CLUSTER UNIVERSITY SRINAGAR

University Entrance Examination

Integrated Botany (50 x 1= 50 MARKS) Time One Hour

Note: Each wrong answer will lead to the deduction of 0.25 marks from the total score of the candidate.

Q.01. The new kingdom introduced by R.H. Whitakker (1969) in his Five Kingdom System of Classification is:

A. Kingdom Monera B. Kingdom Protista
C. Kingdom Fungi D. Kingdom Plantae

Q.02. The Nobel prize, in the year 1997, was given to the biologist who discovered prions as proteinaceous infective particles lacking DNA as well as RNA. The biologist is:

A. T.O. Diener B. Carl Woese
C. W.M.Stanley D. S.B. Prusiner

Q.03. The unique constituent seen in the retroviruses is:

A. Single stranded RNA B. Double stranded RNA
C. Single stranded DNA D. Reverse transcriptase

Q.04. Which of the following viruses possesses fragmented genome?

A. TMV B. T_2 Bacteriophage
C. Influenza virus D. Φ-174 Virus

Q.05. The current code of ICBN adopted in 19th International Botanical Congress (IBC) held on 23rd – 29th July 2017 is:

A. Melbourne Code B. Vienna code
C. Tokyo code D. Shenzen Code

Q.06. Which of the following groups of organisms is not included in Kingdom Protista?

A. Dinoflagellates B. Mycoplasma
C. Slime moulds D. Sarcodina

Q. 07. One picometer (pm) is equal to:

A. 10^{-6}μm B. 10^{-12}m
C. 10^{-3}nm D. All these are correct

Q.08. *Ustilago, Neurospora, Alternaria and Albugo* respectively belong to:

A. Basidiomycetes B. Deuteromycetes
C. Phycomycetes D. Ascomycetes
A. A, B, C and D B. A, C, B and D
C. B, D, A and C D. A, D, B and C

Q.09. Which of the following groups of fungi / organisms don't undergo dikaryotisation during sexual reproduction?

A. Zygomycetes B. Basidiomycetes
C. Lichens D. Ascomycetes

Q.10. Identify incorrect match:

New name	**Old name**
A. Fabaceae	Leguminoceae
B. Asteraceae	Umbliferae
C. Brassicaceae	Cruciferae
D. Poaceae	Graminae

Q. 11. Fungi lack:

A. Mitochondria B. Plastids
C. Dictyosomes D. All these.

Q.12. Identify correct match:

A. Chlorophyta — *Ectocarpus*
B. Phaeophyta — *Chara*
C. Rhodophyta — *Porphyra*
D. Bryophyta — *Adiantum*

Q.13. Plants which have parallel venation include:

A. Banana
B. Lilies
C. Cereals
D. Grasses

A. A and B but not C and D
B. A, B and C but not D
C. B and C but not A and D
D. All A, B, C and D

Q.14. Organisms seen in soil in symbiotic association with the roots of many higher plants are:

A. Lichens
B. Mycorrhizae
C. Cyanobacteria
D. Mycobacteria

Q.15. A commercial product called agar is obtained from some algae which include:

A. *Sargassum*
B. *Porphyra*
C. *Gracillaria*
D. *Chlorella*

Q.16. Which of the following algae produce pear shaped male gametes with two laterally attached flagella?

A. *Chlamydomonas*
B. *Gelidium*
C. *Polysiphonia*
D. *Dictyota*

Q.17. Archegonia are produced as sex organs by:

A. Algae, Bryophyta and Pteridophyta
B. Bryophyta, Pteridophyta and Gymnosperms
C. Pteridophyta, Gymnosperms and primitive Angiosperms
D. Bryophyta, Pteridophyta, Gymnosperms and Angiosperms

Q.18. Which of the following are all mosses?

A. *Riccia*, *Marchantia* and *Porphyra*
B. *Polytrichum*, *Sphagnum* and *Adiantum*
C. *Sphagnum*, *Polytrichum* and *Funaria*
D. *Polytrichum* and *Funaria and Equisetum*

Q.19. Which of the following ferns are commonly seen in Dal lake (water) of Kashmir.

A. *Pteris*, *Adiantum* and *Salvinia*
B. *Adiantum*, *Salvinia* and *Azolla*
C. *Salvinia*, *Azolla* and *Marselia*
D. *Azolla* and *Marselia* and *Ophioglossum*

Q.20. Which of the following gymnosperms shows unbranched stem?

A. *Cycas*
B. *Pinus*
C. *Cedrus*
D. *Juniparus*

Q.21. Synergids and antipodal cells are related to the sexual reproduction in:

A. Pteridophytes and gymnosperms
B. Gymnosoperms and angiosperms
C. Monocots and docots
D. All these are correct

Q.22. In flowing plants PEN (primary endosperm nucleus) is generally:

A. Triploid
B. Diploid
C. Haploid
D. Amphidiploid

Q.23. Pulvinus is most commonly seen in:

A. Fabaceae (bean family)
B. Solanaceae (tomato family)
C. Cucurbitaceae (pumpkin family)
D. Poaceae (rice family)

Q.24. Coleorhiza is a part of:

A. Fruit B. Flower
C. Ovule D. Embryo

Q.25. Which of the following specialized parenchyma is seen in aquatic plants?

