

**SECTION 1 - SECTION 1**

**Question No.1**

Presence of which of the following morphological/reproductive traits of *Cycas* is not a fern character?

- Circinate ptyxis
- Archegonial chamber
- Motile male gamete
- Pinnately compound leaves

**Question No.2**

Scarification is

- Separation of embryo
- Removal of cotyledons
- Removal of endosperm
- Removal of dormancy due to hard seed coat

**Question No.3**

Brassinosteroids were first extracted from

- Flowers
- Pollen grains
- Seeds
- Fruits

**Question No.4**

The study of timber yielding plants is

- Pomology
- Silviculture
- Apiculture
- Sericulture

**Question No.5**

The xylem of a monocot root is

- Exarch
- Mesarch

- Endarch
- Hexarch

**Question No.6**

Anaerobic respiration occurs in

- Presence of  $N_2$
- Absence of  $O_2$
- Presence of  $O_2$
- Absence of  $N_2$

**Question No.7**

Stomatal closure in plants is induced by

- Indole acetic acid
- Absciscic Acid
- Naphthalene acetic acid
- Indole butyric acid

**Question No.8**

Plants that live upon other plants for shelter are called

- Parasites
- Saprophytes
- Hydrophytes
- Epiphytes

**Question No.9**

The procambium, present just behind the apical meristem gives rise to

- Vascular cambium only
- Primary vascular bundle only
- Cork cambium only
- Primary vascular bundle with cambial strip only

**Question No.10**

In pickles, jams and jellies the invaded bacteria die due to

- Lack of aeration
- Endomosis
- Plasmolysis

- Osmosis

**Question No.11**

In a plankton based food chain with high primary production, the pyramid of biomass will be

- Erect up to second trophic level and then inverted
- Erect
- Inverted
- Inverted up to second trophic level and then erect

**Question No.12**

The group of bacteria, that has a relatively large genome compared to other bacteria and show some resemblance with fungi, are called

- Proteobacteria
- Actinomycetes
- Cyanobacteria
- Myxobacteria

**Question No.13**

Which of the following bases is produced by deamination of 5-methylcytosine?

- Cytosine
- Thymine
- Uracil
- Adenine

**Question No.14**

Parasite having giant flowers is

- Rafflesia*
- Ruellia*
- Tinospora*
- Cuscuta*

**Question No.15**

Cohesion –Tension theory was proposed by

- Stephan Hales
- Dixon and Jolly
- Hugo De Vries

Strassburger

**Question No.16**

The reserve food material in Rhodophyceae is

- Floridean starch
- Leucosin
- Mannitol
- Laminarin

**Question No.17**

The term Photoperoidism was defined by

- Hugo DeVries
- Bentham and Hooker
- D Robertson
- Garner & Allard

**Question No.18**

The number of cambium strips present in a closed vascular bundle is

- 2
- 0
- 4
- 1

**Question No.19**

The factor that negatively influence transpiration and evaporation is

- Altitude
- Atmospheric humidity
- Temperature
- Light intensity

**Question No.20**

Largest bud is seen in

- Cabbage
- Cauliflower
- Potato
- Tomato

### Question No.21

In annual plants the site of vernalization is the

- Seed
- Flower buds
- Hypocotyl
- Root

### Question No.22

The hormones that are primarily responsible for promoting senescence in plants are

- Auxin and abscisic acid
- Gibberellins and abscisic acid
- Ethylene and abscisic acid
- Cytokinin and abscisic acid

### Question No.23

Capsule born on the dorsal surface as a bristle or horn is present in the genus

- Anthoceros
- Polytrichum
- Marchantia
- Porella

### Question No.24

Formation of tetrasporophyte occurs in the sexual life cycle of

- Polysiphonia*
- Chara*
- Vaucheria*
- Fucus*

### Question No.25

The role of gratings in a uv-vis spectrophotometer is to

- Guide the transmitted light to the photomultiplier tube
- Split the light beam to light of different wave lengths so that the whole spectrum can be represented
- Focus the light beam on the sample path
- Split the light beam to the reference and the sample path

### Question No.26

Which of the following statement is not true with regard to the long distance translocation of photosynthates in higher plants?

