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HPSC ADO

Previous Year Paper
16 Oct 2022



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Question Booklet No.

QUESTION BOOKLET
SBLL(A)—2022

502055

Booklet Series

C

Roll No.

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(Enter your Roll number in the above space)

Time Allowed : 2 Hours

Maximum Marks : 100

INSTRUCTIONS FOR CANDIDATES

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS QUESTION BOOKLET **DOES NOT** HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR QUESTIONS ETC. IF SO, GET IT REPLACED BY A COMPLETE QUESTION BOOKLET.
2. Please note that it is your responsibility to encode and fill in the Roll Number and Question Booklet Series Code A, B, C or D carefully and without any omission or discrepancy at the appropriate places in the OMR Answer Sheet. Any omission/discrepancy will render the OMR Answer Sheet liable for rejection.
3. This Question Booklet contains **100** questions. Each question is printed in **English** only. Each question comprises of four responses (answers). You will select the response which you want to mark on the OMR Answer Sheet. In case, you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose **ONLY ONE** response for each question.
4. You will have to mark all your responses **ONLY** on the separate OMR Answer Sheet provided. See Instructions at the backside of the OMR Answer Sheet.
5. **All** questions carry equal marks.
6. Before you proceed to mark in the OMR Answer Sheet the response to various questions in the Question Booklet, you will have to fill in some particulars in the OMR Answer Sheet as per instructions mentioned on the OMR Answer Sheet.
7. After you have completed filling in all your responses on the OMR Answer Sheet and the examination has concluded, you should hand over to the Invigilator **only the OMR Answer Sheet**. You are permitted to take away with you the **Question Booklet**, along with candidate's copy of **OMR Answer Sheet**.
8. Sheets for rough work are appended in the Question Booklet at the end.
9. **Penalty for wrong answers :**

THERE WILL BE PENALTY FOR WRONG ANSWERS MARKED BY A CANDIDATE AS UNDER.

- (i) There are four alternatives for the answer to every question. For each question, for which a wrong answer has been given by you, **0.25 mark** assigned to that question will be deducted as penalty.
- (ii) If you give more than one answer, it will be treated as a wrong answer even if one of the given answers happens to be correct and there will be same penalty as above to that question.
- (iii) As a candidate if you decide not to attempt a question, then you will have to darken the corresponding circle below the # in the OMR sheet as shown in the diagram below.

S. No.	Response	#
1	A B C D	●

PLEASE NOTE CAREFULLY : RESPONSE FOR ALL QUESTIONS IS MANDATORY

- (iv) Failure to mark/darken the circle below the # in unattempted questions will attract penalty and one fourth mark or **0.25 mark** for each # left blank will be deducted.

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1. The rhizosphere effect can be quantitatively represented by

- [A] C : P ratio
- [B] O : C ratio
- [C] C : N ratio
- [D] R : S ratio

2. The art of training plants into different shapes is known as

- [A] skirting
- [B] propping
- [C] shrubry
- [D] topiary

3. For determination of soil microbial biomass, carbon extracting agent used is

- [A] potassium sulphate
- [B] ammonium sulphate
- [C] silver sulphate
- [D] sodium sulphate

4. The mixture of breeding lines having the same genetic constitution, but differing at a specific locus is known as

- [A] multi-lines
- [B] recombinant inbred lines
- [C] iso parental lines
- [D] doubled haploid lines

5. Critical level for hot water extractable B (ppm) in soil is

- [A] 5.0-10.0
- [B] 10.0-15.0
- [C] 0.1-2.0
- [D] 2.0-5.0

6. The product of pedigree selection is

- [A] heterozygous and homogeneous
- [B] heterozygous and heterogeneous
- [C] homozygous and homogeneous
- [D] homozygous and heterogeneous

7. The CITES was signed in the year

- [A] 1973
- [B] 1974
- [C] 1972
- [D] 1971



8. In gametophytic self-incompatibility system, when sib matings are carried out, the crosses are

- [A] fully compatible or partially compatible
- [B] always partially compatible
- [C] fully compatible, partially compatible or fully incompatible
- [D] always fully compatible

