



All India Institute of Medical Sciences, Kalyani

B.Sc. (Hons) Nursing First Year Examination, August 2023

Time: 3 Hrs.

NUTRITION & BIOCHEMISTRY

Marks: 75

INSTRUCTIONS:

- Answer Nutrition & Biochemistry Section in separate answer booklets.
- Draw diagram wherever necessary

NUTRITION (45 MARKS)

Answer any ONE of the following:

[10X1=10]

1. What are the sources & functions of iodine? Enumerate the spectrum of conditions under iodine deficiency disorders. Discuss about the components of the iodine deficiency disorders under the iodine deficiency control programme. (2+3+5)
2. What is Protein Energy Malnutrition? Describe the method of nutritional assessment in under-fives. Discuss the measures for prevention and control of PEM in the community. (2+3+5)

Answer any FIVE of the following:

[5X5=25]

3. Vitamin A dietary sources / signs and symptoms of deficiency and preventive measures
 4. The food guide pyramid
 5. Principles of diabetic diet.
 6. Food fortification
 7. Nutritional surveillance
 8. Mid-day school meal and its benefits
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Invigilator sign: _____

SECTION C (NUTRITION)

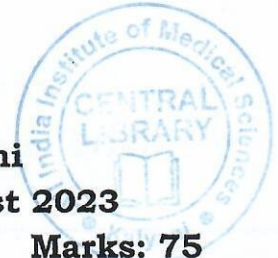
INSTRUCTIONS:

- Section C (Nutrition & Biochemistry) should be answered in first 20 minutes of the Exam duration and handed over to the invigilators.
- Put one tick ✓ mark to only one answer that you consider correct for each question.
- Mark your tick ✓ in pen.

Multiple Choice Questions (MCQs):

[10X1=10]

1. Which of the following improves bioavailability of iron in intestine?
 - a) Oxalate
 - b) Vitamin- C
 - c) Calcium
 - d) Vitamin-A
2. What is double fortified salt fortified with?
 - a) Iron and Vitamin-D
 - b) Iron and Iodine
 - c) Calcium and Vitamin-A
 - d) Zinc and Calcium
3. One gram of carbohydrate gives how much calorie?
 - a) 4 Kcal
 - b) 6 Kcal
 - c) 5 Kcal
 - d) 7 Kcal
4. Main protein in egg white is
 - a) PR-albumin
 - b) Whey
 - c) Ovalbumin
 - d) Complete
5. What is the main dietary source of Vitamin K?
 - a) Green leafy vegetables
 - b) Cheese
 - c) Milk
 - d) Pulses
6. Which nutrient is most needed for structural components of the body?
 - a) Carbohydrates
 - b) Fats
 - c) Protein
 - d) Fibre
7. This Vitamin is needed to prevent a birth defect called Spina Bifida?
 - a) Vitamin D
 - b) Folate
 - c) Vitamin A
 - d) Vitamin E
8. Which poisoning causes Minamata disease?
 - a) Lead
 - b) Iron
 - c) Mercury
 - d) Silver
9. The transfer of harmful micro-organisms from one item of food to another via a non-food surface such as human hands, equipment, or utensils is known as
 - a) Contamination
 - b) Cross-contamination
 - c) Spoilage
 - d) Poisoning
10. Pernicious anaemia is caused by deficiency of
 - a) Iron
 - b) Vitamin B 12
 - c) Folic acid
 - d) Vitamin A



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INSTRUCTIONS:

- Answer Biochemistry & Nutrition Section in separate answer booklets.
- Draw diagram wherever necessary

BIOCHEMISTRY (30 MARKS)

SECTION-A

Answer any TWO of the following:

[2X7=14]

1. Discuss in detail reactions of Krebs cycle in the liver. Add a note on energetics of Krebs cycle (5+2)
2. What are inborn errors of metabolism? State the biochemical defect in Phenylketonuria and the reason for mousy odor and fair skin. State the other presentations and management. (1+3+3)
3. A 54-year-old woman presented with a 5-day history of jaundice, abdominal pain and clay coloured stool. Physical examination showed scleral icterus and right upper quadrant tenderness. Laboratory workup revealed bilirubin 5.4 mg/dL, alkaline phosphatase 893 U/L, gamma-glutamyl transferase 1143 U/L with elevated liver enzymes (aspartate aminotransferase 231 U/L, alanine aminotransferase 178 U/L). Abdominal ultrasound demonstrated (cholelithiasis) an impacted large gallstone in the common bile duct.

Define Jaundice. What is the type of Jaundice in this case? What is the normal range of bilirubin? What do you think is the cause of elevated liver enzymes? Explain the cause of clay coloured stool in this case? Such a patient might develop a bleeding tendency in the future, explain why?

(1+1+1+1+1+2)

SECTION-B

Write short notes on any TWO:

[2X5=10]

4. Classification of enzymes with suitable examples
 5. Role of Vitamin B12 and folate in the body.
 6. Ketone bodies: Enumerate, test for ketone bodies in urine, conditions in which they are found.
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SECTION C (BIOCHEMISTRY)

INSTRUCTIONS:

- Section C (Biochemistry & Nutrition) should be answered in first 20 minutes of the Exam duration and handed over to the invigilators.
- Put one Tick (✓) mark to only one answer that you consider correct for each question.
- Mark your Tick (✓) in pen.

Multiple Choice Questions (MCQs):

[6X1=6]

1. Gamma-Glutamyl Cysteinyl Glycine is otherwise known as:

- a. angiotensin
- b. bradykinin
- c. oxytocin
- d. glutathione

2. Glucose 6 phosphatase deficiency leads to which of the following "glycogen storage disorder"?

- a. Pompe's disease
- b. Von Gierke's disease
- c. Mc Ardle's disease
- d. Hers disease

3. "Porphyrias" are group of disorders that result due to the enzyme defect in

- a. Cholesterol synthesis
- b. Heme synthesis
- c. Pyrimidine synthesis
- d. Collagen synthesis

4. One of the following is a component of Electron transport chain

- a. Ubiquinone
- b. Cytochromes
- c. Carnitine
- d. Both a & b

5. _____ antibody plays a major role in pathogenesis of allergic diseases

- a. IgA
- b. IgG
- c. IgM
- d. IgE

6. The active form of vitamin B2 is

- a. Thiamine pyrophosphate
 - b. Pyridoxal phosphate
 - c. FAD
 - d. Ascorbic acid
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