

(To be filled up by the candidate by **blue/black ball-point pen**)

Roll No.

--	--	--	--	--	--	--	--	--	--

Roll No.

(Write the digits in words) .....

Serial No. of OMR Answer Sheet .....

Day and Date .....

(Signature of Invigilator)

## INSTRUCTIONS TO CANDIDATES

(Use only **blue/black ball-point pen** in the space above and on both sides of the Answer Sheet)

1. Within 10 minutes of the issue of the Question Booklet, check the Question Booklet to ensure that it contains all the pages in correct sequence and that no page/question is missing. In case of faulty Question Booklet bring it to the notice of the Superintendent/Invigilators immediately to obtain a fresh Question Booklet.
2. Do not bring any loose paper, written or blank, inside the Examination Hall *except the Admit Card without its envelope.*
3. A separate Answer Sheet is given. *It should not be folded or mutilated. A second Answer Sheet shall not be provided. Only the Answer Sheet will be evaluated.*
4. Write your **Roll Number and Serial Number of the Answer Sheet by pen** in the space provided above.
5. *On the front page of the Answer Sheet, write by pen your Roll Number in the space provided at the top, and by darkening the circles at the bottom. Also, wherever applicable, write the Question Booklet Number and the Set Number in appropriate places.*
6. No overwriting is allowed in the entries of Roll No., Question Booklet No. and Set No. (if any) on OMR sheet and also Roll No. and OMR sheet No. on the Question Booklet.
7. Any changes in the aforesaid entries is to be verified by the invigilator, otherwise it will be taken as unfair means.
8. Each question in this Booklet is followed by four alternative answers. *For each question, you are to record the correct option on the Answer Sheet by darkening the appropriate circle in the corresponding row of the Answer Sheet, by ball-point pen as mentioned in the guidelines given on the first page of the Answer Sheet.*
9. For each question, darken only one circle on the Answer Sheet. If you darken more than one circle or darken a circle partially, the answer will be treated as incorrect.
10. *Note that the answer once filled in ink cannot be changed.* If you do not wish to attempt a question, leave all the circles in the corresponding row blank (such question will be awarded zero marks).
11. For rough work, use the inner back page of the title cover and the blank page at the end of this Booklet.
12. Deposit *only the OMR Answer Sheet* at the end of the Test.
13. You are not permitted to leave the Examination Hall until the end of the Test.
14. If a candidate attempts to use any form of unfair means, he/she shall be liable to such punishment as the University may determine and impose on him/her.

[ उपर्युक्त निर्देश हिन्दी में अन्तिम आदरण-पृष्ठ पर दिये गये हैं । ]

Total No. of Printed Pages : 14



**15P/280/2**

**No. of Questions : 120**

**Time : 2 Hours ]**

**[ Full Marks : 360**

**Note :** (i) *Attempt as many questions as you can. Each question carries 3 (three) marks. One mark will be deducted for each incorrect answer. Zero mark will be awarded for each unattempted question.*

(ii) *If more than one alternative answers seem to be approximate to the correct answer, choose the closed one.*

1. The cheaper materials added to food items for more profit are called :  
(1) Adulterants (2) Drugs  
(3) Both of these (4) None of these
2. The organisms who can synthesize their own food are termed as :  
(1) Autotrophic (2) Heterotrophic  
(3) Chemoautotrophic (4) Chemo heterotrophic
3. The organisms obtain their nutrients from dead and decaying organic materials are known as :  
(1) Parasitic (2) Saprophytic  
(3) Heterotrophic (4) Autotrophic
4. Relationship between EMC and RH for biological materials has been given by :  
(1) Perry (2) Rankine  
(3) Janssen (4) Henderson
5. If the moisture content of a food product on wet basis is 50.76%, its moisture content on dry basis will be :  
(1) 33.67% (2) 103.09%  
(3) 150.76% (4) 49.24%

( 1 )