9. *Prosopis cinerea* and *Cenchrus ciliaris* are good fodder tree + grass combination for

- [A] arid climate with sandy soil
- [B] semi-arid black cotton soil
- [C] semi-arid climate with red soil
- [D] temperate climate

10. The type of germplasm, which is frequently utilized by breeders for their crop improvement programme, is called as

- [A] long-term collection
- [B] working collection
- [C] base collection
- [D] active collection

11. Typical nitrogen deficiency symptoms in crop plants under high nitrogen content is due to the deficiency of

- [A] Zn
- [B] Mn
- [C] Mo
- [D] B

12. The type of recurrent selection that uses homozygous tester is known as

- [A] recurrent selection for GCA
- [B] reciprocal recurrent selection
- [C] simple recurrent selection
- [D] recurrent selection for SCA

13. Organic acids developed from organic matter decomposition act as chelating agent may be

- [A] mercuric acids
- [B] amino acids
- [C] abscisic acids
- [D] gibberellic acids

14. Tempering in seed drying refers to

- [A] moisture vapour pressure
- [B] small pause between stages of drying
- [C] equilibrium moisture content
- [D] moisture gradient

15. The Chargaff's rule (1 : 1 stoichiometric ratio of purine and pyrimidine bases) is not followed in organisms having _____ as genetic material.

- [A] ssRNA
- [B] dsDNA : RNA hybrid
- [C] dsDNA
- [D] dsRNA

16. Under which condition the hybrid seeds produced should be compulsorily subjected to grow out test for grant of certificate?

- [A] Hybrid seeds produced through application of chemical hybridizing agents
- [B] The certification officer is not satisfied with the field standards
- [C] The seed crop raised under modified isolation distance
- [D] The seed crop raised without following the prescribed planting ratio

17. Chemicals that have been implicated in attraction of rhizobia are

- [A] flavonoids
- [B] sugars
- [C] peptides
- [D] organic acids

18. Among the following, under which condition for maize hybrid seed production, the modification of isolation distance by planting border rows is **not** permitted?

- [A] If the contaminating field is planted with sweetcorn, popcorn or teosinte
- [B] Border rows planted with male parent
- [C] Seed field having diagonal exposure to contaminating field
- [D] If two hybrid seed fields with different pollinator parents are within the isolation distance of one another

19. In the G1 phase of cell cycle, each chromosome has chromatid(s).

- [A] 3
- [B] 4
- [C] 1
- [D] 2

20. In the ATP-driven proton potassium exchange mechanism, the H^+ ions are formed due to dissociation of

- [A] malic acid
- [B] phosphoglycolic acid
- [C] oxaloacetic acid
- [D] pyruvic acid

21. Compounds which disrupts hormone balance and protein synthesis by which the plant ultimately dies are

- [A] seedling growth inhibitors
- [B] amino acid synthesis regulators
- [C] plant growth regulators
- [D] pigment inhibitors

22. The recently developed training system in grapes is called as

- [A] telephone
- [B] knifing
- [C] Y-trellis
- [D] cardon

23. In rice, assume that a recessive gene "a" is responsible for resistance to BLB. This gene is present on chromosome #1. A monosomic resistant line for chromosome #1 is crossed with normal susceptible line. The phenotype of F_1 plants will be

- [A] 50% plants resistant and 50% plants susceptible
- [B] 75% plants resistant and 25% plants susceptible
- [C] all plants resistant
- [D] all plants susceptible

24. Nernst equation allows us to make certain predictions about

- [A] equilibrium concentrations of ions outside the cell when ion transport is due to ion transport
- [B] equilibrium concentrations of ions outside the cell when ion transport is due to facilitated diffusion
- [C] equilibrium concentrations of ions inside the cell when ion transport is due to facilitated diffusion
- [D] equilibrium concentrations of ions inside the cell when ion transport is due to ion transport

