

ENTRANCE EXAMINATION FOR ADMISSION, MAY 2010.

Ph.D (FOOD SCIENCE AND NUTRITION)

COURSE CODE : 152

Register Number :



Signature of the Invigilator
(with date)

COURSE CODE : 152

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. The precursor of niacin is
 - (A) Pyridoxine
 - (B) Riboflavin
 - (C) Tryptophan
 - (D) Leucine
2. Transcobalamine is the _____ that binds Vitamin B₁₂
 - (A) Carbohydrate
 - (B) Fat
 - (C) Protein
 - (D) Mineral
3. Which of the following is not a good source of choline?
 - (A) Egg yolk
 - (B) Greens
 - (C) Wheat germ
 - (D) Heart
4. Biotin acts as a Coenzyme in the conversion of acetyl CoA to
 - (A) Succinyl coa
 - (B) Malonyl coa
 - (C) Fumaryl coa
 - (D) All the above.
5. Retinal combines with a protein to form
 - (A) Rhodopsin
 - (B) Retinoic acid
 - (C) Retinene
 - (D) None of the above
6. Tocopherols are found in
 - (A) Fats
 - (B) Cereals
 - (C) Dark green leafy vegetables
 - (D) All the above
7. Phenobarbitone and alcohol interferes with the action of
 - (A) Coagulants
 - (B) Anticogulants
 - (C) Hormones
 - (D) Synthesis of prothrombin
8. Bioflavanoids are
 - (A) Vitamin B₁₂
 - (B) Vitamin B₁
 - (C) Vitamin H
 - (D) Vitamin P

9. Hyponatraemia results when the serum sodium falls below
- (A) 140 m Eq/l (B) 130 m Eq/l
(C) 120 m Eq/l (D) 110 m Eq/l
10. The absorption of potassium is mainly from
- (A) Stomach (B) Small intestine
(C) Large intestine (D) Duodenum
11. The shift of potassium into ICF causes
- (A) Convulsions (B) Coma
(C) Paralysis (D) All the above.
12. Apoferritin combines with iron to form
- (A) Haemoglobin (B) Transferrin
(C) Ferritin (D) Porphyrin
13. The plasma iron level is about
- (A) 20-50 mcg/100 ml (B) 60-100 mcg/100 ml
(C) 75-120 mcg/100 ml (D) 100-125 mcg/100 ml
14. The kidney excretes about _____ mg of phosphate daily.
- (A) 250 (B) 500
(C) 750 (D) 1000
15. In normal persons, the level of magnesium excretion is about
- (A) 35-224 mg (B) 15-200 mg
(C) 20 mg (D) 210 mg
16. The daily requirement of iodine is
- (A) 125 mg (B) 150 mg
(C) 175 mg (D) 200 mg
17. High serum copper level occurs in
- (A) Leukemia (B) Hemochromatosis
(C) Myocardial infarction (D) All the above

18. Kayser-Fleischer ring is due to copper deposits at the
- (A) Margin of cornea (B) Liver
(C) Lung (D) Arteries
19. The total body chloride content is about
- (A) 2000 m Eq (B) 2100 m Eq
(C) 2150 m Eq (D) 2200 m Eq
20. The maximum capacity of water absorption from the entire human bowel is
- (A) 10 l/day (B) 21 l/day
(C) 30 l/day (D) 40 l/day
21. Assertion (A): Colour blindness is a genetically transmitted disease.
Reason (R): Colour blindness results from the absence of cone cell, of cone or all types, in the retina.
- (A) A and R are true but R is not the correct explanation of A
(B) A and R are true and R is the correct explanation of A
(C) A is true but R is false
(D) Both A and R are false
22. Meningitis, a type of inflammation, affects
- (A) Brain (B) Liver
(C) Wind pipe (D) Small intestine
23. Old people are more prone to hypertension because
- (A) The elasticity of arteries increases with age
(B) The elasticity of arteries decreases with age
(C) The size of the heart decreases with age
(D) They have more worries
24. Which of the following human diseases is not heredity in nature?
- (A) Hemophilia (B) Phenylketonuria
(C) Sickle cell anemia (D) Goitre

