Combined Technical Services Examination

(NON – INTERVIEW POSTS)

COMPUTER BASED TEST

DATE OF EXAM : 20.08.2026 F.N.

PAPER – II : AGRICULTURAL, CHEMISTRY, ZOOLOGY AND BOTANY

SUB. CODE : 518

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PAPER – II (AGRICULTURAL CHEMISTRY, ZOOLOGY AND BOTANY

SUB. CODE : 512

1. Which of the following is an example of biomass feedstock crop in India?

(A) blackgram
(B) sesame
✓(C) sugarcane
(D) sesbania
(E) Answer not known

2. Name the engine operates on the principle of compression ignition.

(A) gas engine
(B) petrol engine
(C) carburettor engine
✓(D) diesel engine
(E) Answer not known

3. Most significant advantage of using baler in modern agriculture is _____

(A) applying liquid fertilizer
(B) increasing the nutritional value of the straw
(C) directly improves the soil organic carbon
✓(D) reducing stubble burning through residue collection
(E) Answer not known

4. Adoption of drip irrigation with solar pump conserves _____

✓(A) water and energy
(B) soil and crop
(C) soil and energy
(D) crop and energy
(E) Answer not known

5. Name the component of sprayer, which breaks the spray liquid into the desired size of droplets and controls the application rate _____

(A) nozzle
(B) hood
(C) pump
(D) agitators
(E) Answer not known

6. Wind energy is derived from _____

(A) chemical reaction
(B) kinetic energy
(C) nuclear reaction
(D) geothermal heat
(E) Answer not known

7. Soil erosion reduces productivity mainly by removing which layer?

(A) The A – horizon (top soil)
(B) The C – horizon (parent rock)
(C) The B – horizon (sub soil)
(D) The R – horizon (bed rock)
(E) Answer not known

8. A detailed soil survey is most likely used for which of the following?

(A) National Level Policy Making
(B) Planning at individual farm or field level
(C) Global Climate Modelling
(D) Comparing soils across different continents
(E) Answer not known

9. Under submerged condition (as in paddy field), the pH of an acid soil generally _____

(A) decreases further
(B) remains unchanged
✓(C) increases towards neutrality
(D) drops to 2.5
(E) Answer not known

10. The most satisfactory method of estimating total nitrogen in soil and plant is _____

(A) Walkley and Black Method
(B) Olsen's method
✓(C) Kjeldahl Method
(D) Oxidation Method
(E) Answer not known

11. _____ land capability classes are considered as suitable for regular crop cultivation.

✓(A) Class I to IV
(B) Class V to VIII
(C) Class I to VIII
(D) Class I only
(E) Answer not known

12. Most agricultural crop prefer nitrogen uptake from the soil in the form of

(A) ammonia
(B) nitrite
✓(C) nitrate
(D) atmospheric nitrogen
(E) Answer not known

13. _____ organisation under the ministry of commerce and industry acts as the Secretariat for the implementation of the National Programme for Organic Production (NPOP) in India?

(A) FSSAI
✓(B) APEDA
(C) NABARD
(D) NAFED
(E) Answer not known

14. In Indian regulations, _____ is the mandatory requirement for every drone operating system.

(A) IMEI
✓(B) UIN (Unique Identification Number)
(C) DAN (Drone Acknowledgement Number)
(D) DIN (Drone Identification Number)
(E) Answer not known

15. The primary method of weed control in natural farming as described in "one straw revolution".

(A) manual weeding

(B) application of vinegar based herbicide

✓(C) maintaining permanent ground cover of white clover and mulch

(D) controlled burning after harvest

(E) Answer not known

16. _____ specific period the precipitation remain higher than the Potential Evapo Transpiration (PET)

(A) Pre humid period

✓(B) Humid period

(C) Post humid period

(D) Drought period

(E) Answer not known

17. Which specific region of Tamilnadu is identified as the "efficient area" for the production of rice fallow pulses such as black gram and green gram?

(A) North Western Zone

(B) Western Zone

✓(C) Cauvery Delta Zone

(D) Southern Zone

(E) Answer not known

18. What is the mandatory certification logo required for any organic product to be sold in the Indian domestic market, signifying it meets NPOP or PGS – India standards?

(A) India organic
✓(B) Jaivik Bharat
(C) Agmark
(D) Ecomark
(E) Answer not known

19. The district which claimed maximum amount of settlement under PMFBY insurance in 2023.

✓(A) Ramanathapuram
(B) Nagapattinam
(C) Mayiladuthurai
(D) Sivagangai
(E) Answer not known

20. Which of the following statements are true about buffer stocks?

(i) To protect farmers against price fluctuations
(ii) To prevent speculation and hoarding in food grains
(iii) To protect traders interest
(iv) To help stabilize prices of food grains

(A) (i) only
✓(B) (i), (ii) and (iv) only
(C) (ii), (iii) and (iv) only
(D) (i), (ii), (iii) and (iv)
(E) Answer not known

21. Neutral amino acids are

(A) Serine and Isoleucine

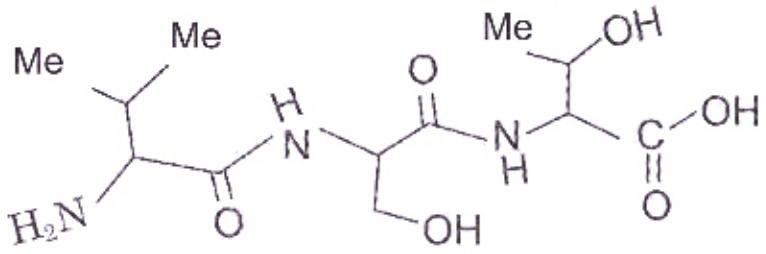
(B) Aspartic acid and Glutamate

(C) Ornithine and Lysine

(D) Arginine and Histidine

(E) Answer not known

22. The correct sequence of amino acids present in the tripeptide given below is :



(A) thr-ser-val

(B) val-ser-thr

(C) leu-ser-thr

(D) thr-ser-leu

(E) Answer not known

23. Among the following, which is optically inactive?

(A) Alanine

(B) Serine

(C) Phenylalanine

✓(D) Glycine

(E) Answer not known

24. Match the following regarding protein :

(a)	Primary structure	(1)	three dimensional
(b)	Secondary structure	(2)	aggregate of sub units
(c)	Tertiary structure	(3)	sequence of amino acids
(d)	Quarternary structure	(4)	α-helix

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

(E) Answer not known

25. Assertion [A] : Dipole moment of glycine is large value.

Reason [R]: Glycine exists as zwitter ion.

