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FOR KUET EXAM PREPARATION

KUET 2022 Question Paper · M.Sc. Botany

EXAM	YEAR	TYPE	SUBJECT
KUET	2022	Question Paper	M.Sc. Botany

Sr. No. 0105

ENTRANCE TEST-2022

SCHOOL OF BIOLOGICAL SCIENCES

BOTANY

Question Booklet Series A

Total Questions : 60

Time Allowed : 70 Minutes

Roll No. : | | | | | | |

Instructions for Candidates :

1. Write your Entrance Test Roll Number in the space provided at the top of this page of Question Booklet and fill up the necessary information in the spaces provided on the OMR Answer Sheet.
2. OMR Answer Sheet has an Original Copy and a Candidate's Copy glued beneath it at the top. While making entries in the Original Copy, candidate should ensure that the two copies are aligned properly so that the entries made in the Original Copy against each item are exactly copied in the Candidate's Copy.
3. All entries in the OMR Answer Sheet, including answers to questions, are to be recorded in the Original Copy only.
4. Choose the correct / most appropriate response for each question among the options A, B, C and D and darken the circle of the appropriate response completely. The incomplete darkened circle is not correctly read by the OMR Scanner and no complaint to this effect shall be entertained.
5. Use only blue/black ball point pen to darken the circle of correct/most appropriate response. In no case gel/ink pen or pencil should be used.
6. Do not darken more than one circle of options for any question. A question with more than one darkened response shall be considered wrong.
7. There will be **'Negative Marking'** for wrong answers. Each wrong answer will lead to the deduction of 0.25 marks from the total score of the candidate.
8. Only those candidates who would obtain positive score in Entrance Test Examination shall be eligible for admission.
9. Do not make any stray mark on the OMR sheet.
10. Calculators and mobiles shall not be permitted inside the examination hall.
11. Rough work, if any, should be done on the blank sheets provided with the question booklet.
12. OMR Answer Sheet must be handled carefully and it should not be folded or mutilated in which case it will not be evaluated.
13. Ensure that your OMR Answer Sheet has been signed by the Invigilator and the candidate himself/ herself.
14. At the end of the examination, hand over the OMR Answer Sheet to the invigilator who will first tear off the original OMR sheet in presence of the Candidate and hand over the Candidate's Copy to the candidate.

SEAL

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1. Choose the most appropriate response among the following :
   (A) The genetic material of viruses is enclosed in a protein coat called capsid
   (B) All viruses perform both lytic and lysogenic cycles
   (C) Both (A) and (B) are correct
   (D) Only (A) is correct and (B) is incorrect
2. The pigment phycoerythrin is characteristic of :
   (A) Green algae
   (B) Red algae
   (C) Brown algae
   (D) Blue green algae
3. The primary advantage of Bentham and Hooker system of classification is :
   (A) The classification is exclusively based on evolutionary relationships
   (B) The classification is mainly based on phytochemistry and anatomical features
   (C) The classification is based on similarities at genetic/molecular level
   (D) The classification is based on the actual examination of the specimens
4. Choose the most appropriate match among the following :
   (A) *Rhizopus stolonifer*–Zygomycetes & *Venturia inaequalis* – Dothideomycetes
   (B) *Rhizopus stolonifer* – Dothideomycetes &*Venturia inaequalis* – Zygomycetes
   (C) *Rhizopus stolonifer* – Zygomycetes & *Venturia inaequalis* –Deuteromycetes
   (D) *Rhizopus stolonifer* – Basidiomycetes & *Venturia inaequalis*–Ascomycetes
5. The non motile, greatly thickened asexual spore in algae are called :
   (A) Ascospores
   (B) Zoospores
   (C) Hypnospores
   (D) Aplanospores
6. Pick the pair that is incorrectly matched :
   (A) Cycas – Corraloid roots
   (B) Pinus – Winged pollen grains
   (C) Cycas – Winged pollen grains
   (D) Pinus – Mycorrhizal Association
7. A very thick walled non flagellated structure which is produced by fusion of specialized budding structures from mycelia of homothallic or heterothallic mating types is called :
   (A) Basidiospore
   (B) Zygospore
   (C) Ascospore
   (D) All the above
8. Which of the following is not correctly matched ?
   (A) Chlamydomonas – Unicellular and flagellate
   (B) Ectocarpus – Profusely branched and uniseriate filaments
   (C) Oedogonium – Filamentous, multicellular and unbranched
   (D) Vaucheria – Unicellular, colonial and flagellate
9. Identify the incorrect statement about binomial system of nomenclature :
   (A) Binomial nomenclature has two parts namely genetic epithet and specific epithet
   (B) Both genetic and specific names should be Latinized
   (C) The generic and specific names should start with a small and capital letter respectively
   (D) The generic and specific names should start with a capital and small letter respectively

