

PUNJAB PUBLIC SERVICE COMMISSION

Objective Type Test (April-2023) for Recruitment to the Post of Warehouse Manager (Group-B) in Punjab State Warehousing Corporation under the Department of Agriculture & Farmer Welfare, Government of Punjab

READ INSTRUCTIONS BEFORE FILLING ANY DETAILS OR ATTEMPTING TO ANSWER THE QUESTIONS.

Total Questions: 120
Time Allowed: 2 Hours

Candidate's Name _____

Father's Name _____

Date of Birth
DD MM YYYY

OMR Response Sheet No. _____

Roll No. _____

Candidate's Signature (Please sign in the box)

Question
Booklet Set

A

Booklet Series No.

INSTRUCTIONS

1. The candidate shall NOT open this booklet till the time told to do so by the Invigilation Staff. However, in the meantime, the candidate can read these instructions carefully and subsequently fill the appropriate columns given above in CAPITAL letters. The candidate may also fill the relevant boxes out of 1 to 9 of the Optical Mark Reader (OMR) response sheet, supplied separately.
2. Use only blue or black **ball point pen** to fill the relevant columns on this page as well as in OMR sheet. Use of Ink pen or any other pen is not allowed.
3. The candidate shall be liable for any adverse effect if the information given above is wrong or illegible or incomplete.
4. Each candidate is required to attempt 120 questions in 120 minutes, except for orthopedically/visually impaired candidates, who would be given 40 extra minutes, for marking correct responses on the OMR sheet.
5. The question paper booklet has 21 pages.
6. The candidates, when allowed to open the question paper booklet, must first check the entire booklet to confirm that the booklet has complete number of pages, the pages printed correctly and there are no blank pages. In case there is any such error in the question paper booklet then the candidate should IMMEDIATELY bring this fact to the notice of the Invigilation Staff and obtain a new booklet of the same series as given earlier.
7. The serial number of the new Question booklet if issued for some reason should be entered in the relevant column of the OMR. The Invigilation Staff must make necessary corrections in their record regarding the change in the serial no. of Question booklet.
8. The paper consists of total 480 Marks. Each question shall carry 4 marks. There are four options for each question and the candidate has to mark the MOST APPROPRIATE answer on the OMR response sheet.
9. There is negative marking (1 mark for each question) for questions wrongly answered by the candidate.
10. Use of Electronic/Manual Calculator is prohibited.
11. The candidate **MUST READ INSTRUCTIONS BEHIND THE OMR SHEET** before answering the questions and check that two carbon copies attached to the OMR sheet are intact.

1. For maintaining the cold chain from farm to the processing plant, within two or three hours after milking, the milk should ideally be cooled to
 - a) 0 °C
 - b) 4 °C
 - c) 8 °C
 - d) 10 °C

2. Storage fungi remain inactive at
 - a) <50% RH
 - b) <62% RH
 - c) <75% RH
 - d) < 90% RH

3. The loss of viability of sunflower seeds is mainly associated with
 - a) An accumulation of malondialdehyde (MDA)
 - b) Reduced antioxidant defense mechanism
 - c) Damage of mitochondria
 - d) All of the above

4. Fluidised bed drying is suitable for
 - a) Rice and wheat grains
 - b) Peas and coffee
 - c) Grass seeds
 - d) All of the above

5. Which of the following organic acid is used in food preservation?
 - a) Sulphuric acid
 - b) Boric acid
 - c) Hydrochloric acid
 - d) Sorbic acid

6. The enzyme present in cucumber that is activated during first month of storage is
 - a) Pectinesterase
 - b) Amylase
 - c) Lipase
 - d) Sucrase

7. Which of the following is used to test the presence of protein in food product?
 - a) Copper sulphate
 - b) Caustic soda and copper sulphate
 - c) Iodine and copper sulphate
 - d) Iodine and caustic soda

8. Which of the following is sensitive to chilling?
 - a) Physiological damage
 - b) Biological damage
 - c) Chemical damage
 - d) All of the above

9. Silos are used for the bulk storage of
- Oil seeds & cereals
 - Fruit
 - Cotton
 - None of the above
10. What is the maximum storage period of food grains in rural godowns?
- 2 months
 - 5 months
 - 10 months
 - 15 months
11. Which of the following type of warehouses are situated at airports and seaports?
- Public warehouses
 - Government warehouses
 - Bonded warehouses
 - Co-operative warehouses
12. Per capita square foot of warehousing space in India is
- 2.4
 - 4.0
 - 6.0
 - 20.0
13. Which of the following is an important primary pest of pulses?
- Callosobruchus chinensis*
 - Sitotrogac erealella*
 - Plodia interpunctella*
 - None of the above
14. Chlorpyrifos methyl is not effective against
- Sitophilus oryzae*
 - Callosobruchus chinensis*
 - Rhyzopertha dominica*
 - Trogoderma granarium*
15. The time required to kill 90% of the microorganisms present in the milk, is called as
- D value
 - Z value
 - F₀ value
 - Critical time
16. 'Head rice' includes
- Only whole grains after milling
 - Only broken grains after milling
 - Whole and broken grains both after milling
 - Whole plus larger than 3/4th broken grains after milling

17. On an average, the seeds of linseed contain
- 15 – 20 % oil
 - 20 – 30 % oil
 - 30 – 45 % oil
 - 45 – 55 % oil
18. The major part of which of the following Vitamin in fruits and vegetables is lost on blanching?
- Vitamin A
 - Vitamin C
 - Vitamin D
 - Vitamin E
19. Which of the following technique has been found valuable in preserving the heat sensitive foods?
- Steeping
 - Sterile canning
 - Dehydration
 - Brining
20. In thin-layer drying process of grains, the thickness of the grain layer should not be more than
- 5 cm
 - 10 cm
 - 15 cm
 - 20 cm
21. The recommended safe storage moisture (SSM) for oilseeds under tropical conditions for one year is
- 10 – 12 %
 - 9 %
 - 6 – 8 %
 - 4 – 5 %
22. Choose the correct option showing examples of the fibrous insulation materials
- Alumimum and stainless steel foil
 - Calcium silicate, diatomaceous earth and cork
 - Glass or rock wool
 - Vermiculite or expanded mica
23. The adults and grubs of this insect-pest feed on the grains of rice, sorghum, wheat, barley and maize during the storage. It has biting mouthparts at the front of rostrum and two clubbed antennae. It is
- Callosobruchus maculatus*
 - Callosobruchus chinensis*
 - Lasioderma serricorne*
 - Sitophilus oryzae*

24. The correct scientific name of the 'confused flour beetle' is
- Tribolium confusum*
 - Tribolium castaneum*
 - Sitophilus confusum*
 - Sitophilus castaneum*
25. The full form of 'DDVP' is
- 2,2 – dichlorovinyl dimethyl phosphate
 - 2,2 – dichlorofinyl dimethyl phosphate
 - 2 – dichlorovinyl dimethyl phosphate
 - 2 – dichlorofinyl dimethyl phosphate
26. Rodents appear to approach the new food or objects with suspicion, try to avoid them, and the feed consumption by them is delayed. This behavior of the rodents is called
- Newphobia
 - Neophobia
 - Foodphobia
 - Prophobia
27. Which one of the following statements is incorrect about the bucket elevators?
- These are very efficient devices for the vertical conveyance of bulk grains
 - These are usually mounted at a fixed location, but can be mounted in a mobile frame
 - These are unfit for the vertical conveyance of the grain derivatives and flours
 - These have high capacities and cheaper means of vertical conveyance
28. The granular materials by pneumatic conveyor move under high air pressure and dispersed condition. For dispersion of the bulk material, the air velocities are in the range of
- 1 – 5 m/s
 - 6 – 10 m/s
 - 15 – 30 m/s
 - 40 – 45 m/s
29. The full form of 'HDPE' is
- High Density Polyethylene
 - High Density Polypropylene
 - High Density Polystyrene
 - High Density Polyphthalate
30. Storage of fruits packaging in polymer materials with selective permeability for gases is called
- Modified Atmosphere Packaging
 - Modified Air Packaging
 - Membranous Air Packaging
 - Membranous Atmosphere Packaging

31. Choose the incorrect option about the characteristics of the 'LDPE' packaging of the fruits and vegetables
- LDPE packaging accounts for the biggest proportion of the plastic materials used for packaging
 - LDPE packaging has low permeability for water vapour
 - LDPE packaging has low gas permeability
 - LDPE packaging has high gas permeability
32. The most common test for measuring the tear strength of the packaging film is
- Handle-O-Meter Test
 - ASTMF392 Test
 - Gelbo Flex Tester Test
 - Elmendorf Test
33. Which of the following storage structure is being used for long-term storage of larger volume of grains?
- Pusa bin
 - Brick and cement bin
 - Bunker storage
 - Kanaj
34. The liquid generally used to determine the true density of the particle by displacement method is
- Water
 - Tetrazolium solution
 - Dilute sulphuric acid
 - Toluene
35. The formula used to determine the pressure induced by the granular materials against the retaining wall in a shallow bin is
- Buelow formula
 - Baverloo formula
 - Bucklin formula
 - Rankine formula
36. The height of the platform (plinth) on which the bins are constructed is usually kept as
- 180 cm
 - 120 cm
 - 60 cm
 - 20 cm
37. If ' ϕ ' is the angle of repose of the material, then the angle of rupture may be
- $\frac{(90+\phi)}{10}$
 - $\frac{(60+\phi)}{10}$
 - $\frac{(60+\phi)}{100}$
 - $\frac{(90+\phi)}{2}$

38. The 'Zero Energy Cool Chamber' was developed by the ICAR-Indian Agricultural Research Institute, New Delhi. It works on the basis of the evaporative cooling principles and temperatures within this chamber are reduced by as much as
- 8 – 10 °C
 - 12 – 15 °C
 - 17 – 18 °C
 - 20 – 25 °C
39. Bond's law is related to
- Stress analysis of plastic deformation
 - Brittleness and pressure of the granular materials
 - Power required for crushing and grinding operation
 - Temperature, pressure and velocity relationships
40. Frozen storage refers to storing the produce at lower temperatures, generally at
- 6 °C or below
 - 8 °C or below
 - 14 °C or below
 - 18 °C or below
41. The lowest temperature at which a liquid gives off enough vapour to form an ignitable mixture with air, is known as
- Cooling point
 - Minimum point
 - Flash point
 - Maximum point
42. Stored grains are infested by number of moulds producing mycotoxins. The aflatoxins B1 and B2 are produced by the mould
- Aspergillus flavus*
 - Fusarium graminearum*
 - Fusarium moniliforme*
 - Penicillium verrucosum*
43. In tropical countries it is very important that the long axes of warehouses are oriented as
- East – West
 - North – South
 - South – North
 - SE – NW
44. Generally, the construction of columns inside the stores (warehouses) must be avoided because
- Column may increase the cost and weaken the storage structure
 - Columns may result in problems of the storage management
 - Columns may give shabby look to the storage structures
 - Columns may affect the temperature and humidity inside the storage structures

45. The bricks and concrete blocks are generally used for the construction of load-bearing walls of warehouses as they
- Give weaker strength to the warehouses
 - Provide the thermal inertia in warehouses
 - Do not provide the thermal inertia in warehouses
 - Provide very cheapest option in construction of warehouses
46. Choose the incorrect option pertaining to the use of mobile sack-lifters in warehouses
- They cannot be moved easily in the store gangways
 - The 90° rotation angle of the platform facilitates the bag loading
 - It only works on a unit basis and does not allow continuous handling of sacks
 - Well-suited in warehouses where the ground area available is limited
47. 'Phyto-Explo Fumigation' enables bulk grain to be effectively treated in deep structures using
- Phosphine
 - Chlorine
 - Benzene
 - Malathion
48. Which one of the following statements is incorrect about the 'PAU Bin'?
- It was developed by the Punjab Agricultural University
 - It is made up of bricks and cement
 - It is constructed by the galvanized iron sheet
 - It has 0.15 to 1.5 tonne capacity
49. The denaturation and even coagulation of grain proteins takes place at a temperature above
- 50°C
 - 40°C
 - 35°C
 - 30°C
50. The sphericity is defined as the
- Ratio of surface area of a sphere having same volume as that of the particle to the surface area of the particle
 - Ratio of surface area of particle having same volume as that of the sphere to the surface area of the sphere
 - Ratio of surface area of a sphere having dissimilar volume as that of the particle to the surface area of the particle
 - Ratio of surface area of particle having dissimilar volume as that of the sphere to the surface area of the sphere
51. If 'W' is the weight of grains (g) and 'V' is the volume (cc) of the same grains, then the bulk density (BD) of the grains can be expressed as
- $\text{BD} = (V/W) \text{ g/cc}$
 - $\text{BD} = (WV) \text{ g/cc}$
 - $\text{BD} = (W/V) \text{ g/cc}$
 - $\text{BD} = (VW) \text{ g/cc}$

52. The specific heat of the bone dry grain varies between
- 0.25 – 0.34 kcal/kg
 - 0.35 – 0.45 kcal/kg
 - 0.46 – 0.55 kcal/kg
 - 0.56 – 0.65 kcal/kg
53. Which one of the following statements is incorrect about the thermal conductivity of grains?
- The thermal conductivity is the amount of heat flow through unit thickness of grain material over a unit area per unit time for unit temperature difference
 - The thermal conductivity of grains in bulk is about 0.10 to 0.15 kcal/ (m. h °C)
 - The thermal conductivity of the single grain is three to four times greater than that of the grain bulk
 - It is not possible to determine the thermal conductivity of the grains by transient heat flow method
54. The size of the biomaterials is calculated using the following expression
- $(\text{Length} \times \text{Breadth} \times \text{Thickness}) / 3$
 - $(\text{Length} \times \text{Breadth} \times \text{Thickness})^{2/3}$
 - $(\text{Length} \times \text{Breadth})^{1/2}$
 - $(\text{Length} \times \text{Breadth} \times \text{Thickness})^{1/3}$
55. As per the code of practice for the fire safety of the industrial buildings including the warehouses enshrined in the Indian Standards (2005-05), all the godowns should have an illumination of at least
- 5 lux
 - 10 lux
 - 50 lux
 - 100 lux
56. As per the code of practice for the fire safety of the industrial buildings including the warehouses enshrined in the Indian Standards (2005-05), the godowns and warehouses
- Should be so located as to have as far as possible minimum exposure to the external fire, adequate water supply and easy access to the public fire services
 - Should be at least 1 km away from the railway line
 - Should be used for storage of the fireworks and other explosives within the municipal limits of a city or town
 - Should not have roadways alongside
57. The Food Corporation of India (FCI) stores major quantity (about 80%) of food grains in
- Silos
 - Bins
 - Conventional godowns
 - Cover and plinth