25. Which of the following is a side effect of cancer therapy?
- (A) Dry mouth
 - (B) Taste alterations
 - (C) Swallowing problem
 - (D) All of these
26. Which of the following causes diarrhoea in humans?
- (A) *Vampirovibrio*
 - (B) Spirosomacease
 - (C) *Camphylobacter jejuni*
 - (D) *Campylobacter fetus*
27. An agent that kills the growing forms but not necessarily the resistant spore forms of germs
- (A) Bactericide
 - (B) Microbicide
 - (C) Fungicide
 - (D) Sporicide
28. A milk product that has been devised for therapeutic use is
- (A) Hard acidophilus milk
 - (B) Sweet acidophilus milk
 - (C) Helophilus milk
 - (D) None of the above
29. Who discovered vaccination for small pox using cowpox vaccine?
- (A) Franz Schultze
 - (B) John Necdham
 - (C) Edward Jenner
 - (D) Francesco Redi
30. Bacteria that require low levels of oxygen for growth but cannot tolerate the level of oxygen present in an air atmosphere are
- (A) Facultatively anaerobic bacteria
 - (B) Microaerophilic bacteria
 - (C) Aerobic bacteria
 - (D) Anerobic bacteria
31. Miso is a culture of
- (A) *Aspergillus oryzae*
 - (B) *Trypanosoma guzi*
 - (C) *Lishmaniaris braziliensis*
 - (D) *Plasmodium vivax*

32. Gastro intestinal illness in humans is caused by
- (A) *Yersinia enterocolitica*
 - (B) *Plasmodium falciparum*
 - (C) *Phlebotomus argentipus*
 - (D) *Trypanosoma gambiense*
33. Incubation period of shigella is
- (A) 16-17 hrs
 - (B) 12-15 hrs
 - (C) 15-18 hrs
 - (D) 9-10 hrs
34. The bacteria found in fermented products such as fruit juices and organic matter containing sugars are
- (A) Staphylococci
 - (B) Streptococci
 - (C) Deploccous
 - (D) Pneumococcus
35. A drug used for the treatment of neisseria gonorrhoeae
- (A) Sulphonamides
 - (B) Sulphadiazine
 - (C) Sulphadimidine
 - (D) Penicillin
36. Putrefaction of foods is caused by
- (A) *Clostridium lentum putrescens*
 - (B) *Campylobacter fetus*
 - (C) *Corynebacterium bovis*
 - (D) None of the above
37. Who has been called the "father of canning"?
- (A) Robert Koch
 - (B) Alfred Vivian
 - (C) Nicolas Appert
 - (D) John Tyndall.
38. Downy mildew is caused by
- (A) *Penicillium digitatum*
 - (B) *Phytophthora*
 - (C) *Sclerotinia*
 - (D) *Diplodia*
39. One of the major bacteria involved in the spoilage of vacuum packed chicken are
- (A) *Acinetobacter*
 - (B) *Pseudomonas*
 - (C) *Enterobacter*
 - (D) Lactic acid bacteria

40. An example for gamma-globulin from an actively immune person
- (A) Tetanus (B) Diphtheria
(C) Small pox (D) Measles
41. The central nervous system is affected by
- (A) Dermotropic viruses (B) Neurotropic viruses
(C) Varicose viruses (D) Gemicedal viruses
42. The common cause of candidiasis
- (A) Candida moniliasis (B) Candida albicans
(C) Candida carotovora (D) Candida lentoputrescens
43. The ropiness may be throughout the milk caused by the organisms
- (A) Alcaligenes viscosus (B) Aerobacter aerogenes
(C) Achromobacter (D) Coliform bacteria
44. One of the foods involved in staphylococcus food poisoning are
- (A) Ham (B) Fish
(C) Bread (D) Milk
45. Colourless rot is caused in the egg by
- (A) Peudomonas (B) Achromobacter
(C) Cladosporium (D) Mucor
46. Resistance against a number of viruses diseases may be produced by the administration of vaccines by
- (A) Active immunization (B) Passive immunization
(C) Mutation (D) Pathogenicity
47. DNA recombinant technology is also known as
- (A) Genetic engineering (B) Tissue culture
(C) Totipotency (D) Hardening
48. A fatal kind of food poisoning is
- (A) Clostridium welchi (B) Clostridium tetani
(C) Clostridium botulinum (D) None of the above