- Carbon partition within a source leaf
- Gibberillic acid mediated stimulation of sugar unloading from phloem
- Pressure flow to drive translocation
- Mass transfer in phloem along a hydrostatic pressure

### Question No.27

The group of enzymes which recognize and cut specific nucleotide sequences in DNA are

- Proteases
- DNAases
- Polymerases
- Restriction endonucleases

### Question No.28

Which one of the following is a short day plant

- Lolium*
- Hyoscyamus niger*
- Lycopersicon esculentum*
- Xanthium strumarium*

### Question No.29

The Nod factors, that are produced as a signalling molecules during Rhizobia-legumes association, are

- Adenylated proteins
- Glycoproteins
- Lipoproteins
- Lipo-chitin oligosaccharides

### Question No.30

When one of the partners of an interaction is metabolically benefited at the cost of the other partner, the interaction is said to be

- Parasitism
- Syntrophism
- Mutualism

- Opportunism

### Question No.31



Select the correct sequence of spore formation, after the infection of the primary host, during the life cycle of *Puccinia graminis*.

- Teleutospore-uredospore-picnidiospore-aecidiospore-basidiospore
- Uredospore-picnidiospore-teleutospore-aecidiospore-basidiospore
- Uredospore-teleutospore- basidiospore-picnidiospore-aecidiospore
- Teleutospore-uredospore- aecidiospore-picnidiospore-basidiospore

### Question No.32



During the infection by a virus, the enzyme that prepares the path for the entry of the viral genome is

- Produced by the host cell on contact with the virus
- Present in the host cell
- Stimulated by the viral genome on contact with the host
- Carried by the virus

### Question No.33



Denitrification, that results in the formation of gaseous nitrogen in oxygen depleted high loading conditions is otherwise called

- Nitrate respiration
- Nitrate assimilation
- Nitrate fixation
- Nitrate oxidation

### Question No.34



The phase of exponential growth is also called as

- Growth phase
- Senescent phase
- Log phase
- Lag phase

### Question No.35



Tri Carboxylic Acid (TCA) cycle is also known as

- Calvin Cycle
- Hatch Slack Cycle

- HMP Pathway
- Krebs Cycle

**Question No.36**

Which of the following molecules separates at the end during differential centrifugation?

- rRNA
- DNA
- tRNA
- mRNA

**Question No.37**

Electron Microscope was developed by

- Schleiden and Schwann
- Robert Hooke
- Knoll and Ruska
- W His

**Question No.38**

The vascular first land plants are

- Algae
- Fungi
- Pteridophytes
- Bryophytes

**Question No.39**

The suicidal bags of cell are

- Peroxisomes
- Glyoxysomes
- Mesosomes
- Lysosomes

**Question No.40**

Stomatal opening in a green leaf is controlled by

- Spongy Cells
- Palisade cells
- Mesophyll cells



- 
- Guard cells

**Question No.41**

The enzyme catalase is present in the cell organelle

- Ribosome
- Glyoxysome
- Chloroplast
- Peroxisome

**Question No.42**

The multiprotein prereplicative complex (pre-RC), that is formed during late M and early G1 phase of cell cycle, is activated by

- CDC18L
- E2F1/DP1 dimer
- Cdt1
- MCM complex

**Question No.43**

Under normal growth condition the phycobiliproteins, that are assembled to a complex called phycobilisome, are the antenna pigments of cyanobacteria for

- PS II
- Primarily of PS I but also do some light harvesting for PS II
- PS I
- Both the photosystems equally

**Question No.44**

One of the following is an abundant soluble leaf protein in plant kingdom

- PEP Carboxylase
- Protease
- RUBISCO
- Lipase

**Question No.45**

Photolysis of water results in

- Evolution of H<sub>2</sub>
- Evolution of O<sub>2</sub>

- Evolution of N<sub>2</sub>
- evolution of CO<sub>2</sub>

**Question No.46**

Which of the following is generally used as an indicator of pollution in surface water?

- Decrease of CO<sub>2</sub> level of water
- Reduction in the level of nitrate and phosphate
- Decrease in level of DOC
- High level of BOD of water

**Question No.47**

The role of eukaryotic RNA polymerase I is to transcribe

- Small RNAs (5S RNAs, tRNAs)
- tRNAs and rRNAs
- Pre RNAs, which matures to form major rRNAs
- mRNAs only

**Question No.48**

The excited electron returns to the original chlorophyll molecule in

- Photoperiodism
- Photorespiration
- Non -Cyclic photophosphorylation
- Cyclic photophosphorylation

**Question No.49**

During the extraction process, proteins are solubilised in an aqueous buffer. Thereafter the precipitation of proteins from the extracted solution is done by the addition of

- Acetone
- TCA
- NaOH
- Ethanol

**Question No.50**

The full form of IUCN is

- The International Union for Conservation of Natural products

- The International Union for Conservation of Nature
- The International Union Congress of Nature
- The International Union for Compilation of Natural Products