58. How many principles have been enunciated by the 'COSO' for the risk management components?
- 10
 - 15
 - 20
 - 25
59. Prioritizing, implementing, and maintaining the appropriate risk-reducing measures recommended from the risk assessment process, is called as
- Risk assessment
 - Risk mitigation
 - Risk impact
 - Risk evaluation
60. The culture, capabilities, and practices, integrated with strategy-setting and its performance, that organizations rely on to manage risk in creating, preserving, and realizing value, is called by 'COSO' as
- Evaluation of Routine Management
 - Enterprise Risk Manager
 - Evaluation of Risk Management
 - Enterprise Risk Management
61. A method used for forecasting process and structured communication framework based on the results of multiple rounds of questionnaires sent to a panel of experts, is called as
- Delphi method
 - Dolphin method
 - Fishbowl method
 - Monte Carlo method
62. The risk that remains after management responses to risk threats and countermeasures have been applied, is
- Cumulative risk
 - Residual risk
 - Perpetuating risk
 - Evergreen risk
63. There are number of responses or strategies to overcome the identified risks. Which one of the followings is not considered as a basic risk management approach?
- Avoidance
 - Reduction
 - Rejection
 - Sharing
64. "Freeze dryer" works on the principle of
- Evaporation
 - Sublimation
 - Radiation
 - Conduction

65. The unit of overall coefficient of heat transfer is
- $\text{W/m}^2\text{K}$
 - W/ m^2
 - W/m K
 - W/m
66. Methyl bromide is used as
- Pesticide
 - Fumigant
 - Germicide
 - Fungicide
67. Warfarin and Fumarin belong to the group of chemicals known as
- Hydrooxycoumarins
 - Rodenticides
 - Both a and b
 - None of the above
68. The degree of protection of packaged food for oxygen sensitive foods is measured in terms of
- Water vapor transmission
 - Oxygen transmission rate
 - Oxygen transfer rate
 - Moisture transmission rate
69. Capacity of CAP storage structure is
- 2000 tonnes
 - 1500 tonnes
 - 1000 tonnes
 - 500 tonnes
70. The equivalent diameter is taken _____ times the hydraulic radius of the circular bin
- Three
 - Four
 - Five
 - Six
71. Recommended perforation of aeration in grain storage shall be
- 10 %
 - 15 %
 - 20 %
 - 25 %
72. _____ BIS standard is related to general requirements for silos for grain storage
- IS 5503-1
 - IS 3055-2
 - IS 5551-1
 - IS 3335-2

73. The process of adding some vitamins in milk is known as
- Mineralization
 - Fermentation
 - Sedimentation
 - Fortification
74. Which of the following is the most abundant biomolecule on earth?
- Mineral salts
 - Proteins
 - Lipids
 - Carbohydrates
75. BIS is functioning under administrative control of
- Ministry of Consumers Affairs
 - Ministry of Commerce
 - Ministry of Agriculture
 - None of the above
76. Amino acids are the building blocks of
- Minerals
 - Proteins
 - Fat
 - Carbohydrates
77. Lipids are insoluble in water due to
- Hydrophilic nature
 - Neutral nature
 - Hydrophobic nature
 - None of the above
78. Shredded cabbage is the starting product for which of the following fermented food?
- Sauerkraut
 - Pickles
 - Green olives
 - Sausage
79. Which chemical is commonly used to prevent growth of molds in bread?
- Benzoic acid
 - Sorbic acid
 - Nitrates
 - lactic acid
80. Which of the following is worldwide rice stored insect?
- Sitophilus oryzae
 - Stegobium paniceum
 - Lasioderma sericorne
 - None of the above

81. The pesticide used in control of aphids, caterpillars and plant bugs is
- Aldrin
 - Endosulfan
 - DDT
 - Benzene
82. Dielectric heating occurs due to
- Polarization and ionization of molecules
 - Isomerization of molecules
 - Sterilization of molecules
 - Drying of molecules
83. Constant stress test is used in the measurement of which of the following properties of biomaterial?
- Fatigue
 - Toughness
 - Ductility
 - None of the above
84. Final stage of risk assessment is
- Exposure assessment
 - Risk characterization
 - Toxicity assessment
 - Hazard identification
85. Pesticide generated waste is kept in which of the following waste category?
- Organic solid
 - Inorganic aqueous
 - Organic aqueous
 - Organic sludge
86. Which chemical is commonly used to prevent growth of bacteria in milk?
- Alcohol
 - Sodium Hypochlorite
 - Chlorine
 - None of the above
87. Central Rice Research Institute is located at which of the following place?
- Gorakhpur
 - Cuttack
 - Coimbatore
 - Hyderabad
88. IPM stands for
- Integrated Plant Management
 - Integrated Pest Management
 - Integrated Pollution Management
 - Integrated Pesticide Management

89. Cost involved in holding goods in a warehouse is called
- Processing cost
 - Facility cost
 - Inventory cost
 - Transportation cost
90. _____ analysis is suitable for risk-return analysis in financial decisions
- SWOT
 - CAPM
 - EVA
 - None of the above
91. A shopkeeper labelled the price of his articles so as to earn a profit of 30% on the cost price. He then sold the articles by offering a discount of 10% on the labelled price. What is the actual per cent profit earned in the deal?
- 18%
 - 17%
 - 20%
 - Cannot be determined
92. Answers the question given below referring to the following arrangement
 $J * R 3 P L 2 \# I N 7 O C @ K 5 D = M \$ 6 B < A Q 4$
- Three of the following four are alike in a certain way as regards their position in the above arrangement and so form a group. Which is the one that does not belong to that group?
- 2 3 #
 - O I C
 - K O 5
 - B \$ <
93. 24 men working 8 hours a day can finish a work in 10 days. Working at the rate of 10 hours a day, the number of men required to finish the same work in 6 days is
- 30
 - 32
 - 34
 - 36
94. A man has 62 shoes in his drawer: 24 identical blue, 18 identical black and 20 identical red. The lights are out and he is completely in the dark. How many minimum shoes must he take out to make 100 percent certain he has at least one pair of black shoes?
- 40
 - 44
 - 46
 - 49

95. Use the relations defined below to solve the following question

- S * T means S is the sister of T.
- S + T means S is the brother of T.
- S - T means S is the son of T.
- S / T means S is the daughter of T.
- S = T means S is the father of T.
- S x T means S is the mother of T.

Which of the following means P is the mother of Q and R?

- a) $Q * R / P$
 - b) $Q / P x R$
 - c) $Q + P = R$
 - d) $P = R + Q$
96. A man goes to a park and sees a girl who he recognised to be his relative. The girl is the daughter of his sister's husband's wife's father's only son. How is the girl related to the man?
- a) Niece
 - b) Daughter
 - c) Sister
 - d) Cousin
97. In a certain code ROSE is written as 9615, FLOWER is written as 636559. In what way GARDEN can be written?
- a) 719458
 - b) 791458
 - c) 719455
 - d) 719548
98. Working speed of three machines is in the ratio of 2 : 4 : 5. If after maintenance, the speeds of the three machines are improved by 25%, 25% and 50% respectively. What is the ratio of new speeds now?
- a) 7 : 8 : 9
 - b) 5 : 7 : 9
 - c) 5 : 6 : 7
 - d) 1 : 2 : 3
99. A bag contains 3 red, 6 green, 5 blue and 4 yellow balls. Two balls are drawn at random. What is the probability that none of the balls drawn is green?
- a) $132/306$
 - b) $12/18$
 - c) $132/324$
 - d) $164/324$

100. Two trains of equal length running in opposite direction cross a pole in 72 seconds. If the speed of one train is 80 Km/hr and the second train is 70 Km/hr., then find the length of train in metres?

- a) 900
- b) 800
- c) 1500
- d) 1100

101. Match List I with List II and select the correct option.

List I (Books)	List II (Writers)
1. Fauj-i-khas Maharaja Ranjit Singh and His French Officers	A. Khushwant Singh
2. Ranjit Singh, Maharajah of the Punjab	B. Jyoti M. Rai and Patwant Singh
3. The Sikh Army	C. Jean Lafont
4. Empire of the Sikhs: The Life and Times of Maharaja Ranjit Singh	D. Ian Heath

- a) 1(A), 2(B), 3(C), 4(D)
- b) 1(B), 2(C), 3(D), 4(A)
- c) 1(C), 2(A), 3(D), 4(B)
- d) 1(B), 2(A), 3(D), 4(C)

102. Which of the following statement is incorrect?

- a) Punjab Agricultural University was inaugurated by Pandit Jawaharlal Nehru in 1963
- b) Sh. Pratap Singh Kairon was the Chief Minister of Punjab at the time of inauguration
- c) The first campus was situated at Palampur
- d) P. N. Thapar was the first Vice Chancellor of the University

103. For generation of protoplasts from plant cells, which of the following combination of enzymes is used?

- a) Cellulases and pectinases
- b) Proteases and pectinases
- c) Chitinases and keratinases
- d) Lipases and cellulases

104. What is IRINS?

- a) It is an ICT initiative deal with E-governance for institution /universities
- b) It is a web-based research information management (RIM) service
- c) It is an e-learning portal, specifically designed for students, experts, educational institution and policymakers.
- d) It is a National mission for education through information and communication technology

105. In which of the following State is Bhitarkanika National Park situated?

- a) West Bengal
- b) Odisha
- c) Bihar
- d) Uttarakhand

106. Which of the following provisions on Directive Principles of state policy in the Indian Constitution concerns the protection and improvement of environment and safeguarding of forests and wild life?

- a) Article 48
- b) Article 49
- c) Article 47
- d) Article 48-A

107. Given below are the two statements

Statement I: Methane absorbs long-wave radiation and it is increased in concentration in the atmosphere due to great expansion in cattle and sheep farming

Statement II: Expansion in rice production is falsely associated with an increase in methane production because methane-producing bacteria do not inhabit the flooded fields

In the light of the above statements, choose the *most appropriate* answer from the options given below

- a) Both Statement I and Statement II are correct
- b) Both Statement I and Statement II are incorrect
- c) Statement I is correct but Statement II is incorrect
- d) Statement I is incorrect but Statement II is correct

108. Which three Indian States delayed accession to India even after other princely states had joined India?

- a) Hyderabad, Udaipur, Travancore
- b) Udaipur, Kapurthala, Jammu and Kashmir
- c) Junagarh, Hyderabad, Jammu and Kashmir
- d) Junagarh, Mysore, Jammu and Kashmir

109. Which of these do not constitute the primary functions of NABARD?
- To serve as an apex financing agency for the institutions providing investment and production credit for promoting development activities in rural and semi-urban areas
 - Incorporating measures towards institution building for improving absorptive capacity of the credit delivery system including monitoring, formulation of rehabilitation schemes and training of personnel
 - To coordinate the rural financing activities of all institutions engaged in developmental work at the field level and liaison with the Government of India, the State Governments, the Reserve Bank and other national level institutions concerned with policy formulation
 - Undertaking monitoring and evaluation of projects refinanced by it
110. The increase in oil seeds production was due to which of the following revolution?
- White revolution
 - Yellow revolution
 - Green revolution
 - Brown revolution
111. 'ਅੱਖ ਅੱਡੀ ਹੀ ਰਹਿ ਗਈ, ਕੱਜਲ ਨੂੰ ____ ਲੈ ਗਈ' ਅਖਾਣ ਪੂਰਾ ਕਰੋ:
- ਇੱਲ
 - ਚੇਰਨੀ
 - ਸ਼ੇਰਨੀ
 - ਭੂਤਨੀ
112. 'ਅੱਕੀ ਪਲਾਹੀ ਹਥ ਮਾਰਨੇ' ਦਾ ਅਰਥ ਹੈ:
- ਜ਼ੋਰ ਅਜ਼ਮਾਇਸ਼ ਕਰਨਾ
 - ਆਸਰਾ ਭਾਲਣਾ
 - ਸੰਘਰਸ਼ ਕਰਨਾ
 - ਸੁੱਤੇ ਪਏ ਡਰਨਾ
113. ਪੁਰਖ-ਵਾਚਕ ਪੜਨਾਂਵ ਦੇ ਪ੍ਰਕਾਰਾਂ ਅਨੁਸਾਰ ਕਿਹੜਾ ਜੁੱਟ ਠੀਕ ਹੈ?
- ਉਹ, ਆਪ, ਉਨ੍ਹਾਂ
 - ਤੂੰ, ਅਸੀਂ, ਤੁਹਾਡਾ
 - ਮੈਂ, ਮੈਨੂੰ, ਤੁਹਾਨੂੰ
 - ਉਹ, ਉਨ੍ਹਾਂ, ਇਨ੍ਹਾਂ

114. ਹਿੰਦੁਸਤਾਨ, ਪਾਕਿਸਤਾਨ, ਅਫ਼ਗ਼ਾਨਿਸਤਾਨ, ਉਜ਼ਬੇਕਿਸਤਾਨ ਵਿੱਚ ਕਿਹੜਾ ਪਿਛੇਤਰ ਲੱਗਿਆ ਹੈ?

- a) ਆਨ
- b) ਨ
- c) ਤਾਨ
- d) ਸਤਾਨ

115. ਹੇਠ ਲਿਖੇ ਸ਼ਬਦਾਂ ਵਿੱਚ 'ਖੰਭ' ਦਾ ਬਦਲਿਆ ਲਿੰਗ ਚੁਣੋ:

- a) ਖੰਭ
- b) ਖੰਭੀ
- c) ਖੰਭੜ
- d) ਖੰਭੜੀ

116. 'ਛੁੱਟ-ਮਰੇੜੀ' ਦਾ ਚਿੰਨ੍ਹ ਕਿਹੜਾ ਹੈ?

- a) !
- b> “ “
- c) ;
- d) ‘

117. 'Ideological differences can be resolved with maturity.' ਦਾ ਪੰਜਾਬੀ ਰੂਪ ਹੈ:

- a) ਵਿਚਾਰਧਾਰਕ ਮਤਭੇਦਾਂ ਨੂੰ ਪਰਿਪੱਕਤਾ ਨਾਲ ਹੱਲ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
- b) ਵਿਚਾਰੀ ਝਗੜੇ ਨੂੰ ਬਜ਼ੁਰਗੀ ਨਾਲ ਹੱਲ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
- c) ਵਿਚਾਰਧਾਰਕ ਅੰਤਰਾਂ ਨੂੰ ਪ੍ਰੇਰਨਾ ਨਾਲ ਖਤਮ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
- d) ਵਿਚਾਰਕ ਅੰਤਰਾਂ ਨੂੰ ਪਰਿਪੱਕਤਾ ਨਾਲ ਨਿਪਟਾਇਆ ਜਾ ਸਕਦਾ ਹੈ।

118. 199738 ਦਾ ਪੰਜਾਬੀ ਰੂਪ:

- a) ਇੱਕ ਲੱਖ ਨੌਂਵੇਂ ਹਜ਼ਾਰ ਸੱਤ ਸੌ ਠੱਤੀ
- b) ਇੱਕ ਲੱਖ ਨੌਂਵੇਂ ਹਜ਼ਾਰ ਸੱਤ ਸੌ ਅੱਠਤੀ
- c) ਇੱਕ ਲੱਖ ਨੌਂਵੇਂ ਹਜ਼ਾਰ ਸੱਤ ਸੌ ਅੱਠਤੀ
- d) ਇੱਕ ਲੱਖ ਨੌਂਵੇਂ ਹਜ਼ਾਰ ਸੱਤ ਸੌ ਅੱਠਤੀ

119. ਹੇਠ ਦਿੱਤੇ ਵਿਕਲਪਾਂ ਵਿੱਚੋਂ ਕਿਹੜਾ ਵਿਕਲਪ ਭਾਸ਼ਾ ਦੀ ਵਿਸ਼ੇਸ਼ਤਾ ਨਾਲ ਸੰਬੰਧਤ ਨਹੀਂ ਹੈ?