(A) [A] is true but [R] is false

(B) [A] is false but [R] is true

✓(C) [A] is true and [R] is correct explanation for [A]

(D) [A] is true and [R] is not correct explanation for [A]

(E) Answer not known

26. A freshly prepared solution of glucose has specific rotation of +112° but on keeping for sometime it changes to +52.7°. This known as

(A) Epimerization
(B) Muta rotation
(C) Racemization
(D) Mechanic separation
(E) Answer not known

27. Correct statement about sucrose is :

(A) sucrose is laevorotatory
(B) sucrose does not reduce Tollen's reagent
(C) molecular formula of sucrose is $C_{12}H_{21}O_{11}$
(D) It is oxidised by conc. HNO_3 to produce maltobionic acid
(E) Answer not known

28. In lactose, the reducing part is

(A) galactose
(B) glucose
(C) fructose
(D) mannose
(E) Answer not known

29. For osazone formation, the effective structural unit necessary is

(I) $CH_2 - O - CH_3$
$|$
CO
$|$

(II) $CH_2 - OH$
$|$
CO
$|$

(III) $CH_2 - OH$
$|$
$CH - O - CH_3$
$|$

(IV) CHO
$|$
$CH - O - CH_3$
$|$

(A) (II) only
(B) (I) and (II) only
(C) (III) and (IV) only
(D) (IV) only
(E) Answer not known

30. Assertion [A] : Sucrose does not rotate plane polarized light after hydrolysis

Reason [R] : Hydrolysis of sucrose produces invert sugar, which is mixture of glucose and fructose.

(A) Both [A] and [R] are true and [R] is correct explanation of [A]

(B) Both [A] and [R] are true but [R] is not correct explanation of [A]

(C) [A] is true, [R] is false

✓(D) [A] is false, [R] is true

(E) Answer not known

31. In carbohydrates, epimers differ in configuration at

(A) C – 1 carbon in the structure

✓(B) C – 2 carbon in the structure

(C) C – 3 carbon in the structure

(D) In all the carbon in the structure

(E) Answer not known

32. Which of the following carbohydrates will not give a red precipitate of Cu_2O when heated with Benedict's solution?

(A) maltose

(B) glucose

✓(C) sucrose

(D) fructose

(E) Answer not known

33. A ketohexose contains its carbonyl group at _____

(A) C – 1
✓(B) C – 2
(C) C – 3
(D) C – 4
(E) Answer not known

34. Which one of the following is not a sugar?

(A) maltose
✓(B) starch
(C) fructose
(D) galactose
(E) Answer not known

35. Sucrose is dextrorotatory but on hydrolysis it becomes levorotatory because

(A) it produces fructose only which has –92.4° rotation
(B) it produces maltose and glucose mixture
(C) it produces sucrose only which has +52.5° rotation
✓(D) it produces mixture of fructose (–92.4°) and glucose (+52.5°)
(E) Answer not known

36. CAM pathway differs from C_4 pathway because in CAM plants

(A) spatial separation occurs

✓(B) suited to dry habitats

(C) no PEP carboxylase

(D) no C_3 cycle

(E) Answer not known

37. The first stable product of CO_2 fixation in plant sorghum is

(A) phosphoglyceric acid

(B) phosphoenol pyruvate

✓(C) oxaloacetic acid

(D) glucose

(E) Answer not known

38. Choose the correct statement about chlorophyll pigments.

(A) chlorophyll is only accessory pigment

(B) chlorophyll *b* is found only in bacteria

(C) carotenoids do not absorb light energy

✓(D) chlorophyll *a* acts as the primary pigment for converting light to chemical energy

(E) Answer not known

39. Match the List I with List II and select the correct answer from the code given below :

	List I Process		List II End product
(a)	CAM pathway	1.	$CO_2 + H_2O$
(b)	Photosynthesis	2.	CO_2 + ethanol
(c)	Aerobic respiration	3.	Glucose + O_2
(d)	Fermentation	4.	Carbohydrates

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

(E) Answer not known

40. Oxygen evolving complex is associated with _____

(A) ATP synthase of mitochondria
(B) Electron transport chain of mitochondria
(C) PS I
✓(D) PS II
(E) Answer not known

41. In Kreb cycle, CO_2 is liberated from _____ and _____

(A) Cis-aconitic acid and Isocitric acid
✓(B) Isocitric acid and α-ketoglutaric acid
(C) α- ketoglutaric acid and succinyl CoA
(D) Succinyl CoA and succinic acid
(E) Answer not known

42. How many types of gametes will be formed in F_2 generation by an individual with genotype AaBbCc?

(A) 3
(B) 16
(C) 4
✓(D) 8
(E) Answer not known

43. The Mendelian laws of inheritance were first confirmed by whom and which animal was carried out?

(A) De Vries on *oenothera*
(B) Correns on dog
✓(C) Morgan on *drosophila*
(D) Muller on guinea pigs
(E) Answer not known

