ENTRANCE EXAMINATION FOR ADMISSION, MAY 2012.

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 of the 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. Simmering is
   (A) Closing the mouth of can during canning process
   (B) Gentle boiling with temperature about 100°C
   (C) Killing the microorganism with the help of antibiotics
   (D) Method of removal of contaminants from the raw material

2. Obesity and Overweight are major risk factors for diseases such as
   (A) Colon Cancer (B) Lung Diseases
   (C) Diabetes (D) Thyroid cancer

3. Trans fatty acids are found in some plant oils such as
   (A) Pomegranate oil (B) Mustard oil
   (C) Coconut oil (D) Citrus oil

4. A substance incorporates into a polymeric material to increase its deformity is called
   (A) Stabilizer (B) Emulsifier
   (C) Plasticizer (D) All of the above

5. Colorant used in butter is
   (A) Annato (B) Erythrosine
   (C) Congo red (D) None of the above

6. "Pinking" can be avoided by
   (A) Blanching (B) AR enamel
   (C) Treatment of fruit with vinegar (D) Blairs process

7. Maximum amount of psi angle in the peptide bond is
   (A) –40° (B) –50°
   (C) –60° (D) –70°

8. The peptide bond has
   (A) Planar structure (B) Angular structure
   (C) Tetrahedral structure (D) Pyramidal structure

9. Due to the presence of one or more asymmetric carbon atom, stereoisomerism is found in carbohydrates except
   (A) Dihydroxy acetone (B) Glyceraldehyde
   (C) Talose (D) Mannose

10. What is Ale?

(A) Fermented corn
(B) Type of beer
(C) Fermented carrot
(D) None of the above

11. Ginger beer is produced by the use of

(A) *Lactobacillus bulgaricus*
(B) *Saccharomyces bulgaricus*
(C) *Saccharomyces pyriformis*
(D) *Rhizopus sonti*

12. Sarcina sickness is the defect of

(A) Wine
(B) Sauer kraut
(C) Beer
(D) Bread

13. Green beer is

(A) Spoiled beer contaminated by Pseudomonas sp.
(B) An artificial beer manufactured by mixing water with beer flavor and added color
(C) Beer like beverage obtained from plant extract
(D) Freshly prepared beer which is further stored at 0°C for few months

14. Rum is

(A) distilled liquor
(B) undistilled liquor
(C) Fortified wine
(D) Byproduct of brewing industry

15. The force involved in crushers is

(A) Impact force
(B) Compression
(C) Attrition
(D) Pseudo force

16. Reynolds number is

(A) Ratio b/w inertial force and viscous force
(B) Ratio b/w viscuous force and inertial force
(C) Ratio b/w inertial force and pressure
(D) Ratio b/w viscuous force and pressure difference

17. Which of the following is a biotin binder?

(A) Avidin
(B) Aflatoxin
(C) Gossypol
(D) Ovalbumin

18. The Tylor standard screen series is based on

(A) 240 mesh screen
(B) 200 mesh screen
(C) 150 mesh screen
(D) 100 mesh screen

19. Electrostatic separator make use of

(A) Magnetic properties
(B) Electrical properties
(C) Densities
(D) Moisture content

20. Which of the following is power number?

(A) NDa^2p/μ
(B) N^2D_a/p
(C) $pg_e/N^3\ Da^5$
(D) NDP^2/p

21. For a Newtonian fluid, the slope of the graph between shear stress and shear rate is

(A) Tan 45°
(B) Tan 60°
(C) Tan 90°
(D) Tan 30°

22. The most widely used blade is

(A) Dispersion
(B) Sigma
(C) Double naben
(D) All of the above

23. Hagen-Poiseulle equation is useful for measuring the

(A) Viscosity
(B) Density
(C) Heat capacity of the fluid
(D) Reynold number of the fluid

24. At _____ moisture content constant rate period ends and falling rate period starts.

(A) Critical
(B) Specific
(C) 90%
(D) Initial

25. Which of the following is a variable arm meter?

(A) Venturimeter
(B) Rotameter
(C) Pitotmeter
(D) All of the above

26. Food gels are examples of

(A) Plastic solids
(B) Elastic solids
(C) Gels are not solids
(D) None of the above

27. What makes the endoplasmic reticulum rough? The presence of

(A) Cellulose in the membrane
(B) Protein in the membrane
(C) Ribosomes
(D) Cilia on the outer wall

28. A chemical linked to long-term effect such as cancer, sterility and birth defects could cause which of the following

(A) chronic toxicity
(B) acute toxicity
(C) defect action levels
(D) total adverse response

29. LD5O represents

(A) The concentration of a chemical at which half of the test animals die
(B) A test for neurotoxins
(C) Lethality when the dosage level is multiplied by 50
(D) A measurement of species specificity