- a) ਸਿਰਜਣਾਤਮਕਤਾ, ਸਮਾਜਕਤਾ
- b) ਦੁੱਖਤਾ, ਆਪਹੁਦਰਾਪਣ
- c) ਸਭਿਆਚਾਰਕ ਸੰਚਾਰਨ, ਵਿਸਥਾਪਨ
- d) ਅੰਤਰ ਵਟਾਂਦਰਾ, ਵਿਸਥਾਪਨ

120. ਬਾਂਗਰ ਦਾ ਇਲਾਕਾ ਕਿਹੜੇ ਦੋ ਦਰਿਆਵਾਂ ਵਿਚਕਾਰ ਸਥਿਤ ਹੈ?

- a) ਘੱਗਰ ਅਤੇ ਜਮਨਾ
- b) ਘੱਗਰ ਅਤੇ ਟਾਂਗਰੀ
- c) ਜਮਨਾ ਅਤੇ ਸਤਲੁਜ
- d) ਜਮਨਾ ਅਤੇ ਗੰਗਾ

SPACE FOR ROUGH WORK

PUNJAB PUBLIC SERVICE COMMISSION

Objective Type Test (April-2023) for Recruitment to the Post of Warehouse Manager (Group-B) in Punjab State Warehousing Corporation under the Department of Agriculture & Farmer Welfare, Government of Punjab

READ INSTRUCTIONS BEFORE FILLING ANY DETAILS OR ATTEMPTING TO ANSWER THE QUESTIONS.

Total Questions: 120
Time Allowed: 2 Hours

Candidate's Name _____

Father's Name _____

Date of Birth
DD MM YYYY

OMR Response Sheet No. _____

Roll No. _____

Candidate's Signature (Please sign in the box)

Question
Booklet Set

B

Booklet Series No.

INSTRUCTIONS

1. The candidate shall NOT open this booklet till the time told to do so by the Invigilation Staff. However, in the meantime, the candidate can read these instructions carefully and subsequently fill the appropriate columns given above in CAPITAL letters. The candidate may also fill the relevant boxes out of 1 to 9 of the Optical Mark Reader (OMR) response sheet, supplied separately.
2. Use only blue or black **ball point pen** to fill the relevant columns on this page as well as in OMR sheet. Use of Ink pen or any other pen is not allowed.
3. The candidate shall be liable for any adverse effect if the information given above is wrong or illegible or incomplete.
4. Each candidate is required to attempt 120 questions in 120 minutes, except for orthopedically/visually impaired candidates, who would be given 40 extra minutes, for marking correct responses on the OMR sheet.
5. The question paper booklet has 21 pages.
6. The candidates, when allowed to open the question paper booklet, must first check the entire booklet to confirm that the booklet has complete number of pages, the pages printed correctly and there are no blank pages. In case there is any such error in the question paper booklet then the candidate should IMMEDIATELY bring this fact to the notice of the Invigilation Staff and obtain a new booklet of the same series as given earlier.
7. The serial number of the new Question booklet if issued for some reason should be entered in the relevant column of the OMR. The Invigilation Staff must make necessary corrections in their record regarding the change in the serial no. of Question booklet.
8. The paper consists of total 480 Marks. Each question shall carry 4 marks. There are four options for each question and the candidate has to mark the MOST APPROPRIATE answer on the OMR response sheet.
9. There is negative marking (1 mark for each question) for questions wrongly answered by the candidate.
10. Use of Electronic/Manual Calculator is prohibited.
11. The candidate **MUST READ INSTRUCTIONS BEHIND THE OMR SHEET** before answering the questions and check that two carbon copies attached to the OMR sheet are intact.

1. 'ਅੱਖ ਅੱਡੀ ਹੀ ਰਹਿ ਗਈ, ਕੱਜਲ ਨੂੰ _____ ਲੈ ਗਈ' ਅਖਾਣ ਪੂਰਾ ਕਰੋ:
 - a) ਇੱਲ
 - b) ਚੇਰਨੀ
 - c) ਸ਼ੇਰਨੀ
 - d) ਭੂਤਨੀ

2. 'ਅੱਕੀ ਪਲਾਹੀ ਹਥ ਮਾਰਨੇ' ਦਾ ਅਰਥ ਹੈ:
 - a) ਜ਼ੋਰ ਅਜ਼ਮਾਇਸ਼ ਕਰਨਾ
 - b) ਆਸਰਾ ਭਾਲਣਾ
 - c) ਸੰਘਰਸ਼ ਕਰਨਾ
 - d) ਸੁੱਤੇ ਪਏ ਡਰਨਾ

3. ਪੁਰਖ-ਵਾਚਕ ਪੜਨਾਂਵ ਦੇ ਪ੍ਰਕਾਰਾਂ ਅਨੁਸਾਰ ਕਿਹੜਾ ਜੁੱਟ ਠੀਕ ਹੈ?
 - a) ਉਹ, ਆਪ, ਉਨ੍ਹਾਂ
 - b) ਤੂੰ, ਅਸੀਂ, ਤੁਹਾਡਾ
 - c) ਮੈਂ, ਮੈਨੂੰ, ਤੁਹਾਨੂੰ
 - d) ਉਹ, ਉਨ੍ਹਾਂ, ਇਨ੍ਹਾਂ

4. ਹਿੰਦੁਸਤਾਨ, ਪਾਕਿਸਤਾਨ, ਅਫ਼ਗ਼ਾਨਿਸਤਾਨ, ਉਜ਼ਬੇਕਿਸਤਾਨ ਵਿੱਚ ਕਿਹੜਾ ਪਿਛੇਤਰ ਲੱਗਿਆ ਹੈ?
 - a) ਆਨ
 - b) ਨ
 - c) ਤਾਨ
 - d) ਸਤਾਨ

5. ਹੇਠ ਲਿਖੇ ਸ਼ਬਦਾਂ ਵਿੱਚ 'ਖੰਭ' ਦਾ ਬਦਲਿਆ ਲਿੰਗ ਚੁਣੋ:
 - a) ਖੰਭ
 - b) ਖੰਭੀ
 - c) ਖੰਭੜ
 - d) ਖੰਭੜੀ

6. 'ਛੁੱਟ-ਮਰੇੜੀ' ਦਾ ਚਿੰਨ੍ਹ ਕਿਹੜਾ ਹੈ?
- !
 - “ “
 - ;
 - ‘
7. 'Ideological differences can be resolved with maturity.' ਦਾ ਪੰਜਾਬੀ ਰੂਪ ਹੈ:
- ਵਿਚਾਰਧਾਰਕ ਮਤਭੇਦਾਂ ਨੂੰ ਪਰਿਪੱਕਤਾ ਨਾਲ ਹੱਲ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
 - ਵਿਚਾਰੀ ਝਗੜੇ ਨੂੰ ਬਜ਼ੁਰਗੀ ਨਾਲ ਹੱਲ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
 - ਵਿਚਾਰਧਾਰਕ ਅੰਤਰਾਂ ਨੂੰ ਪ੍ਰੇਰਣਾ ਨਾਲ ਖਤਮ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
 - ਵਿਚਾਰਕ ਅੰਤਰਾਂ ਨੂੰ ਪਰਿਪੱਕਤਾ ਨਾਲ ਨਿਪਟਾਇਆ ਜਾ ਸਕਦਾ ਹੈ।
8. 199738 ਦਾ ਪੰਜਾਬੀ ਰੂਪ:
- ਇੱਕ ਲੱਖ ਨੌਵੇਂ ਹਜ਼ਾਰ ਸੱਤ ਸੌ ਠੱਤੀ
 - ਇੱਕ ਲੱਖ ਨੌਵੇਂ ਹਜ਼ਾਰ ਸੱਤ ਸੌ ਅੱਠਤੀ
 - ਇੱਕ ਲੱਖ ਨੌਵੇਂ ਹਜ਼ਾਰ ਸੱਤ ਸੌ ਅੱਠਤੀ
 - ਇੱਕ ਲੱਖ ਨੌਵੇਂ ਹਜ਼ਾਰ ਸੱਤ ਸੌ ਅੱਠਤੀ
9. ਹੇਠ ਦਿੱਤੇ ਵਿਕਲਪਾਂ ਵਿੱਚੋਂ ਕਿਹੜਾ ਵਿਕਲਪ ਭਾਸ਼ਾ ਦੀ ਵਿਸ਼ੇਸ਼ਤਾ ਨਾਲ ਸੰਬੰਧਤ ਨਹੀਂ ਹੈ?
- ਸਿਰਜਣਾਤਮਕਤਾ, ਸਮਾਜਕਤਾ
 - ਦੁੱਖਤਾ, ਆਪਹੁਦਰਾਪਣ
 - ਸਭਿਆਚਾਰਕ ਸੰਚਾਰਨ, ਵਿਸਥਾਪਨ
 - ਅੰਤਰ ਵਟਾਂਦਰਾ, ਵਿਸਥਾਪਨ
10. ਬਾਂਗਰ ਦਾ ਇਲਾਕਾ ਕਿਹੜੇ ਦੋ ਦਰਿਆਵਾਂ ਵਿਚਕਾਰ ਸਥਿਤ ਹੈ?
- ਘੱਗਰ ਅਤੇ ਜਮਨਾ
 - ਘੱਗਰ ਅਤੇ ਟਾਂਗਰੀ
 - ਜਮਨਾ ਅਤੇ ਸਤਲੁਜ
 - ਜਮਨਾ ਅਤੇ ਗੰਗਾ

11. For maintaining the cold chain from farm to the processing plant, within two or three hours after milking, the milk should ideally be cooled to
- 0 °C
 - 4 °C
 - 8 °C
 - 10 °C
12. Storage fungi remain inactive at
- <50% RH
 - <62% RH
 - <75% RH
 - < 90% RH
13. The loss of viability of sunflower seeds is mainly associated with
- An accumulation of malondialdehyde (MDA)
 - Reduced antioxidant defense mechanism
 - Damage of mitochondria
 - All of the above
14. Fluidised bed drying is suitable for
- Rice and wheat grains
 - Peas and coffee
 - Grass seeds
 - All of the above
15. Which of the following organic acid is used in food preservation?
- Sulphuric acid
 - Boric acid
 - Hydrochloric acid
 - Sorbic acid
16. The enzyme present in cucumber that is activated during first month of storage is
- Pectinesterase
 - Amylase
 - Lipase
 - Sucrase
17. Which of the following is used to test the presence of protein in food product?
- Copper sulphate
 - Caustic soda and copper sulphate
 - Iodine and copper sulphate
 - Iodine and caustic soda
18. Which of the following is sensitive to chilling?
- Physiological damage
 - Biological damage
 - Chemical damage
 - All of the above

19. Silos are used for the bulk storage of
- Oil seeds & cereals
 - Fruit
 - Cotton
 - None of the above
20. What is the maximum storage period of food grains in rural godowns?
- 2 months
 - 5 months
 - 10 months
 - 15 months
21. Which of the following type of warehouses are situated at airports and seaports?
- Public warehouses
 - Government warehouses
 - Bonded warehouses
 - Co-operative warehouses
22. Per capita square foot of warehousing space in India is
- 2.4
 - 4.0
 - 6.0
 - 20.0
23. Which of the following is an important primary pest of pulses?
- Callosobruchus chinensis*
 - Sitotrogac erealella*
 - Plodia interpunctella*
 - None of the above
24. Chlorpyrifos methyl is not effective against
- Sitophilus oryzae*
 - Callosobruchus chinensis*
 - Rhyzopertha dominica*
 - Trogoderma granarium*
25. The time required to kill 90% of the microorganisms present in the milk, is called as
- D value
 - Z value
 - F₀ value
 - Critical time
26. 'Head rice' includes
- Only whole grains after milling
 - Only broken grains after milling
 - Whole and broken grains both after milling
 - Whole plus larger than 3/4th broken grains after milling

27. On an average, the seeds of linseed contain
- 15 – 20 % oil
 - 20 – 30 % oil
 - 30 – 45 % oil
 - 45 – 55 % oil
28. The major part of which of the following Vitamin in fruits and vegetables is lost on blanching?
- Vitamin A
 - Vitamin C
 - Vitamin D
 - Vitamin E
29. Which of the following technique has been found valuable in preserving the heat sensitive foods?
- Steeping
 - Sterile canning
 - Dehydration
 - Brining
30. In thin-layer drying process of grains, the thickness of the grain layer should not be more than
- 5 cm
 - 10 cm
 - 15 cm
 - 20 cm
31. The recommended safe storage moisture (SSM) for oilseeds under tropical conditions for one year is
- 10 – 12 %
 - 9 %
 - 6 – 8 %
 - 4 – 5 %
32. Choose the correct option showing examples of the fibrous insulation materials
- Alumimum and stainless steel foil
 - Calcium silicate, diatomaceous earth and cork
 - Glass or rock wool
 - Vermiculite or expanded mica
33. The adults and grubs of this insect-pest feed on the grains of rice, sorghum, wheat, barley and maize during the storage. It has biting mouthparts at the front of rostrum and two clubbed antennae. It is
- Callosobruchus maculatus*
 - Callosobruchus chinensis*
 - Lasioderma serricorne*
 - Sitophilus oryzae*

34. The correct scientific name of the 'confused flour beetle' is
- Tribolium confusum*
 - Tribolium castaneum*
 - Sitophilus confusum*
 - Sitophilus castaneum*
35. The full form of 'DDVP' is
- 2,2 – dichlorovinyl dimethyl phosphate
 - 2,2 – dichlorofinyl dimethyl phosphate
 - 2 – dichlorovinyl dimethyl phosphate
 - 2 – dichlorofinyl dimethyl phosphate
36. Rodents appear to approach the new food or objects with suspicion, try to avoid them, and the feed consumption by them is delayed. This behavior of the rodents is called
- Newphobia
 - Neophobia
 - Foodphobia
 - Prophobia
37. Which one of the following statements is incorrect about the bucket elevators?
- These are very efficient devices for the vertical conveyance of bulk grains
 - These are usually mounted at a fixed location, but can be mounted in a mobile frame
 - These are unfit for the vertical conveyance of the grain derivatives and flours
 - These have high capacities and cheaper means of vertical conveyance
38. The granular materials by pneumatic conveyor move under high air pressure and dispersed condition. For dispersion of the bulk material, the air velocities are in the range of
- 1 – 5 m/s
 - 6 – 10 m/s
 - 15 – 30 m/s
 - 40 – 45 m/s
39. The full form of 'HDPE' is
- High Density Polyethylene
 - High Density Polypropylene
 - High Density Polystyrene
 - High Density Polyphthalate
40. Storage of fruits packaging in polymer materials with selective permeability for gases is called
- Modified Atmosphere Packaging
 - Modified Air Packaging
 - Membranous Air Packaging
 - Membranous Atmosphere Packaging