44. The large, circular DNA molecule that usually carries 99 to 100% of a bacterium's genes is sometimes called

(A) fungi chromosome
(B) viral chromosome
✓(C) bacterial chromosome
(D) none of the above
(E) Answer not known

45. Homologous chromosome similar in both sexes and control the inheritance of non-sex linked traits are known as

(A) androsomes
(B) autosomes
(C) heterosomes
(D) allosomes
(E) Answer not known

46. Peroxisomes are associated with endoplasmic reticulum, chloroplasts and mitochondria which are involved in

(A) respiration
(B) photorespiration
(C) detoxification
(D) polymorphism
(E) Answer not known

47. 9 + 2 configuration of flagella and cilia is absent in _____

(A) zoospores of zygomycetes
(B) oomycota
(C) prokaryotes
(D) none of the above
(E) Answer not known

48. Crossing over during meiosis occurs in

(A) leptotene
(B) zygotene
✓(C) pachytene
(D) diplotene
(E) Answer not known

49. Which one of the following statement are true about tapetum present in the anther wall?

(i) Invasive behaviour
(ii) Secretory type
(iii) Do not transports anther's nutrients
(iv) Endomitosis

(A) (i), (iii) and (iv) only
✓(B) (i), (ii) and (iv) only
(C) (ii), (iii) and (iv) only
(D) (i), (ii) and (iii) only
(E) Answer not known

50. The ability of a feed to remain alive and germinate under suitable conditions is called

(A) aestivation
(B) dormancy
✓(C) viability
(D) vitality
(E) Answer not known

51. Triple fusion in angiosperms results in the formation of

(A) Zygote
(B) Embryo
(C) Seed
✓(D) Endosperm nucleus
(E) Answer not known

52. The stalk that attaches the ovule to the placenta is known as

(A) Hilum
✓(B) Funicle
(C) Integument
(D) Chalaza
(E) Answer not known

53. The meristem responsible for the increase in girth of a plant organ is

✓(A) lateral meristem
(B) root apical meristem
(C) intercalary meristem
(D) shoot apical meristem
(E) Answer not known

54. The primary function of collenchyma tissue is

(A) storage of food
(B) phototropism
✓(C) mechanical rigidity
(D) transport of water
(E) Answer not known

55. Fusion of two dissimilar gametes is known as

✓(A) syngamy
(B) autogamy
(C) dichogamy
(D) allogamy
(E) Answer not known

56. World Wildlife Fund was renamed as

(A) World Wildlife Conservation
(B) World Wildlife of Nature
(C) Worldwide Fund for Wildlife
✓(D) World Wild Fund for Nature
(E) Answer not known

57. Red Data Book deals with

✓(A) endangered species of plants, animals and fungi
(B) plants and animals faced extinction
(C) endemic plant species which are extent at present
(D) species which are extinct
(E) Answer not known

58. Fluoride pollution mainly affects :

(A) brain
(B) teeth
(C) heart
(D) kidney
(E) Answer not known

59. The minamata disease is caused by chronic ingestion of the sea food contaminated with

(A) mercury
(B) nitrate
(C) cadmium
(D) fluoride
(E) Answer not known

60. Sound becomes a hazardous noise pollution if its level is above

(A) 30 dB
(B) 80 dB
(C) 120 dB
(D) 150 dB
(E) Answer not known

61. Plants growing in desert condition are called :

(A) Eremophytes
(B) Psammophytes
(C) Psychrophytes
(D) Lithophytes
(E) Answer not known

62. Indian Wild Ass sanctuary and Marine National Park are situated in

(A) Maharashtra
(B) Gujarat
(C) West Bengal
(D) Odissa
(E) Answer not known

63. Which code governs the formal names given to plants?

(A) ICBN
(B) IUCN
(C) ICZN
(D) ICNB
(E) Answer not known

64. The pollinia are found in the flowers of

(A) cucurbita
(B) plumeria
(C) euphorbia
✓(D) calotropis
(E) Answer not known

65. What is the correct rule regarding the capitalization of scientific names?

(A) neither name is capitalized
(B) both names are capitalized
(C) the species name must start with capital letter
✓(D) the genus name must start with a capital letter
(E) Answer not known

66. ICBN stands for in plant taxonomy

✓(A) International Code of Botanical Nomenclature
(B) International Congress of Botanical Nomenclature
(C) International Committee of Botanical Nomenclature
(D) International Code of Biological Nomenclature
(E) Answer not known

67. Cypsela is the fruit of the family

(A) Asteraceae
(B) Solanaceae
(C) Capparidaceae
(D) Liliaceae
(E) Answer not known

68. In a cymose inflorescence, the main axis

(A) continues to grow indefinitely
(B) terminates in a flower
(C) bears flowers in acropetal succession
(D) forms a leafy bract
(E) Answer not known

69. The roots found in Asparagus is

(A) Truncated root
(B) Fasciculated roots
(C) Tuberous root
(D) Fusiform root
(E) Answer not known

70. Which of the following statements about E.Coli is not true?

(A) It causes urinary tract infections
(B) It is beneficial in human intestines
(C) It was the first disease causing bacterium identified by Koch
(D) A disease causing strain of E.Coli causes diarrhoea
(E) Answer not known

71. Which of the following statements about the gymnosperms is incorrect?

(A) Pollination is exclusively by anemophily
(B) The stem is either branched or unbranched
(C) The wood may be monoxylic or pycnoxylic
(D) Phloem has sieve tubes
(E) Answer not known

72. Hyperauxiny in plant tissues is generally caused during

(A) Pathogenic bacterial and fungal colonization
(B) Ectomycorrhizal association
(C) Endomycorrhizal infestation
(D) Endophytic proliferation
(E) Answer not known

73. Assertion [A]: Antibiotics are ineffective against viral infections.

Reason [R]: Viruses lack their own metabolic machinery.

