THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

[BSCN 1223] DECEMBER 2023 Sub. Code: 2304
(OCTOBER 2023 EXAM SESSION)

B.Sc. (Nursing) DEGREE EXAMINATION
(Revised Regulations for the candidates admitted from 2022-2023 onwards)
SECOND SEMESTER
PAPER IV – APPLIED BIOCHEMISTRY & APPLIED NUTRITION AND DIETETICS
Q.P. Code: 652304

Time : Three Hours **Maximum : 75 Marks**

Answer Section A and Section B Separately
Answer all the Questions

SECTION – A (25 Marks)
(APPLIED BIOCHEMISTRY)

I. Multiple choice Questions: **(4 x 1 = 4)**
Choose one correct answer in the Answer Script. No overwriting should be done. Choice should be given in Capital Letters.

1. ALP measurements are useful in the investigation of……..
   A) myocardial infarction B) cerebrovascular disease
   C) hepatobiliary and bone disease D) mumps

2. Fall in pH of plasma stimulates
   A) Liver B) respiratory center C) pancreas D) lungs

3. The process of lipid digestion dependent on
   A) lipase B) bile salts C) amylase D) vitamin D

4. Substrate for gluconeogenesis is
   A) cholesterol B) heme C) glucose D) pyruvate

II. Short answers: **(3 x 5 = 15)**

1. Explain about LDH and CPK.
2. Write about aromatic amino acids.
3. Digestion and absorption of Carbohydrates.

III. Very short answers: **(3 x 2 = 6)**

1. Define renal function test.
2. Types of immunoglobulin.
3. What is atherosclerosis and write it's causes.

SECTION – B (50 Marks)
(APPLIED NUTRITION AND DIETETICS)

I. Multiple choice Questions: **(8 x 1 = 8)**
Choose one correct answer in the Answer Script. No overwriting should be done. Choice should be given in Capital Letters.

1. One Gram Dietary Fibre provides ____ Kilocalories
   A) 2 B) 4 C) 7 D) 9

… 2…

2. Which are Inorganic Nutrients?
   A) Carbohydrates and Minerals B) Water and Proteins
   C) Carbohydrates and Proteins D) Mineral and Water

3. PFA Act was made in the year _____
   A) 1951 B) 1952 C) 1953 D) 1954

4. Which of the following is a deficient nutrient of Pernicious Anaemia?
   A) Cobalamin B) Iron C) Pyridoxin D) Folate

5. Fat act as
   A) Insulation of body B) Enzyme C) Lubricant D) Oxidizing agent

6. Which of the following is not a food additive?
   A) Saffron B) Vanilla essence C) Argemon oil D) Saccharin

7. One of the following is not an essential amino acids
   A) Histidine B) Alanine C) Leucine D) Valine

8. Which vitamin is otherwise called as Vitamin H?
   A) Thiamine B) Folate C) Biotin D) Riboflavin

II. Essay: **(1 x 10 = 10)**

1. Classify Minerals and elaborate them by its sources, functions and deficiency.

III. Short answers: **(4 x 5 = 20)**

1. Describe Nutritional classification of Proteins.
2. Explain the methods of cooking with suitable examples.
3. Discuss the childhood obesity and its assessment parameters.
4. What is now called PEM and Distinguish Under and Over nutrition.

IV. Very short answers: **(6 x 2 = 12)**

1. Point out the WHO instructions for food safety and role of HACCP.
2. Write the supplemental dosage of Anaemia Mukht Bhart and WIFS Programme.
3. Tabulate the RDA 2020 for Carbohydrates and Proteins.
4. Give the details of Pellagra and Rickets.
5. Write the Coenzyme form of each water soluble vitamins.
6. Define Diet therapy.

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THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

[BSCN 0524] MAY 2024 Sub. Code: 2304
(APRIL 2024 EXAM SESSION)

B.Sc. (Nursing) DEGREE EXAMINATION

SECOND SEMESTER
PAPER IV – APPLIED BIOCHEMISTRY
AND APPLIED NUTRITION & DIETETICS

Q.P. Code: 652304

Time : Three Hours **Maximum : 75 Marks**

Answer Section A and Section B Separately
Answer all the Questions

SECTION – A (25 Marks)
(APPLIED BIOCHEMISTRY)

I. Multiple choice Questions: **(4 x 1 = 4)**
Choose one correct answer in the Answer Script. No overwriting should be done. Choice should be given in Capital Letters.