P. T. O.

6. The amount of heat required to raise the temperature of 1 g of milk by 1°C in comparison to water is :
- (1) 85% (2) 93%  
(3) 107% (4) The same
7. Consider a spherical object having a volume of 1000 cc. The object is broken down into smaller particles of about 1 mm size. The storage requirement of the comminuted material in cc will be about :
- (1) 1000 cc (2) 800 cc  
(3) 1200 cc (4) 1400 cc
8. A dimensionless ratio of convective heat transfer to conduction heat transfer within a solid is known as :
- (1) Nusselt number (2) Prandtl number  
(3) Lewis number (4) Biot number
9. Particle density of an agricultural produce is 1.95 g/cc. The porosity of the bulk is 36%. The bulk density of the produce is :
- (1) 1.00 (2) 1.25  
(3) 1.50 (4) 1.75
10. Air at 40°C and 50% RH has a wet bulb depression of 10°C. If the relative humidity decreases to 40%, the wet bulb depression will :
- (1) Increase (2) Decrease  
(3) Remain constant (4) Follow no definite trend
11. Decimal reduction time in microbial destruction is inversely proportional to :
- (1) Z-value (2) Universal gas constant  
(3) Initial concentration (4) Reaction rate
12. Which among the following is present more in cow milk as compared to buffalo milk ?
- (1) Fat (2) Carotene  
(3) Minerals (4) Sugar
13. As pressure is reduced, the latent heat value :
- (1) Increases (2) Decreases  
(3) Remains the same (4) None of these

14. The energy required in grinding large solid particles is inversely proportional to the function of :  
 (1) Diameter (2) Density (3) Strength (4) Shape
15. Essential oil obtained from tulsi is called :  
 (1) Oil of basil (2) Oil of essence (3) Oil of olive (4) Essential oil
16. For drying, fruits and vegetables are sliced for increasing :  
 (1) Temperature (2) Humidity  
 (3) Surface area (4) None of the above
17. Yoghurt contains useful :  
 (1) Bacteria (2) Virus (3) Yeast (4) Spores
18. Redness in apple is due to :  
 (1) Anthocyanin (2) Lycopene (3) Carotene (4) Xanthophylls
19. Wax coating treatment enhances the self-life of fruits because it blocks :  
 (1) Transpiration (2) Respiration  
 (3) Ripening process (4) None of these
20. The yellow colour in onion is due to the pigment :  
 (1) Anthocyanin (2) Quercetin (3) Lycopene (4) Carotene
21. Which one of the following is ethylene absorbent ?  
 (1) KCl (2)  $\text{KMnO}_4$  (3)  $\text{KNO}_3$  (4)  $\text{K}_2\text{SO}_4$
22. Fruits which show a rise in respiration rate during the ripening process are called :  
 (1) Climacteric (2) Non-climacteric  
 (3) Parthenocarpic (4) Parthenogenetic
23. The yellow pigment in papaya fruit is :  
 (1) Carotene (2) Xanthophylls (3) Anthocyanin (4) Caricaxanthin
24. Fruit stored in cold chamber exhibit longer life because :  
 (1) The rate of respiration decreases  
 (2) There is an increase in humidity  
 (3) Exposure to sun light is prevented  
 (4)  $\text{CO}_2$  concentration in the environment is increased
25. Pungency in chilli is due to the presence of :  
 (1) Capsaicin (2) Sulphur (3) Amides (4) Magnesium

26. Which of the following fruit contains the highest amount of ascorbic acid ?  
(1) Indian Goose berry (2) Mango  
(3) Apple (4) Orange
27. Which one of the following is a richest source of vitamin A ?  
(1) Ripe mango fruit (2) Carrot root  
(3) Ripe papaya fruit (4) Ripe tomato fruit
28. The plant growth hormone which helps in enlarging the grape fruit is :  
(1) Ascorbic acid (2) Gibberelic acid (3) Cytokinins (4) Ethylene
29. Which of the following is commonly used as preservative in the preparation of tomato ketchup ?  
(1) Potassium metabisulphite (2) Sodium benzoate  
(3) Sodium metabisulphite (4) Citric acid
30. Which one of the following is a method of long term preservation of fruits and vegetables ?  
(1) Pasteurization (2) Blanching (3) Refrigeration (4) Drying
31. Yellow coloured fruits and vegetables are rich sources of :  
(1) Vitamin E (2) Vitamin C (3) Vitamin A (4) Vitamin B
32. Refractometer is used to determine :  
(1) Minerals (2) TSS (3) Vitamins (4) Protein
33. Central Food Technological Research Institute is located at :  
(1) New Delhi (2) Mysore (3) Bangalore (4) Hyderabad
34. The edible part of pomegranate is :  
(1) Thalamus (2) Mesocarp (3) Endocarp (4) Aril
35. Which of the following is the richest source of iron ?  
(1) Parsley (2) Spinach (3) Celery (4) Green peas
36. An ideal fruit for making jelly should be rich in :  
(1) Pectin and sugars (2) Acids and proteins  
(3) Sugars and acids (4) Pectin and acids
37. A cyclone separator is used for separating :  
(1) Particles from liquids (2) Liquid droplets from gases  
(3) Fine particles from solids (4) All of the above

