Roll No. .....

Question Booklet Number

O. M. R. Serial No.

M. Sc. (Industrial Chemistry) (Fourth Semester) EXAMINATION, 2022-23

FOOD SCIENCE AND AGROCHEMICALS

Paper Code						
M	S	I	C	4	0	2

Questions Booklet Series
A

Time : 1:30 Hours] [*Maximum Marks : 75*

Instructions to the Examinee :

1. Do not open the booklet unless you are asked to do so.
2. The booklet contains 100 questions. Examinee is required to answer 75 questions in the OMR Answer-Sheet provided and not in the question booklet. All questions carry equal marks.
3. Examine the Booklet and the OMR Answer-Sheet very carefully before you proceed. Faulty question booklet due to missing or duplicate pages/questions or having any other discrepancy should be got immediately replaced.

परीक्षार्थियों के लिए निर्देश :

1. प्रश्न-पुस्तिका को तब तक न खोलें जब तक आपसे कहा न जाए।
2. प्रश्न-पुस्तिका में 100 प्रश्न हैं। परीक्षार्थी को 75 प्रश्नों को केवल दी गई OMR आन्सर-शीट पर ही हल करना है, प्रश्न-पुस्तिका पर नहीं। सभी प्रश्नों के अंक समान हैं।
3. प्रश्नों के उत्तर अंकित करने से पूर्व प्रश्न-पुस्तिका तथा OMR आन्सर-शीट को सावधानीपूर्वक देख लें। दोषपूर्ण प्रश्न-पुस्तिका जिसमें कुछ भाग छपने से छूट गए हों या प्रश्न एक से अधिक बार छप गए हों या उसमें किसी अन्य प्रकार की कमी हो, तो उसे तुरन्त बदल लें।

(Remaining instructions on the last page) (शेष निर्देश अन्तिम पृष्ठ पर)

(Only for Rough Work)