1. The enzyme that is elevated in Prostate cancer is
   A) Acid phosphatase B) Lipase
   C) Aspartate transaminase D) Gamma glutamyl transferease

2. The vitamin measured by ELISA is
   A) Thiamine B) Pyridoxine C) Biotin D) Pantothenic acid

3. Normal serum urea level is
   A) 15-40 mg/dl B) 60-1000 mg/dl C) 30-80 mg/dl D) 50-60 mg/dl

4. Good cholesterol is
   A) LDL B) HDL C) VLDL D) Chylomicrons

II. Short answers: **(3 x 5 = 15)**

1. Write a short note on Diabetes mellitus.
2. Write about different types of Jaundice with investigation.
3. Write in detail about Metabolic acidosis.

III. Very short answers: **(3 x 2 = 6)**

1. Phenyl ketonuria.
2. Name the ketone bodies.
3. Electrophoresis.

SECTION – B (50 Marks)

(APPLIED NUTRITION & DIETETICS)

I. Multiple choice Questions: **(8 x 1 = 8)**

Choose one correct answer in the Answer Script. No overwriting should be done. Choice should be given in Capital Letters.

1. Amylases in saliva begin the breakdown of carbohydrates into ----------
   A) Glycerol B) Monosaccharides C) Amino acids D) Fatty acid

2. Sunshine vitamin
   A) Vitamin C B) Vitamin A C) Vitamin D D) Vitamin B

3. Clinical manifestation that is not observed in marasmus ----------
   A) Diarrhoea B) Subnormal temperature
   C) Oedema D) Loss of subcutaneous fat

4. RDA for protein in a balanced diet for a normal adult is ---------g/kg body weight
   A) 0.8 – 1 B) 0.5-0.6 C) 2 D) 2.5

5. Expand BIS
   A) Bureau of Indian Standards B) Bureau of International Standards
   C) Bureau of Internal Stocks D) Booking of Indian Stocks

6. Accepted BMI for an Asian adult is_____ kg/m^2
   A) 18-22 B) 18.5-24.9 C) 18.5-22.9 D) 19.5-23

7. Diet advice in peptic ulcer is -------- diet
   A) Bland B) Low fibre C) DASH D) Liquid

8. The percentage of total calorie obtain from carbohydrate in a balanced diet
   A) 15-20% B) 20-35% C) 50-60% D) 60-80%

II. Essay: **(1 x 10 = 10)**

1. Define Basal Metabolic Rate (BMR) and discuss the factors that affects BMR.

III. Short answers: **(4 x 5 = 20)**

1. Principles to be followed while planning menu for a family.
2. Role of nurse in management and prevention of Severe Acute Malnutrition.
3. Methods of nutritional assessment.
4. National nutritional policy.

IV. Very short answers: **(6 x 2 = 12)**

1. List the essential and non-essential amino acids.
2. Preventive measures of iron deficiency anaemia.
3. Hyperkalaemia and hypokalaemia.
4. Importance of breast feeding.
5. Dietary fibre.
6. Food adulteration with example.

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THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

[BSCN 1024] **OCTOBER 2024** **Sub. Code: 2304**

B.Sc. (Nursing) DEGREE EXAMINATION

SECOND SEMESTER

PAPER IV – APPLIED BIOCHEMISTRY AND APPLIED NUTRITION & DIETETICS

Q.P. Code: 652304

Time : Three Hours **Maximum : 75 Marks**

Answer Section A and Section B Separately

Answer all the Questions

SECTION – A (25 Marks)

(APPLIED BIOCHEMISTRY)

I. Multiple choice Questions: **(4 x 1 = 4)**

1. Methanol Poisoning causes
   A) Metabolic acidosis B) Metabolic alkalosis
   C) Respiratory acidosis D) Respiratory alkalosis

2. The nitrogenous base in lecithin is
   A) Serine B) Ethanolamine C) Choline D) Inositol

3. Urobilinogen is elevated in
   A) Hemolytic Jaundice B) Hepatic Jaundice
   C) Obstructive Jaundice D) Cholestatic Jaundice

4. The immunoglobulin involved in primary immune response is
   A) IgA B) IgD C) IgM D) IgG

II. Short answers: **(3 x 5 = 15)**

1. Write the Enzymes altered in Myocardial infarction.
2. Write about Liver function test.
3. Write the steps involved in Glycolysis.