38. In single effect evaporator the economy is :  
(1) Equal to 1 (2) Greater than 1  
(3) Less than 1 (4) Less than or equal to 1
39. The most commonly used fumigant for storage of cereals is :  
(1) Zinc phosphide (2) Ethylene dibromide  
(3) Aluminium phosphide (4) DDT
40. Extraction of soluble constituents from a solid by means of solvent is known as :  
(1) Distillation (2) Leaching (3) Evaporation (4) Sublimation
41. Addition of salt to ice will :  
(1) Increase the temperature of the mixture  
(2) Decrease the temperature of the mixture  
(3) Not alter the temperature of the mixture  
(4) Do nothing of the type said earlier
42. The first law of thermodynamics is a special case of :  
(1) Newton's law (2) Law of conservation of energy  
(3) Charle's law (4) The laws of heat exchange
43. Pascal is a unit of :  
(1) Displacement (2) Temperature (3) Pressure (4) Viscosity
44. A pyrometer is used to measure :  
(1) Temperature (2) Pressure (3) Humidity (4) Displacement
45. One ton of refrigeration is equivalent to :  
(1) 50 kcal/min (2) 100 kcal/min (3) 150 kcal/min (4) 200 kcal/min
46. The boiling point of milk in degree Celsius is :  
(1) 99.5 (2) 100.17 (3) 99 (4) 101
47. Dielectric constant of a food material depends upon :  
(1) Temperature (2) Moisture content  
(3) Density (4) Electrical conductivity
48. A boy has 240 grams of water at 50°C. The number of grams of ice at 0°C which he must add to the water to lower the water temperature to 0°C is :  
(1) 135 (2) 150 (3) 120 (4) 175

49. Which one of the following is deficient in milk ?  
 (1) Iron (2) Calcium (3) Phosphorous (4) Lactose
50. Headquarters of the Food and Agriculture Organization is located at :  
 (1) Geneva (2) New Delhi (3) Rome (4) New York
51. The antisterility vitamin is :  
 (1) Vitamin A (2) Vitamin B (3) Vitamin E (4) Vitamin D
52. Which of the following sugars is sweetest ?  
 (1) Galactose (2) Glucose (3) Fructose (4) Sucrose
53. Zero energy cool chambers operate on the principle of :  
 (1) Second law of thermodynamics (2) Evaporative cooling  
 (3) Boyle's law (4) Charle's law
54. Which one of the following fruit, grown is semi-wild form in wasteland of peninsular India, is one of the largest foreign exchange earners ?  
 (1) Coconut (2) Mango (3) Cashew (4) Banana
55. Site of protein synthesis in a cell is :  
 (1) Ribosomes (2) Endoplasmic reticulum  
 (3) Chloroplasts (4) Mitochondria
56. Who discovered X-ray first ?  
 (1) Wilson (2) Roentgen (3) Benzer (4) Muller
57. Aflatoxins are produced by :  
 (1) Yeast (2) Bacteria (3) Molds (4) Nematodes
58. Pungency in onion is due to the presence of :  
 (1) Allyl propyl disulphide (2) Diallyl disulphide  
 (3) Isothiocynate (4) Capsaicin
59. Which of the following is not a bio-pesticide ?  
 (1) Bioneem (2) Biolep (3) Dipel (4) Carbaryl
60. Which of the following is a phenolic factor present in onion having anti-fungal properties ?  
 (1) Quercetin (2) Catechol  
 (3) Sinigrin (4) Allyl propyl disulphide