41. Choose the incorrect option about the characteristics of the 'LDPE' packaging of the fruits and vegetables
- LDPE packaging accounts for the biggest proportion of the plastic materials used for packaging
 - LDPE packaging has low permeability for water vapour
 - LDPE packaging has low gas permeability
 - LDPE packaging has high gas permeability
42. The most common test for measuring the tear strength of the packaging film is
- Handle-O-Meter Test
 - ASTMF392 Test
 - Gelbo Flex Tester Test
 - Elmendorf Test
43. Which of the following storage structure is being used for long-term storage of larger volume of grains?
- Pusa bin
 - Brick and cement bin
 - Bunker storage
 - Kanaj
44. The liquid generally used to determine the true density of the particle by displacement method is
- Water
 - Tetrazolium solution
 - Dilute sulphuric acid
 - Toluene
45. The formula used to determine the pressure induced by the granular materials against the retaining wall in a shallow bin is
- Buelow formula
 - Baverloo formula
 - Bucklin formula
 - Rankine formula
46. The height of the platform (plinth) on which the bins are constructed is usually kept as
- 180 cm
 - 120 cm
 - 60 cm
 - 20 cm
47. If ' ϕ ' is the angle of repose of the material, then the angle of rupture may be
- $\frac{(90+\phi)}{10}$
 - $\frac{(60+\phi)}{10}$
 - $\frac{(60+\phi)}{100}$
 - $\frac{(90+\phi)}{2}$

48. The 'Zero Energy Cool Chamber' was developed by the ICAR-Indian Agricultural Research Institute, New Delhi. It works on the basis of the evaporative cooling principles and temperatures within this chamber are reduced by as much as
- 8 – 10 °C
 - 12 – 15 °C
 - 17 – 18 °C
 - 20 – 25 °C
49. Bond's law is related to
- Stress analysis of plastic deformation
 - Brittleness and pressure of the granular materials
 - Power required for crushing and grinding operation
 - Temperature, pressure and velocity relationships
50. Frozen storage refers to storing the produce at lower temperatures, generally at
- 6 °C or below
 - 8 °C or below
 - 14 °C or below
 - 18 °C or below
51. The lowest temperature at which a liquid gives off enough vapour to form an ignitable mixture with air, is known as
- Cooling point
 - Minimum point
 - Flash point
 - Maximum point
52. Stored grains are infested by number of moulds producing mycotoxins. The aflatoxins B1 and B2 are produced by the mould
- Aspergillus flavus*
 - Fusarium graminearum*
 - Fusarium moniliforme*
 - Penicillium verrucosum*
53. In tropical countries it is very important that the long axes of warehouses are oriented as
- East – West
 - North – South
 - South – North
 - SE – NW
54. Generally, the construction of columns inside the stores (warehouses) must be avoided because
- Column may increase the cost and weaken the storage structure
 - Columns may result in problems of the storage management
 - Columns may give shabby look to the storage structures
 - Columns may affect the temperature and humidity inside the storage structures

55. The bricks and concrete blocks are generally used for the construction of load-bearing walls of warehouses as they
- Give weaker strength to the warehouses
 - Provide the thermal inertia in warehouses
 - Do not provide the thermal inertia in warehouses
 - Provide very cheapest option in construction of warehouses
56. Choose the incorrect option pertaining to the use of mobile sack-lifters in warehouses
- They cannot be moved easily in the store gangways
 - The 90° rotation angle of the platform facilitates the bag loading
 - It only works on a unit basis and does not allow continuous handling of sacks
 - Well-suited in warehouses where the ground area available is limited
57. 'Phyto-Explo Fumigation' enables bulk grain to be effectively treated in deep structures using
- Phosphine
 - Chlorine
 - Benzene
 - Malathion
58. Which one of the following statements is incorrect about the 'PAU Bin'?
- It was developed by the Punjab Agricultural University
 - It is made up of bricks and cement
 - It is constructed by the galvanized iron sheet
 - It has 0.15 to 1.5 tonne capacity
59. The denaturation and even coagulation of grain proteins takes place at a temperature above
- 50°C
 - 40°C
 - 35°C
 - 30°C
60. The sphericity is defined as the
- Ratio of surface area of a sphere having same volume as that of the particle to the surface area of the particle
 - Ratio of surface area of particle having same volume as that of the sphere to the surface area of the sphere
 - Ratio of surface area of a sphere having dissimilar volume as that of the particle to the surface area of the particle
 - Ratio of surface area of particle having dissimilar volume as that of the sphere to the surface area of the sphere
61. If 'W' is the weight of grains (g) and 'V' is the volume (cc) of the same grains, then the bulk density (BD) of the grains can be expressed as
- $\text{BD} = (\text{V}/\text{W}) \text{ g/cc}$
 - $\text{BD} = (\text{WV}) \text{ g/cc}$
 - $\text{BD} = (\text{W}/\text{V}) \text{ g/cc}$
 - $\text{BD} = (\text{VW}) \text{ g/cc}$

62. The specific heat of the bone dry grain varies between
- 0.25 – 0.34 kcal/kg
 - 0.35 – 0.45 kcal/kg
 - 0.46 – 0.55 kcal/kg
 - 0.56 – 0.65 kcal/kg
63. Which one of the following statements is incorrect about the thermal conductivity of grains?
- The thermal conductivity is the amount of heat flow through unit thickness of grain material over a unit area per unit time for unit temperature difference
 - The thermal conductivity of grains in bulk is about 0.10 to 0.15 kcal/ (m. h °C)
 - The thermal conductivity of the single grain is three to four times greater than that of the grain bulk
 - It is not possible to determine the thermal conductivity of the grains by transient heat flow method
64. The size of the biomaterials is calculated using the following expression
- $(\text{Length} \times \text{Breadth} \times \text{Thickness}) / 3$
 - $(\text{Length} \times \text{Breadth} \times \text{Thickness})^{2/3}$
 - $(\text{Length} \times \text{Breadth})^{1/2}$
 - $(\text{Length} \times \text{Breadth} \times \text{Thickness})^{1/3}$
65. As per the code of practice for the fire safety of the industrial buildings including the warehouses enshrined in the Indian Standards (2005-05), all the godowns should have an illumination of at least
- 5 lux
 - 10 lux
 - 50 lux
 - 100 lux
66. As per the code of practice for the fire safety of the industrial buildings including the warehouses enshrined in the Indian Standards (2005-05), the godowns and warehouses
- Should be so located as to have as far as possible minimum exposure to the external fire, adequate water supply and easy access to the public fire services
 - Should be at least 1 km away from the railway line
 - Should be used for storage of the fireworks and other explosives within the municipal limits of a city or town
 - Should not have roadways alongside
67. The Food Corporation of India (FCI) stores major quantity (about 80%) of food grains in
- Silos
 - Bins
 - Conventional godowns
 - Cover and plinth

68. How many principles have been enunciated by the 'COSO' for the risk management components?
- 10
 - 15
 - 20
 - 25
69. Prioritizing, implementing, and maintaining the appropriate risk-reducing measures recommended from the risk assessment process, is called as
- Risk assessment
 - Risk mitigation
 - Risk impact
 - Risk evaluation
70. The culture, capabilities, and practices, integrated with strategy-setting and its performance, that organizations rely on to manage risk in creating, preserving, and realizing value, is called by 'COSO' as
- Evaluation of Routine Management
 - Enterprise Risk Manager
 - Evaluation of Risk Management
 - Enterprise Risk Management
71. A method used for forecasting process and structured communication framework based on the results of multiple rounds of questionnaires sent to a panel of experts, is called as
- Delphi method
 - Dolphin method
 - Fishbowl method
 - Monte Carlo method
72. The risk that remains after management responses to risk threats and countermeasures have been applied, is
- Cumulative risk
 - Residual risk
 - Perpetuating risk
 - Evergreen risk
73. There are number of responses or strategies to overcome the identified risks. Which one of the followings is not considered as a basic risk management approach?
- Avoidance
 - Reduction
 - Rejection
 - Sharing
74. "Freeze dryer" works on the principle of
- Evaporation
 - Sublimation
 - Radiation
 - Conduction

75. The unit of overall coefficient of heat transfer is
- $\text{W/m}^2\text{K}$
 - W/ m^2
 - W/m K
 - W/m
76. Methyl bromide is used as
- Pesticide
 - Fumigant
 - Germicide
 - Fungicide
77. Warfarin and Fumarin belong to the group of chemicals known as
- Hydrooxycoumarins
 - Rodenticides
 - Both a and b
 - None of the above
78. The degree of protection of packaged food for oxygen sensitive foods is measured in terms of
- Water vapor transmission
 - Oxygen transmission rate
 - Oxygen transfer rate
 - Moisture transmission rate
79. Capacity of CAP storage structure is
- 2000 tonnes
 - 1500 tonnes
 - 1000 tonnes
 - 500 tonnes
80. The equivalent diameter is taken _____ times the hydraulic radius of the circular bin
- Three
 - Four
 - Five
 - Six
81. Recommended perforation of aeration in grain storage shall be
- 10 %
 - 15 %
 - 20 %
 - 25 %
82. _____ BIS standard is related to general requirements for silos for grain storage
- IS 5503-1
 - IS 3055-2
 - IS 5551-1
 - IS 3335-2

83. The process of adding some vitamins in milk is known as
- Mineralization
 - Fermentation
 - Sedimentation
 - Fortification
84. Which of the following is the most abundant biomolecule on earth?
- Mineral salts
 - Proteins
 - Lipids
 - Carbohydrates
85. BIS is functioning under administrative control of
- Ministry of Consumers Affairs
 - Ministry of Commerce
 - Ministry of Agriculture
 - None of the above
86. Amino acids are the building blocks of
- Minerals
 - Proteins
 - Fat
 - Carbohydrates
87. Lipids are insoluble in water due to
- Hydrophilic nature
 - Neutral nature
 - Hydrophobic nature
 - None of the above
88. Shredded cabbage is the starting product for which of the following fermented food?
- Sauerkraut
 - Pickles
 - Green olives
 - Sausage
89. Which chemical is commonly used to prevent growth of molds in bread?
- Benzoic acid
 - Sorbic acid
 - Nitrates
 - lactic acid
90. Which of the following is worldwide rice stored insect?
- Sitophilus oryzae
 - Stegobium paniceum
 - Lasioderma sericorne
 - None of the above

91. The pesticide used in control of aphids, caterpillars and plant bugs is
- Aldrin
 - Endosulfan
 - DDT
 - Benzene
92. Dielectric heating occurs due to
- Polarization and ionization of molecules
 - Isomerization of molecules
 - Sterilization of molecules
 - Drying of molecules
93. Constant stress test is used in the measurement of which of the following properties of biomaterial?
- Fatigue
 - Toughness
 - Ductility
 - None of the above
94. Final stage of risk assessment is
- Exposure assessment
 - Risk characterization
 - Toxicity assessment
 - Hazard identification
95. Pesticide generated waste is kept in which of the following waste category?
- Organic solid
 - Inorganic aqueous
 - Organic aqueous
 - Organic sludge
96. Which chemical is commonly used to prevent growth of bacteria in milk?
- Alcohol
 - Sodium Hypochlorite
 - Chlorine
 - None of the above
97. Central Rice Research Institute is located at which of the following place?
- Gorakhpur
 - Cuttack
 - Coimbatore
 - Hyderabad
98. IPM stands for
- Integrated Plant Management
 - Integrated Pest Management
 - Integrated Pollution Management
 - Integrated Pesticide Management

99. Cost involved in holding goods in a warehouse is called

- a) Processing cost
- b) Facility cost
- c) Inventory cost
- d) Transportation cost

100. _____ analysis is suitable for risk-return analysis in financial decisions

- a) SWOT
- b) CAPM
- c) EVA
- d) None of the above

101. A shopkeeper labelled the price of his articles so as to earn a profit of 30% on the cost price. He then sold the articles by offering a discount of 10% on the labelled price. What is the actual per cent profit earned in the deal?

- a) 18%
- b) 17%
- c) 20%
- d) Cannot be determined

102. Answers the question given below referring to the following arrangement

J * R 3 P L 2 # I N 7 O C @ K 5 D = M \$ 6 B < A Q 4

Three of the following four are alike in a certain way as regards their position in the above arrangement and so form a group. Which is the one that does not belong to that group?

- a) 2 3 #
- b) O I C
- c) K O 5
- d) B \$ <

103. 24 men working 8 hours a day can finish a work in 10 days. Working at the rate of 10 hours a day, the number of men required to finish the same work in 6 days is

- a) 30
- b) 32
- c) 34
- d) 36

104. A man has 62 shoes in his drawer: 24 identical blue, 18 identical black and 20 identical red. The lights are out and he is completely in the dark. How many minimum shoes must he take out to make 100 percent certain he has at least one pair of black shoes?

- a) 40
- b) 44
- c) 46
- d) 49

105. Use the relations defined below to solve the following question

- S * T means S is the sister of T.
- S + T means S is the brother of T.
- S - T means S is the son of T.
- S / T means S is the daughter of T.
- S = T means S is the father of T.
- S x T means S is the mother of T.

Which of the following means P is the mother of Q and R?

- a) $Q * R / P$
 - b) $Q / P x R$
 - c) $Q + P = R$
 - d) $P = R + Q$
106. A man goes to a park and sees a girl who he recognised to be his relative. The girl is the daughter of his sister's husband's wife's father's only son. How is the girl related to the man?
- a) Niece
 - b) Daughter
 - c) Sister
 - d) Cousin
107. In a certain code ROSE is written as 9615, FLOWER is written as 636559. In what way GARDEN can be written?
- a) 719458
 - b) 791458
 - c) 719455
 - d) 719548
108. Working speed of three machines is in the ratio of 2 : 4 : 5. If after maintenance, the speeds of the three machines are improved by 25%, 25% and 50% respectively. What is the ratio of new speeds now?
- a) 7 : 8 : 9
 - b) 5 : 7 : 9
 - c) 5 : 6 : 7
 - d) 1 : 2 : 3
109. A bag contains 3 red, 6 green, 5 blue and 4 yellow balls. Two balls are drawn at random. What is the probability that none of the balls drawn is green?
- a) $132/306$
 - b) $12/18$
 - c) $132/324$
 - d) $164/324$

110. Two trains of equal length running in opposite direction cross a pole in 72 seconds. If the speed of one train is 80 Km/hr and the second train is 70 Km/hr., then find the length of train in metres?