49. The temperature required for pasteurization
- (A) 62°C - 72°C (B) 52°C - 60°C
(C) 79°C - 85°C (D) 90°C - 95°C
50. Slant Method of inoculation is a
- (A) Enriched media (B) Distribution of media
(C) Dehydrated cultured media (D) None of the above
51. The volatile component in cardamom is
- (A) Cineole (B) Camphor
(C) Carvacrol (D) Camphene
52. When chocolate are stored at 75-80% humidity _____ is seen
- (A) Fat bloom (B) Sugar bloom
(C) Dew stage (D) Yellow surface
53. The alcoholic beverage made from alcohol and grain distillate by special process is known as
- (A) Absinthe (B) Bitters
(C) Aquavit (D) Vodka
54. Carbonyl groups of aldehyde which undergo nucleophilic attachment by oxygen atom or hydroxyl group produce
- (A) Acetal (B) Hemiacetal
(C) Glycosides (D) Carrageenans
55. The water soluble, non starch food polysaccharide derived from cellulose is
- (A) Carboxymethyl cellulose (B) Gar gum
(C) Locust gum (D) Xanthum gum
56. Carotenoid is a
- (A) Simple lipid (B) Compound lipid
(C) Derived lipid (D) None of the above

57. The viscosity property of whey protein is due to
- (A) Hydrophobic bonding
 - (B) Water binding
 - (C) Adsorption
 - (D) Film formation
58. The volume of oil that can be emulsified per gram of protein before phase inversion occurs is known as
- (A) Emulsion stability
 - (B) Emulsion capacity
 - (C) Emulsion activity index
 - (D) Emulsion load
59. Name the enzyme which brings about the fermentation of tea leaves in tea processing
- (A) Proteinase
 - (B) Phenylalanine ammonia-lyase
 - (C) Dehydroshikimate reductase
 - (D) Polyphenol oxidase
60. The structural group of carotenoids is
- (A) Oxygenated xanthophylls
 - (B) Xanthophylls
 - (C) α xanthophylls
 - (D) β xanthophylls
61. The volatile compound responsible for flavor in lemon is
- (A) Ethanol
 - (B) Octanal
 - (C) Neral
 - (D) Citral
62. The volatile component in coriander is
- (A) Linalool
 - (B) Cineole
 - (C) Eugenol
 - (D) Carvacrol
63. Aroma of the tomato is due to
- (A) (Z)-3-hexenal
 - (B) (E)-2-nonenal
 - (C) Linolenic acid
 - (D) 3,6-nonadienal
64. The water soluble, non starch food polysaccharide derived from red algae is
- (A) Acetal
 - (B) Hemiacetal
 - (C) Glycosides
 - (D) Carrageenans

65. The smallest spatial unit of repetition along the chain axis within the unit cell is termed as
- (A) Subcell (B) Transition point
(C) Short spacing (D) Long spacing
66. The stimulating effect in coco is brought by
- (A) Pentosans (B) Theobromine
(C) Catechins (D) Epigallocatechin
67. The foaming property of egg protein is due to
- (A) Hydrophobic bonding (B) Film formation
(C) Adsorption (D) Hydrogen bonding
68. The volatile compound responsible for flavor in orange is
- (A) Ethanal (B) Neral
(C) Geranial (D) Neryl acetate
69. The enzymes glycosidases and polyphenol oxidases are known as
- (A) Anthoxanthinases (B) Anthocyanases
(C) Glucophenolases (D) Glucooxidases
70. Emulsions stability is expressed as
- (A) $(\text{Volume of cream level} / \text{total volume of emulsion}) \times 100$
(B) $(\text{Volume of emulsion} / \text{volume of cream level}) \times 100$
(C) $(100 \times \text{volume of cream level}) / \text{volume of emulsion}$
(D) $(100 \times \text{volume of emulsion}) / \text{volume of cream level}$
71. The primary ester bonds of triacylglycerol is hydrolyzed by
- (A) Pancreatic lipase
(B) Pancreatic hydrolase
(C) Pancreatic oxidase
(D) Pancreatic triacylase
72. The prominent enzyme in honey is
- (A) α glucosidase (B) β glucosidase
(C) Galactase (D) Glucose reductase