Choose the correct option :

(A) Both [A] and [R] are true and [R] is the correct explanation of [A]
(B) Both [A] and [R] are true but [R] is not the correct explanation.
(C) [A] is true but [R] is false
(D) [A] is false but [R] is true
(E) Answer not known

74. The presence of _____ and _____ differentiates the Sphagnum from Funaria.

(A) antheridial and archegonial branch
✓(B) chlorophyllous and hyaline cells
(C) operculum and stomata in the gametophyte
(D) foot and seta in the sporophyte
(E) Answer not known

75. Match the representative examples of fungicides with their chemical nature and choose the correctly matched :

Fungicides	Chemical Nature
(a) Ferbam	1. Inorganic Compound
(b) Difolatan	2. Organic Compound
(c) Chloroneb	3. Heterocyclic Nitrogen Compound
(d) Bordeaux Mixture	4. Benzene Compound

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

(E) Answer not known

76. % P_2O_5 present in superphosphate is

(A) 10%
(B) 12%
(C) 14%
✓(D) 16%
(E) Answer not known

77. Calcium Ammonium Nitrate is mixed with soap stone to

(A) reduce the hygroscopic nature
(B) improve the function of CAN
(C) deliver the nutrient quickly to the plant
(D) increase the % of N_2
(E) Answer not known

78. Assertion [A] : Ammonium Sulphate is mixed with Ammonium Nitrate

Reason [R] : Ammonium Nitrate is explosive

(A) Both [A] and [R] are true ; [R] is correct explanation of [A]
(B) [A] is true, [R] is false
(C) [A] is false, [R] is true
(D) Both [A] and [R] are true ; [R] is not correct explanation of [A]
(E) Answer not known

79. On nitrification, urea gets converted to

(A) nitrate
(B) nitrogen
(C) ammonia
(D) nitrite
(E) Answer not known

80. Assertion [A] : Calcium ammonium nitrate is hygroscopic

Reason [R] : Lime is mixed with calcium ammonium nitrate

(A) [A] is true [R] is false

(B) Both [A] and [R] are true ; and [R] is correct explanation of [A]

(C) [A] is false [R] is true

✓(D) Both [A] and [R] are true but [R] is not the correct explanation of [A]

(E) Answer not known

81. Least percent of nitrogen is present in

(A) urea

(B) ammonium nitrate

(C) calcium ammonium nitrate

✓(D) ammonium phosphate

(E) Answer not known

82. Calcium Ammonium Nitrate is mixed with lime

(i) to reduce explosiveness

(ii) to reduce acidity

(iii) to release nitrogen

(iv) to increase solubility

(A) (i) and (iii)

(B) (ii) and (iv)

✓(C) (i) and (ii)

(D) (ii) and (iii)

(E) Answer not known

83. Among the following, which is not a branch of Gas chromatography?

(A) preparative – scale gas chromatography

(B) capillary column gas chromatography

✓(C) horizontal column gas chromatography

(D) packed – column gas chromatography

(E) Answer not known

84. The Van Deemter equation used to describe, (relationship between)

(A) Flow rate and column temperature

(B) Flow rate and column pressure

(C) Selectivity factor and HETP

✓(D) Flow rate and HETP

(E) Answer not known

85. The correct representation of the number of theoretical plates (Plate Number) (N) related retention time and base widths of peak is

(A) $N = \frac{16}{w}(t_R)^2$ (B) $N = \frac{t_R}{w} \times 16$

(C) $N = 16 \times (w \times t_R)^2$ ✓(D) $N = 16 \times \left(\frac{t_R}{w}\right)^2$

(E) Answer not known

86. Analyse the following statements about gravimetry

Statement 1 : One of the most accurate and precise method of macro quantitative analysis

Statement 2 : This method does not require a series of standards for calculation of an unknown.

Statement 3 : Gravimetry cannot be used to calibrate other instruments in lieu of reference standards.

(A) Statement 1 and 2 are correct

(B) Statement 1 and 3 are correct

✓(C) All are correct

(D) All the 3 statements are incorrect

(E) Answer not known

87. In thin layer chromatography (TLC), the stationary and mobile phase respectively

(A) liquid (or) solid & gas

(B) gas & liquid

✓(C) liquid (or) solid & liquid

(D) liquid & gas

(E) Answer not known

88. Arrange the solvent in order to decreasing order of eluting power.

Ethanol	Benzene	Acetone	Water	Cyclohexane
I	II	III	IV	V

(A) I > II> III > IV > V

(B) II > IV > V > I > III

(C) IV > II > III > I > V

✓(D) IV > I > III > II > V

(E) Answer not known

89. Statement I : Smaller particle size of stationary phase improves separation

Statement II : Smaller particle size increases surface area and adsorption sites

✓(A) Both I and II are correct

(B) Both I and II are incorrect

(C) I is correct and II is incorrect

(D) I is incorrect and II is correct

(E) Answer not known

90. Analyse the statements and select the correct option :

Statement 1 : For a titrimetric reaction, the reaction must be stoichiometric

2 : The reaction between reactants should be rapid.

3 : There should be no side reactions

4 : There should be a marked change in some property of the solution when the reaction is complete.