1. Which of the following is not an oligosaccharide ?

(A) Sucrose

(B) Lactose

(C) Maltose

(D) Starch

2. Glycosides are the condensation products of :

(A) sugar with non-sugars

(B) protein with lipids

(C) sugars and salt

(D) None of the above

3. The food value of proteins depends on the nature and content of ..... in its structural units.

(A) carboxylic acids

(B) phenols

(C) amino acids

(D) glucose

4. Soybean is rich in :

(A) carbohydrate

(B) vitamins

(C) minerals

(D) protein

5. Which of the following are also called as accessory nutrients ?

(A) Vitamins

(B) Minerals

(C) Proteins

(D) Pigments

6. Algin is a product of :

(A) Red algae

(B) Brown algae

(C) Seaweed

(D) Bacteria

7. Triglycerides are acyl derivatives of :

(A) glycerol

(B) sucrose

(C) starch

(D) None of the above

8. Lipoproteins are protein complexed with :

(A) sugars

(B) glycerol

(C) lipids

(D) All of the above

9. Denaturation of protein molecule is the result of the modification of the :

(A) secondary structure

(B) tertiary structure

(C) quaternary structure

(D) All of the above

10. Vitamin A is :

(A) Alcohol

(B) Acid

(C) Ketone

(D) Aldehyde

11. Retinol is essential for :

(A) body building

(B) night vision

(C) bones

(D) None of the above

12. Deficiency of cholecalciferol leads to :

(A) nightblindness

(B) scurvy

(C) botulism

(D) rickets

13. Which of the following is a micro mineral ?

(A) Sodium

(B) Chloride

(C) Calcium

(D) Zn

14. Which of the following vitamins helps in blood clotting ?

(A) Vitamin A

(B) Vitamin B

(C) Vitamin C

(D) Vitamin K

15. Which of the following diseases is caused by the deficiency of Niacin ?

(A) Scurvy

(B) Beriberi

(C) Anemia

(D) Pellagra

16. Cobalamine is :

(A) Vitamin B_1

(B) Vitamin B_2

(C) Vitamin B_6

(D) Vitamin B_{12}

17. An apple is a rich source of which of the following nutrients ?

(A) Sodium

(B) Potassium

(C) Phosphorus

(D) Magnesium

18. Vitamin D helps in the absorption of which of the following elements ?

(A) Iodine and Calcium

(B) Iodine and Zinc

(C) Calcium and Magnesium

(D) None of the above

19. Richest source of Vitamin E is :

(A) coconut oil

(B) wheat germ oil

(C) mustard oil

(D) peanut oil

20. Best source of Vitamin D is :

(A) carrot

(B) walnut

(C) sunlight

(D) UV light

21. Citrus fruits are good source of :

(A) Vitamin A

(B) Vitamin C

(C) Vitamin D

(D) Vitamin K

22. Maltose is a disaccharide of :

(A) Glucose + Fructose

(B) Glucose + Lactose

(C) Glucose + Glucose

(D) Glucose + Galactose

23. The flavour of grape fruit is due to :

(A) Lemonene

(B) Nootkanone

(C) Neral

(D) None of the above

24. Delayed bitterness in citrus fruit juice is due to :

(A) Lemonene

(B) Limonene

(C) Neral

(D) Geranial

25. The characteristic odour of garlic is due to :

(A) Allicin

(B) Naringin

(C) Ethylene

(D) None of the above

26. Flavour components of vegetables of brassica family are :

(A) Oxygen compounds

(B) Sulphur compounds

(C) Esters

(D) Organic acids

27. Benzaldehyde is flavour component of :

(A) Cheese

(B) Banana

(C) Almonds

(D) Apples

28. Phenols itself contribute to the flavour of :

(A) Cheese

(B) Banana

(C) Almonds

(D) Apples

29. Hydralases enzymes catalyse :

(A) Oxidation-reduction reactions

(B) Transfer of a group from a donor to an acceptor

(C) Hydrolytic cleavage of bonds

(D) None of the above

30. The enzymic browning of cut fruits and vegetables is due to formation of a compound :

(A) Melanin

(B) Allicin

(C) Tyrosin

(D) None of the above

31. Pesticides with very low biodegradation but strong affinity for fatty tissues are :

(A) Organochlorine

(B) Organophosphates

(C) Pyrethroids

(D) Triazines

32. Insecticide obtained from neem plant is :

(A) Pyrethrin

(B) Azadirachtin

(C) Thiocarbonates

(D) Pyrethroid

33. Which one is a microbial insecticide ?

(A) Bacillus subtilis

(B) Bacillus polymixa

(C) Bacillus thuringenesis

(D) Bacillus brevis

34. The pesticides used in foundation of buildings for preventing termite attack is :

(A) D. D. T.

(B) B. H. C.

(C) Aldrin

(D) Endosulphan

35. Mosquito-repelling coil contains :

(A) Arsenic

(B) Aluminium phosphide

(C) Pyrathrin

(D) Diethyl bromide

36. The first commercial pesticide was :

(A) D. D. T.

