

ENTRANCE EXAMINATION FOR ADMISSION, MAY 2013.

M.Sc. (FOOD SCIENCE AND NUTRITION)

COURSE CODE : 389

Register Number :

*Signature of the Invigilator
(with date)*

COURSE CODE : 389

Time : 2 Hours

Max : 400 Marks

Instructions to Candidates :

1. Write your Register Number within the box provided on the top of this page and fill in the page 1 of the answer sheet using pen.
2. Do not write your name anywhere in this booklet or answer sheet. Violation of this entails disqualification.
3. Read each question carefully and shade the relevant answer (A) or (B) or (C) or (D) in the relevant box of the ANSWER SHEET using HB pencil.
4. Avoid blind guessing. A wrong answer will fetch you -1 mark and the correct answer will fetch 4 marks.
5. Do not write anything in the question paper. Use the white sheets attached at the end for rough works.
6. Do not open the question paper until the start signal is given.
7. Do not attempt to answer after stop signal is given. Any such attempt will disqualify your candidature.
8. On stop signal, keep the question paper and the answer sheet on your table and wait for the invigilator to collect them.
9. Use of Calculators, Tables, etc. are prohibited.

1. Menke's disease is due to an abnormality in the metabolism of
(A) Iron (B) Manganese
(C) Magnesium (D) Copper
2. Conversion of testosterone to estradiol requires the enzyme
(A) Aromatase (B) Dehydrogenase
(C) Lyase (D) Isomerase
3. Chromium is potentiator of
(A) Insulin (B) Glucagon
(C) Thyroxine (D) Parathromone
4. Hyper-vitaminosis K in neonates may cause
(A) Porphyria (B) Jaundice
(C) Pellagra (D) Prolonged bleeding
5. An additive that keeps moist foods from drying out is called a:
(A) Preservative (B) Stabilizer
(C) Humectant (D) Emulsifier
6. Excretion of conjugated bilirubin from liver cells into biliary canaliculi is defective in
(A) Gilbert's disease (B) Crigler-Najjar syndrome
(C) Lucey-Driscoll syndrome (D) Rotor's syndrome
7. Which gas causes fruits to ripen?
(A) Carbon monoxide (B) Nitrogen
(C) Propane (D) Ethylene
8. The daily water allowance for normal infant is about
(A) 100-200 ml (B) 250-300 ml
(C) 330-1000 ml (D) 1000-2000 ml
9. The normal concentration of bicarbonate in blood is
(A) 21 meq/L (B) 24 meq/L (C) 26 meq/L (D) 30 meq/L
10. Which one of the following is semi-essential amino acid for humans?
(A) Valine (B) Arginine (C) Lysine (D) Tyrosine

11. The homo-polysaccharide used for intravenous infusion as plasma substitute is
(A) Agar (B) Inulin (C) Pectin (D) Starch
12. The approximate number of branches in amylopectin is
(A) 10 (B) 20 (C) 40 (D) 80
13. The protein present in hair is
(A) Keratin (B) Elastin
(C) Myosin (D) Tropocollagen
14. The apolipoprotein which acts as activator of LCAT is
(A) A-I (B) A-IV (C) C-II (D) D
15. Normal range of plasma total phospholipids is
(A) 0.2–0.6 mMol/L (B) 0.9–2.0 mMol/L
(C) 1.8–5.8 mMol/L (D) 2.8–5.3 mMol/L
16. Pepsinogen is converted to active pepsin by
(A) HCl (B) Bile salts
(C) Ca⁺⁺ (D) Enterokinase
17. Sarcina sickness of beer is caused by
(A) *Saccharomyces cerevisiae* (B) *Pedicoccus cerevisiae*
(C) *S. Carlsbergensis* (D) *Zygomonas anaerodium*
18. Secretion of prolactin is regulated by
(A) Feedback inhibition (B) Prolactin releasing hormone
(C) Prolactin release inhibiting hormone (D) All of these
19. A component of the respiratory chain in mitochondria is
(A) Coenzyme Q (B) Coenzyme A
(C) Acetyl coenzyme (D) Coenzyme containing thiamin
20. A conjugated protein present in the egg yolk is
(A) Vitellin (B) Livetin
(C) Albuminoids (D) Ovo-mucoid