(A) statement 1 and 3 are correct

(B) statement 1 and 4 are correct

(C) statement 1, 2 and 3 are correct

✓(D) statement 1, 2, 3 and 4 are correct

(E) Answer not known

91. Weight of analyte per unit weight of precipitate is called as _____ factor.

(A) precipitation

(B) sedimentation

(C) thermo

✓(D) gravimetric

(E) Answer not known

92. Complexometric titration is useful for the determination of _____

(A) halides

(B) acids and bases

✓(C) metal ions

(D) non metal ions

(E) Answer not known

93. The equivalence point in a acid-base titration is the point at which _____

(A) the pH of the titrant equals the pH of analyte

(B) the concentration of titrant equals to the concentration of analyte

(C) the volume of titrant equals the volume of analyte

(D) the temperature of titrant equals the temperature of analyte

(E) Answer not known

94. Match the following :

Column A	Column B
(a) Standard solution	1. number of moles of solute dissolved in one litre of solution
(b) Decinormal solution	2. solution containing mixture of a weak acid and its sodium or potassium salt
(c) Buffer solution	3. solution containing 1/10 the equivalent weight of solute per litre of solution
(d) Molarity	4. contains an accurately known mass of solute

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

(E) Answer not known

95. Past precipitation is totally different from co-precipitation because it

(A) reduces the weight of precipitate
(B) occurs before primary precipitate forms
✓(C) occurs after primary precipitate forms
(D) prevent the precipitation process
(E) Answer not known

96. CNG is preferred over LPG because

✓(A) CNG causes less pollution
(B) CNG is costlier than LPG
(C) CNG is easy to transport than LPG
(D) CNG is lighter than LPG
(E) Answer not known

97. The ultimate source of energy in an ecosystem is

(A) reserve food materials
✓(B) sunlight
(C) heat liberated during respiration
(D) fossil fuels
(E) Answer not known

98. An example of lotic water body is

✓(A) river
(B) pond
(C) lake
(D) reservoir
(E) Answer not known

99. A. carcinogenic vehicular pollutant is

(A) PAH
(B) Carbon monoxide
(C) Lead
(D) Sulphur dioxide
(E) Answer not known

100. Eggs that are fertilized within the body of the female generally have a _____

(A) longer life span
(B) shorter life span
(C) no life span
(D) 15 to 30 minutes
(E) Answer not known

101. Match the following :

(a)	Oligolecithal	1.	polarised distribution of yolk
(b)	Mesolecithal	2.	enormous amount of yolk
(c)	Telolecithal	3.	small amount of yolk
(d)	Polylecithal	4.	moderate amount of yolk

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

(E) Answer not known

102. The plasma membrane of sperm head contains an acidic protein of low molecular weight called

✓(A) antifertilizin
(B) fertilizin
(C) G-actin
(D) profilin
(E) Answer not known

103. Match the following :

(a)	Endoplasmic Reticulum	1.	Franz Bauer
(b)	Cell Membrane	2.	A. F. W. Schimper
(c)	Nucleus	3.	Porter
(d)	Plastids	4.	C. Nugeli and C. Cramer

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

(E) Answer not known

104. The DNA day was celebrated every year on

✓(A) 25th April
(B) 25th June
(C) 26th July
(D) 25th May
(E) Answer not known

105. BCG vaccine is

(A) Killed organism vaccines

✓(B) Live vaccines

(C) Peptide vaccines

(D) DNA vaccines

(E) Answer not known

106. DNA exists in different forms based on sugar puckering. Choose the right matches.

1. A DNA – 3' endo puckering
2. B DNA – 3' exo puckering
3. C DNA – 2' exo puckering
4. D DNA – 2' endo puckering

✓(A) 1 and 2 are correct

(B) 1 and 3 are correct

(C) 2 and 3 are correct

(D) 3 and 4 are correct

(E) Answer not known

107. The enzyme present in the inner mitochondrial membrane is

(A) hexokinase

(B) monoamine oxidase

✓(C) cytochrome oxidase

(D) acyl-cosynthetase

(E) Answer not known

108. The layer which forms a protective barrier between enzyme and the stomach mucous membrane

(A) mucin
(B) pepsin
(C) renin
(D) uvula
(E) Answer not known

109. Which is related to the decreased red-cell mass?

(A) hypoxia
(B) anaemia
(C) arteriosclerosis
(D) hyperventilation
(E) Answer not known

110. Match the following :

(a)	T cells	1.	Phagocytosis
(b)	Lymphocyte	2.	Thymus
(c)	Macrophage	3.	Bonemarrow
(d)	B cell	4.	Antibody

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

(E) Answer not known

111. Match the enzymes with their substrates :

	Enzymes		Substrates
(a)	Renin	1.	proteases
(b)	Chymotrypsin	2.	nucleic acid
(c)	Polynucleotidase	3.	caesin of milk
(d)	Nucleosidases	4.	purine

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

(E) Answer not known

112. Choose the right answer among types.

Which of the following statements are true about blood?

(i) Granulocytes include neutrophils, eosinophils and basophils

(ii) Granulocytes include thrombocytes only

(iii) Agranulocytes are lymphocytes and monocytes

(iv) Granulocytes are differentiated in the bonemarrow

✓(A) (i), (iii) and (iv) only

(B) (ii) only

(C) (iii) and (ii) only

(D) (i) and (iv) only

(E) Answer not known

113. Choose the cells that increase in number during allergic reactions and parasitic infestations.

(A) basophils
(B) neutrophils
(C) lymphocytes
✓(D) eosinophils
(E) Answer not known

114. Identify the glands other than salivary glands in human being

(A) parotid glands
(B) submaxillary glands
(C) sublingual glands
✓(D) brunner's glands
(E) Answer not known

115. The phenomenon of change in specific rotation of glucose solution is known as

(A) isomerisation
(B) mutation
✓(C) mutarotation
(D) epimerisation
(E) Answer not known

116. The insects which feed upon the dead and decaying plant and animal matter are called _____

(A) soil builders
✓(B) scavengers
(C) predators
(D) parasitoids
(E) Answer not known

117. The substances which are used in the manufacture of French polish, floor polish, gramaphone records, bangles and printing inks are

