

# BIOCHEMISTRY

## PAPER - I

Cell and it's Subcellular components

Carbohydrates

Lipids

Enzymes

Vitamins

ETC and biological oxidation

TCA cycle + integration of metabolism

Nutrition

Porphyrins, hemoglobin + Bilirubin metabolism

## PAPER - II

Proteins

Nucleic acids

Molecular Biology -

Water electrolytes -

pH + regulation -

Cancer Xenobiotics -

Minerals -

Hormones -

Laboratory, instrumentation,  
investigation & interpretation

# CELL + SUBCELLULAR COMPONENTS

## SHORT NOTES

1. Function of peroxisome, lysosomes.
2. Mitochondria \* \* \* \*
3. Active transport \* \* \*
4. Cell membrane + transport mechanism
5. Ribosomes

CARBOHYDRATES

Essay

1. Gluconeogenesis + Glucose level + Regulation + Key enzyme
2. Blood glucose level regulation \*
3. Glycolysis
4. HMP
5. Anaerobic glycolysis

Short Notes

1. Significance of HMP pathway \*
2. Anaplerotic role of TCA cycle
3. Homopolysaccharides
4. Galactosemia \*
5. Glucose tolerance test \*
6. Lactose intolerance \*
7. Von Gierke's disease \*
8. 2,3-BPG \*
9. Mucopolysaccharides \*
10. Pyruvate dehydrogenase complex
11. Mutarotation \*
12. Glycogen storage disease \*
13. Ascorbism in carbohydrates
14. Heteropolysaccharides
15. Glycated carbohydrates e.g.
16. Classify carbohydrates + eg.
17. Anomura
18. Glycogen

## LIPIDS

### Essay

1. Cholesterol synthesis + Metabolism product \*
2. Fatty acid oxidation +  $\beta$ -oxidation \*
3. Ketone bodies \*\*
4. Classify lipids + function + chemistry.

### Short Note

1. Reverse cholesterol transport \*
2. Lipid peroxidation
3. Ketogenesis, Ketolysis
4.  $\beta$ -oxidation of palmitic acid
5. HDL + atherosclerosis
6. Ketone bodies \*\*\*\*
7. Energetics of  $\beta$ -oxidation \*
8. Tay-Sachs disease.
9.  $\alpha$ -oxidation + disorder
10. VLDL
11. Digestion and absorption of Lipid
12. Prostaglandin \*
13. Brown adipose tissue \*
14. PUFA \*
15. Fate of cholesterol
16. Ketoacidosis.

17. Metabolism of alcohol \*\*
18. Carnitine \*
19. HMG Co-A reductase \*\*
20. HDL \*
21. function of phospholipid \*
22. Phospholipids \*
23. ketosis
24. Essential fatty acid + function \*
25. Fatty liver \*
26. Lipotropic factor
27. Eicosanoids
28. Structure of glycogen
29. Refsum's disease
30. Diabetic ketoacidosis

# ENZYME

## ESSAY

1. Enzyme + enzyme action + MI enzyme + action + factor influencing \*
2. Enzyme study in (i) MI (ii) Liver (iii) Bone disease \*
3. Classify enzyme + factor + enzyme action,

## SHORT NOTES

1. Activation of enzyme
2. Competitive inhibition \*\*\*
3. Myocardial infarction - enzyme elevated
4. Asoenzyme \*\*\*
5. Enzyme inhibition
6. Asoenzyme of lactate dehydrogenase + significant
7. Enzyme \*
8. Creative Kinase
9. Enzyme cofactor
10. Types of enzyme inhibition
11. Enzyme from liver
12. Factor affecting enzyme activity
13. ATP

