-23}$  sec
77. The absorbance (A) of a  $5 \times 10^{-4}$  M solution of tyrosine at wave length of 280nm is 0.75. The path length of cuvette is 1 cm. What is the molar absorption coefficient?  
1.  $0.75 \times 10^4 \text{ M}^{-1} \text{ cm}^{-1}$  2.  $0.50 \times 10^4 \text{ M}^{-1} \text{ cm}^{-1}$   
3.  $0.15 \times 10^4 \text{ M}^{-1} \text{ cm}^{-1}$  4.  $3.75 \times 10^4 \text{ M}^{-1} \text{ cm}^{-1}$
78. An example of cation exchanger used in protein purification is  
1. DEAE - cellulose 2. CM - cellulose  
3. Dowex - 50 4. Sephadex G - 50
79. The special proteins that aid in the correct folding of many proteins are called  
1. Proproteins 2. Zymogens  
3. Chaperones 4. Prions
80. The patients of sickle-cell anemia are resistant to  
1. Diabetes 2. Jaundice  
3. Malaria 4. Filaria
81. The eukaryotic mRNA is capped at the 5'-terminal end by  
1. Poly (A) 2. 5-methyl CCA  
3. 7-methyl Gppp 4. T<sub>3</sub>C
82. If the percentage concentration of thymine in DNA is 40%, the concentration of cytosine will be  
1. 10% 2. 20% 3. 30% 4. 40%
83. One of the following is a major purine base found in tea  
1. Caffeine 2. Theobromine  
3. Theophylline 4. Hypoxanthine
84. Chemically uric acid is  
1. 6-oxypurine 2. 2,6-dioxypurine  
3. 2,6,8-trioxypurin 4. 6-aminopurine
85. The number of polypeptide chains in a protein can be identified by treatment with  
1. Cyanogen bromide 2. Sanger's reagent  
3. Dansyl chloride 4. Edman's reagent
86. The antifreeze glycoproteins consists of repeating units of the tripeptide  
1. Gly-Gly-Thr 2. Ala-Ala-Thr  
3. Gly-Ala-Thr 4. Thr-Gly-Ala
87. The unsaturated fatty acid that are essential to humans  
1. Oleic acid and Linolenic acid  
2. Linoleic acid and Linolenic acid  
3. Arachidonic acid and palmitoleic acid  
4. Oleic acid and Palmitoleic acid
88. Name of the test employed to check the purity of butter through the ester volatile fatty acids  
1. Iodine number 2. Reichert-Meissl number  
3. Saponification number 4. Acid number
89. Glucose on reduction results in the formation of the following  
1. Mannitol 2. Sorbitol 3. Ribitol 4. Inositol
90. One of the following is a non-reducing disaccharide  
1. Maltose 2. Lactose 3. Trehalose 4. Isomaltose

## ANSWERS

1.2	2.1&2	3.3	4.4	5.2	6.2	7.3	8.3	9.3	10.2	11.-	12.2	13.1	14.2	15.-	16.1
17.4	18.1	19.3	20.2	21.1	22.1	23.2	24.2	25.2	26.-	27.3	28.2	29.1	30.2	31.3	32.2
33.2	34.3	35.4	36.2	37.3	38.3	39.3	40.2	41.3	42.3	43.3	44.1	45.-	46.-	47.3	48.2
49.2	50.4	51.4	52.2	53.3	54.1	55.1	56.1	57.3	58.3	59.2	60.3	61.f	62.4	63.2	64.4
65.-	66.2	67.4	68.3	69.-	70.-	71.2	72.4	73.2	74.3	75.2	76.2	77.-	78.1	79.3	80.3
81.3	82.1	83.1	84.3	85.2	86.-	87.2	88.4	89.2	90.4						

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