(B) 2-4-D

(C) Bordeaux mixture

(D) Burgundy mixture

37. Thurioside is :

(A) fungicide

(B) insecticide

(C) antibiotic

(D) weedicide

38. The third generation pesticides are :

(A) Pheromones

(B) Pathogens

(C) Insect repellents

(D) Insect hormone analogues

39. Houseflies and mosquitoes have become resistant to the :

(A) BHC

(B) DDT

(C) Aldrin

(D) Malathion

40. What kind of pollution is caused mainly due to agrochemical waste ?

(A) Sound

(B) Air

(C) Soil

(D) Water

41. What is the farming called in which there is less use of chemicals and lesser production of waste ?

(A) Organic

(B) Inorganic

(C) Man-made

(D) Environmental

42. Agrochemicals are the substances that are used to facilitate the growing of crops includes :

(A) fertilizers

(B) pesticides

(C) social conditions

(D) All of the above

43. Most common pesticides used in crop are :

(A) Aldrin, malathion, lead arsinate, sodium fluoride

(B) Cryolite, aldrin, pyrethrin

(C) BHC, aldrin, malathion, pyrethrin

(D) Aldrin, malathion, sodium arsenite, lead arsenite

44. DDT stands for :

(A) dichloro-triphenyl dichloroethane

(B) dichloro-triammonium methane

(C) dichloro-diphenyl trichloroethane

(D) difluoro-diphenyl trichloroethane

45. DDT is a form of :

(A) pesticides

(B) insecticides

(C) herbicides

(D) parasiticides

46. Pyrethrin is prepared from :

(A) Azardirachta indica

(B) Tagetus erecta

(C) Chrysanthemum cinerarifolium

(D) Urtica dioca

47. Insecticides generally attack :

(A) muscular system

(B) respiratory system

(C) circulatory system

(D) nervous system

48. IPM stands for :

(A) Integrated Pest Management

(B) Integrated Pest Manufacture

(C) Integrated Plant Management

(D) Integrated Plant Manufacture

49. Biological control of pest is :

(A) Polluting

(B) Self-perpetuating

(C) Highly expensive

(D) Toxic

50. Insecticides kills :

(A) Only plant pests

(B) Harmful insects

(C) Specific insects

(D) Both harmful and useful insects

51. Which enzyme hydrolyses sucrose into glucose and fructose ?

(A) Pectinase

(B) Invertase

(C) Amylase

(D) Cellulose

52. Enzyme that cleave a protein molecule by the hydrolysis of peptide bonds are :

(A) Lipases

(B) Amylases

(C) Proteases

(D) None of the above

53. Which of the following enzymes is involved in manufacture of cheese ?

(A) Lipase

(B) Protease

(C) Pectinase

(D) Zymase

54. Group of pigments found in red beet is :

(A) Xanthenes

(B) Canotenoids

(C) Betalains

(D) Haemoglobin

55. Yellow pigments is mangoes are :

(A) Carotenoids

(B) Xanthenes

(C) Benzoquinone

(D) Tannins

56. Brown colour develops in meat is due to oxidation of Myoglobin into ..... .

(A) Oxymyoglobin

(B) Metmyoglobin

(C) Nitric oxide myoglobin

(D) None of the above

57. Anthocyanins are :

(A) Polyphenols

(B) Polyesters

(C) Quinones

(D) Polyamides

58. Purple colour in fruits and vegetables is due to presence of :

(A) Betalains

(B) Myoglobin

(C) Anthocyanins

(D) Carotenoids

59. Leaving agents are used to produce :

(A) light and fluffy baked goods

(B) viscous food goods

(C) good quality flour

(D) artificial sweetness

60. Additives used for curing of meats :

(A) sodium nitrite

(B) sodium chloride

(C) MSG

(D) All of the above

61. Yellow colour in low milk is due to :

(A) Xanthophyll

(B) Riboflavin

(C) Carotene

(D) Betalains

62. A compound that does not enhance the nutritional value of food is :

(A) Vitamin

(B) Minerals

(C) Amino acids

(D) Artificial sweetners

63. Aspartame is an example of :

(A) Amino acid

(B) Pigment

(C) Flavouring substance

(D) Artificial sweetener

64. The artificial sweetener that is stable under cold conditions only :

(A) sucralase

(B) saccharine

(C) alitame

(D) aspartame

65. Which of the following is used as food preservative ?

(A) H_2SO_4

(B) HCl

(C) CH_3COOH

(D) None of the above

66. The purpose for balancing vegetables during canning is :

(A) to soften the products

(B) to denature the enzyme that change colour, texture

(C) to reduce microbial population

(D) All of the above

67. The temperature used for canning foods :

(A) 0–20° C

(B) 20–60° C

(C) 60–100° C

(D) 100–121° C

68. Common food poisoning microbes are :

(A) Clostridium and Salmonella

(B) Clostridium and E. coli

(C) E. coli and Salmonella

(D) Clostridium and Streptococcus

69. Organisms that grow over a wide range of pH are :

(A) Bacteria

(B) Yeasts

(C) Molds

(D) None of the above

70. ..... of proteins is a specific three-dimensional configuration.

(A) Primary structure

(B) Secondary structure

(C) Tertiary structure

(D) Quaternary structure

71. Denaturation is the result of the modification of :

(A) the secondary, tertiary or quaternary structure of the protein molecule

(B) only secondary structure of protein molecule

(C) the primary and secondary structure of protein molecules

(D) only quaternary structure of protein molecules

72. Proteins which form gels have structure with :

(A) high degree of asymmetry

(B) low degree of asymmetry

(C) Both (A) and (B)

(D) None of the above

73. Cow milk contains about ..... percent protein.

(A) 6

(B) 3

(C) 3.5

(D) 5

74. Leaf protein extracted from ..... can be used as feed protein.

(A) green plant stem

(B) green plant bark

(C) green plant roof

(D) green plant leaves

75. The first bio-insecticide developed on a commercial scale was :

(A) DDT

(B) Sporeine

(C) Quinine

(D) Organophosphates

76. ..... are the bleaching and maturing agents, usually they both bleach and mature the flour.