21. Coenzymes are
(A) Heat stable, dialyzable, non protein organic molecules
(B) Soluble, colloidal, protein molecules
(C) Structural analogue of enzymes
(D) Different forms of enzymes
22. During starvation, ketone bodies are used as a fuel by
(A) Erythrocytes
(B) Brain
(C) Liver
(D) All of these
23. Preformed Vitamin A is supplied by
(A) Milk, fat and liver
(B) All yellow vegetables
(C) All yellow fruits
(D) Leafy green vegetables
24. One international unit (I.U) of vitamin D is defined as the biological activity of
(A) 0.025 μg of cholecalciferol
(B) 0.025 μg of 7-dehydrocholecalciferol
(C) 0.025 μg of ergosterol
(D) 0.025 μg of ergocalciferol
25. Clostridium perfringens poison is associated with
(A) Meat products
(B) Vegetables
(C) Canned foods
(D) Fish products
26. Which industrial processing method is most effective for making dried potato flakes?
(A) Drum drying
(B) Sun drying
(C) Spray drying
(D) Osmotic dehydration
27. In human body highest concentration of ascorbic acid is found in
(A) Liver
(B) Adrenal cortex
(C) Adrenal medulla
(D) Spleen
28. Calcitriol synthesis involves
(A) Both liver and kidney
(B) Intestine
(C) Adipose tissue
(D) Muscle

29. The total body content of manganese is about
(A) 2 mg (B) 4 mg (C) 8 mg (D) 10 mg
30. *Acrodermatitis enteropathica* is due to defective absorption of
(A) Manganese (B) Molybdenum
(C) Iodine (D) Zinc
31. Chemical score of proteins of bengal gram is
(A) 70 (B) 60 (C) 44 (D) 42
32. The highest concentrations of fructose are found in
(A) Aqueous humor (B) Vitreous humor
(C) Synovial fluid (D) Seminal fluid
33. The fatty acid present in cerebrosides is
(A) Lignoceric acid (B) Valeric acid
(C) Caprylic acid (D) Behenic acid
34. Gangliosides are complex glycosphin- golipids found in
(A) Liver (B) Brain (C) Kidney (D) Muscle
35. In humans, a dietary essential fatty acid is
(A) Palmitic acid (B) Stearic acid
(C) Oleic acid (D) Linoleic acid
36. Deterioration of food (rancidity) is due to presence of
(A) Cholesterol (B) Vitamin E
(C) Peroxidation of lipids (D) Phenolic compounds
37. Absence of phenylalanine hydroxylase causes
(A) Neonatal tyrosinemia (B) Phenylketonuria
(C) Primary hyperoxaluria (D) Albinism

38. Ochronosis is an important finding of
 (A) Tyrosinemia (B) Tyrosinosis
 (C) Alkaptonuria (D) RichnerHanhart syndrome
39. Another name for reverse transcriptase is
 (A) DNA dependent DNA polymerase (B) DNA dependent RNA polymerase
 (C) RNA dependent DNA polymerase (D) RNA dependent RNA polymerase
40. Which of the following is a "holy trinity" of epidemiology?
 (A) Time, place, agent (B) Person, place environment
 (C) Agent, host, environment (D) Agent, environment, time
41. Dicoumarol is antagonist to
 (A) Riboflavin (B) Retinol
 (C) Menadione (D) Tocopherol
42. In new born infants phototherapy may cause hyperbilirubinemia with deficiency of
 (A) Thiamin (B) Riboflavin
 (C) Ascorbic acid (D) Pantothenic acid
43. 'Xanthurenic acid index' is a reliable criterion for the deficiency of the vitamin
 (A) Pyridoxal (B) Thiamin
 (C) Pantothenic acid (D) Cobalamin
44. Folate deficiency causes
 (A) Microcytic anemia (B) Hemolytic anemia
 (C) Iron deficiency anemia (D) Megaloblastic anemia
45. Pantothenic acid contains an amino acid which is
 (A) Aspartic acid (B) Glutamic acid
 (C) β -Alanine (D) β -Aminoisobutyric acid
46. Vitamin B12 is
 (A) Not stored in the body (B) Stored in bone marrow
 (C) Stored in liver (D) Stored in RE cells

