

**219/2023**

Maximum : 100 marks

Time : 1 hour and 30 minutes

**1. Match List I with List II**

List I

- (a) Abscisic Acid
- (b) Maleic hydrazide
- (c) NAA
- (d) Cycocel

List II

- (i) Growth retardant
- (ii) Lodging preventor
- (iii) Defoliant
- (iv) Fruit thinner

Choose the correct answer from the options given below :

- (A) (a)-(ii), (b)-(iii), (c)-(iv), (d)-(i)
- (B) (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)
- (C) (a)-(iii), (b)-(i), (c)-(iv), (d)-(ii)
- (D) (a)-(iv), (b)-(iii), (c)-(i), (d)-(ii)

**2. Match List I with List II**

List I

- (a) Law of minimum
- (b) Inverse yield nitrogen law
- (c) Law of optima and minimum factors
- (d) Law of diminishing returns

List II

- (i) Wilcox
- (ii) Blackman
- (iii) Mitscherlich
- (iv) Justus Von Liebig

Choose the correct answer from the options given below :

- (A) (a)-(iv), (b)-(iii), (c)-(i), (d)-(ii)
- (B) (a)-(ii), (b)-(i), (c)-(iv), (d)-(iii)
- (C) (a)-(ii), (b)-(iii), (c)-(i), (d)-(iv)
- (D) (a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)

**3. Which of the following is a secondary tillage implement?**

- (A) Mouldboard plough
- (B) Country plough
- (C) Disc harrow
- (D) Basin lister

**4. The yearly sequence and spatial arrangement of crops or crops and fallow in an area is known as :**

- (A) Farming system
- (B) Cropping pattern
- (C) Cropping system
- (D) Crop rotation

**5. Which among the following methods is commonly used for determining soil moisture potential under laboratory conditions?**

- (A) Pressure plate apparatus
- (B) Tensiometer
- (C) Neutron probe
- (D) Gypsum block

6. National Centre for Organic and Natural Farming is located at :  
(A) Karnal (B) Ghaziabad  
(C) Hyderabad (D) Kanpur
7. Given below are two statements :  
Statement I: Crop associated weeds are crop specific due to mimicry, need for specific micro climate and ready contamination with the crops.  
Statement II: Crop associated weeds are parasitic in nature.  
Choose the most appropriate answer from the options given below.  
(A) Both statement I and II are true  
(B) Both statement I and II are false  
(C) Statement I is true but statement II is false  
(D) Statement I is false but statement II is true
8. A short duration rice variety :  
(A) Jaya (B) Ponni  
(C) Prathyasa (D) Uma
9. Kerala is divided into how many agro-ecological units based on climate, land forms and soils with panchayats as the primary unit :  
(A) 20 (B) 15  
(C) 23 (D) 5
10. Which of the following is a water soluble phosphatic fertilizer?  
(A) Rock phosphate (B) Dicalcium phosphate  
(C) Basic slag (D) Single super phosphate
11. Which of the following GM food crop was approved by Indian Government for the environmental release during 147<sup>th</sup> meeting of Genetic Engineering Appraisal Committee (GEAC) on 18 October, 2022 for its seed production and testing as per existing ICAR guidelines?  
(A) Brinjal (B) Mustard  
(C) Chickpea (D) Maize
12. In controlled atmospheric storage, what is the common practice to regulate the concentrations of gases, apart from the temperature and humidity of the container?  
(A) Only oxygen  
(B) Only carbon dioxide  
(C) Reduced oxygen and increased carbon dioxide  
(D) Reduced carbon dioxide and increased oxygen

13. Which of the following is the process of making projections of demand for seed products by examining past and present performance levels, combined with an assessment of available products and markets?
- (A) Seed pricing (B) Seed marketing  
(C) Sales return seed (D) Demand forecasting
14. Who is responsible to ensure that seeds meet all required quality standards in participating countries like India for certification under OECD scheme?
- (A) Indian Council of Agricultural Research (ICAR)  
(B) National Designated Authority (NDA)  
(C) National Seed Corporation (NSC)  
(D) National Seed Association of India (NSAI)
15. Moisture resistant containers are those which :
- (A) Allows both in the form of vapour and water  
(B) Allows moisture in the form of water but not in the form of vapour  
(C) Allows moisture in the form of vapour but not in the form of water  
(D) Does not allow both in the form of vapour and water
16. Crops which are categorized in to often cross pollination behaviour :
- (A) Cotton, Sorghum, Pigeonpea, Safflower  
(B) Wheat, Ragi, Grams, Groundnut  
(C) Maize, Mustard, Sunflower, Sugarcane  
(D) Rice, Soybean, Sunnhemp, Tomato
17. The process of adding inert materials to seeds increasing their weight, size and shape in order to enable the seed for precise metering, spacing and depth of seed in the field is known as :
- (A) Seed Coating (B) Seed Priming  
(C) Seed Hardening (D) Seed Pelleting
18. All varieties which are being released in India are notified under the section \_\_\_\_\_ of the Seeds Act 1966 :
- (A) Section 5 (B) Section 8  
(C) Section 13 (D) Section 25