III. Very short answers: **(3 x 2 = 6)**

1. Essential Fatty acids.
2. Name the Blood buffers.
3. Functions of Albumin.

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SECTION – B (50 Marks)

(APPLIED NUTRITION & DIETETICS)

I. Multiple choice Questions: **(8 x 1 = 8)**

1. Positive nitrogen balance is observed in
   A) Starvation B) Wasting diseases C) Growing age D) Malabsorption

2. Stunting in children is the effect of deficiency of
   A) Energy B) Vitamin A C) Vitamin D D) Fats

3. Dipeptide contains
   A) Amino acid B) Fatty acid C) Glucose D) Triglyceride

4. Deficiency of vitamin A can cause
   A) Night blindness B) Ricketts C) Scurvy D) Anaemia

5. Minimum ratio of cereal protein to pulse protein should be
   A) 4:1 B) 5:1 C) 2:1 D) 6:1

6. Which of the following helps to prevent cancer of many sites?
   A) Antioxidant B) Iron C) Protein D) PUFA

7. Anti-Egg white injury factor is
   A) Biotin B) Vitamin C C) Carotene D) Tocopherol

8. _____ is the most active form of Vitamin D
   A) Ergocalciferol B) Cholecalciferol C) 25 (OH) calciferol D) Calcitriol

II. Essay: **(1 x 10 = 10)**

1. Describe in detail the Different modern methods of food preservation techniques.

III. Short answers: **(4 x 5 = 20)**

1. Dietary management of obesity.
2. Nutritional requirements of lactation and plan a balanced diet.
3. Define Recommend Daily Allowances (RDA) and explain the factors that affect RDA.
4. Vitamin A deficiency and its prevention.

IV. Very short answers: **(6 x 2 = 12)**

1. Define Balanced diet.
2. Functions of Carbohydrates.
3. Types of Pasteurization.
4. Food sources of Vitamin B12.
5. Mid-day Meal Scheme.
6. Classification of food groups.

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THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

[BSCN 0525] **MAY 2025** **Sub. Code: 2304**

(APRIL 2025 EXAM SESSION)

B.Sc. (Nursing) DEGREE EXAMINATION

SECOND SEMESTER

APPLIED BIOCHEMISTRY AND APPLIED NUTRITION & DIETETICS

Q.P. Code: 652304

Time : Three Hours **Maximum : 75 Marks**

Answer Section A and Section B Separately

Answer all the Questions

SECTION – A (25 Marks)

(APPLIED BIOCHEMISTRY)

I. Multiple choice Questions: **(4 x 1 = 4)**

1. The Immunoglobulin that can cross placenta
   A) IgA B) IgD C) IgG D) IgE

2. The enzyme elevated in Hepatic jaundice is
   A) Acid Phosphatase B) CPK -MB
   C) Creatine kinase D) Alanine Transaminase

3. The acid base disorder caused by vomiting is
   A) Metabolic acidosis B) Metabolic alkalosis
   C) Respiratory acidosis D) Respiratory alkalosis

4. Anaerobic Glycolysis causes accumulation of
   A) Lactate B) Pyruvate C) Oxaloacetate D) Acetate

II. Short answers: **(3 x 5 = 15)**

1. Write the steps involved in Beta oxidation of Fatty acids.
2. Write about Proteinuria and Hypoproteinemia.
3. Write the steps involved in TCA cycle.

III. Very short answers: **(3 x 2 = 6)**

1. Isoenzymes.
2. Thyroid function tests.
3. Significance of HMP shunt.

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SECTION – B (50 Marks)

(APPLIED NUTRITION & DIETETICS)

I. Multiple choice Questions: **(8 x 1 = 8)**

1. Which of the following is a fat-soluble vitamin?
   A) Beta carotene B) Niacin C) Ascorbic acid D) Pantothenic acid

2. Ten grams of fat
   A) 90 Kcal B) 100 Kcal C) 30 Kcal D) 40 Kcal

3. This vitamin is needed to prevent a birth defect called spina bifida
   A) Vitamin D B) Vitamin C C) Vitamin A D) Folate

4. Deficiency of calcium can cause
   A) Lactose intolerance B) Tetany C) Nausea D) Hypertension

5. Scurvy is due to impaired _____ synthesis
   A) Collagen B) Prothrombin C) Albumin D) Iron

6. Rich natural source of Medium Chain Triglycerides (MCT)
   A) Groundnut oil B) Coconut oil C) Butter D) Sunflower oil

7. Brine is used to preserve
   A) Diary products B) Vegetables C) Nuts D) Cereals

8. Which of the following is a disaccharide?
   A) Glucose B) Starch C) Fructose D) Galactose

II. Essay: **(1 x 10 = 10)**

1. Classification, functions and food sources of Proteins.

III. Short answers: **(4 x 5 = 20)**

1. Dietary management of Diabetes.
2. List the nutritional requirements of pregnancy and plan a balanced diet.
3. Write in detail on basic food groups.
4. Five keys for safer food.