73. The volatile component in clove is
 (A) Carvacrol (B) Eugenol
 (C) Cineole (D) Linalool
74. Formation of oxymyoglobin, when molecular oxygen binds to myoglobin is termed as
 (A) Oxidation (B) Oxygenation
 (C) Dehydration (D) Dehydrogenation
75. Avidin is one of the proteins of
 (A) Milk (B) Meat
 (C) Egg (D) Fish
76. Example of a sulfur containing amino acid is
 (A) Cysteine (B) Glutamine
 (C) Arginine (D) Histidine
77. Example of an amino acid with aromatic ring is
 (A) Histidine (B) Arginine
 (C) Glutamine (D) Alanine
78. The mechanism by which one or more products are released from the enzymes before all the substrate are added are known as
 (A) Sequential reaction (B) Ping pong reaction
 (C) Random order reaction (D) Compulsory order reaction
79. Carbohydrates are also described as
 (A) Polyhydric alcohols (B) Polyhydric ketones
 (C) Polyhydric aldehydes (D) Polyhydric acid
80. Example of a polysaccharide is
 (A) Verbascose (B) Glucoheptose
 (C) Dihydroxyacetone (D) Inulin
81. The test in which sugar solution is boiled with copper acetate and acetic acid is
 (A) Nylanders test (B) Osazone formation
 (C) Barfoeds test (D) Glucazone formation

82. Example of phospholipid is
- (A) Choline (B) Sphingomyelin
(C) Ethanolamine (D) Glycerides
83. Saponification is also known as
- (A) Alkali hydrolysis
(B) Enzyme hydrolysis
(C) Acid hydrolysis
(D) None of the above
84. The test that is used to detect oxidative rancidity is
- (A) Fried's test (B) Kries test
(C) Methyl's test (D) Gallic acid test
85. Lecithinase enzyme found in cobra venom is
- (A) Lecithinase D (B) Lecithinase B
(C) Lecithinase A (D) Lecithinase C
86. Partial hydrolysis of collagen by steam gives
- (A) Gelatin (B) Protamines
(C) Phosphoprotein (D) Casein
87. The protein that contains prophyrin as the prosthetic group is termed as
- (A) Metalloprotein (B) Lipoprotein
(C) Chromoprotein (D) Mucoprotein
88. In the Embden Meyerhof pathway, conversion of glucose-6-phosphate to fructose-6-phosphate is catalysed by the enzyme
- (A) Phosphofructokinase
(B) Phosphoglyceromutase
(C) Phosphoglyceratekinase
(D) Enolase

89. In the Embden Meyerhof pathway, conversion of 3-phosphoglycerate to 2-phosphoglycerate is catalyzed by the enzyme
- (A) Phosphofructokinase
 - (B) Phosphoglyceromutase
 - (C) Phosphoglyceratekinase
 - (D) Enolase
90. In the Embden Meyerhof pathway, conversion of 3-phosphoglycerate to phosphoenolpyruvate is catalyzed by the enzyme
- (A) Phosphofructokinase
 - (B) Phosphoglyceromutase
 - (C) Phosphoglyceratekinase
 - (D) Enolase
91. In the conversion of glucose -1- phosphate to uridine diphosphate glucose _____ is liberated
- (A) Pyrophosphate
 - (B) Inorganic phosphorus
 - (C) Organic phosphorus
 - (D) None of the above
92. The formation of glucose from non-carbohydrate source is known as
- (A) Glycogenesis
 - (B) Gluconeogenesis
 - (C) Glycogenolysis
 - (D) Glycolysis
93. Completion oxidation of one molecule of glucose yields
- (A) 57000 calories of energy
 - (B) 600,000 calories of energy
 - (C) 625,000 calories of energy
 - (D) 686,000 calories of energy

94. What is the type of reaction involved in the conversion of xylulose-5- phosphate to form glyceradehyde -3- phosphate
- (A) Transadolation (B) Dehydrogenation
(C) Transketototation (D) Oxidation
95. Which hormone increased the blood glucose levels by increasing glycogenolysis and glycolysis
- (A) Epinephrine (B) Adrenocorticotrophic
(C) Thyroid stimulating hormone (D) Glucagon
96. In the activation of fatty acid with ATP and CoA to form acyl thioester of CoA in beta oxidation of fatty acid _____ is released
- (A) Acetyl CoA (B) Adenylic acid
(C) Enol-CoA (D) Hydroxyl CoA
97. Lipositol is derived from
- (A) Lecithin (B) Cephalin
(C) Diglyceride (D) Phospharidic acid
98. In the biosynthesis of cholesterol mevalonic acid is phosphorylated to form
- (A) Isopentenyl pyrophosphate
(B) Farnesyl pyrophosphate
(C) Lanosterol
(D) Squalene
99. The hormone that accelerated the catabolism of protein is
- (A) Growth hormone (B) Insulin
(C) Adrenocorticotropic (D) Testosterone
100. Example of an amino acid with side chain containing basic group is
- (A) Arginine (B) Histidine
(C) Proline (D) Cysteine
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