(a) seed lac

(b) shellac

(c) insect galls

(d) coccineal stains

✓(A) (a) and (b)
(B) (b) and (c)
(C) (c) and (d)
(D) (a) and (d)
(E) Answer not known

118. The insecticide which is metabolized to a sulphate and is extremely toxic to fish but is safe for bees is _____

✓(A) endosulfan
(B) aldrin
(C) lindane
(D) methyl parathion
(E) Answer not known

119. The repellant odour produced by a damaged host plants acts as

(A) an allomone that deters non-specialist phytophages
(B) a kairomone that attracts a specialist phytophages
(C) a synomone that lures the parasitoid of the phytophage
✓(D) a synomone that affects specialist phytophages
(E) Answer not known

120. Apis andreniformin is considered as a sister species of _____

(A) apis laboriosa
(B) apis mellifera
(C) apis dorsata
✓(D) apis florea
(E) Answer not known

121. Mouthparts found in grasshopper is

(A) sponging
✓(B) biting and chewing
(C) sucking
(D) siphoning
(E) Answer not known

122. The nature of corpora cardiaca in insects is

(A) merocrine gland
✓(B) endocrine gland
(C) apocrine gland
(D) exocrine gland
(E) Answer not known

123. Assertion [A] : Butterfly has complete metamorphosis in its life cycle.

Reason [R] : The life cycle consists of four stages

Egg → Larva → Pupa → Adult

(A) [A] is true, but [R] is false
✓(B) Both [A] and [R] are true; and [R] is the correct explanation of [A]
(C) [A] is false, [R] is true
(D) Both [A] and [R] are true, but [R] is not the correct explanation of [A]
(E) Answer not known

124. Match the type of metamorphosis (A) with insects (B)

	A		B
(a)	Paurometabola	1.	Dragon flies
(b)	Hemimetabola	2.	Ants
(c)	Holometabola	3.	Grasshopper
(d)	Hypermetabola	4.	Beetles

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

(E) Answer not known

125. Choose the incorrectly matched pair :

1. Siphunculata – biting lice
2. Siphonoptera – flies
3. Hymenoptera – wasps
4. Dermaptera – earwigs

(A) 1 ✓(B) 2
(C) 3 (D) 4
(E) Answer not known

126. The dentition in dogfish is

✓(A) homodont, polyphyodont and lyodont
(B) heterodont, polyphyodont and hyodont
(C) heterodont, diphyodont and hyodont
(D) homodont, diphyodont and hyodont
(E) Answer not known

127. Axolotl is the larva of

✓(A) amphistoma (B) seymouria
(C) sires (D) proteus
(E) Answer not known

128. The moulting hormone of ecdysone is secreted from _____

(A) corpora allata
(B) corpora cardiaca
✓(C) prothoracic glands
(D) corpora adiposa
(E) Answer not known

129. Which of following is lacking in Amoeba?

✓(A) sexual reproduction
(B) multiple fission
(C) binary fission
(D) cyst formation
(E) Answer not known

130. Name the invertebrata phyla which show metamerism.

✓(A) annelids and arthropods
(B) coelenterata
(C) echinoderms
(D) tunicates
(E) Answer not known

131. Example of a new generation fungicide

(A) metalaxyl
(B) bavistin
(C) benomyl
✓(D) azoxystrobin
(E) Answer not known

132. Contact herbicide example is

(A) glyphosate
(B) 2, 4 – D
✓(C) paraquat
(D) imazapyr
(E) Answer not known

133. Achlorophyllous, phanerogamic/flowering/angiospermic parasitic weed is

(A) cuscuta
(B) striga
✓(C) orobanche
(D) arceuthobium
(E) Answer not known

134. Which insecticide recently banned for use in India, but continued to manufacture for export purpose?

(A) triadimefon
(B) triadimenol
✓(C) triazophos
(D) tetradifon
(E) Answer not known

135. Which cells of algae and fixed films of bacterial cells can remove the pesticides from water?

(A) cephaleuros virescens
✓(B) prototheca zopfii
(C) algocerous sp.
(D) mycophagia pulvinata
(E) Answer not known

136. Most plant parasitic nematodes are

(A) free living
(B) endo parasite
✓(C) ecto parasite
(D) sedentary endo parasite
(E) Answer not known

137. Rocker sprayer can develop a pressure of _____ used for spraying coconut palm trees.

(A) 1 – 7 kg/cm²
✓(B) 14 – 18 kg/cm²
(C) 70 – 96 kg/cm²
(D) 112 kg/cm²
(E) Answer not known

138. Which larval parasitoid acted as biopesticide against bollworm in cotton?

(A) bracon hepetor
(B) telenomus nemus
✓(C) cotesia flavipes
(D) goniozus nephantidis
(E) Answer not known

139. Directorate of plant protection, quarantine and storage is situated at

(A) Chennai
(B) Hyderabad
✓(C) Faridabad
(D) New Delhi
(E) Answer not known

140. A pest of potential economic importance to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled

(A) pest complex
(B) non quarantine pest
✓(C) quarantine pest
(D) economic pest
(E) Answer not known

141. Which among the following yeast was approved for post harvest decay control of citrus and apple fruits?

(A) candida saitoana
✓(B) candida oleophila
(C) saccharomyces cerevisiae
(D) saccharomyces paradoxus
(E) Answer not known

142. The potential fungal biocontrol agent is _____

(A) bacillus subtilis
(B) pseudomonas fluorescens
✓(C) trichoderma spp.
(D) agrobacterium radiobacter
(E) Answer not known

143. Shredding of bark tissues in the root is commonly observed in

(A) wilt
(B) damping-off
✓(C) dry root rot
(D) club root
(E) Answer not known

144. Onion, garlic, watermelon are resistant to which nematode?

(A) ufra nematode
(B) seed gall nematode
✓(C) root knot nematode
(D) cyst nematode
(E) Answer not known

145. Which wheat disease infected mature kernels are broken, they are found to be a full of a sooty, black powdery mass of fungal spores that give off a distinctive odour resembling that of decaying fish?