(A) Humecants

(B) Flour improvers

(C) Leavening agents

(D) Anti-caking agents

77. Which agents help to prevent particles from adhering to each other and turning into a solid chunk during damp weather :

(A) Humecants

(B) Nutrients suppliments

(C) Anti-caking agents

(D) Non-nutritive sweeteners

78. ..... are additive to preserve (cure) meats, give them desirable colour and flavour, discourse growth of micro-organisms and prevent toxins formation.

(A) Emulsions

(B) Curing agents

(C) Colouring agents

(D) Chelating agents

79. Which substance is added to fats and fat-containing substance to retard oxidation and thereby prolong their wholesomeness, palatability and sometimes, keeping time :

(A) Anti-oxidants

(B) Lecithin

(C) Chelating agents

(D) Nicotinic acid

80. The unique sequence of ..... is responsible for many of the fundamental properties of the proteins.

(A) fats

(B) carbohydrate

(C) amino acid

(D) vitamins

81. BOTULISM is a food-borne disease caused by :

(A) Staphylococcus aureus

(B) Clostridium botulinum

(C) Salmonella sp.

(D) None of the above

82. The most dangerous food poisoning organism is :

(A) Salmonella enterica

(B) Staphylococcus aureus

(C) Clostridium botulinum

(D) Penicillium roqueforti

83. a_w is present :

(A) water activity

(B) milk activity

(C) water vapour pressure

(D) None of the above

84. Fermentation is conversion of :

(A) Sugar into alcohol

(B) Yeast into alcohol

(C) Sugar into CO_2

(D) None of the above

85. Food does not spoil if it is stored at :

(A) – 18°C

(B) 5°C

(C) 10°C

(D) Room temperature (25°C)

86. Technique used to preserve cheese during overnight travelling :

(A) Canning

(B) Dehydration

(C) Salting

(D) Vacuum packing

87. Cooling before normal cold storage is done immediately after harvesting by use of cold water spray is known as :

(A) Freezing

(B) Hydrocooling

(C) Drying

(D) Pasteurizing

88. When dried vegetables are sulfured to preserve a light color, their microbial content is :

(A) increased

(B) both increased and reduced

(C) reduced

(D) None of the above

89. Salmonella involves :

(A) an enterotoxin and exotoxin

(B) an enterotoxin and cytotoxin

(C) an exotoxin and cytotoxin

(D) a cytotoxin only

90. Clostridium perfringens poisoning is associated with :

(A) Canned foods

(B) Meat products

(C) Vegetables

(D) None of the above

91. ..... rays are used to in activate microorganism causing decay, followed by storage, has resulted in discoloration softening or other deterioration of most vegetables.

(A) Infrared

(B) Gamma

(C) Ultraviolet

(D) Visible

92. Pasteurization is the process of heating milk :

(A) below boiling point

(B) above 121°C

(C) above 150°C

(D) above the boiling point

93. Salting as a preservative :

(A) is used to prevent growth of halophiles

(B) retards growth of Staphylococcus aureus

(C) plasmolyzes bacteria and fungi

(D) All of the above

94. What is the most common food preservation method ?

(A) Heating

(B) Fermentation

(C) Freezing

(D) Freeze drying

95. Which of the following microorganisms is eliminated in the canned food ?

(A) Coxiella burnetii

(B) Clostridium botulinum

(C) Lactobacillus

(D) Mycobacterium tuberculosis

96. Acetic acid and lactic acid are used for :

(A) inhibiting mold growth

(B) preservation of color

(C) curing meats

(D) preservation of pickles

97. Which of the following techniques need to be adopted in preparing amla murabba ?

(A) Shielding

(B) Pasteurization

(C) Protection

(D) Decomposition

98. ..... is the time required to kill 90% of microbes at a specific temperature.