61. Major pest of potato during storage is :  
 (1) Cut worms (2) Aphids  
 (3) Jassids (4) Potato tuber moth
62. Which vitamin is called coagulating vitamin ?  
 (1) Vitamin A (2) Vitamin E (3) Vitamin K (4) Vitamin C
63. The pest which attack the pulses both in fields and at storage :  
 (1) Pulse beetle (2) Gram pod borer  
 (3) Red gram pod fly (4) Pod borer
64. Which of the following can not synthesize protein by own enzymes ?  
 (1) Bacteria (2) Mycoplasma (3) RLO (4) Virus
65. Mad cow disease is caused by :  
 (1) Virion (2) Pirion (3) Bacteria (4) MLO
66. Which one of the following can not be detected by ELISA technique ?  
 (1) Virus (2) Bacteria (3) Viroid (4) Fungus
67. The strongest bond is :  
 (1) Ionic bond (2) Covalent bond (3) Hydrogen bond (4) Vander Walls
68. Latent heat of fusion (ice to water) is :  
 (1) 540 cal (2) 620 cal (3) 80 cal (4) 40 cal
69. Which of the following is deficient in rice grain ?  
 (1) Lysine (2) Glycine (3) Isoleucine (4) Alanine
70. Wavelength of visible light is :  
 (1) 260-350 nm (2) 360-760 nm (3) 390-760 nm (4) 400-700 nm
71. Most dangerous gas for depletion of ozone layer is :  
 (1) Chlorine (2) CFC (3) Benzene (4) CO<sub>2</sub>
72. Among the following which has antioxidant property ?  
 (1) Quinones (2) Tocopherols (3) Phenols (4) Sorbitois
73. The end product of glycolysis is :  
 (1) Glucose (2) Sucrose (3) Pyruvic acid (4) NADH



87. pH of fresh buffalo milk is :  
 (1) 4.6                      (2) 5.6                      (3) 6.6                      (4) 7.6
88. Which of the following vitamins remains most resistant on heat treatment of milk ?  
 (1) Vitamin A              (2) Vitamin C              (3) Vitamin B<sub>1</sub>              (4) Vitamin B<sub>12</sub>
89. Estrogen, progesterone and relaxin hormones are secreted from :  
 (1) Ovary                      (2) Adrenal                      (3) Pituitary                      (4) Thyroid
90. Hormone secreted from pancreas that lowers down blood sugar levels is :  
 (1) Glucagon              (2) Insulin                      (3) Epinephrine              (4) Relaxin
91. Out of the total body calcium, bone and teeth have :  
 (1) 79 %                      (2) 89 %                      (3) 95 %                      (4) 99 %
92. Which one of the following is not a bacterial disease ?  
 (1) Rinderpest                      (2) Haemorrhagic septicaemia  
 (3) Anthrax                      (4) Black quarter
93. Surface adherence of gas, liquids or solids onto a solid is known as :  
 (1) Absorption              (2) Sorption                      (3) Adsorption              (4) Adhesion
94. Water loss from a cooked, cooled gel due to excessive retrogradation is called :  
 (1) Viscosity              (2) Syneresis                      (3) Surface tension              (4) Evaporation
95. Which of the following is a starch hydrolysis derivative that may be used to stimulate fat in emulsions ?  
 (1) Maltodextrin              (2) Glucose                      (3) Amylose                      (4) Amylopectin
96. Nonenzymatic browning reactions involving a reducing sugars and a free amino acid on a protein is known as :  
 (1) Caramelization              (2) Maillard reaction              (3) Peroxidation              (4) Deamination
97. Food processing method that converts ice to vapour without going through the liquid phase is called :  
 (1) Freezing                      (2) Chilling  
 (3) Freeze concentration              (4) Freeze drying