19. Which of the following included in the normal seedlings while conducting germination test?
- (A) Stunted, stubby and retarded
  - (B) Damaged, deformed and decayed
  - (C) Intact, slight defects and secondary infection
  - (D) Spindly, necrotic and stubby
20. Which type of hybrid seed production tool is being employed in pigeon pea hybridization process?
- (A) CMS (Cytoplasmic Male Sterility)
  - (B) GMS (Genetic Male Sterility)
  - (C) CGMS (Cytoplasmic-Genetic Male Sterility)
  - (D) EGMS (Environment-sensitive Genic Male Sterility)
21. An example of an internal feeding stored pest :
- (A) *Callosobruchus sp.*
  - (B) *Trogoderma granarium*
  - (C) *Corcyra cephalonica*
  - (D) *Tribolium castenum*
22. Collateral weed host of blast of rice :
- (i) *Panicum repens*
  - (ii) *Digitaria marginata*
  - (iii) *Chenopodium amaranthicolor*
  - (iv) *Convolvulus arvensis*
- (A) (i) and (ii)
  - (B) (iii) and (iv)
  - (C) (i), (ii), (iii) and (iv)
  - (D) None of the above
23. Kresek symptom in rice seedlings is caused by :
- (A) *Xanthomonas oryzae pv. oryzicola*
  - (B) *Pseudomonas syringae pv. oryzae*
  - (C) *Xanthomonas campestris pv. campestris*
  - (D) *Xanthomonas oryzae pv. oryzae*
24. Sugarcane variety resistant to red rot :
- (A) Geethika
  - (B) Madhurima
  - (C) Vellayani Hraswa
  - (D) Deepthi

25. Fungicide used for seed treatment :
- |                  |                         |
|------------------|-------------------------|
| (A) Hexaconazole | (B) Tridemorph          |
| (C) Carbendazim  | (D) Copper oxy chloride |
26. Phytoplasmal disease of rice :
- |                  |                       |
|------------------|-----------------------|
| (A) Rice tungro  | (B) Rice ragged stunt |
| (C) Grassy stunt | (D) Yellow dwarf      |
27. Citrus greening is caused by :
- (A) *Candidatus Liberibacter asiaticus* and *Candidatus Liberibacter africanus*  
 (B) *Xanthomonas citri*  
 (C) *Xylella fastidiosa*  
 (D) *Leifsonia xyli* sub sp. *xyli*
28. Diseases favoured by dry weather :
- (i) Fusarial wilt  
 (ii) Charcoal rot  
 (iii) Verticillium wilt  
 (iv) Powdery mildew
- |                    |                               |
|--------------------|-------------------------------|
| (A) (i) and (ii)   | (B) (ii) and (iii)            |
| (C) (iii) and (iv) | (D) (i), (ii), (iii) and (iv) |
29. Thrips transmitted viral disease :
- |                                  |                               |
|----------------------------------|-------------------------------|
| (A) Leaf curl of tomato          | (B) Tomato Spotted wilt virus |
| (C) Yellow vein mosaic of bhindi | (D) Ground nut rosette        |
30. Nematode associated disease :
- |                               |                            |
|-------------------------------|----------------------------|
| (A) Phloem necrosis of coffee | (B) Molya disease of wheat |
| (C) Cadang- cadang of coconut | (D) Banana bunchy top      |
31. The removal of field heat after harvest is known as :
- (A) Modified atmospheric packaging  
 (B) Controlled Atmosphere Storage  
 (C) Pre-Cooling  
 (D) Cooling