25. The estimate of degree of variation in a phenotypic trait in a population that is due to genetic variation between individuals in that population is called as

- [A] pleiotropy
- [B] heritability
- [C] expressivity
- [D] penetrance

26. The unit of spectral energy fluence rate is

- [A] $\text{mol photon m}^{-2} \text{s}^{-2} \text{nm}^{-1}$
- [B] $\text{J m}^{-2} \text{s}^{-1}$
- [C] $\text{mol m}^{-2} \text{s}^{-1}$
- [D] $\text{W m}^{-2} \text{nm}^{-1}$

27. The marker systems Restriction Fragment Length Polymorphism (RFLP), Diversity Array Technology (DART), Single-Feature Polymorphism (SFP) and Restriction-site-Associated DNA (RAD) are detected by

- [A] PCR followed by electrophoresis
- [B] real time PCR
- [C] DNA:DNA hybridization
- [D] DNA:RNA hybridization

28. Which among the following statements is true about Gibberellin (GA)?

- [A] GAs are tetraterpenoids synthesized from MVA
- [B] GAs are diterpenoids synthesized from jasmonic acid pathway
- [C] GAs are tetraterpenoids synthesized from jasmonic acid pathway
- [D] GAs are diterpenoids synthesized from MVA

29. Once incorporated into the plant genome, the gene product, CP4 EPSP synthase, confers crop resistance to

- [A] atrazine
- [B] thifensulfuron
- [C] glyphosate
- [D] 2,4-D

30. The Government of India in 1997 launched the Targeted Public Distribution System (TPDS) to benefit about _____ poor families.

- [A] 6 crore
- [B] 7 crore
- [C] 4 crore
- [D] 5 crore

31. In CRISPR-Cas9 technology, the RNA designed to find and bind to a specific sequence in the DNA, is known as

- [A] mRNA
- [B] gRNA
- [C] ScRNA
- [D] U1RNA

32. Cuttings of black pepper are raised mainly from

- [A] runner shoots
- [B] orthotropes
- [C] plagiotropes
- [D] geotropes



33. Aflatoxin is a

- [A] vivotoxin
- [B] phytoalexin
- [C] pathotoxin
- [D] mycotoxin

34. Krishi Vigyan Kendras are one of the largest networks for scientific dissemination of agricultural technologies to the end users financially supported by

- [A] ICAR
- [B] ICFA
- [C] the State Government
- [D] the Ministry of Agriculture and Farmers Welfare

35. In which year the National Food Security Act was passed?

- [A] 2015
- [B] 2016
- [C] 2013
- [D] 2014

36. Which is a system of supervised control of diseases and pests in winter wheat?

- [A] SimCast
- [B] PhytoPRE
- [C] EPIPPE
- [D] BLITECAST

37. When a disease is more or less constantly prevalent in a locality year after year in a moderate to severe form, it is known as

- [A] pandemic disease
- [B] sporadic disease
- [C] endemic disease
- [D] epidemic disease

38. The United Nations Assembly declared _____ as the International Year of Fruits and Vegetables.

- [A] 2018
- [B] 2020
- [C] 2021
- [D] 2015

39. The Destructive Insects and Pests Act (1914) is related to

- [A] plant quarantine
- [B] forest protection
- [C] biodiversity
- [D] environmental protection

40. The "Antyodaya Anna Yojana" (AAY) was launched in December, 2000 for _____ poorest of the poor families among BPL covered under TPDS.