(A) loose smut
(B) take all disease
(C) leaf smut
(D) bunt disease of wheat
(E) Answer not known

146. Veins appear as a yellow network on the lamina and veins, veinlets get thickened in abelmoschus esculentus is

(A) little leaf
(B) enation
(C) yellow vein mosaic
(D) epinasty
(E) Answer not known

147. "Silent spring" book is written by

(A) Hewitt
(B) Rachel Carson
(C) Norman Borlaug
(D) Paul Muller
(E) Answer not known

148. Inorganic sulphur fungicides are phytotoxic to _____ crops.

(A) potato
(B) tomato
(C) cucurbits
(D) rice
(E) Answer not known

149. Choose the correct answer among type.

(i) Oomycetes fungi are producing zoospores

(ii) Oomycetes fungi are producing oospores

(iii) Oomycetes fungi are producing ascocarp

(A) (i) only
(B) (ii) only
✓(C) (i) and (ii) only
(D) (i), (ii) and (iii) only
(E) Answer not known

150. Rice Tungro disease is caused by

(A) RTSV
✓(B) RTSV + RTBV
(C) RTBV
(D) RTTV
(E) Answer not known

151. FAST is a computerized forecasting system for

✓(A) Early blight
(B) Late blight
(C) Tikka leaf spot
(D) Web blight
(E) Answer not known

152. Which stage of insects are very similar in appearance to the adult insect although its smaller than adult and may not possess wings, they are very active in eating and growing like larval stage?

(A) Larva
✓(B) Nymph
(C) Egg
(D) Juvenile
(E) Answer not known

153. The bark eating caterpillar creates a damage to valuable timber and the scientific name is

(A) leptocorisa varicornis
(B) indarbela quadrinobata
(C) sylepta derogata
(D) cactoblastis cactorum
(E) Answer not known

154. In 1892, Atkinson reported the Fusarium wilt of cotton was more severe in the presence of which nematode?

(A) Burrowing nematode
(B) Root lesion nematode
(C) Root knot nematode
(D) Seed gall nematode
(E) Answer not known

155. Which of the following is correctly expanded for AUDPC?

(A) Area Unit Disease Progress Curve
(B) Amount of Disease Under Progress Curve
(C) Available Under Disease Progress Curve
(D) Area Under Disease Progress Curve
(E) Answer not known

156. DNA markers reveal neutral sites of variation at _____.

(A) RNA sequence level
(B) DNA sequence level
(C) DNA expression level
(D) DNA quantity level
(E) Answer not known

157. Which among the following is an important function of vectors in Gene cloning?

✓(A) Carrier of gene of interest
(B) Cutting of genes
(C) Transformation
(D) Restriction of DNA
(E) Answer not known

158. Which among the following statements are <u>not</u> correct?

(i) Explant grows into callus under specific condition.

(ii) Plant parts can grow into whole plant even when no specific stimuli, invitro growing conditions are not followed

(iii) Dedifferentiation, redifferentiation are not required for morphogenesis

(iv) Cytoplasmic differentiation results in xylogenesis

✓(A) (ii) and (iii)
(B) (i) and (iv)
(C) (i) and (ii)
(D) (i) and (iii)
(E) Answer not known

159. Which of the following ways are useful for the production of somatic hybrids?

(A) Biparental making
(B) Emasculation and pollination
✓(C) Fusion of protoplast
(D) Wide hybridization
(E) Answer not known

160. The Bt toxin (cry protein) becomes active only in the insect gut as it requires _____.

(A) Acidic pH
(B) Alkaline pH
(C) High Glucose content
(D) High Protein content
(E) Answer not known

161. The PCR technique was developed by _____

(A) Paul Berg
(B) Alec Jeffreys
(C) Kary Mullis
(D) Karl Mullis
(E) Answer not known

162. In tissue culture, embryo rescue is primarily used to _____

(A) Overcome post-zygotic incompatibility
(B) Introduce somaclonal variation
(C) Eliminate systematic virus
(D) Produce haploids
(E) Answer not known

163. Latest released rice hybrid by Tamilnadu Agricultural University in 2024 is

(A) Rice ADT 59
(B) Rice CORH 5
(C) Rice ADT 60
(D) Rice CO 59
(E) Answer not known

164. Development of varieties with low erucic acid content is a breeding objective in

(A) coconut
(B) groundnut
✓(C) mustard
(D) sesame
(E) Answer not known

165. Which one of the following is correct?

✓(A) seed certification will follow notification of variety
(B) notification will follow certification of variety
(C) release will follow notification of variety
(D) variety release follow certification of seed
(E) Answer not known

166. Gene for gene relationship between host and pathogen was postulated by

(A) Flemmington
(B) Alice
(C) Harrington
✓(D) Flor
(E) Answer not known

167. The minimum number of years of testing required for All India Co-ordinated Research Project (AICRP) is _____

(A) two years
✓(B) three years
(C) one year
(D) five years
(E) Answer not known

168. In breeding for biotic stress, The "Non-Preference" mechanism (unfavourable to insects) is referred as _____

(A) antibiosis
(B) tolerance
✓(C) antixenosis
(D) escape
(E) Answer not known

169. Transfer of fertile and viable pollen from male parent to the respective stigma of female parent is _____

(A) emasculation
(B) fertication
✓(C) pollination
(D) tagging
(E) Answer not known