- a) 900
- b) 800
- c) 1500
- d) 1100

111. Match List I with List II and select the correct option.

List I (Books)	List II (Writers)
1. Fauj-i-khas Maharaja Ranjit Singh and His French Officers	A. Khushwant Singh
2. Ranjit Singh, Maharajah of the Punjab	B. Jyoti M. Rai and Patwant Singh
3. The Sikh Army	C. Jean Lafont
4. Empire of the Sikhs: The Life and Times of Maharaja Ranjit Singh	D. Ian Heath

- a) 1(A), 2(B), 3(C), 4(D)
- b) 1(B), 2(C), 3(D), 4(A)
- c) 1(C), 2(A), 3(D), 4(B)
- d) 1(B), 2(A), 3(D), 4(C)

112. Which of the following statement is incorrect?

- a) Punjab Agricultural University was inaugurated by Pandit Jawaharlal Nehru in 1963
- b) Sh. Pratap Singh Kairon was the Chief Minister of Punjab at the time of inauguration
- c) The first campus was situated at Palampur
- d) P. N. Thapar was the first Vice Chancellor of the University

113. For generation of protoplasts from plant cells, which of the following combination of enzymes is used?

- a) Cellulases and pectinases
- b) Proteases and pectinases
- c) Chitinases and keratinases
- d) Lipases and cellulases

114. What is IRINS?

- a) It is an ICT initiative deal with E-governance for institution /universities
- b) It is a web-based research information management (RIM) service
- c) It is an e-learning portal, specifically designed for students, experts, educational institution and policymakers.
- d) It is a National mission for education through information and communication technology

115. In which of the following State is Bhitarkanika National Park situated?

- a) West Bengal
- b) Odisha
- c) Bihar
- d) Uttarakhand

116. Which of the following provisions on Directive Principles of state policy in the Indian Constitution concerns the protection and improvement of environment and safeguarding of forests and wild life?

- a) Article 48
- b) Article 49
- c) Article 47
- d) Article 48-A

117. Given below are the two statements

Statement I: Methane absorbs long-wave radiation and it is increased in concentration in the atmosphere due to great expansion in cattle and sheep farming

Statement II: Expansion in rice production is falsely associated with an increase in methane production because methane-producing bacteria do not inhabit the flooded fields

In the light of the above statements, choose the *most appropriate* answer from the options given below

- a) Both Statement I and Statement II are correct
- b) Both Statement I and Statement II are incorrect
- c) Statement I is correct but Statement II is incorrect
- d) Statement I is incorrect but Statement II is correct

118. Which three Indian States delayed accession to India even after other princely states had joined India?

- a) Hyderabad, Udaipur, Travancore
- b) Udaipur, Kapurthala, Jammu and Kashmir
- c) Junagarh, Hyderabad, Jammu and Kashmir
- d) Junagarh, Mysore, Jammu and Kashmir

119. Which of these do not constitute the primary functions of NABARD?

- a) To serve as an apex financing agency for the institutions providing investment and production credit for promoting development activities in rural and semi-urban areas
- b) Incorporating measures towards institution building for improving absorptive capacity of the credit delivery system including monitoring, formulation of rehabilitation schemes and training of personnel
- c) To coordinate the rural financing activities of all institutions engaged in developmental work at the field level and liaison with the Government of India, the State Governments, the Reserve Bank and other national level institutions concerned with policy formulation
- d) Undertaking monitoring and evaluation of projects refinanced by it

120. The increase in oil seeds production was due to which of the following revolution?

- a) White revolution
- b) Yellow revolution
- c) Green revolution
- d) Brown revolution

SPACE FOR ROUGH WORK

PUNJAB PUBLIC SERVICE COMMISSION

Objective Type Test (April-2023) for Recruitment to the Post of Warehouse Manager (Group-B) in Punjab State Warehousing Corporation under the Department of Agriculture & Farmer Welfare, Government of Punjab

READ INSTRUCTIONS BEFORE FILLING ANY DETAILS OR ATTEMPTING TO ANSWER THE QUESTIONS.

Total Questions: 120
Time Allowed: 2 Hours

Candidate's Name _____

Father's Name _____

Date of Birth
DD MM YYYY

OMR Response Sheet No. _____

Roll No. _____

Candidate's Signature (Please sign in the box)

Question
Booklet Set

C

Booklet Series No.

INSTRUCTIONS

1. The candidate shall NOT open this booklet till the time told to do so by the Invigilation Staff. However, in the meantime, the candidate can read these instructions carefully and subsequently fill the appropriate columns given above in CAPITAL letters. The candidate may also fill the relevant boxes out of 1 to 9 of the Optical Mark Reader (OMR) response sheet, supplied separately.
2. Use only blue or black **ball point pen** to fill the relevant columns on this page as well as in OMR sheet. Use of Ink pen or any other pen is not allowed.
3. The candidate shall be liable for any adverse effect if the information given above is wrong or illegible or incomplete.
4. Each candidate is required to attempt 120 questions in 120 minutes, except for orthopedically/visually impaired candidates, who would be given 40 extra minutes, for marking correct responses on the OMR sheet.
5. The question paper booklet has 21 pages.
6. The candidates, when allowed to open the question paper booklet, must first check the entire booklet to confirm that the booklet has complete number of pages, the pages printed correctly and there are no blank pages. In case there is any such error in the question paper booklet then the candidate should IMMEDIATELY bring this fact to the notice of the Invigilation Staff and obtain a new booklet of the same series as given earlier.
7. The serial number of the new Question booklet if issued for some reason should be entered in the relevant column of the OMR. The Invigilation Staff must make necessary corrections in their record regarding the change in the serial no. of Question booklet.
8. The paper consists of total 480 Marks. Each question shall carry 4 marks. There are four options for each question and the candidate has to mark the MOST APPROPRIATE answer on the OMR response sheet.
9. There is negative marking (1 mark for each question) for questions wrongly answered by the candidate.
10. Use of Electronic/Manual Calculator is prohibited.
11. The candidate **MUST READ INSTRUCTIONS BEHIND THE OMR SHEET** before answering the questions and check that two carbon copies attached to the OMR sheet are intact.

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 - d) Undertaking monitoring and evaluation of projects refinanced by it

10. The increase in oil seeds production was due to which of the following revolution?
- White revolution
 - Yellow revolution
 - Green revolution
 - Brown revolution
11. 'ਅੱਖ ਅੱਡੀ ਹੀ ਰਹਿ ਗਈ, ਕੱਜਲ ਨੂੰ _____ ਲੈ ਗਈ' ਅਖਾਣ ਪੂਰਾ ਕਰੋ:
- ਇੱਲ
 - ਚੇਰਨੀ
 - ਸ਼ੇਰਨੀ
 - ਭੂਤਨੀ
12. 'ਅੱਕੀ ਪਲਾਹੀ ਹਥ ਮਾਰਨੇ' ਦਾ ਅਰਥ ਹੈ:
- ਜ਼ੋਰ ਅਜ਼ਮਾਇਸ਼ ਕਰਨਾ
 - ਆਸਰਾ ਭਾਲਣਾ
 - ਸੰਘਰਸ਼ ਕਰਨਾ
 - ਸੁੱਤੇ ਪਏ ਡਰਨਾ
13. ਪੁਰਖ-ਵਾਚਕ ਪੜਨਾਂਵ ਦੇ ਪ੍ਰਕਾਰਾਂ ਅਨੁਸਾਰ ਕਿਹੜਾ ਜੁੱਟ ਠੀਕ ਹੈ?
- ਉਹ, ਆਪ, ਉਨ੍ਹਾਂ
 - ਤੂੰ, ਅਸੀਂ, ਤੁਹਾਡਾ
 - ਮੈਂ, ਮੈਨੂੰ, ਤੁਹਾਨੂੰ
 - ਉਹ, ਉਨ੍ਹਾਂ, ਇਨ੍ਹਾਂ
14. ਹਿੰਦੁਸਤਾਨ, ਪਾਕਿਸਤਾਨ, ਅਫ਼ਗ਼ਾਨਿਸਤਾਨ, ਉਜ਼ਬੇਕਿਸਤਾਨ ਵਿੱਚ ਕਿਹੜਾ ਪਿਛੇਤਰ ਲੱਗਿਆ ਹੈ?
- ਆਨ
 - ਨ
 - ਤਾਨ
 - ਸਤਾਨ
15. ਹੇਠ ਲਿਖੇ ਸ਼ਬਦਾਂ ਵਿੱਚ 'ਖੰਡ' ਦਾ ਬਦਲਿਆ ਲਿੰਗ ਚੁਣੋ:
- ਖੰਡ
 - ਖੰਡੀ
 - ਖੰਡੜ
 - ਖੰਡੜੀ

16. 'ਛੁੱਟ-ਮਰੇੜੀ' ਦਾ ਚਿੰਨ੍ਹ ਕਿਹੜਾ ਹੈ?
- !
 - “ “
 - ;
 - ‘
17. 'Ideological differences can be resolved with maturity.' ਦਾ ਪੰਜਾਬੀ ਰੂਪ ਹੈ:
- ਵਿਚਾਰਧਾਰਕ ਮਤਭੇਦਾਂ ਨੂੰ ਪਰਿਪੱਕਤਾ ਨਾਲ ਹੱਲ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
 - ਵਿਚਾਰੀ ਝਗੜੇ ਨੂੰ ਬਜ਼ੁਰਗੀ ਨਾਲ ਹੱਲ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
 - ਵਿਚਾਰਧਾਰਕ ਅੰਤਰਾਂ ਨੂੰ ਪ੍ਰੇੜਤਾ ਨਾਲ ਖਤਮ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
 - ਵਿਚਾਰਕ ਅੰਤਰਾਂ ਨੂੰ ਪਰਿਪੱਕਤਾ ਨਾਲ ਨਿਪਟਾਇਆ ਜਾ ਸਕਦਾ ਹੈ।
18. 199738 ਦਾ ਪੰਜਾਬੀ ਰੂਪ:
- ਇੱਕ ਲੱਖ ਨੌਂਵੇਂ ਹਜ਼ਾਰ ਸੱਤ ਸੌ ਠੱਤੀ
 - ਇੱਕ ਲੱਖ ਨੌਂਵੇਂ ਹਜ਼ਾਰ ਸੱਤ ਸੌ ਅੱਠਤੀ
 - ਇੱਕ ਲੱਖ ਨੌਂਵੇਂ ਹਜ਼ਾਰ ਸੱਤ ਸੌ ਅੱਠਤੀ
 - ਇੱਕ ਲੱਖ ਨੌਂਵੇਂ ਹਜ਼ਾਰ ਸੱਤ ਸੌ ਅੱਠਤੀ
19. ਹੇਠ ਦਿੱਤੇ ਵਿਕਲਪਾਂ ਵਿੱਚੋਂ ਕਿਹੜਾ ਵਿਕਲਪ ਭਾਸ਼ਾ ਦੀ ਵਿਸ਼ੇਸ਼ਤਾ ਨਾਲ ਸੰਬੰਧਤ ਨਹੀਂ ਹੈ?
- ਸਿਰਜਣਾਤਮਕਤਾ, ਸਮਾਜਕਤਾ
 - ਦੁੱਖਤਾ, ਆਪਹੁਦਰਾਪਣ
 - ਸਭਿਆਚਾਰਕ ਸੰਚਾਰਨ, ਵਿਸਥਾਪਨ
 - ਅੰਤਰ ਵਟਾਂਦਰਾ, ਵਿਸਥਾਪਨ
20. ਬਾਂਗਰ ਦਾ ਇਲਾਕਾ ਕਿਹੜੇ ਦੋ ਦਰਿਆਵਾਂ ਵਿਚਕਾਰ ਸਥਿਤ ਹੈ?
- ਘੱਗਰ ਅਤੇ ਜਮਨਾ
 - ਘੱਗਰ ਅਤੇ ਟਾਂਗਰੀ
 - ਜਮਨਾ ਅਤੇ ਸਤਲੁਜ
 - ਜਮਨਾ ਅਤੇ ਗੰਗਾ

21. For maintaining the cold chain from farm to the processing plant, within two or three hours after milking, the milk should ideally be cooled to
- 0 °C
 - 4 °C
 - 8 °C
 - 10 °C
22. Storage fungi remain inactive at
- <50% RH
 - <62% RH
 - <75% RH
 - < 90% RH
23. The loss of viability of sunflower seeds is mainly associated with
- An accumulation of malondialdehyde (MDA)
 - Reduced antioxidant defense mechanism
 - Damage of mitochondria
 - All of the above
24. Fluidised bed drying is suitable for
- Rice and wheat grains
 - Peas and coffee
 - Grass seeds
 - All of the above
25. Which of the following organic acid is used in food preservation?
- Sulphuric acid
 - Boric acid
 - Hydrochloric acid
 - Sorbic acid
26. The enzyme present in cucumber that is activated during first month of storage is
- Pectinesterase
 - Amylase
 - Lipase
 - Sucrase
27. Which of the following is used to test the presence of protein in food product?
- Copper sulphate
 - Caustic soda and copper sulphate
 - Iodine and copper sulphate
 - Iodine and caustic soda
28. Which of the following is sensitive to chilling?
- Physiological damage
 - Biological damage
 - Chemical damage
 - All of the above

29. Silos are used for the bulk storage of
- Oil seeds & cereals
 - Fruit
 - Cotton
 - None of the above
30. What is the maximum storage period of food grains in rural godowns?
- 2 months
 - 5 months
 - 10 months
 - 15 months
31. Which of the following type of warehouses are situated at airports and seaports?
- Public warehouses
 - Government warehouses
 - Bonded warehouses
 - Co-operative warehouses
32. Per capita square foot of warehousing space in India is
- 2.4
 - 4.0
 - 6.0
 - 20.0
33. Which of the following is an important primary pest of pulses?
- Callosobruchus chinensis*
 - Sitotrogac erealella*
 - Plodia interpunctella*
 - None of the above*
34. Chlorpyrifos methyl is not effective against
- Sitophilus oryzae*
 - Callosobruchus chinensis*
 - Rhyzopertha dominica*
 - Trogoderma granarium*
35. The time required to kill 90% of the microorganisms present in the milk, is called as
- D value
 - Z value
 - F₀ value
 - Critical time
36. 'Head rice' includes
- Only whole grains after milling
 - Only broken grains after milling
 - Whole and broken grains both after milling
 - Whole plus larger than 3/4th broken grains after milling

37. On an average, the seeds of linseed contain
- 15 – 20 % oil
 - 20 – 30 % oil
 - 30 – 45 % oil
 - 45 – 55 % oil
38. The major part of which of the following Vitamin in fruits and vegetables is lost on blanching?
- Vitamin A
 - Vitamin C
 - Vitamin D
 - Vitamin E
39. Which of the following technique has been found valuable in preserving the heat sensitive foods?
- Steeping
 - Sterile canning
 - Dehydration
 - Brining
40. In thin-layer drying process of grains, the thickness of the grain layer should not be more than
- 5 cm
 - 10 cm
 - 15 cm
 - 20 cm
41. The recommended safe storage moisture (SSM) for oilseeds under tropical conditions for one year is
- 10 – 12 %
 - 9 %
 - 6 – 8 %
 - 4 – 5 %
42. Choose the correct option showing examples of the fibrous insulation materials
- Alumimum and stainless steel foil
 - Calcium silicate, diatomaceous earth and cork
 - Glass or rock wool
 - Vermiculite or expanded mica
43. The adults and grubs of this insect-pest feed on the grains of rice, sorghum, wheat, barley and maize during the storage. It has biting mouthparts at the front of rostrum and two clubbed antennae. It is
- Callosobruchus maculatus*
 - Callosobruchus chinensis*
 - Lasioderma serricorne*
 - Sitophilus oryzae*