30. Two sugars differing only in configuration around one specific carbon atom are called

(A) Anomer
(B) Epimer
(C) Isomers
(D) Conformers

31. A toxin commonly found in corn and peanuts is:

(A) Solanine (B) Protease (C) Goitrogens (D) Aflatoxins

32. Which of the Following is not a primary function of protein?

(A) Growth and maintenance of cells
(B) Production of antibodies
(C) Provides good and readily available source of energy
(D) Tissue and nerve development

33. Viruses are known to infect

(A) Plant
(B) Bacteria
(C) Fungi
(D) All organisms

34. Highest unit of radiation is

(A) Rad (B) Gray (C) Kilo gray (D) Megarad

35. A chemical with sporicidal property is

(A) Phenol
(B) Alcohol
(C) Quaternary ammonium compound
(D) Glutaraldehyde

36. During Diastole in heart

(A) All chambers relax (B) All chambers contract

(C) Atria contracts (D) Ventricles contract

37. Organ through which nourishment passes to the fetus is

(A) Uterus (B) Ovum

(C) Fallopian tubes (D) Placenta

38. What structure stores waste produced in a cell?

(A) Vacoule (B) Nucleus

(C) Lysosome (D) Golgi body

39. BMI gives an idea about a person's

(A) Obesity (B) Blood pressure

(C) Height (D) Personality

40. What makes the endoplasmic reticulum rough? The presence of

(A) cellulose in the membrane (B) protein in the membrane

(C) ribosomes (D) cilia on the outer wall

41. Obesity is due to

(A) Less exercise (B) Increased intake

(C) Both (A) and (B) (D) Low intake

42. In which of the following is fats, carbohydrates and proteins digested?

(A) Small intestine (B) Large intestine

(C) Stomach (D) Mouth

43. The bile duct carries bile from the liver to the _____.

(A) small intestine (B) large intestine

(C) pancreas (D) stomach

44. Which of the following is not a simple sugar (monosaccharide)?

(A) Sucrose (B) Glucose

(C) Fructose (D) Galactose

45. Major source of energy in brain is

(A) Glucose (B) Protein

(C) Fat (D) Vitamins

46. Which of the following pair of carbohydrates are anomers of each other?

(A) α-Glucose and β-Glucose (B) α-Glucose and β-Fructose

(C) α-Glucose and α-Mannose (D) All of the above

47. Calcium is needed for

(A) Healthy bones (B) Healthy kidney

(C) Healthy skin (D) Healthy liver

48. Insulin hormone

(A) Increases blood sugar (B) Decreases blood sugar

(C) Produces blood sugar (D) None of the above

49. Nutrition includes the study of _____.

(A) the organism's food (B) process of digestion

(C) the way an organism obtains food (D) all of the above

50. Autotrophic organism include _____.

(A) green plants and sulphur bacteria (B) green plants and all the bacteria

(C) bacteria and virus (D) bacteria and fungi

51. Organisms that synthesise their own food are called _____.

(A) green plants (B) sulphur bacteria

(C) autotrophs (D) Purple-sulphur bacteria

52. Amoeba feeds with the help of _____.

(A) tentacles (B) pseudopodia

(C) food vacuole (D) none of the above

53. An example of higher plant parasite is _____.

(A) Pythium (B) Phytophthora

(C) Agaricus (D) Cuscuta

54. Example of chemosynthetic bacteria are _____.

(A) E. coli
(B) Sulphur bacteria
(C) Cyanobacteria
(D) Nitrobacter

55. An example of a fluid feeder is _____.

(A) aphid
(B) hydra
(C) amoeba
(D) earthworm

56. In saprophytes, food is digested _____.

(A) within the cells
(B) in the digestive tract
(C) outside the cells
(D) within the food vacuole

57. Parotid gland is a /an _____.

(A) gastric gland
(B) intestinal gland
(C) salivary gland
(D) none of the above

58. Erepsin converts _____.

(A) proteins into amino acids
(B) proteins into peptides
(C) peptides into amino acids
(D) none of the above

59. An enzyme that acts only in an acidic medium is _____.

(A) pepsin
(B) trypsin
(C) rennin
(D) amylase

60. A non-enzyme protein present in the saliva is _____.

(A) heparin
(B) mucin
(C) ptyalin
(D) none of the above

61. Coprophagy refers to feeding on _____.

(A) insects
(B) dead matter
(C) faeces
(D) decomposing matter

62. Which of the following pairs are epimers of each other?

(A) D-Glucose and D-mannose
(B) D-Glucose and D-galactose
(C) D-Ribose and D-Arabinose
(D) All of the above

63. Absorption is maximum in the small intestine because of ——————.

(A) the presence of villi
(B) its length
(C) its thin walls
(D) all the above

64. Photolysis is ——————.

(A) the absorption of light by chlorophyll
(B) the assimilation of carbon dioxide
(C) the splitting of water
(D) none of the above