98. The ratio of the vapour pressure of water in a solution to the vapour pressure of pure water is :  
(1) Relative humidity (2) Absolute humidity  
(3) Humidity (4) Water activity
99. Resistance of flow of a liquid when shear force is applied is called :  
(1) Viscosity (2) Surface tension (3) Elasticity (4) Turbulence
100. A high molecular weight methylated galacturonic acid polymer which is insoluble in water and found in immature fruits is :  
(1) Pectin (2) Pectinic acid (3) Pectic acid (4) Protopectin
101. Process of adding back a nutrient to make up the loss during processing is called :  
(1) Enrichment (2) Restoration  
(3) Fortification (4) Supplementation
102. Wheat flour that is aged naturally or by chemical agents to improve baking properties of dough is known as :  
(1) Matured flour (2) Bleached flour (3) Hard flour (4) Organic flour
103. The name given to a proposed new regulatory category of food components that may be considered a food or a part of a food and may supply medical or health benefits including the treatment or prevention of diseases :  
(1) Pharmaceuticals (2) Specialty foods  
(3) Nutraceuticals (4) Drug
104. Pressure exerted by water filled vacuoles on the cytoplasm and the partially elastic cell wall is called :  
(1) Vapour pressure (2) Cell pressure  
(3) High pressure (4) Turgor pressure
105. Movement of solute across a permeable membrane from an area of greater concentration to lesser concentration in heated products that do not have an intact cell membrane is called :  
(1) Permeation (2) Osmosis (3) Diffusion (4) Ultrafiltration
106. Changes in conformation of proteins caused by changes in temperature, pH or ionic strength, or by surface changes is called :  
(1) Denaturation (2) Deamination (3) Decarboxylation (4) Autooxidation

99. In case of relatively inelastic demand, the elasticity is :  
 (1)  $E = \text{Infinity}$       (2)  $E < 1$       (3)  $E > 1$       (4)  $E = 1$
100. In case of substitutes, the cross elasticity of demand is :  
 (1) Positive      (2) Negative      (3) Zero      (4) Infinity
101. Disposable income is given by :  
 (1) Private income - Direct taxes      (2) Private income + Direct taxes  
 (3) Personal income - Direct taxes      (4) Personal income + Direct taxes
102. Marginal propensity to consume is always :  
 (1) Greater than zero      (2) Greater than one  
 (3) Less than zero      (4) None of the above
103. In Net worth statement, liabilities are on ..... side.  
 (1) Left      (2) Right      (3) Middle      (4) Not included
104. SBI was set up in :  
 (1) 1945      (2) 1935      (3) 1965      (4) 1982
105. Elasticity of production at the end of zone II of production function is :  
 (1) More than 1      (2) Less than 1      (3) Equal to 1      (4) Zero
106. Which of the following is irrational zone of production ?  
 (1) I zone      (2) II zone      (3) III zone      (4) I and III zone
107. When  $MRTS = 0$ , then the products are  
 (1) Complementary      (2) Supplementary  
 (3) Competitive      (4) Antagonistic
108. If marketed surplus is greater than marketable surplus, then the situation is known as :  
 (1) Market efficiency      (2) Market integration  
 (3) Distress sale      (4) None of the above
109. The pungent principle in chilli is :  
 (1) Capxanthin      (2) Anthocyanin  
 (3) Capsaicin      (4) Calcium oxalates

110. In which vegetable crop curing is done ?  
(1) Onion (2) Brinjal (3) Carrot (4) Pumpkin
111. Whiptail in cauliflower is due to deficiency of :  
(1) Calcium (2) Boron (3) Manganese (4) Molybdenum
112. Pusa Purple Cluster of Brinjal is resistant to :  
(1) Drought (2) Mites (3) Purple Blotch (4) Bacterial Wilt
113. Pinching is commonly practiced for obtaining better flower production in :  
(1) Rose (2) Marigold (3) Tuberose (4) Jasmine
114. Origin place of Gladiolus is :  
(1) South Africa (2) Brazil (3) Mexico (4) Guatemala
115. Which medicinal plant has largest area in India ?  
(1) Senna (2) Opium (3) Isabgol (4) Periwinkle
116. Total Soluble Solids (TSS) is measured by :  
(1) Hand Refractometer (2) Colorimeter  
(3) Spectrophotometer (4) Thermometer
117. Loose jacketed citrus fruits are :  
(1) Sweet oranges (2) Mandarins (3) Limes (4) Lemons
118. Scientific name of lemon grass is :  
(1) *Cymbopogon flexuosus* (2) *Melissa officinalis*  
(3) *Artemesia pallens* (4) *Mentha citrate*
119. The first commercial transgenic vegetable crop is :  
(1) Tomato (2) French bean (3) Brinjal (4) Cow pea
120. Coorg Honey Dew variety of papaya is :  
(1) Dioecious (2) Gynodioecious  
(3) Monoecious (4) Polygamous