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10. Among the following, which is not the characteristic feature of Bryophytes ?
    (A) Heteromorphic alternation of generation
    (B) Sporophyte is dependent on gametophyte
    (C) Water is essential for fertilization
    (D) Presence of protostele
11. The international day for biodiversity is celebrated every year on :
    (A) March 21
    (B) April 15
    (C) May 22
    (D) June 10
12. In which of the following activities, the moss peristome takes part in ?
    (A) Spore dispersal
    (B) Photosynthesis
    (C) Protection of male and female gametes
    (D) Fertilization of male and female gametes
13. In sexually reproducing angiosperms, choose the correct statement :
    (A) Interspecific incompatibility prevents cross pollination
    (B) Intraspecific incompatibility promotes cross pollination
    (C) Both (A) and (B) are true
    (D) Neither (A) nor (B) is true
14. The substitute for newly collected specimen when the original type is missing in a herbarium is called :
    (A) Holotype
    (B) Neotype
    (C) Lectotype
    (D) Isotype
15. The binary fission in bacteria involves all except :
    (A) Cell elongation
    (B) Cytokinesis
    (C) DNA duplication
    (D) Spindle formation
16. Identify the mismatch with regard to anatomical features :
    (A) Root apex – Tunica-Corpus Theory
    (B) Vessels – bordered pits
    (C) Endodermis – casparian strips
    (D) Pericycle – lateral roots
17. The characteristic feature of endosperm of cycas is :
    (A) Diploid and produced after fertilization
    (B) Diploid but produced before fertilization
    (C) Triploid and produced after fertilization
    (D) Haploid and produced before fertilization
18. The document that contains all the information related to a particular genus or family is termed as :
    (A) Herbarium
    (B) Monograph
    (C) Manual
    (D) Holotype
19. A haplontic and diplontic life cycle is found in following algal types :
    (A) Chlamydomonas and Ectocarpus respectively
    (B) Ectocarpus and Chlamydomonas respectively
    (C) Clamydomonas and Oedogonium respectively
    (D) Ectocarpus and Cladophora respectively
20. In tetradynamous condition, the stamens are :
    (A) 2 short and 2 long
    (B) 4 short and 2 long
    (C) 4 long and 4 short
    (D) 4 long and 2 short

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21. The fern sporophyte produces genetically unique spores by meiosis. What happens to the spore after dispersal ?
(A) It germinates to become a prothallus
(B) It fuses with another spore to form a zygote
(C) It develops into a thick walled structure called zygospore
(D) It produces a sporangiophore

22. In preparation of a herbarium, identify the correct sequence :
(A) Labeling – Pressing – Collection – Drying – Poisoning – Mounting
(B) Collection – Pressing – Drying – Poisoning – Mounting – Labeling
(C) Collection – Pressing – Drying – Poisoning – Labeling – Mounting
(D) Collection – Labeling – Pressing – Mounting – Poisoning – Drying

23. The antherozoids of Funaria are :
(A) Non-flagellate
(B) Multiflagellate
(C) Uniflagellate
(D) Biflagellate

24. Choose the incorrect match among the following :
(A) Gibberellic acid – Callus differentiation
(B) Abscissic acid – Stomatal closure
(C) Auxin – Apical dominance
(D) Cytokinin – Cell division

25. In bacteria, which of the following can be used as a measure to construct a linkage map of Hfr chromosome ?
(A) Size of F factor in the donor cell
(B) Time of transfer during conjugation
(C) Presence or absence of nutrients in the medium
(D) All the above