47. Nyctalopia is
 (A) Drying of eyes (B) Destruction of cornea
 (C) Blindness (D) Inability to see in dim light
48. The compound which has the lowest density is
 (A) Chylomicron (B) α -Lipoprotein
 (C) β -Lipoprotein (D) Pre β -Lipoprotein
49. A Holoenzyme is
 (A) Functional unit (B) Apo enzyme (C) Coenzyme (D) All of these
50. Kernicterus can occur in
 (A) Haemolytic jaundice (B) Hepatic jaundice
 (C) Obstructive jaundice (D) All of these
51. Vitamin synthesized by bacteria in the intestine is
 (A) A (B) C (C) D (D) K
52. Secretion of growth hormone is inhibited by
 (A) Somatomedin C (B) Somatostatin
 (C) Feedback inhibition (D) All of these
53. Suspected colonies of *Staphylococcus aureus* when grown on Baird-Parker medium shall show
 (A) Coagulase activity (B) Protease activity
 (C) Catalase activity (D) None of these
54. Tetany can occur
 (A) In primary hyperparathyroidism
 (B) In secondary hyperparathyroidism
 (C) In idiopathic hypoparathyroidism
 (D) After accidental removal of parathyroid glands
55. A study that compares the prevalence of suspected causal factors between those with and without disease is a/an:
 (A) Cohort study (B) Experimental study
 (C) Meta-analysis (D) Case-control study

56. Which of one of the following is not GUT hormone?
 (A) Motiline (B) Secretion
 (C) Gastrin (D) Calcitonin
57. Which of the following organ prefers fructose to glucose
 (A) Liver (B) Testes (C) Pancreas (D) Heart
58. During baking, a brown crust develops on the outside of a loaf of bread as the result of
 (A) Coagulation (B) Denaturation
 (C) Dextrinisation (D) Emulsification
59. Insignificant amount of Vitamin E is present in
 (A) Wheat germ oil (B) Sunflower seed oil
 (C) Safflower seed oil (D) Fish liver oil
60. The time temperature combination for HTST pasteurization of 71.1°C for 15 sec is selected on the basis of
 (A) *Coxiella burnetii* (B) *E. coli*
 (C) *B. subtilis* (D) *C. botulinum*
61. An enzyme which uses hydrogen acceptor as substrate is
 (A) Xanthine oxidase (B) Aldehyde oxidase
 (C) Catalase (D) Tryptophan oxygenase
62. The major lipid in chylomicrons is
 (A) Triglycerides (B) Phospholipids
 (C) Cholesterol (D) Free fatty acids
63. Serum acid phosphatase level increases in
 (A) Metastatic carcinoma of prostate (B) Myocardial infarction
 (C) Wilson's disease (D) Liver diseases
64. A hormone synthesised in the hypothalamus is
 (A) Melatonin (B) Melanocyte stimulating hormone
 (C) Vasopressin (D) Prolactin

65. The pH optima for pancreatic amylase is
 (A) 4.0 (B) 7.1 (C) 7.9 (D) 6.7
66. Glucose absorption is promoted by
 (A) Vitamin A (B) Thiamin (C) Vitamin C (D) Vitamin K
67. According to estimates based on disability-adjusted life years, which of the following will be the greatest cause of disability adjusted life years globally after cardiovascular diseases?
 (A) Cancer (B) Diabetes (C) Depression (D) Accidents
68. What is the operating principle behind oven drying for determining moisture content of foods?
 (A) colour change is measured
 (B) loss of weight represents loss of water
 (C) change in refractive index is measured
 (D) change in light absorbance is measured
69. All mammalian steroid hormones are formed from
 (A) Purine (B) Pyrimidine (C) Cholesterol (D) Pyrrole
70. Serum lipase level increases in
 (A) Paget's disease (B) Gaucher's disease
 (C) Acute pancreatitis (D) Diabetes mellitus
71. Biological value of egg white protein is
 (A) 94 (B) 83 (C) 85 (D) 77
72. Which of the following is true about ISO 2002 method for Salmonella detection?
 (A) Selenite cystine (SC) broth is replaced by Muller Kauffmann tetrathionatenovobiocin broth (MKTn)
 (B) Rappaport Vassiliadis (RV) broth has been replaced by Rappaport Vassiliadis Soya (RVS) broth
 (C) XLD is the first isolation medium rather than BGA
 (D) All of these
73. The percentage of linoleic acid in safflower oil is
 (A) 73 (B) 57 (C) 40 (D) 15