A. Aerenchyma B. Mesenchyma
C. Prosenchyma D. Chlorenchyma

Q.26. Protoxylem and metaxylem are the components of:

A. Primary xylem B. Secondary xylem
C. Both primary and secondary xylem
D. Neither primary nor secondary xylem

Q.27. During secondary growth in dicot stem the nature of vascular bundle changes from:

A. Conjoint, collateral and open to radial
B. Conjoint, collateral or bicollateral and open to concentric and amphicribal
C. Radial with exarch xylem to conjoint, collateral and open
D. Radial with exarch xylem to concentric and amphicribal

Q.28. Ribosome binding sites in the membrane of RER are known as:

A. Lectins B. Ribophorins
C. Porins D. Glycosomes

Q.29. Specialized proteins seen in Golgi bodies essential for development of tertiary protein structure are called:

A. Lectins B. Glycosomes
C. Spectrins D. Chaperons

Q.30. Root pressure is a:

A. Pulling force for absorption as well for conduction
B. Pulling force for absorption but pushing for conduction
C. Pushing force for absorption as well for conduction
D. Pushing force for absorption but pulling force for conduction

Q.31. Stomata get closed when:

A. Guard cells undergo endosmosis and become turgid
B. Guard cells undergo exosmosis and become turgid
C. Guard cells undergo endosmosis and become flaccid
D. Guard cells undergo exosmosis and become flaccid

Q.32. Which of the phases of nitrogen cycle is harmful for plant growers?

A. Denitrification B. Non-symbiotic N_2 fixation
C. Ammonification D. Nitrification

Q.33. Excessive influx of which of the following mineral nutrients in a plant inhibits calcium translocation in shoot tips?

A. Manganese B. Molybdenum
C. Boron D. Zinc

Q.34. Electrons released by Photosystem-II in the light phase of photosynthesis in a chloroplast are finally accepted by:

A. Photosystem-I B. $NADP^+$
C. Plastoquinone (PQ) D. Cytochrome-Complex

Q.35. First step involved in Calvin cycle is:

A. Reduction of Rubisco B. Oxidation of $NADPH.H^+$
C. Carboxylation of Rubisco D. None of these is correct

Q.36. Which of the following amino acids are formed as intermediates in Photorespiration?

A. Alanine and Glysine B Glysine and Serine
C. Serine and valine D. Leucine and Lysine

Q.37. Leaves of Sugar cane synthesise glucose through:

A. C_4 pathway
B. C_3 pathway
C. Either C_4 or C_3 pathway
D. Both C_4 and C_3 pathway

Q.38. The first C_3 products formed in Glycolysis are:

A. Glyceric acid 1, 3-diphosphate and Dihydroxyacetone phosphate
B. Glyceric acid 1, 3-diphosphate and Glyderaldehyde 3-phosphate
C. Glyderaldehyde 3-phosphate and Glyceric acid 3-phosphate
D Glyderaldehyde 3-phosphate and Dihydroxy-acetone phosphate

Q.39. At boiling temperature most enzymes:

A. Get killed
B. Remain unaffected
C. Become inactivated
D. Get denatured

Q.40. Identify the enzyme lacking protein:

A. Carbonic anhydrase
B. Ribulose-Bis-Phosphate Carboxylase
C. Peptidyl transferase
D. Phospho-Enol Pyruvate Carboxylase

Q.41. After fertilization, polar cell leads to formation of:

A. Zygote
B. Perisperm
C. Endosperm
D. Embryonal axis (*tigellum*)

Q.42. Chemically auxins are similar to:

A. A protein
B. A purine
C. Tryptophan
D. Steroid

Q.43. Increase in the yield from sugar cane stem by 20 tonnes /acre was achieved through the application of:

A. Gibberellins
B. ABA
C Cytokinins
D. Auxins

Q.44. In garden pea (*Pisum sativum*) green pod character is dominant over yellow pod character and round seed character is dominant over wrinkled seed character. When a pea plant producing green pod and round seeds (homozygous) is crossed with other producing yellow pod and wrinkled seeds, the ratio of plants in F_2 generation producing green pod and wrinkled seeds to those producing yellow pod and round seeds will be:

A. 3 : 1
B. 1 : 1
C. 5 : 3
D. 9 : 3

Q.45. Which of the following concentration of a nitrogen base is impossible in DNA?

A. 42% adenine
B. 56% thymine
C. 48.5% guanine
D. 2.0%

Q.46. Study the relationship of molecules with enzymes involved in their synthesis in eukaryotic cells and identify correct relationship:

i. mRNA	a. RNA POL-I
ii. tRNA	b. RNA POL-II
iii. rRNA	c. RNA POL-III
iv. pRNA	d. RNA Primase

A. i → b ii → c iii → d iv → a
B. i → b ii → c iii → a iv → d
C. i → b ii → a iii → c iv → d
D. i → b ii → a iii → d iv → c

Q.47. Identify homologous organs:

A. Tendrils of cucurbits and sweet pea
B. Thorns of jasmine and spines of rose
C. Pitchers of *Nepanthes* and spines of *Opuntia*
D. None of these

Q.48. In *Escherichia coli* 'Lac Operon' gene battery works by:

A. Induction through positive control
B. Repression through positive control
C. Induction through negative control
D. Repression through negative control

Q.49. Cyclosporin, used as an immunosuppressive agent, in organ transplant patients is obtained from:

A. *Trichoderma polysporum*
B. *Monascus purpureus*
C. *Aspergillus niger*
D. *Agaricus bisporus*

Q.50. Many members of the genus *Glomus* are seen to:

A. form mycorrhizal association with the roots of crop plants
B. exist freely in soil and increase soil fertility through N_2 fixation
C. produce statins used to lower blood cholesterol level
D. produce streptokinase used as clot buster in the heart attack patients