26. Find the odd one out :
(A) Late blight of potato – *Phytopthora infestans*
(B) Basidium – *Agaricus*
(C) Ascospore – *Venturia inaequalis*
(D) Paddy blast – *Xanthomonas oryzae*

27. A botanical garden represents collection of :
(A) Endemic living species only
(B) Exotic living species only
(C) Both endemic and exotic living species
(D) Herbarium specimens of all available plants

28. In case of dicot stem, the vascular bundles are :
(A) Open, conjoint, endarch
(B) Closed, conjoint, endarch
(C) Closed, conjoint, exarch
(D) Open, conjoint, exarch

29. Which of the following statements is true about the Tobacco Mosaic Virus ?
(A) Helical, DNA virus, Rod shaped
(B) Helical, RNA virus, Rod shaped
(C) Linear, RNA virus, Spherical
(D) Linear, DNA virus, Cuboidal

30. In Pteridophytes, the spore bearing leaf like structures are called as :
(A) Pteridophylls
(B) Sporangia
(C) Sporophyte
(D) Sporophylls

31. What is true about a monocot leaf ?
(A) Reticulate venation
(B) Absence of bulliform cells in epidermis
(C) Mesophyll not differentiated into palisade and spongy tissue
(D) Well differentiated mesophyll

32. In a flower structure, the syncarpous condition means :
(A) Fused carples
(B) Fused Corrola
(C) Fused sepals
(D) All the above

33. Find the odd one out :
(A) Cleistogamy – Self pollination
(B) Xenogamy – Cross pollination
(C) Entomophily – Pollination by insects
(D) Anemophily – Pollination by birds

34. Which among the following is an example of natural fiber ?
(A) Cotton
(B) Silk
(C) Wool
(D) All the above

35. In which of the following fungal groups have motile cells with two laterally inserted flagella (tinsel and whiplash type) ?
(A) Zygomycetes
(B) Deuteromycetes
(C) Oomycetes
(D) Chytridiomycetes

36. In angiosperms (i) Endosperm formation is the result of triple fusion (ii) Seedless fruits are formed if fertilization fails to take place.
(A) Both (i) and (ii) statements are false
(B) Both (i) and (ii) statements are true
(C) Statement (i) only is true
(D) Statement (ii) only is true

37. According to fluid mosaic model of cell membranes, which of the following is true about phospholipids ?
(A) The hydrophobic tails face the interior whereas hydrophilic heads face the exterior side of the membrane
(B) Phospholipids in the bilayer can move laterally along the plane of the membrane
(C) Both (A) and (B) are correct
(D) Only (A) is true but (B) is false

38. In which of the following aspects are the components of the ecosystem seen to function as a unit ?
(A) Productivity
(B) Decomposition
(C) Energy flow
(D) All the above

39. The following arrangement is found in a bicollateral vascular bundle :
(A) Xylem being sandwiched between phloem
(B) Phloem being sandwiched between xylem
(C) Transverse splitting of vascular bundle
(D) Longitudinal splitting of vascular bundle

40. Identify the incorrect one :
(A) Micronutrient – Calcium
(B) Micronutrient – Iron
(C) Macronutrient – Nitrogen
(D) Macronutrient – Potassium

41. In which of the following groups would you place a plant which produces spores and embryos but lacks seed and vascular tissue ?
(A) Algae
(B) Bryophyta
(C) Pteridophyta
(D) Gymnosperms

42. The DNA has following properties except :
(A) Serves as the template for the synthesis of mRNA in 3' to 5' direction by DNA polymerase
(B) Serves as the genetic material for transfer of traits from one generation to the next
(C) Remains constant despite changes in environmental conditions
(D) In the double helical structure, adenine base pairs with thymine and guanine base pairs with cytosine

43. A population is characterized by the following factors except :
(A) Mortality
(B) Natality
(C) Stratification
(D) Sex ratio

44. The first product of C3 and C4 cycle is :
(A) OAA and 3-PGA respectively
(B) 3-PGA, OAA respectively
(C) PGAL, RuBP respectively
(D) OAA and PGAL respectively