(A) D-value

(B) F-value

(C) C-value

(D) None of the above

99. Organic acid used in food preservation include :

(A) Sorbic acid

(B) Boric acid

(C) Hydrochloric acid

(D) Sulphuric acid

100. Benzoic acid is mostly used to preserve coloured products because :

(A) it may darken the product

(B) of its characteristic aroma

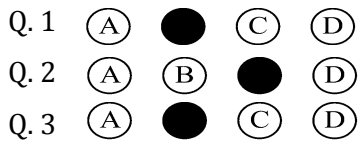
(C) of its bleaching action

(D) it may lighten the product

4. Four alternative answers are mentioned for each question as—A, B, C & D in the booklet. The candidate has to choose the correct answer and mark the same in the OMR Answer-Sheet as per the direction :

Example :

Question :



Illegible answers with cutting and over-writing or half filled circle will be cancelled.

5. Each question carries equal marks. Marks will be awarded according to the number of correct answers you have.

6. All answers are to be given on OMR Answer sheet only. Answers given anywhere other than the place specified in the answer sheet will not be considered valid.

7. Before writing anything on the OMR Answer Sheet, all the instructions given in it should be read carefully.

8. After the completion of the examination candidates should leave the examination hall only after providing their OMR Answer Sheet to the invigilator. Candidate can carry their Question Booklet.

9. There will be no negative marking.

10. Rough work, if any, should be done on the blank pages provided for the purpose in the booklet.

11. To bring and use of log-book, calculator, pager and cellular phone in examination hall is prohibited.

12. In case of any difference found in English and Hindi version of the question, the English version of the question will be held authentic.

Impt. : On opening the question booklet, first check that all the pages of the question booklet are printed properly. If there is ny discrepancy in the question Booklet, then after showing it to the invigilator, get another question Booklet of the same series.

4. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार सम्भावित उत्तर— A, B, C एवं D हैं। परीक्षार्थी को उन चारों विकल्पों में से सही उत्तर छाँटना है। उत्तर को OMR आन्सर-शीट में सम्बन्धित प्रश्न संख्या में निम्न प्रकार भरना है :

उदाहरण :

प्रश्न :

अपठनीय उत्तर या ऐसे उत्तर जिन्हें काटा या बदला गया है, या गोले में आधा भरकर दिया गया, उन्हें निरस्त कर दिया जाएगा।

5. प्रत्येक प्रश्न के अंक समान हैं। आपके जितने उत्तर सही होंगे, उन्हीं के अनुसार अंक प्रदान किये जायेंगे।

6. सभी उत्तर केवल ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर ही दिये जाने हैं। उत्तर-पत्रक में निर्धारित स्थान के अलावा अन्यत्र कहीं पर दिया गया उत्तर मान्य नहीं होगा।

7. ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर कुछ भी लिखने से पूर्व उसमें दिये गये सभी अनुदेशों को सावधानीपूर्वक पढ़ लिया जाये।

8. परीक्षा समाप्ति के उपरान्त परीक्षार्थी कक्ष निरीक्षक को अपनी OMR Answer Sheet उपलब्ध कराने के बाद ही परीक्षा कक्ष से प्रस्थान करें। परीक्षार्थी अपने साथ प्रश्न-पुस्तिका ले जा सकते हैं।

9. निगेटिव मार्किंग नहीं है।

10. कोई भी रफ कार्य, प्रश्न-पुस्तिका के अन्त में, रफ-कार्य के लिए दिए खाली पेज पर ही किया जाना चाहिए।

11. परीक्षा-कक्ष में लॉग-बुक, कैलकुलेटर, पेजर तथा सेल्युलर फोन ले जाना तथा उसका उपयोग करना वर्जित है।

12. प्रश्न के हिन्दी एवं अंग्रेजी रूपान्तरण में भिन्नता होने की दशा में प्रश्न का अंग्रेजी रूपान्तरण ही मान्य होगा।

महत्वपूर्ण : प्रश्नपुस्तिका खोलने पर प्रथमतः जाँच कर देख लें कि प्रश्न-पुस्तिका के सभी पृष्ठ भलीभाँति छपे हुए हैं। यदि प्रश्नपुस्तिका में कोई कमी हो, तो कक्षनिरीक्षक को दिखाकर उसी सिरीज की दूसरी प्रश्न-पुस्तिका प्राप्त कर लें।