44. The correct scientific name of the 'confused flour beetle' is
- Tribolium confusum*
 - Tribolium castaneum*
 - Sitophilus confusum*
 - Sitophilus castaneum*
45. The full form of 'DDVP' is
- 2,2 – dichlorovinyl dimethyl phosphate
 - 2,2 – dichlorofinyl dimethyl phosphate
 - 2 – dichlorovinyl dimethyl phosphate
 - 2 – dichlorofinyl dimethyl phosphate
46. Rodents appear to approach the new food or objects with suspicion, try to avoid them, and the feed consumption by them is delayed. This behavior of the rodents is called
- Newphobia
 - Neophobia
 - Foodphobia
 - Prophobia
47. Which one of the following statements is incorrect about the bucket elevators?
- These are very efficient devices for the vertical conveyance of bulk grains
 - These are usually mounted at a fixed location, but can be mounted in a mobile frame
 - These are unfit for the vertical conveyance of the grain derivatives and flours
 - These have high capacities and cheaper means of vertical conveyance
48. The granular materials by pneumatic conveyor move under high air pressure and dispersed condition. For dispersion of the bulk material, the air velocities are in the range of
- 1 – 5 m/s
 - 6 – 10 m/s
 - 15 – 30 m/s
 - 40 – 45 m/s
49. The full form of 'HDPE' is
- High Density Polyethylene
 - High Density Polypropylene
 - High Density Polystyrene
 - High Density Polyphthalate
50. Storage of fruits packaging in polymer materials with selective permeability for gases is called
- Modified Atmosphere Packaging
 - Modified Air Packaging
 - Membranous Air Packaging
 - Membranous Atmosphere Packaging

51. Choose the incorrect option about the characteristics of the 'LDPE' packaging of the fruits and vegetables
- LDPE packaging accounts for the biggest proportion of the plastic materials used for packaging
 - LDPE packaging has low permeability for water vapour
 - LDPE packaging has low gas permeability
 - LDPE packaging has high gas permeability
52. The most common test for measuring the tear strength of the packaging film is
- Handle-O-Meter Test
 - ASTMF392 Test
 - Gelbo Flex Tester Test
 - Elmendorf Test
53. Which of the following storage structure is being used for long-term storage of larger volume of grains?
- Pusa bin
 - Brick and cement bin
 - Bunker storage
 - Kanaj
54. The liquid generally used to determine the true density of the particle by displacement method is
- Water
 - Tetrazolium solution
 - Dilute sulphuric acid
 - Toluene
55. The formula used to determine the pressure induced by the granular materials against the retaining wall in a shallow bin is
- Buelow formula
 - Baverloo formula
 - Bucklin formula
 - Rankine formula
56. The height of the platform (plinth) on which the bins are constructed is usually kept as
- 180 cm
 - 120 cm
 - 60 cm
 - 20 cm
57. If ' ϕ ' is the angle of repose of the material, then the angle of rupture may be
- $\frac{(90+\phi)}{10}$
 - $\frac{(60+\phi)}{10}$
 - $\frac{(60+\phi)}{100}$
 - $\frac{(90+\phi)}{2}$

58. The 'Zero Energy Cool Chamber' was developed by the ICAR-Indian Agricultural Research Institute, New Delhi. It works on the basis of the evaporative cooling principles and temperatures within this chamber are reduced by as much as
- 8 – 10 °C
 - 12 – 15 °C
 - 17 – 18 °C
 - 20 – 25 °C
59. Bond's law is related to
- Stress analysis of plastic deformation
 - Brittleness and pressure of the granular materials
 - Power required for crushing and grinding operation
 - Temperature, pressure and velocity relationships
60. Frozen storage refers to storing the produce at lower temperatures, generally at
- 6 °C or below
 - 8 °C or below
 - 14 °C or below
 - 18 °C or below
61. The lowest temperature at which a liquid gives off enough vapour to form an ignitable mixture with air, is known as
- Cooling point
 - Minimum point
 - Flash point
 - Maximum point
62. Stored grains are infested by number of moulds producing mycotoxins. The aflatoxins B1 and B2 are produced by the mould
- Aspergillus flavus*
 - Fusarium graminearum*
 - Fusarium moniliforme*
 - Penicillium verrucosum*
63. In tropical countries it is very important that the long axes of warehouses are oriented as
- East – West
 - North – South
 - South – North
 - SE – NW
64. Generally, the construction of columns inside the stores (warehouses) must be avoided because
- Column may increase the cost and weaken the storage structure
 - Columns may result in problems of the storage management
 - Columns may give shabby look to the storage structures
 - Columns may affect the temperature and humidity inside the storage structures

65. The bricks and concrete blocks are generally used for the construction of load-bearing walls of warehouses as they
- Give weaker strength to the warehouses
 - Provide the thermal inertia in warehouses
 - Do not provide the thermal inertia in warehouses
 - Provide very cheapest option in construction of warehouses
66. Choose the incorrect option pertaining to the use of mobile sack-lifters in warehouses
- They cannot be moved easily in the store gangways
 - The 90° rotation angle of the platform facilitates the bag loading
 - It only works on a unit basis and does not allow continuous handling of sacks
 - Well-suited in warehouses where the ground area available is limited
67. 'Phyto-Explo Fumigation' enables bulk grain to be effectively treated in deep structures using
- Phosphine
 - Chlorine
 - Benzene
 - Malathion
68. Which one of the following statements is incorrect about the 'PAU Bin'?
- It was developed by the Punjab Agricultural University
 - It is made up of bricks and cement
 - It is constructed by the galvanized iron sheet
 - It has 0.15 to 1.5 tonne capacity
69. The denaturation and even coagulation of grain proteins takes place at a temperature above
- 50°C
 - 40°C
 - 35°C
 - 30°C
70. The sphericity is defined as the
- Ratio of surface area of a sphere having same volume as that of the particle to the surface area of the particle
 - Ratio of surface area of particle having same volume as that of the sphere to the surface area of the sphere
 - Ratio of surface area of a sphere having dissimilar volume as that of the particle to the surface area of the particle
 - Ratio of surface area of particle having dissimilar volume as that of the sphere to the surface area of the sphere
71. If 'W' is the weight of grains (g) and 'V' is the volume (cc) of the same grains, then the bulk density (BD) of the grains can be expressed as
- $\text{BD} = (V/W) \text{ g/cc}$
 - $\text{BD} = (WV) \text{ g/cc}$
 - $\text{BD} = (W/V) \text{ g/cc}$
 - $\text{BD} = (VW) \text{ g/cc}$

72. The specific heat of the bone dry grain varies between
- 0.25 – 0.34 kcal/kg
 - 0.35 – 0.45 kcal/kg
 - 0.46 – 0.55 kcal/kg
 - 0.56 – 0.65 kcal/kg
73. Which one of the following statements is incorrect about the thermal conductivity of grains?
- The thermal conductivity is the amount of heat flow through unit thickness of grain material over a unit area per unit time for unit temperature difference
 - The thermal conductivity of grains in bulk is about 0.10 to 0.15 kcal/ (m. h °C)
 - The thermal conductivity of the single grain is three to four times greater than that of the grain bulk
 - It is not possible to determine the thermal conductivity of the grains by transient heat flow method
74. The size of the biomaterials is calculated using the following expression
- $(\text{Length} \times \text{Breadth} \times \text{Thickness}) / 3$
 - $(\text{Length} \times \text{Breadth} \times \text{Thickness})^{2/3}$
 - $(\text{Length} \times \text{Breadth})^{1/2}$
 - $(\text{Length} \times \text{Breadth} \times \text{Thickness})^{1/3}$
75. As per the code of practice for the fire safety of the industrial buildings including the warehouses enshrined in the Indian Standards (2005-05), all the godowns should have an illumination of at least
- 5 lux
 - 10 lux
 - 50 lux
 - 100 lux
76. As per the code of practice for the fire safety of the industrial buildings including the warehouses enshrined in the Indian Standards (2005-05), the godowns and warehouses
- Should be so located as to have as far as possible minimum exposure to the external fire, adequate water supply and easy access to the public fire services
 - Should be at least 1 km away from the railway line
 - Should be used for storage of the fireworks and other explosives within the municipal limits of a city or town
 - Should not have roadways alongside
77. The Food Corporation of India (FCI) stores major quantity (about 80%) of food grains in
- Silos
 - Bins
 - Conventional godowns
 - Cover and plinth

78. How many principles have been enunciated by the 'COSO' for the risk management components?
- 10
 - 15
 - 20
 - 25
79. Prioritizing, implementing, and maintaining the appropriate risk-reducing measures recommended from the risk assessment process, is called as
- Risk assessment
 - Risk mitigation
 - Risk impact
 - Risk evaluation
80. The culture, capabilities, and practices, integrated with strategy-setting and its performance, that organizations rely on to manage risk in creating, preserving, and realizing value, is called by 'COSO' as
- Evaluation of Routine Management
 - Enterprise Risk Manager
 - Evaluation of Risk Management
 - Enterprise Risk Management
81. A method used for forecasting process and structured communication framework based on the results of multiple rounds of questionnaires sent to a panel of experts, is called as
- Delphi method
 - Dolphin method
 - Fishbowl method
 - Monte Carlo method
82. The risk that remains after management responses to risk threats and countermeasures have been applied, is
- Cumulative risk
 - Residual risk
 - Perpetuating risk
 - Evergreen risk
83. There are number of responses or strategies to overcome the identified risks. Which one of the followings is not considered as a basic risk management approach?
- Avoidance
 - Reduction
 - Rejection
 - Sharing
84. "Freeze dryer" works on the principle of
- Evaporation
 - Sublimation
 - Radiation
 - Conduction

85. The unit of overall coefficient of heat transfer is
- $\text{W/m}^2\text{K}$
 - W/ m^2
 - W/m K
 - W/m
86. Methyl bromide is used as
- Pesticide
 - Fumigant
 - Germicide
 - Fungicide
87. Warfarin and Fumarin belong to the group of chemicals known as
- Hydrooxycoumarins
 - Rodenticides
 - Both a and b
 - None of the above
88. The degree of protection of packaged food for oxygen sensitive foods is measured in terms of
- Water vapor transmission
 - Oxygen transmission rate
 - Oxygen transfer rate
 - Moisture transmission rate
89. Capacity of CAP storage structure is
- 2000 tonnes
 - 1500 tonnes
 - 1000 tonnes
 - 500 tonnes
90. The equivalent diameter is taken _____ times the hydraulic radius of the circular bin
- Three
 - Four
 - Five
 - Six
91. Recommended perforation of aeration in grain storage shall be
- 10 %
 - 15 %
 - 20 %
 - 25 %
92. _____ BIS standard is related to general requirements for silos for grain storage
- IS 5503-1
 - IS 3055-2
 - IS 5551-1
 - IS 3335-2

93. The process of adding some vitamins in milk is known as
- Mineralization
 - Fermentation
 - Sedimentation
 - Fortification
94. Which of the following is the most abundant biomolecule on earth?
- Mineral salts
 - Proteins
 - Lipids
 - Carbohydrates
95. BIS is functioning under administrative control of
- Ministry of Consumers Affairs
 - Ministry of Commerce
 - Ministry of Agriculture
 - None of the above
96. Amino acids are the building blocks of
- Minerals
 - Proteins
 - Fat
 - Carbohydrates
97. Lipids are insoluble in water due to
- Hydrophilic nature
 - Neutral nature
 - Hydrophobic nature
 - None of the above
98. Shredded cabbage is the starting product for which of the following fermented food?
- Sauerkraut
 - Pickles
 - Green olives
 - Sausage
99. Which chemical is commonly used to prevent growth of molds in bread?
- Benzoic acid
 - Sorbic acid
 - Nitrates
 - lactic acid
100. Which of the following is worldwide rice stored insect?
- Sitophilus oryzae
 - Stegobium paniceum
 - Lasioderma sericorne
 - None of the above

101. The pesticide used in control of aphids, caterpillars and plant bugs is
- Aldrin
 - Endosulfan
 - DDT
 - Benzene
102. Dielectric heating occurs due to
- Polarization and ionization of molecules
 - Isomerization of molecules
 - Sterilization of molecules
 - Drying of molecules
103. Constant stress test is used in the measurement of which of the following properties of biomaterial?
- Fatigue
 - Toughness
 - Ductility
 - None of the above
104. Final stage of risk assessment is
- Exposure assessment
 - Risk characterization
 - Toxicity assessment
 - Hazard identification
105. Pesticide generated waste is kept in which of the following waste category?
- Organic solid
 - Inorganic aqueous
 - Organic aqueous
 - Organic sludge
106. Which chemical is commonly used to prevent growth of bacteria in milk?
- Alcohol
 - Sodium Hypochlorite
 - Chlorine
 - None of the above
107. Central Rice Research Institute is located at which of the following place?
- Gorakhpur
 - Cuttack
 - Coimbatore
 - Hyderabad
108. IPM stands for
- Integrated Plant Management
 - Integrated Pest Management
 - Integrated Pollution Management
 - Integrated Pesticide Management

109. Cost involved in holding goods in a warehouse is called
- Processing cost
 - Facility cost
 - Inventory cost
 - Transportation cost
110. _____ analysis is suitable for risk-return analysis in financial decisions
- SWOT
 - CAPM
 - EVA
 - None of the above
111. A shopkeeper labelled the price of his articles so as to earn a profit of 30% on the cost price. He then sold the articles by offering a discount of 10% on the labelled price. What is the actual per cent profit earned in the deal?
- 18%
 - 17%
 - 20%
 - Cannot be determined
112. Answers the question given below referring to the following arrangement
J * R 3 P L 2 # I N 7 O C @ K 5 D = M \$ 6 B < A Q 4
- Three of the following four are alike in a certain way as regards their position in the above arrangement and so form a group. Which is the one that does not belong to that group?
- 2 3 #
 - O I C
 - K O 5
 - B \$ <
113. 24 men working 8 hours a day can finish a work in 10 days. Working at the rate of 10 hours a day, the number of men required to finish the same work in 6 days is
- 30
 - 32
 - 34
 - 36
114. A man has 62 shoes in his drawer: 24 identical blue, 18 identical black and 20 identical red. The lights are out and he is completely in the dark. How many minimum shoes must he take out to make 100 percent certain he has at least one pair of black shoes?
- 40
 - 44
 - 46
 - 49

115. Use the relations defined below to solve the following question

- S * T means S is the sister of T.
- S + T means S is the brother of T.
- S - T means S is the son of T.
- S / T means S is the daughter of T.
- S = T means S is the father of T.
- S x T means S is the mother of T.

Which of the following means P is the mother of Q and R?