45. What is not true about a taxonomic key ?
(A) A taxonomic key is used for identification of plants
(B) A taxonomic key at a time shows acceptance of one character and rejection of another character
(C) Each statement in the key is called lead
(D) A taxonomic key will not help us in identifying unknown species/plant

46. In humans the gene for eye color is present on 'X' chromosome. Brown eye color (B) is dominant to blue eye color (b). A female with brown eye color (BB) marries a man with blue eye color. What is the expected phenotype of their male and female children ?
(A) Male has blue eyes whereas female child has brown eyes
(B) Male has brown eyes whereas female has blue eyes
(C) Both male and female have brown eyes
(D) Both male and female have blue eyes

47. Identify the correct statement :
(A) In C3 plants Calvin Pathway occurs in Mesophyll cells
(B) In C4 plants Calvin Pathway occurs in Bundle Sheath Cells
(C) Both (A) and (B) are true
(D) Neither (A) nor (B)

48. The process of osmosis involves :
(A) Movement of solute through a semi-permeable membrane
(B) Movement of solvent through a semi-permeable membrane
(C) Both (A) and (B)
(D) Neither (A) nor (B)

49. Which of the following is a correct interpretation of law of independent assortment ?
(A) The dominant and recessive factors of a trait enter into separate gametes during meiosis
(B) For multiple traits under consideration, each segregate independently of one another
(C) For multiple traits under consideration, the expression of one trait is masked by the other trait
(D) All the above

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50. The following enzyme plays important role in opening of DNA replication origins and formation of negative supercoils which aids in unwinding of DNA :
(A) DNA Polymerase-III
(B) DNA gyrase
(C) Primase
(D) Klenow polymerase

51. The net gain of ATP molecules in Glycolysis is :
(A) 2ATPs
(B) 3 ATPs
(C) 6 ATPs
(D) 8 ATPs

52. During protein synthesis in prokaryotes, which component is the last to join the initiation complex ?
(A) Mature mRNA molecule
(B) The small ribosomal subunit
(C) The large ribosomal subunit
(D) The initiator tRNA carrying methionine amino acid

53. It has been established that the pyramid of energy is always upright, because :
(A) The energy conversion efficiency of herbivores is better than carnivores
(B) The energy conversion efficiency of carnivores is better than herbivores
(C) Producers are less in number but generate more biomass
(D) Consumers are more in number but generate less biomass

54. To fix one molecule of nitrogen :
(A) 6 ATP molecules are required
(B) 12 ATP molecules are required
(C) 16 ATP molecules are required
(D) 24 ATP molecules are required

55. In your opinion which human activities have adverse effect on carbon cycle in the atmosphere ?
(A) Overpopulation & Habitat destruction
(B) Aforestration & Invasion
(C) Burning of fossil fuels & deforestration
(D) All the above

56. The enzyme pyruvate dehydrogenase is used in converting :
(A) Pyruvic acid to Lactic acid
(B) Pyruvic acid to acetyl-CoA
(C) Pyruvate to glucose
(D) Glucose to Pyruvate

57. Identify the correct pair :
(A) Trisomy (44+XXY) – Kleinfelter syndrome
(B) Monosomy (44+X0) – Turner syndrome
(C) Duplication – Cry-du-cat syndrome
(D) Both (A) and (B)

58. The major phyto-chemicals in saffron (*Crocus sativa*) are :
(A) Crocin, analine & atropine
(B) Picrocrocin, Saffranal & Hyocyamine
(C) Crocin, picrocrocin & saffranal
(D) Crocin, hyocymine & atropine

59. In a monohybrid cross, red flower color (RR) is dominant over white flower color (rr). What will be the phenotypic ration from a cross between Rr × rr parents ?
(A) 50% red and 50% white
(B) 50% red and 25% white
(C) 100 % red
(D) 100% white

60. The genes responsible for dwarfness in wheat and rice are :
(A) Norin-10 & Dee-geo-wo-gene respectively
(B) Dee-geo-wo-gene & Norin-10 respectively
(C) Norin-10 & Orizin-10 respectively
(D) De-geo-wo-gene and Orizin-10 respectively

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