# INORGANIC ELEMENTS / NUTRITION

## SHORT NOTES

1. Gout ★★★
2. Dietary fibre ★★
3. Fibres
4. Selenium

## VITAMIN

### ESSAY

1. Vitamin - A \*
2. Vitamin - D + Justify as hormone \*\*\*\*
3. Thiamine \*

### SHORT NOTES

1. Vitamin syn in our body + function + deficiency
2. Pyridoxine
3. Vitamin K cycle \*
4. Pellagra
5. Calcitriol
6. Thiamine + Manifestation \*
7. Ascorbic acid \*\*
8. Vitamin A + manifestation
9. Beri Beri
10. Biotin
11. Vitamin K + deficient
12. Thiamine pyrophosphate \*
13. Vitamin D defect \*
14. Synthesis of Vitamin - D \*



15. Niacin - function? \* \* \*
16. Tetrahydrofolate
17. Pyridoxine
18. Thiamine
19. Wald's visual cycle
20. Niacin - deficit manifestation
21. Vitamin-E
22. folate trap

## ETC and Biological oxidation

### SHORT NOTES

1. BMR ★★ ★★ ★ 50%
2. Chemiosmotic theory + inhibitor of ETC
3. Components of ETC ★★
4. Inhibitors of ETC ★★ ★★
5. Uncouplers ★
6. ATP synthase complex ★
7. Substrate level phosphorylation ★
8. Oxidative phosphorylation
9. Inhibitor and Uncoupler of ETC

Normal value of BMR for  
adult men 35-38 Cal/hr

Adult women 32-35 Cal/hr

BMR as Cal/day

Adult BMR is 1,600 Cal/day  
Women 1,400 Cal/day

# CITRIC Acid Cycle

## ESSAY

### 1. TCA Cycle ★★☆☆

## SHORT NOTES

1. Anapleurotic role of TCA cycle
2. Anapleurotic reaction.
3. Inhibition of TCA cycle

ESSAY

1. Fate of bilirubin
2. Porphobilinogen
3. Metabolism of bile pigment
4. Heme Synthesis + defect + confirmation
5. Jaundice + Types + Test.

SHORT NOTES

1. Sickle Cell Anemia \* \*
2. Porphyrin \* \* \* \*
3. Bile Salt function
4. Hemoglobinopathies \* \*
5. Abnormal hemoglobin
6. Congenital hyperbilirubinemia \*
7. O<sub>2</sub> dissociation curve
8. Cobalamin of heme
9. Porphyrin excretion
10. Obstructive jaundice \*
11. Jaundice
12. Bohr effect
13. Lab investigation of Jaundice
14. Bile Salt \* \*
15. ALA synthase

- 16. Haemolytic jaundice
- 17. Vandenberg test ~~+~~~~+~~
- 18. Chloride shift \*
- 19. Low

PAPER - III

# PROTEIN + AMINO ACID

Prun

## ESSAY

1. Urea cycle ★★☆☆
2. Detoxification of urea
3. Tyrosine metabolism + excret ★★☆☆
4. Sulphur containing amino acid + methionine
5. Protein + Structural organisation.
6. Aromatic Amino acid + phenylalanine ★★
7. Ammonia detoxification
8. Nitrogen elimination from body ★
9. Methionine

## SHORT NOTE

1. Protein energy - malnutrition ★★
2. Homocystinuria ★
3. Glycosaminoglycans ★
4. Kwashiorkor.
5. Limiting amino acid
6. Electrophoresis ★★☆☆☆☆
7. Urea cycle + Importance ★
8. Function of glycine 1
9. Product of tyrosine. ★
10. Detoxification ★
11. Clearance test (creatinine, insulin) ★★
12. Phenylketonuria
13. Denaturation ★★
14. Albumin
15. Chromatography ★★☆☆
16. Albinism