- [A] 2 crore
- [B] 1 crore
- [C] 4 crore
- [D] 3 crore

41. Which one of the following is **not** a mode of action of biocontrol agents?

- [A] Antibiosis
- [B] RNA interference
- [C] Competition
- [D] Lysis

42. Which agenda of SDGs of UN addresses zero hunger?

- [A] 07
- [B] 17
- [C] 11
- [D] 02

43. 'Blitecast' is a forecasting model for

- [A] late blight of potato
- [B] turicum corn blight
- [C] blister blight of tea
- [D] bacterial blight of rice



44. Transfer of agricultural technologies to the farmers is done by ___ KVKs located in ___ zones of the country.

- [A] 711 and 08
- [B] 675 and 09
- [C] 722 and 11
- [D] 702 and 07

45. Science dealing with the outbreak and spread of disease in a population is called as

- [A] Epidemiology
- [B] Pathology
- [C] Etiology
- [D] None of the above

46. CIBRC is responsible for registration of

- [A] insecticides
- [B] fungicides
- [C] bio-pesticides
- [D] All of the above

47. World free of hunger and malnutrition is who's vision?

- [A] FAO
- [B] IFPRI
- [C] WHO
- [D] None of the above

48. Which is the most widespread form of malnutrition among preschool children in India?

- [A] Protein Energy Malnutrition (PEM)
- [B] Iodine deficiency
- [C] Vitamin A deficiency
- [D] Iron deficiency anaemia

[P.T.O.]

49. Which of the following is an example of electroneutral pump?

- [A] Ca^{+2} -ATPase
- [B] H^+/K^+ -ATPase
- [C] H^+ -PPase
- [D] H^+ -ATPase



50. A drought year as a whole is defined by the Indian Meteorological Department (IMD) as a year in which, the overall rainfall deficiency is more than 10 percent of

- [A] seasonal period average value
- [B] half yearly average value
- [C] short period average value
- [D] long period average value

51. H^+ -ATPases of plasma membrane and tonoplast are

- [A] different
- [B] not known
- [C] same
- [D] None of the above

52. Oceanic Nino Index corresponding to El Nino period is

- [A] greater or equal to 5°C
- [B] greater or equal to -5°C
- [C] greater or equal to 0.5°C
- [D] greater or equal to -0.5°C

SBLLL(A)/21-C

53. Phytosiderophores have high affinity to

- [A] Fe^{+2}
- [B] Fe^{+3}
- [C] Both [A] and [B]
- [D] None of the above

54. In which wavelength range, the greenhouse gases absorb energy?

- [A] 100 to 500 μm
- [B] 400 to 700 nm
- [C] 0.3 to 3 μm
- [D] 5 to 100 μm

55. Chlorophyll is formed from protochlorophyll in light. The protochlorophyll lacks two hydrogen atoms one each at _____ and _____ carbon of _____ ring.

- [A] 8th, 9th, IV
- [B] 7th, 8th, I
- [C] 8th, 9th, I
- [D] 7th, 8th, IV

56. Tensiometer is suitable for which type of soil?

- [A] Loamy soil
- [B] Laterite soil
- [C] Clay soil
- [D] Sandy soil

57. NADP-Me type C4 pathway is found in

- [A] Atriplex and Amaranthus
- [B] Portulaca
- [C] sugarcane and maize
- [D] *Panicum maximum*

58. *Parthenium hysterophorus* is

- [A] C3 and C4 plants
- ~~[B] CAM plant~~
- [C] C3 plant
- [D] C4 plant

59. Inulin is a polymer of

- [A] pentose
- [B] galactose
- [C] glucose
- [D] fructose

60. What is the Water Use Efficiency (WUE) of rice if the grain yield is 6000 kg/hectare with evapotranspiration of 950 mm?

- [A] 63.1 ha.mm
- [B] 0.631 ha.mm
- ~~[C] 631 ha.mm~~
- [D] 6.31 ha.mm

61. Which of the following act(s) as strong germinator for parasitic weeds?

- [A] Strigolactones
- [B] ABA
- [C] Both [A] and [B]
- [D] Temperature and pressure

62. The ratio of land required by pure crop to produce the same yield as that of intercrop is known as

- [A] LER
- [B] MCI
- [C] CEY
- [D] CLUI

63. Clay soil contains which type of pores to a large extent?

- [A] Medium pore
- [B] Macro pore
- [C] Capillary pore
- [D] Coarse pore

64. The plantlet that is produced through clonal propagation is termed as

- [A] ramet
- [B] ortet
- [C] seedling
- [D] sapling

65. Cropping pattern is referred to the

- [A] growing of crops in different sequences
- [B] growing of crops in intercropping and mixed cropping sequences
- [C] maximum area covered by particular crop with a particular season and particular area
- [D] minimum area covered by particular crop with a particular season and particular area

66. Calculate the basal area per hectare if the number of tallied trees was 14 and the Basal Area Factor (BAF) of the wedge prism used is three.