74. *Canned sweetened condensed milk may become thickened by*
(A) *Bacillus species* (B) *Clostridium species*
(C) *Micrococcus species* (D) *Saccharomyces species*
75. *A decrease in the ionized fraction of serum calcium causes*
(A) Tetany (B) Rickets
(C) Osteomalacia (D) Osteoporosis
76. *High acid foods with a pH above 5.3 are especially subjected to*
(A) flat sour spoilage (B) putrefaction
(C) both (A) and (B) (D) TA spoilage
77. *Which of the following ingredients in chocolate milk comes from seaweed?*
(A) Carrageenan (B) Cocoa
(C) Sucrose (D) Glucose
78. *The population of the world in 2012 is approximately:*
(A) 2 billion (B) 5 billion (C) 7 billion (D) 15 billion
79. *The crushed grapes used for wine manufacturing are also known as*
(A) Wort (B) Must (C) Hop (D) Pilsener
80. *An example of scleroprotein is*
(A) Zein (B) Keratin (C) Glutenin (D) Ovoglobulin
81. *Prevalence includes*
(A) New cases
(B) New cases occurring in a defined time period
(C) Existing cases present at a single time point
(D) New cases, plus existing cases plus deaths
82. *Which of the following analytical methods can be used to distinguish flavour compounds?*
(A) Hydrometry (B) Near infrared spectroscopy
(C) Polarimetry (D) Gas chromatography

83. Bacterial soft rot is caused due to
 (A) fermentation of pectin (B) fermentation of sugars
 (C) formation of ketones (D) formation of amino acids
84. When ATP forms AMP
 (A) Inorganic pyrophosphate is produced (B) Inorganic phosphorous is produced
 (C) Phsophagen is produced (D) No energy is produced
85. The limiting amino acid of fish proteins is
 (A) Tryptophan (B) Cysteine (C) Lysine (D) Threonine
86. The smallest immunoglobulin is
 (A) Ig G (B) Ig E (C) Ig D (D) Ig A
87. An increase in carbohydrate metabolism is accompanied by temporary decrease in serum
 (A) Calcium (B) Phosphate (C) Iron (D) Sodium
88. In rickets of the common low-phosphate variety, serum phosphate values may go as low as
 (A) 1-2 mg/100 ml (B) 2-3 mg/100 ml
 (C) 3-4 mg/100 ml (D) 4-5 mg/100 ml
89. Which of the following species can cause bitterness, acidity and curdling in canned milk, cream and evaporated milk?
 (A) *Bacillus* (B) *Clostridium*
 (C) both (A) and (B) (D) *Saccharomyces*
90. In hepatic diseases
 (A) Both the bound iron and total iron binding capacity of the plasma may be low
 (B) Both the bound iron and total iron binding capacity of the plasma may be high
 (C) Only bound iron may be high
 (D) Only the total iron binding capacity may be high
91. Which of the following organism is found at the initial stages in the fermentation of Idli batter?
 (A) *Leuconostoc mesentroides* (B) *Aspergillus niger*
 (C) *Lactobacillus acidophilus* (D) *Saccharomyces cerevisiae*

92. What is the primary reason for blanching foods?
 (A) Cleans the food (B) Inactivates enzymes found in food
 (C) Prevents pest infestation (D) Prevents food from drying out
93. The aldose sugar is
 (A) Glycerose (B) Ribulose
 (C) Erythrulose (D) Dihydroxyacetone
94. A carbohydrate, known commonly as invert sugar, is
 (A) Fructose (B) Sucrose (C) Glucose (D) Lactose
95. An example of a saturated fatty acid is
 (A) Palmitic acid (B) Oleic acid (C) Linoleic acid (D) Erucic acid
96. Gluconeogenesis is decreased by
 (A) Glucagon (B) Epinephrine
 (C) Glucocorticoids (D) Insulin
97. Incidence includes
 (A) New cases
 (B) New cases occurring in a defined time period
 (C) Existing cases present at a single time point
 (D) New cases, plus existing cases plus deaths
98. Alcohol dehydrogenase converts ethanol into
 (A) Acetyl CoA (B) Acetaldehyde
 (C) Acetate (D) CO₂ and H₂O
99. The tissues with the highest total glycogen content are
 (A) Muscle and kidneys (B) Kidneys and liver
 (C) Liver and muscle (D) Brain and Liver
100. The application of Gamma rays destroys botulism toxin. The dose of gamma rays required for this purpose is
 (A) 73 Gy (B) 7.3 Rad (C) 7.3 M Rad (D) 17.3 Rad