170. To maintain varietal purity, the removing of off types from a fields is _____

(A) thinning
(B) needing
✓(C) roughing
(D) pruning
(E) Answer not known

171. The yellow golden tag is officially issued for which class of seed?

(A) nucleus seed
(B) foundation seed
✓(C) breeder seed
(D) certified seed
(E) Answer not known

172. DUS testing in India is primarily coordinated by _____

(A) Ministry of Law
(B) Ministry of Seeds
✓(C) PPV and FR agencies
(D) International NGOs
(E) Answer not known

173. The ideal crossing method for transferring cytoplasmic gene in a crop species is called _____

(A) top cross breeding
(B) back cross breeding
(C) single cross breeding
(D) poly cross breeding
(E) Answer not known

174. What is the term used to describe when a single cross between two inbreeds is crossed with open pollinated variety?

(A) double top cross hybrid
(B) top cross hybrid
(C) double cross hybrid
(D) varietal hybrid
(E) Answer not known

175. Which is the most potential form of exploitation of heterosis?

(A) mutation breeding
(B) pure line selection
(C) multiline development
(D) heterosis breeding
(E) Answer not known

176. Which of the following methods involve selection of individual plants in F_2 and subsequent generation?

(A) Mass selection
(B) Pedigree selection
(C) Pureline selection
(D) Bulk selection
(E) Answer not known

177. Gluten protein is found in _____.

(A) Maize
(B) Wheat
(C) Bajra
(D) Rice
(E) Answer not known

178. _____ is a progeny of a single homozygous plant of a self-pollinated species.

(A) Pureline
(B) Multiline
(C) Phenotype
(D) Mutated line
(E) Answer not known

179. The development of an unreduced embryo sac directly from the somatic cell of the nucellus or chalaza is known as _____.

(A) Diplospory
(B) Parthenogenesis
(C) Adventitious embryony
(D) Apospory
(E) Answer not known

180. The process where a population is genetically adjust to a new environment over several generations is

(A) Domestication
(B) Acclimatization
(C) Mutation
(D) Introduction
(E) Answer not known

181. Individuals can contribute money or other ownership capital without incurring a full legal liability of a general partner.

(A) Limited partnership
(B) General partnership
(C) Secret partner
(D) Nominal partner
(E) Answer not known

182. What is the name of student entrepreneurship club established in all constituent colleges of TNAU

(A) TNAU-START
(B) AGRI-STUD
(C) TNAGRIHUB
(D) AGPREUN
(E) Answer not known

183. MSP is announced by the Government of India every year during

(A) Ahead of agricultural seasons
(B) Kharif season
(C) Rabi season
(D) March 31
(E) Answer not known

184. Buffer stock of food grains is maintained by

(A) Ministry of Agriculture
(B) AGMARK
(C) Food Corporation of India
(D) Central Warehouse
(E) Answer not known

185. The commission/committee which takes the final decision on minimum support price

(A) Agricultural price commission

(B) Commission for agricultural costs & prices

✓(C) Cabinet committee on economic affairs

(D) NABARD

(E) Answer not known

186. Which of the following commodity boards are established under the control of Ministry of Agriculture and Farmer's Welfare

(i) Coconut Development Board

(ii) Rubber Board

(iii) Tea Board

(iv) Spices Board

✓(A) (i) only

(B) (i) and (ii) only

(C) (i), (ii) and (iv) only

(D) (i), (ii), (iii) and (iv)

(E) Answer not known

187. When risks are greater in the market, the margin taken by the intermediaries who hold the commodities are

✓(A) High

(B) Low

(C) Medium

(D) Nil

(E) Answer not known

188. Central Warehousing Corporation was established at New Delhi in the year

(A) 1956
(B) 1957
(C) 1962
(D) 1954
(E) Answer not known

189. Among the following which one determines the market performance

(A) Resources
(B) Market structure
(C) Market efficiency
(D) Market behaviour
(E) Answer not known

190. A market which deals with shares, bonds and securities are

(A) Commodity markets
(B) General markets
(C) Consumer markets
(D) Capital markets
(E) Answer not known

191. Conversion and rescheduling of short term refinance into medium term refinance is done

(A) By concerned banks
(B) Through government order
(C) Under conditions of natural calamities
(D) Under negotiation
(E) Answer not known

192. Under DIR scheme, weaker sections of the society are extended loans with interest rate of

(A) 7%
(B) 14%
✓(C) 4%
(D) Interest free
(E) Answer not known

193. Cooperatives in Madras Government were established by following which Country's model

(A) France
✓(B) Germany
(C) Russia
(D) America
(E) Answer not known

194. Government loans advanced to the farmers for crop production particularly as distress relief are known as

✓(A) Taccavi loans
(B) Crop loans
(C) Soft loans
(D) Short term loans
(E) Answer not known

195. The Craficard recommended to set up

(A) Reserve Bank of India
(B) State Bank of India
(C) Agricultural Finance Corporation
✓(D) NABARD
(E) Answer not known

196. The shape of the Average fixed cost curve is

(A) Rectangular hyperbola
(B) 'U' shape curve
(C) Inverted 'U' shape curve
(D) Parallel to X-axis
(E) Answer not known

197. Basic law of consumption is

(A) Law of diminishing marginal utility
(B) Law of equimarginal utility
(C) Law of demand
(D) Consumer surplus
(E) Answer not known

198. A budgeting technique used to know the incremental income in farm business is

(A) Enterprise budgeting
(B) Complete budgeting
(C) Partial budgeting
(D) Cash flow budgeting
(E) Answer not known

199. When marginal physical product is maximum, marginal cost will be _____

(A) Same
(B) Zero
(C) Minimum
(D) No relationship
(E) Answer not known

200. A _____ is a socio economic and decision making unit of livelihood of a farmer.

(A) Household
(B) Firm
(C) Plant
(D) Farm
(E) Answer not known