17. Blotting techniques ★ ★ ★ ★ ★

18. Glutathione ★

19. Specificity

20. Phenylketonuria ★ ★

21. Rapoport leubering cycle

22. Glycine ★ ★ ★

23. Alkaptonuria ★ ★ ★ ★

24. Lipoprotein

25. Blood urea nitrogen

26. Tryptophan product

27. Maple syrup disease ★ ★ ★

28. Transmethylation reaction ★ ★

29. Classification of protein ★ ★ ★

30. Presence of albumin in urine ★

31. Heat Coagulation of protein

32. Benz Johns protein

33. 2° structure of protein

34. Essential amino acid ★ ★

35. Polyamines

36. Albinism

37. Transamination ★

38. Test to defect proteinuria

39. SAM

40. Isoelectric pH of amino acid

41. Plasma protein

# PURINES

## ESSAY

1. Uric acid + error

## SHORT NOTES

1. Salvage pathway ★★ ★
2. Gout ★★ ★★ ★★ ★★ ★★ ★★ ★★ ★★
3. Hyperuracemia
4. Catabolism of purine
5. Uric Acid synthesis



# MOLECULAR BIOLOGY

## ESSAY

1. Polymerase chain reaction and blotting techniques along with application of genetic engineering.
2. R-DNA technology \*
3. Genetic code + features
4. DNA replication
5. Translation + post-translational modifications
6. DNA replication + repair mechanism
7. Initiation of protein synthesis + Genetic code
8. Translation
9. Replication + Transcription + Translation + protein synthesis

## SHORT NOTES

1. Structure of t-RNA \* \* \* \* \*
2. Structure of t-RNA + function of each arm
3. Genetic code \* \* \* \*
4. Lac operon \*
5. Post-translational modification \*
6. Polymerase chain reaction \* \* \* \* \*
7. Post-transcriptional modification of mRNA
8. R-DNA technology \* \* \* \* \*
9. DNA/RNA \*
10. Transcription
11. Okazaki fragments \* \* \* \* \*
12. Structure of DNA
13. Mutation \*
14. Genetic acidosis
15. Types of RNA
16. Cloning

## MAINTENANCE OF FLUID + ELECTROLYTES

### SHORT NOTES

1. Osmolality of plasma + reference range of serum electrolyte
2. Kidney maintaining plasma pH. \*

## MAINTENANCE OF PH and acid base disorder

### ESSAY

1. Metabolic acidosis
2. Acid - Base Balance in body
3. Normal pH + blood buffer + compensation
4. Buffer
5. Metabolic acidosis + Regulation
6. Renal regulation of pH.

### SHORT NOTES

1. Renal mechanism of acid-base balance
2. Metabolic alkalosis
3. Role of kidney in acid base balance
4. Respiratory regulation of pH.

## Xenobiotics & Cancer Chemistery

### SHORT NOTES

1. Tumour marker
2. Etiological factor of cancer
3. Oxidation of xenobiotics by UO 450
4. Cytochrome P450.

Unknown

Short notes

1. Amnurophobus
2. Anion gap
3. Calorimeter
4. ELISA
5. Obesity
6. Reducing sugar
7. Kucher
8. Reactive oxygen species
9. Anhears, Evans
10. Wilson's hepatolenticular degeneration.

← Essay

1. Mechanism during starvation.

9825888hh T

The stomach is situated in upper left part of the abdomen occupying left hypochondriac, umbilical and epigastric regions.

Cells 70 ml

Mucosal 1000 ml

AI 100 to 200 ml

## MINERALS

### Essay

1. Iron \*
2. Calcium \*\*\*

### Short Notes

1. Iron absorption + disorders \*\*\*
2. Factor affecting  $Ca^{2+}$  absorption \*
3. Regulation of  $Ca^{2+}$  level \*\*\*
4. Nurdal block theory
5. Ceruloplasmin
6. Wilson's disease \*\*\*
7. Copper
8. Selenium \*
9. Iron deficiency anaemia.

## HORMONES

### Short Notes

1. Role of insulin in regulation of glucose level
2. Hormones of glucose regulation
3. Thyroid function test
4. Mechanism of hormonal action
5. Insulin
6. Assessment of hypothyroidism.