



Set No. 1

18P/280/23

Total No. of Printed Pages : 22

Question Booklet No ..... 530

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

Roll No. 

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Roll No. (Write the digits in words) ..... 2018

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

Centre Code No. 

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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.
- Within 30 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.
- Do not bring any loose paper, written or blank, inside the Examination Hall except the Admit Card.
- A separate OMR Answer Sheet is given. It should not be folded or mutilated. A second OMR Answer Sheet shall not be provided. Only the OMR Answer Sheet will be evaluated.
- Write all entries by blue/black pen in the space provided above.
- On the front page of the OMR Answer Sheet, write by pen your Roll Number in the space provided at the top, and by darkening the circles at the bottom. Also, write the Question Booklet Number, Centre Code Number and the Set Number wherever applicable in appropriate places.
- No overwriting is allowed in the entries of Roll No., Question Booklet No. and Set No. (if any) on OMR Answer sheet and Roll No. and OMR Answer sheet no. on the Question Booklet.
- Any change in the aforesaid entries is to be verified by the invigilator, otherwise it will be taken as unfair means.
- 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 pen as mentioned in the guidelines given on the first page of the OMR Answer Sheet.
- For each question, darken only one circle on the OMR Answer Sheet. If you darken more than one circle or darken a circle partially, the answer will be treated as incorrect.
- 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 mark).
- For rough work, use the inner back page of the title cover and the blank page at the end of this Booklet.
- On completion of the Test, the candidate must handover the OMR Answer Sheet to the Invigilator in the examination room/hall. However, candidates are allowed to take away Test Booklet and copy of OMR Answer Sheet with them.
- Candidates are not permitted to leave the Examination Hall until the end of the Test.
- If a candidate attempts to use unfair means, he/she shall be liable for such penalties as may be prescribed.

**ROUGH WORK**  
रफ़ कार्य

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No. of Questions : 120

*Time : 2 Hours*

*[Full Marks : 360*

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**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 closest one.

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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) Chemoheterotrophic
  
3. The organisms obtain their nutrients from dead and decaying organic materials are known as
  - (1) Parasitic
  - (2) Saprophytic
  - (3) Heterotrophic
  - (4) Autotrophic

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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 %
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







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26. Which of the following fruit contains the highest amount of ascorbic acid ?
- (1) Indian Gooseberry                      (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 berries 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

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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

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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 in 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) Isothiocyanate      (4) Capsaicin

59. Which of the following is not a bio-pesticide ?

- (1) Bioneem      (2) Biolep      (3) Dipel      (4) Carbaryl

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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 cannot synthesize protein by own enzymes ?

- (1) Bacteria (2) Mycoplasma  
(3) RLO (4) Virus

65. Mad cow disease is caused by

- (1) Virion (2) Prion (3) Bacteria (4) MLO

66. Which one of the following cannot 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) van der Waals

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) 390-700 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) Sorbitols



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73. The end product of glycolysis is

- (1) Glucose      (2) Sucrose      (3) Pyruvic acid      (4) NADH

74. Krebs cycle produces theoretical yield of

- (1) 18ATP      (2) 38ATP      (3) 32ATP      (4) 36ATP

75. Cellulose is a polymer of

- (1)  $\beta$ -D Glucose      (2)  $\alpha$ -D Glucose  
(3)  $\beta$ -L Fructose      (4)  $\alpha$ -D Galactose

76. Greenhouse gas for global warming is

- (1) O<sub>2</sub>      (2) CH<sub>4</sub>      (3) SO<sub>2</sub>      (4) CO<sub>2</sub>

77. Unit of pressure in SI system is

- (1) Atmosphere      (2) Dynes per square cm  
(3) Pascal      (4) mm of mercury

78. Coconut fat is a rich source of

- (1) Palmitic acid      (2) Stearic acid  
(3) Lauric acid      (4) Ricinoleic acid

79. Temperature of LTLT pasteurization of milk is

- (1) 61-63 °C      (2) 42-49 °C      (3) 62-65 °C      (4) 51-65 °C

80. Rickets is caused due to the deficiency of

- (1) Vitamin C      (2) Vitamin D      (3) Vitamin A      (4) Vitamin B<sub>12</sub>

81. Egg shell is made up of

- (1) Ca(OH)<sub>2</sub>      (2) Ca<sub>3</sub>(PO<sub>4</sub>)<sub>2</sub>      (3) CaCO<sub>3</sub>      (4) CaO

82. Quality of egg can be judged by

- (1) Candling      (2) Annealing      (3) Temperature test      (4) pH

83. Yellow color of egg is due to

- (1) Carotene      (2) Anthocyanin      (3) Vitamin B      (4) Xanthophyll

84. Hormone required for milk secretion is

- (1) Oxytocin      (2) ACH      (3) Prolactin      (4) TSH

85. Crude fibre content in roughage is approximately

- (1) 18- 20 %      (2) 30- 32 %      (3) 25- 27 %      (4) 35- 37 %

86. Enzyme coagulated milk product is

- (1) Paneer      (2) Dahi      (3) Cheese      (4) Chhana

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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

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99. Resistance to 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 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

107. Characteristic of the molecule that enables it to perform a specific role in a food is known as

- (1) Functional property
- (2) Colligative property
- (3) Special property
- (4) Nutritional property



114. A lipid containing two fatty acids and a phosphoric acid group esterified to glycerol and choline as the N group is called