- a) $Q * R / P$
 - b) $Q / P x R$
 - c) $Q + P = R$
 - d) $P = R + Q$
116. A man goes to a park and sees a girl who he recognised to be his relative. The girl is the daughter of his sister's husband's wife's father's only son. How is the girl related to the man?
- a) Niece
 - b) Daughter
 - c) Sister
 - d) Cousin
117. In a certain code ROSE is written as 9615, FLOWER is written as 636559. In what way GARDEN can be written?
- a) 719458
 - b) 791458
 - c) 719455
 - d) 719548
118. Working speed of three machines is in the ratio of 2 : 4 : 5. If after maintenance, the speeds of the three machines are improved by 25%, 25% and 50% respectively. What is the ratio of new speeds now?
- a) 7 : 8 : 9
 - b) 5 : 7 : 9
 - c) 5 : 6 : 7
 - d) 1 : 2 : 3

119. A bag contains 3 red, 6 green, 5 blue and 4 yellow balls. Two balls are drawn at random. What is the probability that none of the balls drawn is green?

- a) $132/306$
- b) $12/18$
- c) $132/324$
- d) $164/324$

120. Two trains of equal length running in opposite direction cross a pole in 72 seconds. If the speed of one train is 80 Km/hr and the second train is 70 Km/hr., then find the length of train in metres?

- a) 900
- b) 800
- c) 1500
- d) 1100

SPACE FOR ROUGH WORK

PUNJAB PUBLIC SERVICE COMMISSION

Objective Type Test (April-2023) for Recruitment to the Post of Warehouse Manager (Group-B) in Punjab State Warehousing Corporation under the Department of Agriculture & Farmer Welfare, Government of Punjab

READ INSTRUCTIONS BEFORE FILLING ANY DETAILS OR ATTEMPTING TO ANSWER THE QUESTIONS.

Total Questions: 120
Time Allowed: 2 Hours

Candidate's Name _____

Father's Name _____

Date of Birth
DD MM YYYY

OMR Response Sheet No. _____

Roll No. _____

Candidate's Signature (Please sign in the box)

Question
Booklet Set

D

Booklet Series No.

INSTRUCTIONS

1. The candidate shall NOT open this booklet till the time told to do so by the Invigilation Staff. However, in the meantime, the candidate can read these instructions carefully and subsequently fill the appropriate columns given above in CAPITAL letters. The candidate may also fill the relevant boxes out of 1 to 9 of the Optical Mark Reader (OMR) response sheet, supplied separately.
2. Use only blue or black **ball point pen** to fill the relevant columns on this page as well as in OMR sheet. Use of Ink pen or any other pen is not allowed.
3. The candidate shall be liable for any adverse effect if the information given above is wrong or illegible or incomplete.
4. Each candidate is required to attempt 120 questions in 120 minutes, except for orthopedically/visually impaired candidates, who would be given 40 extra minutes, for marking correct responses on the OMR sheet.
5. The question paper booklet has 21 pages.
6. The candidates, when allowed to open the question paper booklet, must first check the entire booklet to confirm that the booklet has complete number of pages, the pages printed correctly and there are no blank pages. In case there is any such error in the question paper booklet then the candidate should IMMEDIATELY bring this fact to the notice of the Invigilation Staff and obtain a new booklet of the same series as given earlier.
7. The serial number of the new Question booklet if issued for some reason should be entered in the relevant column of the OMR. The Invigilation Staff must make necessary corrections in their record regarding the change in the serial no. of Question booklet.
8. The paper consists of total 480 Marks. Each question shall carry 4 marks. There are four options for each question and the candidate has to mark the MOST APPROPRIATE answer on the OMR response sheet.
9. There is negative marking (1 mark for each question) for questions wrongly answered by the candidate.
10. Use of Electronic/Manual Calculator is prohibited.
11. The candidate **MUST READ INSTRUCTIONS BEHIND THE OMR SHEET** before answering the questions and check that two carbon copies attached to the OMR sheet are intact.

1. A shopkeeper labelled the price of his articles so as to earn a profit of 30% on the cost price. He then sold the articles by offering a discount of 10% on the labelled price. What is the actual per cent profit earned in the deal?
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 - b) O I C
 - c) K O 5
 - d) B \$ <
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 - b) 800
 - c) 1500
 - d) 1100

11. Match List I with List II and select the correct option.

List I (Books)	List II (Writers)
1. Fauj-i-khas Maharaja Ranjit Singh and His French Officers	A. Khushwant Singh
2. Ranjit Singh, Maharajah of the Punjab	B. Jyoti M. Rai and Patwant Singh
3. The Sikh Army	C. Jean Lafont
4. Empire of the Sikhs: The Life and Times of Maharaja Ranjit Singh	D. Ian Heath

- a) 1(A), 2(B), 3(C), 4(D)
- b) 1(B), 2(C), 3(D), 4(A)
- c) 1(C), 2(A), 3(D), 4(B)
- d) 1(B), 2(A), 3(D), 4(C)

12. Which of the following statement is incorrect?

- a) Punjab Agricultural University was inaugurated by Pandit Jawaharlal Nehru in 1963
- b) Sh. Pratap Singh Kairon was the Chief Minister of Punjab at the time of inauguration
- c) The first campus was situated at Palampur
- d) P. N. Thapar was the first Vice Chancellor of the University

13. For generation of protoplasts from plant cells, which of the following combination of enzymes is used?

- a) Cellulases and pectinases
- b) Proteases and pectinases
- c) Chitinases and keratinases
- d) Lipases and cellulases

14. What is IRINS?

- a) It is an ICT initiative deal with E-governance for institution /universities
- b) It is a web-based research information management (RIM) service
- c) It is an e-learning portal, specifically designed for students, experts, educational institution and policymakers.
- d) It is a National mission for education through information and communication technology

15. In which of the following State is Bhitarkanika National Park situated?

- a) West Bengal
- b) Odisha
- c) Bihar
- d) Uttarakhand

16. Which of the following provisions on Directive Principles of state policy in the Indian Constitution concerns the protection and improvement of environment and safeguarding of forests and wild life?
- a) Article 48
 - b) Article 49
 - c) Article 47
 - d) Article 48-A

17. Given below are the two statements

Statement I: Methane absorbs long-wave radiation and it is increased in concentration in the atmosphere due to great expansion in cattle and sheep farming

Statement II: Expansion in rice production is falsely associated with an increase in methane production because methane-producing bacteria do not inhabit the flooded fields

In the light of the above statements, choose the *most appropriate* answer from the options given below

- a) Both Statement I and Statement II are correct
 - b) Both Statement I and Statement II are incorrect
 - c) Statement I is correct but Statement II is incorrect
 - d) Statement I is incorrect but Statement II is correct
18. Which three Indian States delayed accession to India even after other princely states had joined India?

- a) Hyderabad, Udaipur, Travancore
- b) Udaipur, Kapurthala, Jammu and Kashmir
- c) Junagarh, Hyderabad, Jammu and Kashmir
- d) Junagarh, Mysore, Jammu and Kashmir

19. Which of these do not constitute the primary functions of NABARD?

- a) To serve as an apex financing agency for the institutions providing investment and production credit for promoting development activities in rural and semi-urban areas
- b) Incorporating measures towards institution building for improving absorptive capacity of the credit delivery system including monitoring, formulation of rehabilitation schemes and training of personnel
- c) To coordinate the rural financing activities of all institutions engaged in developmental work at the field level and liaison with the Government of India, the State Governments, the Reserve Bank and other national level institutions concerned with policy formulation
- d) Undertaking monitoring and evaluation of projects refinanced by it

20. The increase in oil seeds production was due to which of the following revolution?
- White revolution
 - Yellow revolution
 - Green revolution
 - Brown revolution
21. 'ਅੱਖ ਅੱਡੀ ਹੀ ਰਹਿ ਗਈ, ਕੱਜਲ ਨੂੰ _____ ਲੈ ਗਈ' ਅਖਾਣ ਪੂਰਾ ਕਰੋ:
- ਇੱਲ
 - ਚੇਰਨੀ
 - ਸ਼ੇਰਨੀ
 - ਭੂਤਨੀ
22. 'ਅੱਕੀ ਪਲਾਹੀ ਹਥ ਮਾਰਨੇ' ਦਾ ਅਰਥ ਹੈ:
- ਜ਼ੋਰ ਅਜ਼ਮਾਇਸ਼ ਕਰਨਾ
 - ਆਸਰਾ ਭਾਲਣਾ
 - ਸੰਘਰਸ਼ ਕਰਨਾ
 - ਸੁੱਤੇ ਪਏ ਡਰਨਾ
23. ਪੁਰਖ-ਵਾਚਕ ਪੜਨਾਂਵ ਦੇ ਪ੍ਰਕਾਰਾਂ ਅਨੁਸਾਰ ਕਿਹੜਾ ਜੁੱਟ ਠੀਕ ਹੈ?
- ਉਹ, ਆਪ, ਉਨ੍ਹਾਂ
 - ਤੂੰ, ਅਸੀਂ, ਤੁਹਾਡਾ
 - ਮੈਂ, ਮੈਨੂੰ, ਤੁਹਾਨੂੰ
 - ਉਹ, ਉਨ੍ਹਾਂ, ਇਨ੍ਹਾਂ
24. ਹਿੰਦੁਸਤਾਨ, ਪਾਕਿਸਤਾਨ, ਅਫ਼ਗ਼ਾਨਿਸਤਾਨ, ਉਜ਼ਬੇਕਿਸਤਾਨ ਵਿੱਚ ਕਿਹੜਾ ਪਿਛੇਤਰ ਲੱਗਿਆ ਹੈ?
- ਆਨ
 - ਨ
 - ਤਾਨ
 - ਸਤਾਨ
25. ਹੇਠ ਲਿਖੇ ਸ਼ਬਦਾਂ ਵਿੱਚ 'ਖੰਭ' ਦਾ ਬਦਲਿਆ ਲਿੰਗ ਚੁਣੋ:
- ਖੰਭ
 - ਖੰਭੀ
 - ਖੰਭੜ
 - ਖੰਭੜੀ

26. 'ਛੁੱਟ-ਮਰੇੜੀ' ਦਾ ਚਿੰਨ੍ਹ ਕਿਹੜਾ ਹੈ?
- !
 - “ “
 - ;
 - ‘
27. 'Ideological differences can be resolved with maturity.' ਦਾ ਪੰਜਾਬੀ ਰੂਪ ਹੈ:
- ਵਿਚਾਰਧਾਰਕ ਮਤਭੇਦਾਂ ਨੂੰ ਪਰਿਪੱਕਤਾ ਨਾਲ ਹੱਲ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
 - ਵਿਚਾਰੀ ਝਗੜੇ ਨੂੰ ਬਜ਼ੁਰਗੀ ਨਾਲ ਹੱਲ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
 - ਵਿਚਾਰਧਾਰਕ ਅੰਤਰਾਂ ਨੂੰ ਪ੍ਰੇਰਨਾ ਨਾਲ ਖਤਮ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ।
 - ਵਿਚਾਰਕ ਅੰਤਰਾਂ ਨੂੰ ਪਰਿਪੱਕਤਾ ਨਾਲ ਨਿਪਟਾਇਆ ਜਾ ਸਕਦਾ ਹੈ।
28. 199738 ਦਾ ਪੰਜਾਬੀ ਰੂਪ:
- ਇੱਕ ਲੱਖ ਨੌਵੇਂ ਹਜ਼ਾਰ ਸੱਤ ਸੌ ਠੱਤੀ
 - ਇੱਕ ਲੱਖ ਨੌਵੇਂ ਹਜ਼ਾਰ ਸੱਤ ਸੌ ਅੱਠਤੀ
 - ਇੱਕ ਲੱਖ ਨੌਵੇਂ ਹਜ਼ਾਰ ਸੱਤ ਸੌ ਅੱਠਤੀ
 - ਇੱਕ ਲੱਖ ਨੌਵੇਂ ਹਜ਼ਾਰ ਸੱਤ ਸੌ ਅੱਠਤੀ
29. ਹੇਠ ਦਿੱਤੇ ਵਿਕਲਪਾਂ ਵਿੱਚੋਂ ਕਿਹੜਾ ਵਿਕਲਪ ਭਾਸ਼ਾ ਦੀ ਵਿਸ਼ੇਸ਼ਤਾ ਨਾਲ ਸੰਬੰਧਤ ਨਹੀਂ ਹੈ?
- ਸਿਰਜਣਾਤਮਕਤਾ, ਸਮਾਜਕਤਾ
 - ਦੁੱਖਤਾ, ਆਪਹੁਦਰਾਪਣ
 - ਸਭਿਆਚਾਰਕ ਸੰਚਾਰਨ, ਵਿਸਥਾਪਨ
 - ਅੰਤਰ ਵਟਾਂਦਰਾ, ਵਿਸਥਾਪਨ
30. ਬਾਂਗਰ ਦਾ ਇਲਾਕਾ ਕਿਹੜੇ ਦੋ ਦਰਿਆਵਾਂ ਵਿਚਕਾਰ ਸਥਿਤ ਹੈ?
- ਘੱਗਰ ਅਤੇ ਜਮਨਾ
 - ਘੱਗਰ ਅਤੇ ਟਾਂਗਰੀ
 - ਜਮਨਾ ਅਤੇ ਸਤਲੁਜ
 - ਜਮਨਾ ਅਤੇ ਗੰਗਾ

31. For maintaining the cold chain from farm to the processing plant, within two or three hours after milking, the milk should ideally be cooled to
- 0 °C
 - 4 °C
 - 8 °C
 - 10 °C
32. Storage fungi remain inactive at
- <50% RH
 - <62% RH
 - <75% RH
 - < 90% RH
33. The loss of viability of sunflower seeds is mainly associated with
- An accumulation of malondialdehyde (MDA)
 - Reduced antioxidant defense mechanism
 - Damage of mitochondria
 - All of the above
34. Fluidised bed drying is suitable for
- Rice and wheat grains
 - Peas and coffee
 - Grass seeds
 - All of the above
35. Which of the following organic acid is used in food preservation?
- Sulphuric acid
 - Boric acid
 - Hydrochloric acid
 - Sorbic acid
36. The enzyme present in cucumber that is activated during first month of storage is
- Pectinesterase
 - Amylase
 - Lipase
 - Sucrase
37. Which of the following is used to test the presence of protein in food product?
- Copper sulphate
 - Caustic soda and copper sulphate
 - Iodine and copper sulphate
 - Iodine and caustic soda
38. Which of the following is sensitive to chilling?
- Physiological damage
 - Biological damage
 - Chemical damage
 - All of the above

39. Silos are used for the bulk storage of
- Oil seeds & cereals
 - Fruit
 - Cotton
 - None of the above
40. What is the maximum storage period of food grains in rural godowns?
- 2 months
 - 5 months
 - 10 months
 - 15 months
41. Which of the following type of warehouses are situated at airports and seaports?
- Public warehouses
 - Government warehouses
 - Bonded warehouses
 - Co-operative warehouses
42. Per capita square foot of warehousing space in India is
- 2.4
 - 4.0
 - 6.0
 - 20.0
43. Which of the following is an important primary pest of pulses?
- Callosobruchus chinensis*
 - Sitotrogac erealella*
 - Plodia interpunctella*
 - None of the above*
44. Chlorpyrifos methyl is not effective against
- Sitophilus oryzae*
 - Callosobruchus chinensis*
 - Rhyzopertha dominica*
 - Trogoderma granarium*
45. The time required to kill 90% of the microorganisms present in the milk, is called as
- D value
 - Z value
 - F₀ value
 - Critical time
46. 'Head rice' includes
- Only whole grains after milling
 - Only broken grains after milling
 - Whole and broken grains both after milling
 - Whole plus larger than 3/4th broken grains after milling

