

SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION AND RESEARCH

M B B S Phase I Examinations, November 2023

Time: 180 Minutes

Max Marks: 80 Marks

Biochemistry Paper I

QP CODE: C1031

Your answer should be specific to the question asked

Draw neat labelled diagrams wherever necessary

Long Essay 10 × 2 = 20 Marks

1. List the sources of ammonia. Explain how ammonia is detoxified in the body. Add a note on disorders of urea cycle. (2+5+3)
2. Define Glycogenolysis. Describe the reactions of Glycogenolysis. Add a note on its regulation. (1+6+3)

Short Essay 5 × 12 = 60 Marks

3. Define & classify Disaccharides with examples. Why sucrose is a non reducing sugar? (1+3+1)
4. Write any six biochemical functions and mention the deficiency manifestations of ascorbic acid. (3+2)
5. What are reactive oxygen species? Describe the formation of reactive oxygen species. (1+4)
6. What is conjugation? Give four examples of conjugation reactions. (1+4)
7. Enumerate the role of proteins in the formation of plasma membrane.
8. Mention the biomedical importance of Na-K ATPase, Ca-ATPase.
9. With a neat labelled diagram, explain the structure and its functions of Ig M.
10. What is Respiratory Quotient (RQ)? Give RQ value for carbohydrates, proteins, lipids and a mixed diet (1+4)
11. Classify proteins with suitable examples based on Nutritional value and functions.
12. A 7 month old child fell over while crawling and presented with a swollen leg. History revealed that at the age of one month the baby had multiple fractures in various states of healing in the right clavicle, right humerus. A X-ray taken from the affected leg revealed a fracture of a bowed femur. The bones were thin, with thin cortices. History of child abuse was ruled out by careful questioning from the parents. A diagnosis of osteogenesis imperfecta was made, which is a condition due to defect in gene encoding Type 1 Collagen. a) What is collagen? (1) b) Describe the Structure of collagen? (2) c) Write the biological functions of collagen. (2)
13. What is coenzyme? Describe the role of coenzymes in energy metabolism with two examples. (1+4)
14. Define communication. Describe the four barriers to communication. (1+4)

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Biochemistry Paper II

QP CODE: C1032

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Long Essay 10 × 2 = 20 Marks

1. Define translation. Describe in detail the steps involved in translation. Name and locate the inhibitors of translation. (1+7+2)
2. What is the normal blood pH? Describe the various mechanisms by which acid- base balance is regulated in the body

Short Essay 5 × 12 = 60 Marks

3. Classify Liver function tests. Explain the tests to assess protein and amino acid metabolism. (2.5+2.5)
4. List any five inhibitors of electron transport chain. Explain the mechanism of inhibition of any one and the effects on the human body.
5. Define Jaundice. Classify jaundice & mention the causes for each type of jaundice. (1+2+2)
6. Write purine ring. Label sources of its various elements. Add a note on the salvage pathway of purines.
7. Describe the following nucleotide metabolism disorders: a) Lesch Nyhan syndrome b) Orotic aciduria. (2.5 + 2.5)
8. Why LDL cholesterol is designated as bad cholesterol & HDL cholesterol as good cholesterol? Add a note on lipotropic factors. (3+2)
9. Name Bile salts. Explain their role in lipid digestion and deficiency manifestations of bile salts. (1+2+2)
10. What are Prostaglandins? Mention the precursor molecule. Explain the biological functions of prostaglandins. (1+1+3)
11. What are nucleosides and nucleotides? Give two examples and mention their biomedical importance. (2+1+2)
12. Discuss the hormonal control of fluid and electrolyte homeostasis.
13. A 40 year female presented to the clinic with lump in right breast. A mammogram performed revealed a breast mass measuring 3 cm with numerous microcalcifications suggestive of breast cancer. The family history revealed that her two relatives had breast and ovarian cancer prior to menopause. a) Name the genes associated with carcinoma breast b) What is the likely mechanism of activation of oncogene in this case? c) Name the Tumor marker used in detection of breast carcinoma. (2+2+1)
14. Write the biological reference range of Serum Magnesium. Add a note on biochemical functions and deficiency manifestations of Magnesium (1+4)