32. The maturity stage at which produce attains maximum growth and maturation is called :
- (A) Horticultural Maturity (B) Physiological Maturity  
(C) Commercial Maturity (D) Harvest Maturity
33. Central Food Technological Research Institute (CFTRI) is located at :
- (A) Chennai (B) Bengaluru  
(C) Thiruvananthapuram (D) Mysore
34. Chemical used in lye peeling is :
- (A) Sodium hydroxide (B) Sodium chloride  
(C) Sulphur dioxide (D) Sodium carbonate
35. A fruit preserve made from the juice and peel of citrus fruits boiled with sugar and water is called :
- (A) Candy (B) Glazed fruit  
(C) Jelly (D) Marmalade
36. Soaking the stem of cut flower into a solution containing sucrose to extend vase life is called :
- (A) Pulsing (B) Blanching  
(C) Sulphuring (D) Bleaching
37. Immature vegetable suitable for waxing is :
- (A) Cucumber (B) Okra  
(C) Chilli (D) Onion
38. The enzyme associated with the softening of fruits is :
- (A) Hydrogenase (B) Pectinase  
(C) Maltase (D) Dehydrogenase

39. Ethylene is commonly known as :
- (A) Rooting hormone (B) Senescing hormone  
(C) Flowering hormone (D) Ripening hormone
40. The enzyme which is responsible for browning of fruits and vegetables is :
- (A) Amylase (B) Polyphenol oxidase  
(C) Protease (D) Lipo oxidase
41. Current chairman of Commission for Agricultural Costs and Prices :
- (A) Prof. Vijay Paul Sharma (B) Dr. Ashok Gulati  
(C) Dr. Abhijit Sen (D) Prof. S. Mahendra Dev
42. These markets are of a permanent nature :
- (A) Short period (B) Long period  
(C) Terminal market (D) Secular market
43. For small and marginal farmers marketed surplus will be \_\_\_\_\_ marketable surplus.
- (A) More than (B) Equal  
(C) Less than (D) Not comparable
44. Which one is not a public agricultural market information provider?
- (A) NHB (B) APEDA  
(C) Cargil (D) NAFED
45. Which one of the following is NOT a component of the Agreement on Agriculture?
- (A) Market Access  
(B) Domestic Support  
(C) Export Competition  
(D) Sanitary and Phyto-sanitary measures
46. Theory of Absolute Advantage was introduced by :
- (A) Adam Smith (B) David Ricardo  
(C) Miranda (D) Robins
47. CPT stands for :
- (A) Cost Paid to Destination (B) Carriage Paid to Destination  
(C) Cost Paid to Port (D) Carriage Paid to Port

48. In the following marketing functions which one is not a facilitating function (Khol and Uhl classification) :
- (A) Financing (B) Risk taking  
(C) Transportation (D) Standardization
49. When the sellers are able to get the true value of their produce and the consumers receive true worth of their money is termed as :
- (A) Technical Efficiency (B) Physical Efficiency  
(C) Pricing Efficiency (D) Operational Efficiency
50. Which one is not a part of marketing cost?
- (A) Cost of packing (B) Transport  
(C) Loading and unloading (D) Cost of production
51. The \_\_\_\_\_ always starts at peak performance with optimum digging conditions (cream digging) and short hoist distances and finishes with very low performance when trimming and cleaning the remaining cargo out of the hold.
- (A) Discontinuous Unloading (B) Grab Unloading  
(C) Pneumatic Unloading (D) Continuous Unloading
52. Oxidation affects the sulfhydryl group and increases number of S S links of cystine which in turn enhances the :
- (A) gluten strength (B) kneading quality  
(C) fermentability (D) acceptability of the baked goods
53. Gamma *oryzanol* containing oil is a premium cooking oil and is extracted from rice bran which may contain \_\_\_\_\_ % lipids.
- (A) 08-13 (B) 5-10  
(C) 18-20 (D) 12-17



54. The clearance between the emery roller and cage will gradually narrow from inlet to outlet allowing the material to pass through the narrowing clearance, mainly cracking and scratching of husk take place by friction between pulses and emery is known as :
- (A) Popping (B) Pitting  
(C) Splitting (D) Polishing
55. Quick cooking cereals are the convenience foods having the technological advancement where cereals are :
- (A) Cooked to complete doneness  
(B) Cooked to dextrinized the starch and dried  
(C) Cooked to gelatinize the starch and dried  
(D) Roasted to retrograde the starch
56. Cereal grains exhibit different equilibrium moisture characteristics depending upon whether the equilibrium is reached by adsorption/sorption or desorption of the moisture. This phenomenon is known as :
- (A) Cooling (B) Non dynamic lag  
(C) Bound moisture (D) Hysteresis
57. Similarity theory includes \_\_\_\_\_ and \_\_\_\_\_ models.
- (A) Mathematical and empirical models  
(B) Constitutive and mechanical models  
(C) Hooke's and Newton's models  
(D) Saint-Venant's and rheological models
58. Extruders generate mixing or shear forces in relatively \_\_\_\_\_ which make them highly energy efficient in producing, at high outputs, the direct expanded products found in snack and RTE breakfast cereal categories are of concern.
- (A) No residence times  
(B) Short residence times  
(C) Moderate residence times  
(D) High residence times