- (1) Diglyceride    (2) Glycolipid    (3) Lecithin    (4) Cephalin

115. A compound that prevents, delays or minimizes the rancidity of oils by donating a H atom to the double bond in a fatty acid is known as

- (1) Autooxidation                      (2) Free radical  
(3) Antioxidant                         (4) Peroxide

116. The process of formation of equal amounts of glucose and fructose from sucrose by acid and heat, or enzymes is called

- (1) Inversion                              (2) Isomerization  
(3) Hydrolysis                            (4) Fractionation

117. The process of mixing dough into a uniform mass by folding, pressing and stretching is called

- (1) Kneading    (2) Baking    (3) Beating    (4) Leavening

118. Mild heat treatment that inactivates enzymes that would cause deterioration of food during frozen storage is known as

- (1) Stewing    (2) Blanching    (3) Drying    (4) Roasting



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119. A method in which continuous electrical current is passed through food to heat it rapidly and maintaining quality is called

- |                       |                 |
|-----------------------|-----------------|
| (1) Microwave cooking | (2) Irradiation |
| (3) Ohmic heating     | (4) Sonication  |

120. A method for addition of nutrients in a food to achieve established concentrations specified by the standards of identity

- |                   |                     |
|-------------------|---------------------|
| (1) Fortification | (2) Restoration     |
| (3) Enrichment    | (4) Supplementation |

# ROUGH WORK

रफ़ कार्य

## 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. परीक्षा शुरू होने के 30 मिनट के अन्दर ही देख लें कि प्रश्नपत्र में सभी पृष्ठ संलग्न हैं और कोई पृष्ठ छूटा नहीं है। पुस्तिका खोलकर पाये जाने पर इसकी सूचना तत्काल कक्ष-निरीक्षक को देकर सम्पूर्ण प्रश्नपत्र की विषयी पुस्तिका खोल कर लें।
2. प्रश्नपत्र में प्रवेश-पत्र के अतिरिक्त, लिखा या सादा कोई भी पत्र संलग्न नहीं है।
3. ओ.एम.आर. उत्तर-पत्र अलग से दिया गया है। इसे न तो मोड़ें और न ही विकृत करें। इसका ओ.एम.आर. उत्तर-पत्र नहीं दिया जायेगा। केवल ओ.एम.आर. उत्तर-पत्र का ही मूल्यांकन किया जायेगा।
4. सभी प्रविष्टियाँ प्रथम आवरण-पृष्ठ पर नीली/काली पेन से विधित्त स्थान पर लिखें।
5. ओ.एम.आर. उत्तर-पत्र के प्रथम पृष्ठ पर पेन से अपना अनुक्रमांक निर्धारित स्थान पर लिखें तथा नीचे दिये वृत्तों को भरवायें। जहाँ-जहाँ आवश्यक हो वहाँ प्रश्न-पुस्तिका का क्रमांक, केंद्र कोड नम्बर तथा रोल का नम्बर उचित स्थानों पर लिखें।
6. ओ.एम.आर. उत्तर-पत्र पर अनुक्रमांक रखवा, प्रश्न-पुस्तिका संख्या व रोल संख्या (यदि कोई हो) तथा प्रश्न-पुस्तिका पर अनुक्रमांक रखवा और ओ.एम.आर. उत्तर-पत्र संख्या की प्रविष्टियों में उपरोक्तों की अनुमति नहीं है।
7. उपर्युक्त प्रविष्टियों में कोई भी परिवर्तन कक्ष निरीक्षक द्वारा प्रमाणित होकर आदिष्ट अवधि में प्रश्नपत्र पर अनुचित शोधन 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 ओ.एम.आर. उत्तर-पत्र की सम्बन्धित पंक्ति के सामने दिये गये वृत्त को उत्तर-पत्र के पथन पृष्ठ पर दिये गये निर्देशों के अनुसार पेन से भरना करना है।
9. प्रत्येक प्रश्न के उत्तर के लिए केवल एक ही वृत्त को भरना है। एक से अधिक वृत्तों को भरना करने पर अथवा एक वृत्त को अपूर्ण भरने पर यह उत्तर गलत माना जायेगा।
10. ध्यान दें कि एक बार ग्राहक द्वारा अंकित उत्तर बदला नहीं जा सकता है। यदि आप किसी प्रश्न का उत्तर गलत होना चाहते हैं, तो सम्बन्धित पंक्ति के सामने दिये गये सभी वृत्तों को ग्राहकी छोड़ दें। ऐसे प्रश्नों पर ग्राहक अंक दिये जायेंगे।
11. उत्तर पत्रों के लिए प्रश्न-पुस्तिका के मुखपृष्ठ के अन्दर वाला पृष्ठ तथा प्रश्न-पुस्तिका के अंतिम पृष्ठ का प्रयोग न करें।
12. परीक्षा की समाप्ति के बाद अभ्यर्थी अपना ओ.एम.आर. उत्तर-पत्र परीक्षा कक्ष/हॉल में लक्ष निरीक्षक को सौंप दें। अभ्यर्थी अपने साथ प्रश्न-पुस्तिका तथा ओ.एम.आर. उत्तर-पत्र की कॉपी लाने नहीं आ सकते हैं।
13. अभ्यर्थी को परीक्षा समाप्त होने से पहले परीक्षा भवन से बाहर जाने की अनुमति नहीं होगी।
14. यदि कोई अभ्यर्थी परीक्षा में अनुचित शोधन का प्रयोग करता है, तो वह विरतविधायक द्वारा निर्धारित दण्ड का भोग्य बन सकता है।