- [A] 21 m²
- [B] 28 m²
- [C] 42 m²
- [D] 14 m²

82. If the drainage coefficient is 3 cm/day, then the flow rate through drains of watershed of area 1500 hectares is

[A] 2 m³/s

[B] 5.2 m³/s

[C] 0.2 m³/s

[D] 0.5 m³/s

83. In waterlogged lands

[A] the soil pores are saturated within a depth of 40 m

[B] the soil pores are saturated up to the root zone of the crop

[C] the soil pores are saturated within a depth of 1 m

[D] the soil pores are saturated within a depth of 60 m

84. Which sub-surface drainage system consists of laterals that enter the main drain at an angle, generally from both sides?

[A] Interceptor

[B] Gridiron

[C] Random

[D] Herringbone

85. The presence of excess salt in the soil requires

[A] high water application efficiency

[B] low water use efficiency

[C] high water storage efficiency

[D] low water storage efficiency

86. Pusa Surya Mango cultivar is selected from

[A] Haden

[B] Golden Nuggets

[C] Eldon

[D] Brooks

87. Plantation of high water consuming trees for withdrawal of groundwater is termed as

[A] bio-drainage

[B] surface drainage

[C] mole drainage

[D] interceptor drains

88. Splash Erosion is otherwise called as

[A] rill erosion

[B] gully erosion

[C] rain drop erosion

[D] sheet erosion

89. Who among the following is popularly known as the Father of Agricultural Demonstration?

[A] Edger Dale

[B] Auguste Comte

[C] Paul Leagans

[D] Seaman A. Knapp

90. The Marginal Physical Product (MPP) is maximum corresponding to the

[A] Average Physical Product (APP)

[B] point of inflection

[C] input price and output price ratio

[D] Total Physical Product (TPP)

91. Which of the following is a cultivar of custard apple?
 [A] Jayanagar
 [B] Vijayanagar
 [C] Balanagar
 [D] All of the above
92. *Tagetes patula* marigold is also known as
 [A] Signet Marigold
 [B] Brazil Marigold
 [C] African Marigold
 [D] French Marigold
93. A subdivision on the basis of some important deviations such as surface texture, erosion, slope and stoniness is called as
 [A] soil family
 [B] soil order
 [C] soil phase
 [D] soil series.
94. *Ceteris paribus* means
 [A] same proportionate change in variables
 [B] keeping other things constant
 [C] proportionate change in all variables
 [D] small change in all other variables
95. H^+ and Al^{3+} ions present in non-exchangeable form with organic matter and silicate clays and aluminium hydroxyl ions account for
 [A] exchangeable acidity
 [B] non-exchangeable acidity
 [C] active acidity
 [D] reserve acidity
96. According to Thomas Robert Malthus, population tends to grow in
 [A] ever increasing rate
 [B] increasing and decreasing rate
 [C] geometric progression
 [D] arithmetic progression
97. In paracentric inversion, rearrangement of genes
 [A] involves the exchange of telomere ends of a chromosome
 [B] involves the centromere part of a chromosome
 [C] involves both the arms of a chromosome
 [D] is confined to single arm of a chromosome
98. The National Agricultural Extension Policy was announced by the Government of India during which year?
 [A] 2011
 [B] 2014
 [C] 2000
 [D] 2003
99. *Azospirillum lipoferum* is reported to be associated with the roots of
 [A] pigeon pea
 [B] maize
 [C] rice
 [D] potato
100. Training and visit system is mainly known for
 [A] decentralized extension approach
 [B] farmer friend
 [C] bottom-up planning of extension activities
 [D] systematic training and scheduled visits