**Question No.51**

When a taxon is identified by a name that has already been validly assigned to another unrelated taxon, the name so given will be taken invalid as

- Later homonym
- Later synonym
- Autonym
- Tautonym

**Question No.52**

The endemic plant *Vernonia beddomei* belongs to the family

- Solanaceae
- Asclepiadaceae
- Asteraceae
- Poaceae

**Question No.53**

Aerenchyma tissue is predominant in

- Mesophytes
- Hydrophytes
- Xerophytes
- Epiphytes

**Question No.54**

Which of the following stages of a flower is generally selected for emasculation of undehisced anthers?

- A mature flower
- A matured flower bud just before opening
- A young flower after opens fully
- An immature flower in bud stage

**Question No.55**

Certain sequences of the genome of a metabolically active cell are capable of moving from one site to another and are termed as

- SI elements
- Transposons
- Copia*-like elements
- Polar bodies

**Question No.56**

The rate of change of a parameter with respect to the change of the magnitude of an independent variable can be measured by

- Factorial analysis
- Measurement of dispersion
- Regression analysis
- $X^2$  test

**Question No.57**

The movement of a substance from higher concentration is called as

- Plasmolysis
- Diffusion
- Osmosis
- Imbibition

**Question No.58**

The outermost layer of the flower is

- Gynoecium
- Calyx
- Androceium
- Corolla

**Question No.59**

Enzymes are

- Phagocytes
- Microbodies
- Self replicating structures
- Biocatalysts

**Question No.60**

The cell membrane is made up of

- lipids only
- Lipids and carbohydrates
- Proteins and carbohydrates
- Lipids and proteins

**Question No.61**

As per APG system of classification, the primitive families, that establish a link with the ancestors of angiosperms, are grouped as

- Prodicots
- Magnolids
- Commelinids
- Rosids

**Question No.62**

Water potential value is the highest in

- Hypertonic solution
- Pure water
- Hypotonic solution
- Isotonic solution

**Question No.63**

In an assay mixture containing the saturating concentration of a substrate, a competitive inhibitor with  $K_i = 0.5$  mM was added at a concentration of 0.1 mM. The addition of inhibitor will

- Will increase the  $K_M$  at the added inhibitor concentration thereby decreasing the velocity of reaction.
- Not affect the velocity of reaction
- Decrease the velocity of reaction
- Will decrease the rate if the added inhibitor concentration attains  $K_i$

**Question No.64**

The neem tree is a

- Bryophyte
- Pteridophyte
- Angiosperm
- Gymnosperm

**Question No.65**

For counteracting the infection and to prevent the pathogen from spreading, a hypersensitive response of plant results in

- Enhanced production of PR proteins
- Production of toxins to kill pathogens
- Enhanced production of ethylene
- Metabolites unloading from infected cells

**Question No.66**

Undifferentiated gametophytic tissues, poorly developed rhizoids and amphithecial sporogenous tissues in sporophyte are the characteristics of

- Anthoceros*
- Riccia*
- Plagiochasma*
- Funaria*

**Question No.67**

The plants that complete their life cycle in 6-8 weeks are

- Annuals
- Ephemerals
- Biannuals
- Biennials

**Question No.68**

The dominant epistasis ratio is

- 12:3:1
- 9:3:4
- 1:2:1
- 9:3:3:1

**Question No.69**

Woody twiners are called as

- Climbers
- Lianas
- Stragglers
- Runners

**Question No.70**

The meaning of virus is

- Honey
- Poison
- Salty
- Sugar

**Question No.71**

Two plants are fixed in clinostats in horizontal position. Plant A was rotated at a fixed speed of rotation while plant B was kept stationary. Which of the following would happen?

- Plants A will have horizontal growth of roots and shoots
- Plants B will have horizontal growth of roots but normal growth of shoot
- Both the plants will have horizontal growth of roots and shoots
- Both the plants will have roots growing downward and shoots growing upward

**Question No.72**

*Cuscuta reflexa* is

- Facultative parasite
- Obligative parasite
- Obligative saprophyte
- Facultative saprophyte

**Question No.73**

Two pigment systems in photosynthesis were discovered by

- Bateson
- Van Niel
- Roy Emerson
- Neil Bohr

**Question No.74**

A species that, irrespective of its density in an ecosystem, has a large role in the community is defined as