IV. Very short answers: **(6 x 2 = 12)**

1. Beneficiaries of Integrated Child Development Services.
2. Classification of Fats.
3. List the different moist and dry heat cooking methods.
4. Short note on clear fluid and liquid diets.
5. Food additives with example.
6. Deficiency of Thiamine.

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THE TAMIL NADU Dr. M.G.R. MEDICAL UNIVERSITY

[BSCN 1125] **NOVEMBER 2025** **Sub. Code: 2304**

B.Sc. (Nursing) DEGREE EXAMINATION

SECOND SEMESTER

APPLIED BIOCHEMISTRY AND APPLIED NUTRITION & DIETETICS

Q.P. Code: 652304

Time : Three Hours **Maximum : 75 Marks**

Answer Section A and Section B Separately

Answer all the Questions

SECTION – A (25 Marks)

(APPLIED BIOCHEMISTRY)

I. Multiple choice Questions: **(4 x 1 = 4)**

1. The end product of anaerobic glycolysis is
   A) Pyruvate B) Lactate C) Malate D) Acetyl-CoA

2. Hemoglobin is an example of
   A) Simple protein B) Conjugated protein
   C) Derived protein D) None of the above

3. M – Band in Electrophoresis is characteristic of
   A) Cirrhosis of Liver B) Multiple Myeloma
   C) Nephrotic syndrome D) Chronic inflammation

4. Hemolytic jaundice is due to
   A) Conjugated bilirubin B) Unconjugated bilirubin
   C) Both conjugated and unconjugated bilirubin D) None of the above

II. Short answers: **(3 x 5 = 15)**

1. Classify enzymes with examples.
2. OGTT – Indications, procedure and interpretations.
3. Lipid profile normal levels with clinical applications.

III. Very short answers: **(3 x 2 = 6)**

1. Essential fatty acids.
2. Von Gierke's disease.
3. Respiratory alkalosis.

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SECTION – B (50 Marks)

(APPLIED NUTRITION & DIETETICS)

I. Multiple choice Questions: **(8 x 1 = 8)**

1. Basal metabolic rate is decreased in
   A) Feeding B) Obesity C) Hyperthyroidism D) Exercise

2. Proteins are synthesized at
   A) Ribosomes B) Golgi bodies C) Mitochondria D) Centrosomes

3. Which food is responsible for High Cholesterol Level in Blood
   A) Saturated Fat B) Mono Unsaturated Fat C) Cholesterol D) All of these

4. Deficiency disease of Thiamine
   A) Beri-beri B) Pellagra C) Glossitis D) Osteo Malacia

5. Decrease in serum Potassium level is called
   A) Hypocalcemia B) Hypokalemia C) Hypochloremia D) Hyperkalemia

6. Method of cooking which includes slow method where food is cut into pieces and cooked in minimum amount of fluid _____
   A) Brewing B) Stewing C) Poaching D) Boiling

7. Citrus fruits are an excellent source of
   A) Calcium B) Vitamin C C) Vitamin B D) Calories

8. Mid-day Meal Scheme (MDMS) was founded in
   A) 1988 B) 1995 C) 1975 D) 1945

II. Essay: **(1 x 10 = 10)**

1. a) Define Balanced diet.
   b) Discuss the elements and enlist the principles of Balanced diet.
   c) Develop a Menu Plan for Elderly person.

III. Short answers: **(4 x 5 = 20)**

1. Food Adulteration.
2. Functions of Protein.
3. Classify minerals and enumerate the dietary sources of Minerals.
4. Discuss the dietary modification indicated for patients with Diabetes Mellitus.

IV. Very short answers: **(6 x 2 = 12)**

1. Enteral feeding and Parenteral feeding.
2. What is Food Frequency Questionnaire?
3. What is Weaning?
4. Zinc toxicity.
5. Give note on Saturated Fatty Acids.
6. Methods of Cooking.

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