65. The optimum level of carbon dioxide in the atmosphere is ——————.

(A) 0.3%
(B) 0.04%
(C) 0.1%
(D) 0.03%

66. Pyloric valve is present in the ——————.

(A) heart
(B) liver
(C) stomach
(D) intestine

67. Mastication is ——————.

(A) digestion
(B) absorption
(C) assimilation
(D) chewing

68. In the mouth the food is formed into ——————.

(A) chyme (B) chyle (C) bolus (D) pellets

69. An example of a herbivore is ——————.

(A) amoeba
(B) hydra
(C) grasshopper
(D) none of the above

70. Appendix is a part of ——————.

(A) ileum (B) duodenum (C) caecum (D) colon

71. Bile juice is secreted by ——————.

(A) liver (B) pancreas (C) salivary gland (D) Intestine

72. The three portions of the small intestine, in the correct order, are ——————.

(A) caecum, colon, rectum
(B) ileum, duodenum, jejunum
(C) colon, caecum, rectum
(D) duodenum, jejunum, ileum

73. The enzyme that is secreted in an inactive form is ——————.
(A) lipase (B) trypsin (C) rennin (D) ptyalin

74. Exchange of gases in higher plants takes place through ——————.
(A) lenticels (B) roots (C) stomata (D) stem

75. Insectivorous plants grow in soil deficient in ——————.
(A) calcium (B) phosphorus (C) nitrogen (D) water

76. Photosynthesis is ——————.
(A) a catabolic reaction (B) an anabolic reaction
(C) an energy releasing reaction (D) none of the above

77. The digestive juice that is almost neutral is ——————.
(A) gastric juice (B) bile juice
(C) pancreatic juice (D) none of the above

78. The molecules known as the energy currency of the cell are ——————.
(A) NAD (B) NADP (C) ATP (D) ADP

79. The mode of nutrition in non-green plants is called ——————.
(A) autotrophic (B) heterotrophic (C) holozoic (D) holophytic

80. Which of the following are chiefly digested in the stomach?
(A) Carbohydrates (B) Proteins (C) Fats (D) Lipids

81. The reactants of photosynthesis reaction are carbon dioxide and ——————.
(A) chlorophyll (B) sunlight (C) water (D) oxygen

82. Large intestine in man mainly carries out ——————.
(A) digestion of fats (B) absorption
(C) assimilation (D) digestion of carbohydrates

83. Mode of nutrition in green plants is called ——————.
(A) heterotrophic (B) holozoic (C) holophytic (D) saprotrophic

84. The part of the digestive system where no digestion takes place is ——————.

(A) mouth (B) oesophagus (C) ileum (D) stomach

85. The largest gland of the body is ——————.

(A) parotid gland (B) liver

(C) pancreas (D) submandibular gland

86. The liver produces this emulsifying agent and stores in the gall bladder aids fat digestion and absorption.

(A) Bile (B) Amino acids (C) Mucus (D) Cholesterol

87. Thylakoids are found in

(A) ribosomes (B) mitochondria (C) chloroplasts (D) lysosomes

88. In this diet, Dairy products are being used to complement basic diet of plant foods.

(A) Ovo – vegetarian (B) Lacto – ovo – vegetarian

(C) Lacto- vegetarian (D) Partial vegetarian

89. A whole wheat grain is a food to increase contains

(A) Bran, ectosperm, germ

(B) All Bran, ectosperm, germ

(C) Bran, endosperm, viru

(D) Bran, endosperm, germ

90. This carbohydrate is a vital emergency fuel for heart

(A) Glucose (B) Fructose

(C) Glycogen (D) Glucogenesis

91. Which of the following denote the protein quality of a food?

(A) PER (B) Chemical score

(C) NPU (D) BMR

92. Daily requirement of protein in terms of mixed food for an adult is

(A) 2 gm/kg body wt. (B) 1 gm/kg body wt.

(C) 3 gm/kg body wt. (D) 1.5 gm/kg body wt.

93. Agar is superior to gelatin as a solidifying agent, because agar
(A) does not melt at room temperature
(B) solidifies at 75°C
(C) is not usually decomposed by microorganism
(D) both (A) and (C)

94. In general fungi derive nutrients through
(A) Photosynthesis (B) Engulfying bacteria
(C) Digesting organic substances (D) Parasitism

95. Chemical method for estimating growth of mould is
(A) ATP (B) Chitin (C) Pectin (D) Lipid

96. Ureotelic animal are those which eliminate the nitrogenous wastes predominantly in the form of:
(A) uric acid (B) ammonia (C) amino acids (D) urea

97. Osmoregulation is control over the:
(A) removal of nitrogen from the body
(B) concentrations of salt and water in the body
(C) osmotic properties of cell membranes
(D) pH of the blood

98. The vessel which leads blood into the Bowman's capsule is:
(A) afferent arteriole (B) efferent arteriole
(C) renal vein (D) renal artery

99. Glomerular filtration is possible because:
(A) afferent arteriole has less diameter than the efferent arteriole
(B) afferent arteriole has more diameter than the efferent arteriole
(C) both have the same diameter
(D) afferent capillaries have more diameter than efferent capillaries

100. The liquid which collects in the cavity of Bowman's capsule is:
(A) concentrated urine (B) blood plasma minus blood proteins
(C) glycogen and water (D) used bile for excretion