- Determinant species
- Keystone species
- Indicator species
- Abundant species

**Question No.75**

Initiating Codon is

- AUG
- UAU
- UAG
- CCA

**Question No.76**

Microinjection of DNA is

- Plasmid mediated gene transfer
- Cosmid –mediated gene transfer
- Virus mediated gene transfer
- Direct gene transfer

**Question No.77**

If a population of 400 individuals has a mean of 24 and a standard deviation of distribution is 2.5, the standard error of the mean will be

- 0.05
- 0.104
- 0.006
- 0.125

**Question No.78**

The mutations which arise when a single nucleotide is added or deleted is

- Missense mutation
- Silent mutation
- Non sense mutation
- Frame Shift mutation

**Question No.79**

Meiosis occurs in

- Vegetative cells
- leaf cells
- Root cells
- Reproductive cells



**Question No.80**

The loss of water in liquid form from the margins of leaves is

- Guttation
- Transpiration
- Mutation
- Respiration

**Question No.81**

The final step of nitrogen cycle is represented by

- Nitrification
- N<sub>2</sub> fixation
- Ammonification
- Denitrification

**Question No.82**

Which of the following biochemical processes is involved in protein folding in endoplasmic reticulum?

- Protein glycosylation
- Protein ubiquitination
- Protein adenylation
- Protein dephosphorylation

**Question No.83**

The molecular formula of chlorophyll 'a' is

- C<sub>55</sub> H<sub>70</sub> O<sub>6</sub> N<sub>4</sub> Mg
- C<sub>50</sub> H<sub>72</sub> O<sub>5</sub> Mg
- C<sub>50</sub> H<sub>70</sub> O<sub>5</sub> N<sub>4</sub> Mg
- C<sub>55</sub> H<sub>72</sub> O<sub>5</sub> N<sub>4</sub> Mg

**Question No.84**

Ion exchange chromatography is used for

- Identification of protein complexes
- Separation of protein according to charge
- Determination of molecular weight of peptides
- Separation of DNA according to mass

**Question No.85**

The chemical signals to pollen tube for proceed towards embryo sac and to perform fertilization is provided by

- Polar nuclei
- Egg cell
- Synergids
- Antipodals

**Question No.86**

The ability of a single cell to develop into a whole plant is called

- Totipotency
- Cell elongation
- Cell division
- Cell ability

**Question No.87**

Cyathium inflorescence with reduced male and female flowers is a characteristic feature of the family

- Euphorbiaceae
- Rosaceae
- Asteraceae
- Commelinaceae

**Question No.88**

Which of the following mineral deficiency results in the production of leaves with low chlorophyll content?

- Mn
- Ca
- N
- Zn

**Question No.89**

Synthetic/ Artificial seeds are developed from

- Grafting
- Normal embryos
- Somatic embryos
- Breeding

**Question No.90**

Bolting of Crucifers is achieved by the application of

- Gibberellins
- Cytokinins
- ABA
- IAA

**Question No.91**

Which of the following is used as a preferred solvent for extraction of chlorophyll, because of its low volatility?

- Acetone
- DMF
- Ethanol
- Methanol

**Question No.92**

The tissue capable of continuous divisions to produce new cells are

- Meristematic tissue
- Parenchyma tissue
- Sclerenchyma tissue
- Collenchyma tissue

**Question No.93**

The development of haploid plants *in vitro* conditions from totipotent pollen is

- Oogenesis
- Gynogenesis
- Gynandrogenesis
- Androgenesis

**Question No.94**

Which of the following microscopes uses UV rays as the source of light?

- Phase-contrast microscope
- Confocal microscope
- Fluorescent microscope
- Electron microscope

**Question No.95**

Formation of sporocarp with micro and megasporangia is seen in the fern

- Ophioglossum*
- Azolla*
- Osmunda*
- Pteris*

**Question No.96**

The formation of the middle layer of anther wall in dicots occurs from

- Primary inner parietal tissue
- Primary outer parietal tissue
- Secondary inner parietal tissue
- Secondary outer parietal tissue

**Question No.97**

The lichens that are leaf –like in appearance are

- Foliose lichens
- Squamulose lichens
- Fruticose lichens
- Crustose lichens

**Question No.98**

“The power of movements in plants” was published by

- Charles Darwin & Francis Darwin
- F.W. Went
- Boysen & Jenson
- Paal

**Question No.99**

Heterocysts are also called as

- Tendrils
- Fibroids
- Botanical enigmas
- Botanical snakes

**Question No.100**

Duplicate genes have been recorded to control the shape of the fruit in

- Capsella*
- Triticum*
- Lathyrus*
- Zea mays*