47. On an average, the seeds of linseed contain
- 15 – 20 % oil
 - 20 – 30 % oil
 - 30 – 45 % oil
 - 45 – 55 % oil
48. The major part of which of the following Vitamin in fruits and vegetables is lost on blanching?
- Vitamin A
 - Vitamin C
 - Vitamin D
 - Vitamin E
49. Which of the following technique has been found valuable in preserving the heat sensitive foods?
- Steeping
 - Sterile canning
 - Dehydration
 - Brining
50. In thin-layer drying process of grains, the thickness of the grain layer should not be more than
- 5 cm
 - 10 cm
 - 15 cm
 - 20 cm
51. The recommended safe storage moisture (SSM) for oilseeds under tropical conditions for one year is
- 10 – 12 %
 - 9 %
 - 6 – 8 %
 - 4 – 5 %
52. Choose the correct option showing examples of the fibrous insulation materials
- Alumimum and stainless steel foil
 - Calcium silicate, diatomaceous earth and cork
 - Glass or rock wool
 - Vermiculite or expanded mica
53. The adults and grubs of this insect-pest feed on the grains of rice, sorghum, wheat, barley and maize during the storage. It has biting mouthparts at the front of rostrum and two clubbed antennae. It is
- Callosobruchus maculatus*
 - Callosobruchus chinensis*
 - Lasioderma serricorne*
 - Sitophilus oryzae*

54. The correct scientific name of the 'confused flour beetle' is
- Tribolium confusum*
 - Tribolium castaneum*
 - Sitophilus confusum*
 - Sitophilus castaneum*
55. The full form of 'DDVP' is
- 2,2 – dichlorovinyl dimethyl phosphate
 - 2,2 – dichlorofinyl dimethyl phosphate
 - 2 – dichlorovinyl dimethyl phosphate
 - 2 – dichlorofinyl dimethyl phosphate
56. Rodents appear to approach the new food or objects with suspicion, try to avoid them, and the feed consumption by them is delayed. This behavior of the rodents is called
- Newphobia
 - Neophobia
 - Foodphobia
 - Prophobia
57. Which one of the following statements is incorrect about the bucket elevators?
- These are very efficient devices for the vertical conveyance of bulk grains
 - These are usually mounted at a fixed location, but can be mounted in a mobile frame
 - These are unfit for the vertical conveyance of the grain derivatives and flours
 - These have high capacities and cheaper means of vertical conveyance
58. The granular materials by pneumatic conveyor move under high air pressure and dispersed condition. For dispersion of the bulk material, the air velocities are in the range of
- 1 – 5 m/s
 - 6 – 10 m/s
 - 15 – 30 m/s
 - 40 – 45 m/s
59. The full form of 'HDPE' is
- High Density Polyethylene
 - High Density Polypropylene
 - High Density Polystyrene
 - High Density Polyphthalate
60. Storage of fruits packaging in polymer materials with selective permeability for gases is called
- Modified Atmosphere Packaging
 - Modified Air Packaging
 - Membranous Air Packaging
 - Membranous Atmosphere Packaging

61. Choose the incorrect option about the characteristics of the 'LDPE' packaging of the fruits and vegetables
- LDPE packaging accounts for the biggest proportion of the plastic materials used for packaging
 - LDPE packaging has low permeability for water vapour
 - LDPE packaging has low gas permeability
 - LDPE packaging has high gas permeability
62. The most common test for measuring the tear strength of the packaging film is
- Handle-O-Meter Test
 - ASTMF392 Test
 - Gelbo Flex Tester Test
 - Elmendorf Test
63. Which of the following storage structure is being used for long-term storage of larger volume of grains?
- Pusa bin
 - Brick and cement bin
 - Bunker storage
 - Kanaj
64. The liquid generally used to determine the true density of the particle by displacement method is
- Water
 - Tetrazolium solution
 - Dilute sulphuric acid
 - Toluene
65. The formula used to determine the pressure induced by the granular materials against the retaining wall in a shallow bin is
- Buelow formula
 - Baverloo formula
 - Bucklin formula
 - Rankine formula
66. The height of the platform (plinth) on which the bins are constructed is usually kept as
- 180 cm
 - 120 cm
 - 60 cm
 - 20 cm
67. If ' ϕ ' is the angle of repose of the material, then the angle of rupture may be
- $\frac{(90+\phi)}{10}$
 - $\frac{(60+\phi)}{10}$
 - $\frac{(60+\phi)}{100}$
 - $\frac{(90+\phi)}{2}$

68. The 'Zero Energy Cool Chamber' was developed by the ICAR-Indian Agricultural Research Institute, New Delhi. It works on the basis of the evaporative cooling principles and temperatures within this chamber are reduced by as much as
- 8 – 10 °C
 - 12 – 15 °C
 - 17 – 18 °C
 - 20 – 25 °C
69. Bond's law is related to
- Stress analysis of plastic deformation
 - Brittleness and pressure of the granular materials
 - Power required for crushing and grinding operation
 - Temperature, pressure and velocity relationships
70. Frozen storage refers to storing the produce at lower temperatures, generally at
- 6 °C or below
 - 8 °C or below
 - 14 °C or below
 - 18 °C or below
71. The lowest temperature at which a liquid gives off enough vapour to form an ignitable mixture with air, is known as
- Cooling point
 - Minimum point
 - Flash point
 - Maximum point
72. Stored grains are infested by number of moulds producing mycotoxins. The aflatoxins B1 and B2 are produced by the mould
- Aspergillus flavus*
 - Fusarium graminearum*
 - Fusarium moniliforme*
 - Penicillium verrucosum*
73. In tropical countries it is very important that the long axes of warehouses are oriented as
- East – West
 - North – South
 - South – North
 - SE – NW
74. Generally, the construction of columns inside the stores (warehouses) must be avoided because
- Column may increase the cost and weaken the storage structure
 - Columns may result in problems of the storage management
 - Columns may give shabby look to the storage structures
 - Columns may affect the temperature and humidity inside the storage structures

75. The bricks and concrete blocks are generally used for the construction of load-bearing walls of warehouses as they
- Give weaker strength to the warehouses
 - Provide the thermal inertia in warehouses
 - Do not provide the thermal inertia in warehouses
 - Provide very cheapest option in construction of warehouses
76. Choose the incorrect option pertaining to the use of mobile sack-lifters in warehouses
- They cannot be moved easily in the store gangways
 - The 90° rotation angle of the platform facilitates the bag loading
 - It only works on a unit basis and does not allow continuous handling of sacks
 - Well-suited in warehouses where the ground area available is limited
77. 'Phyto-Explo Fumigation' enables bulk grain to be effectively treated in deep structures using
- Phosphine
 - Chlorine
 - Benzene
 - Malathion
78. Which one of the following statements is incorrect about the 'PAU Bin'?
- It was developed by the Punjab Agricultural University
 - It is made up of bricks and cement
 - It is constructed by the galvanized iron sheet
 - It has 0.15 to 1.5 tonne capacity
79. The denaturation and even coagulation of grain proteins takes place at a temperature above
- 50°C
 - 40°C
 - 35°C
 - 30°C
80. The sphericity is defined as the
- Ratio of surface area of a sphere having same volume as that of the particle to the surface area of the particle
 - Ratio of surface area of particle having same volume as that of the sphere to the surface area of the sphere
 - Ratio of surface area of a sphere having dissimilar volume as that of the particle to the surface area of the particle
 - Ratio of surface area of particle having dissimilar volume as that of the sphere to the surface area of the sphere
81. If 'W' is the weight of grains (g) and 'V' is the volume (cc) of the same grains, then the bulk density (BD) of the grains can be expressed as
- $\text{BD} = (V/W) \text{ g/cc}$
 - $\text{BD} = (WV) \text{ g/cc}$
 - $\text{BD} = (W/V) \text{ g/cc}$
 - $\text{BD} = (VW) \text{ g/cc}$

82. The specific heat of the bone dry grain varies between
- 0.25 – 0.34 kcal/kg
 - 0.35 – 0.45 kcal/kg
 - 0.46 – 0.55 kcal/kg
 - 0.56 – 0.65 kcal/kg
83. Which one of the following statements is incorrect about the thermal conductivity of grains?
- The thermal conductivity is the amount of heat flow through unit thickness of grain material over a unit area per unit time for unit temperature difference
 - The thermal conductivity of grains in bulk is about 0.10 to 0.15 kcal/ (m. h °C)
 - The thermal conductivity of the single grain is three to four times greater than that of the grain bulk
 - It is not possible to determine the thermal conductivity of the grains by transient heat flow method
84. The size of the biomaterials is calculated using the following expression
- $(\text{Length} \times \text{Breadth} \times \text{Thickness}) / 3$
 - $(\text{Length} \times \text{Breadth} \times \text{Thickness})^{2/3}$
 - $(\text{Length} \times \text{Breadth})^{1/2}$
 - $(\text{Length} \times \text{Breadth} \times \text{Thickness})^{1/3}$
85. As per the code of practice for the fire safety of the industrial buildings including the warehouses enshrined in the Indian Standards (2005-05), all the godowns should have an illumination of at least
- 5 lux
 - 10 lux
 - 50 lux
 - 100 lux
86. As per the code of practice for the fire safety of the industrial buildings including the warehouses enshrined in the Indian Standards (2005-05), the godowns and warehouses
- Should be so located as to have as far as possible minimum exposure to the external fire, adequate water supply and easy access to the public fire services
 - Should be at least 1 km away from the railway line
 - Should be used for storage of the fireworks and other explosives within the municipal limits of a city or town
 - Should not have roadways alongside
87. The Food Corporation of India (FCI) stores major quantity (about 80%) of food grains in
- Silos
 - Bins
 - Conventional godowns
 - Cover and plinth

88. How many principles have been enunciated by the 'COSO' for the risk management components?
- 10
 - 15
 - 20
 - 25
89. Prioritizing, implementing, and maintaining the appropriate risk-reducing measures recommended from the risk assessment process, is called as
- Risk assessment
 - Risk mitigation
 - Risk impact
 - Risk evaluation
90. The culture, capabilities, and practices, integrated with strategy-setting and its performance, that organizations rely on to manage risk in creating, preserving, and realizing value, is called by 'COSO' as
- Evaluation of Routine Management
 - Enterprise Risk Manager
 - Evaluation of Risk Management
 - Enterprise Risk Management
91. A method used for forecasting process and structured communication framework based on the results of multiple rounds of questionnaires sent to a panel of experts, is called as
- Delphi method
 - Dolphin method
 - Fishbowl method
 - Monte Carlo method
92. The risk that remains after management responses to risk threats and countermeasures have been applied, is
- Cumulative risk
 - Residual risk
 - Perpetuating risk
 - Evergreen risk
93. There are number of responses or strategies to overcome the identified risks. Which one of the followings is not considered as a basic risk management approach?
- Avoidance
 - Reduction
 - Rejection
 - Sharing
94. "Freeze dryer" works on the principle of
- Evaporation
 - Sublimation
 - Radiation
 - Conduction

95. The unit of overall coefficient of heat transfer is
- $\text{W/m}^2\text{K}$
 - W/ m^2
 - W/m K
 - W/m
96. Methyl bromide is used as
- Pesticide
 - Fumigant
 - Germicide
 - Fungicide
97. Warfarin and Fumarin belong to the group of chemicals known as
- Hydrooxycoumarins
 - Rodenticides
 - Both a and b
 - None of the above
98. The degree of protection of packaged food for oxygen sensitive foods is measured in terms of
- Water vapor transmission
 - Oxygen transmission rate
 - Oxygen transfer rate
 - Moisture transmission rate
99. Capacity of CAP storage structure is
- 2000 tonnes
 - 1500 tonnes
 - 1000 tonnes
 - 500 tonnes
100. The equivalent diameter is taken _____ times the hydraulic radius of the circular bin
- Three
 - Four
 - Five
 - Six
101. Recommended perforation of aeration in grain storage shall be
- 10 %
 - 15 %
 - 20 %
 - 25 %
102. _____ BIS standard is related to general requirements for silos for grain storage
- IS 5503-1
 - IS 3055-2
 - IS 5551-1
 - IS 3335-2

103. The process of adding some vitamins in milk is known as
- Mineralization
 - Fermentation
 - Sedimentation
 - Fortification
104. Which of the following is the most abundant biomolecule on earth?
- Mineral salts
 - Proteins
 - Lipids
 - Carbohydrates
105. BIS is functioning under administrative control of
- Ministry of Consumers Affairs
 - Ministry of Commerce
 - Ministry of Agriculture
 - None of the above
106. Amino acids are the building blocks of
- Minerals
 - Proteins
 - Fat
 - Carbohydrates
107. Lipids are insoluble in water due to
- Hydrophilic nature
 - Neutral nature
 - Hydrophobic nature
 - None of the above
108. Shredded cabbage is the starting product for which of the following fermented food?
- Sauerkraut
 - Pickles
 - Green olives
 - Sausage
109. Which chemical is commonly used to prevent growth of molds in bread?
- Benzoic acid
 - Sorbic acid
 - Nitrates
 - lactic acid
110. Which of the following is worldwide rice stored insect?
- Sitophilus oryzae
 - Stegobium paniceum
 - Lasioderma sericorne
 - None of the above

111. The pesticide used in control of aphids, caterpillars and plant bugs is
- Aldrin
 - Endosulfan
 - DDT
 - Benzene
112. Dielectric heating occurs due to
- Polarization and ionization of molecules
 - Isomerization of molecules
 - Sterilization of molecules
 - Drying of molecules
113. Constant stress test is used in the measurement of which of the following properties of biomaterial?
- Fatigue
 - Toughness
 - Ductility
 - None of the above
114. Final stage of risk assessment is
- Exposure assessment
 - Risk characterization
 - Toxicity assessment
 - Hazard identification
115. Pesticide generated waste is kept in which of the following waste category?
- Organic solid
 - Inorganic aqueous
 - Organic aqueous
 - Organic sludge
116. Which chemical is commonly used to prevent growth of bacteria in milk?
- Alcohol
 - Sodium Hypochlorite
 - Chlorine
 - None of the above
117. Central Rice Research Institute is located at which of the following place?
- Gorakhpur
 - Cuttack
 - Coimbatore
 - Hyderabad
118. IPM stands for
- Integrated Plant Management
 - Integrated Pest Management
 - Integrated Pollution Management
 - Integrated Pesticide Management

119. Cost involved in holding goods in a warehouse is called

- a) Processing cost
- b) Facility cost
- c) Inventory cost
- d) Transportation cost

120. _____ analysis is suitable for risk-return analysis in financial decisions

- a) SWOT
- b) CAPM
- c) EVA
- d) None of the above

SPACE FOR ROUGH WORK