59. Important applications of the solid–liquid extraction in \_\_\_\_\_ the food industry include.
- (A) Percolation of materials
  - (B) Lixiviation of sugarcane to sugar
  - (C) Leaching of solids in liquid
  - (D) Extraction of animal and vegetable oils and lipids
60. The rheological constants such as \_\_\_\_\_ of processed fluids intervene in the equations of the mathematical model set up for the diverse operations that form a determined process.
- (A) Gela consistency
  - (B) Viscosity
  - (C) Mouthfeel
  - (D) Syneresis
61. Which of the following statements accurately describes the consequence of the viscous flow of a Newtonian fluid?
- (A) It leads to a fully recoverable deformation
  - (B) It causes a temporary deformation that eventually recovers
  - (C) It results in a permanent, nonrecoverable deformation
  - (D) It has no effect on the deformation of the fluid
62. The knowledge of aerodynamic and hydrodynamic properties of the \_\_\_\_\_ is necessary.
- (A) Agricultural products
  - (B) Pharma products
  - (C) Automobiles
  - (D) Construction materials
63. Which of the following is the antibacterial substance is present in milk?
- (A) Lactalbumin
  - (B) Lactoferrin
  - (C) Lacoglobulin
  - (D) Casein
64. Which of the following is NOT a result of ‘electrical stimulation’ of a carcass during slaughter and dressing operations of food animals?
- (A) Prevents Cold Shortening
  - (B) Accelerate Cold Shortening
  - (C) Improves Colour and Tenderness
  - (D) Accelerate Glycolysis

65. Which compound that may be present in smoke is carcinogenic?
- (A) Benzyl pyrenes (B) Carbonyls  
(C) Aldehydes (D) PAH
66. The Haugh index is used to determine the internal quality of :
- (A) Milk (B) Meat  
(C) Paneer (D) Egg
67. Which of the following dairy products has its preparation stages explained by Rahn's foam theory?
- (A) Pasteurized milk (B) Cream  
(C) Ghee (D) Butter
68. Which of the following statements is/are correct about High Pressure Processing?
- (i) It is more suitable for food products such as mushrooms, leafy greens and marshmallows.  
(ii) During high-pressure food processing, the food product is pre-packaged in flexible containers and submerged in pressurising fluid.  
(iii) High-pressure food processing commonly employs pressures ranging from 4000 to 6000 MPa.
- (A) Statement (i) and (ii) (B) Statement (ii) and (iii)  
(C) Statement (ii) only (D) Statement (i) only
69. Which form of radiation application in food is comparable to "commercial sterilisation" and utilises higher doses of radiation?
- (A) Radurisation (B) Radappertisation  
(C) Radicidation (D) Lyophilisation
70. Which of the following applications of ultrasonic technology in food processing is NOT commonly observed?
- (A) Enhancing the drying rate of fruits  
(B) Emulsification and mixing of food ingredients  
(C) Increasing the shelf life of dairy products  
(D) To accelerate the fermentation process

71. Which of the following statements is/are correct about the common application of Pulsed Light Technology in food processing?
- (i) Used for surface sterilisation of packaging materials
  - (ii) Used for reducing microbial contamination on fruits and vegetables
  - (iii) Used to improving the texture of meat products
  - (iv) Used for inactivating enzymes in beverages
- (A) Statement (i), (ii) and (iv)                      (B) Statement (ii) and (iii)  
(C) Statement (ii) only                                  (D) Statement (i) and (iv) only
72. What is the typical range of wavelengths for UV light used in food processing for microbial decontamination?
- (A) 100-280 nm    (B) 280-400 nm  
(C) 400-700 nm    (D) 700-1000 nm
73. Yoghurt is made using mixed culture of *S.thermophilus* and *L.bulgaricus* in a \_\_\_\_\_ ratio :
- (A) 3:1    (B) 2:1  
(C) 1:1    (D) 1:2
74. Sauerkraut is a fermented food prepared using :
- (A) Milk    (B) Cabbage  
(C) Soyabean    (D) Wheat
75. \_\_\_\_\_ refers to the degree Fahrenheit required for the thermal destruction curve to traverse one log cycle :
- (A) Z-value    (B) D-value  
(C) F-value    (D) P-value
76. The toxin cereolysin is produced by :
- (A) *S.aureus*     (B) *B.cereus*  
(C) *C.perfringens*                                         (D) All of these