## अभ्यर्थियों के लिए निर्देश

(इस पुस्तिका के प्रथम आवरण-पृष्ठ पर तथा उत्तर-पत्र के दोनों पृष्ठों पर केवल नीली/काली बाल-प्वाइंट पेन से ही लिखें)

1. प्रश्न पुस्तिका मिलने के 10 मिनट के अन्दर ही देख लें कि प्रश्नपत्र में सभी पृष्ठ मौजूद हैं और कोई प्रश्न छूटा नहीं है। पुस्तिका दोषयुक्त पाये जाने पर इसकी सूचना तत्काल कक्ष निरीक्षक को देकर सम्पूर्ण प्रश्नपत्र की दूसरी पुस्तिका प्राप्त कर लें।
2. परीक्षा भवन में लिफाफा रहित प्रवेश-पत्र के अतिरिक्त, लिखा या सादा कोई भी खुला कागज साथ में न लायें।
3. उत्तर-पत्र अलग से दिया गया है। इसे न तो मोड़ें और न ही विकृत करें। दूसरा उत्तर-पत्र नहीं दिया जायेगा। केवल उत्तर-पत्र का ही मूल्यांकन किया जायेगा।
4. अपना अनुक्रमांक तथा उत्तर-पत्र का क्रमांक प्रथम आवरण-पृष्ठ पर पेन से निर्धारित स्थान पर लिखें।
5. उत्तर-पत्र के प्रथम पृष्ठ पर पेन से अपना अनुक्रमांक निर्धारित स्थान पर लिखें तथा नीचे दिये वृत्तों को गाढ़ा कर दें। जहाँ-जहाँ आवश्यक हो वहाँ प्रश्न-पुस्तिका का क्रमांक तथा सेट का नम्बर उचित स्थानों पर लिखें।
6. ओ० एम० आर० पत्र पर अनुक्रमांक संख्या, प्रश्न-पुस्तिका संख्या व सेट संख्या (यदि कोई हो) तथा प्रश्न-पुस्तिका पर अनुक्रमांक संख्या और ओ० एम० आर० पत्र संख्या की प्रविष्टियों में उपरिलेखन की अनुमति नहीं है।
7. उपर्युक्त प्रविष्टियों में कोई भी परिवर्तन कक्ष निरीक्षक द्वारा प्रमाणित होना चाहिये अन्यथा यह एक अनुचित साधन का प्रयोग माना जायेगा।
8. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार वैकल्पिक उत्तर दिये गये हैं। प्रत्येक प्रश्न के वैकल्पिक उत्तर के लिये आपको उत्तर-पत्र की सम्बन्धित पंक्ति के सामने दिये गये वृत्त को उत्तर-पत्र के प्रथम पृष्ठ पर दिये गये निर्देशों के अनुसार बाल-प्वाइंट पेन से गाढ़ा करना है।
9. प्रत्येक प्रश्न के उत्तर के लिये केवल एक ही वृत्त को गाढ़ा करें। एक से अधिक वृत्तों को गाढ़ा करने पर अथवा एक वृत्त को अपूर्ण भरने पर वह उत्तर गलत माना जायेगा।
10. ध्यान दें कि एक बार स्याही द्वारा अंकित उत्तर बदला नहीं जा सकता है। यदि आप किसी प्रश्न का उत्तर नहीं देना चाहते हैं, तो सम्बन्धित पंक्ति के सामने दिये गये सभी वृत्तों को खाली छोड़ दें। ऐसे प्रश्नों पर शून्य अंक दिये जायेंगे।
11. रफ कार्य के लिये इस पुस्तिका के मुखपृष्ठ के अंदर वाला पृष्ठ तथा अंतिम खाली पृष्ठ का प्रयोग करें।
12. परीक्षा के उपरान्त केवल ओ० एम० आर० उत्तर-पत्र ही परीक्षा भवन में जमा करें।
13. परीक्षा समाप्त होने से पहले परीक्षा भवन से बाहर जाने की अनुमति नहीं होगी।
14. यदि कोई अभ्यर्थी परीक्षा में अनुचित साधनों का प्रयोग करता है, तो वह विश्वविद्यालय द्वारा निर्धारित दंड का/की भागी होगा/होगी।

SEAL