77. When cows eat feed containing aflatoxin B<sub>1</sub> and B<sub>2</sub>, aflatoxin \_\_\_\_\_ and \_\_\_\_\_ is excreted in the milk :
- (A) B<sub>1</sub> and B<sub>2</sub> (B) G<sub>1</sub> and G<sub>2</sub>  
(C) M<sub>1</sub> and M<sub>2</sub> (D) B<sub>1</sub> and G<sub>1</sub>
78. Fermented milk prepared using mare's milk :
- (A) Kefir (B) Kishk  
(C) Kumiss (D) Tempeh
79. Foods are considered to be chemically unstable and microbiologically unsafe at a water activity greater than or equal to :
- (A) 0.25 (B) 0.8  
(C) 0.4 (D) 0.6
80. A disaccharide which is a reducing sugar and commercially produced by specific enzyme catalysed hydrolysis of starch using  $\beta$ -amylase is :
- (A) Sucrose (B) Fructose  
(C) Maltose (D) Lactose
81. If a oil is cooled slowly, there will be formation of mixed crystals instead of forming a solid solution because :
- (A) Higher melting point Triglyceride crystallize first  
(B) Low melting point Triglyceride crystallise last  
(C) Both (A) and (B)  
(D) None of these
82. As per Nutritional classification of proteins which of the following can be called as complete proteins :
- (A) Egg (B) Wheat  
(C) Gelatin (D) Zein
83. Browning observed on the cut surfaces of light coloured vegetables and fruits is due to the action of :
- (A) Amylase (B) Lactase  
(C) Lipase (D) Phenolase
84. Acrolein, a compound which causes irritation to eyes and nostrils is formed from fat due to :
- (A) Enzymatic hydrolysis (B) Non-enzymatic hydrolysis  
(C) Pyrolysis (D) None of these

85. The technology used for food analysis in which sample is introduced into the flame where metal atoms are liberated :
- (A) AAS (B) HPLC  
(C) FPLC (D) TLC
86. International regulatory body for fixing standard for foods to ensure proper quality :
- (A) ISI (B) Codex Alimentarius  
(C) AGMARK (D) BIS
87. For Food such as dried fruits and vegetables candies, Karl-Fischer Titration is used to determine the content of :
- (A) Fat (B) Protein  
(C) Water (D) Sugar
88. The detector used in Gas chromatography which is a common technique for analysis of pesticides residues :
- (A) ECD (B) NPD  
(C) FID (D) All of these
89. The most common radiation source for visible spectrophotometer is :
- (A) Aluminium lamp (B) Magnesium lamp  
(C) Tungsten lamp (D) Sodium lamp
90. Which of the following are considered as functions of packaging?
- (i) Extending shelf life of the commodity  
(ii) Enhancing marketable distance  
(iii) Protecting nutritional quality
- (A) Only (i) (B) Only (i) and (ii)  
(C) Only (i) and (iii) (D) All the above
91. Which of the following statement is/are correct about vacuum packaging?
- (i) Helps to reduce respiration rate of perishable commodities  
(ii) Suitable for all commodities  
(iii) Selection of packaging materials plays an important role
- (A) Only (i) (B) Only (i) and (ii)  
(C) Only (i) and (iii) (D) All the above



97. The regulatory portal on Organic Food from India is :
- (A) Oranic India (B) Jaivik Bharat  
(C) Vegan Bharat (D) No regulatory portal so far
98. Which of the following statement is/ are correct regarding gustation?
- (i) All the four types of papillae in the human tongue are involved in gustation  
(ii) A super taster is a person whose sense of taste is significantly more sensitive than average  
(iii) Proper swallowing of food sample is recommended to improve sensitivity
- (A) Only (i) (B) Only (ii)  
(C) Only (iii) (D) None of the above
99. Which of the following statement is/ are correct related to sensory methods in Food Technology?
- (i) Flavour profile Analysis is referred as mother of descriptive evaluation methods  
(ii) Spider chart is a graphical representation of acceptability in sensory tests  
(iii) Quantitative descriptive analysis of products is based on the perceptions from group of qualified subjects
- (A) Only (i) and (ii) (B) Only (ii) and (iii)  
(C) Only (iii) (D) All the above
100. Which of the following statement is/ are correct about FSSAI?
- (i) Food Safety and Standard Act was established in 2006  
(ii) Comes under Ministry of Food Processing Industry  
(iii) Initiated “clean street food hub” under the umbrella of “Eat right India” movement
- (A) Only (i) and (iii) (B) Only (i)  
(C) Only (i) and (ii) (D) All the above



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