

## PROVISIONAL ANSWER KEY

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Question1:-Agar-agar is found in which part of the algal cell?

- A:-Plasma membrane
- B:-Cell Wall
- C:-Chloroplast
- D:-Vacuole

Correct Answer:- Option-B

Question2:-'Red Snow' is a phenomenon caused by *Chlamydomonas nivalis* is due to the presence of the pigment

- A:-Fucoxanthin
- B:-Violaxanthin
- C:-Phycocerythrin
- D:-Astaxanthin

Correct Answer:- Option-D

Question3:-'Spawn' in mushroom cultivation is the mixture of sterilized grain with

- A:-Basidiospores
- B:-Basidium
- C:-Mycellium
- D:-Basidiocarp

Correct Answer:- Option-C

Question4:-Lichens reproduce by

- A:-Soredium
- B:-Oldium
- C:-Both 1 and 2
- D:-None of these

Correct Answer:- Option-A

Question5:-The name 'Bordeaux' in Bordeaux mixture came from

- A:-A fungus
- B:-A chemical
- C:-A crop
- D:-A place

Correct Answer:- Option-D

Question6:-The bio fungicide *Trichoderma Viride* is belonging to the major group

- A:-Algae
- B:-Fungi
- C:-Bacteria
- D:-Lichens

Correct Answer:- Option-B

Question7:-Which one of the following is a fossil Bryophyte?

- A:-Dawsonia
- B:-Buxbaumia
- C:-Niadita
- D:-All of the above

Correct Answer:- Option-C

Question8:-Bryophytes are said to be the 'amphibians of the plant kingdom' because

- A:-They can live in both water and land
- B:-Water is essential to do fertilization
- C:-Water is essential for their survival
- D:-All of the above

Correct Answer:- Option-B

Question9:-Vascular bundles are found scattered in the ground tissue is called

- A:-Atacostele
- B:-Solenostele
- C:-Meristele
- D:-None of the above

Correct Answer:- Option-A

Question10:-Find out the xerophytic species of Selaginella from the following

- A:-Selaginella lepidophylla
- B:-Selaginella pilifera
- C:-Selaginella rupestris
- D:-All of the above

Correct Answer:- Option-D

Question11:-Which of the following statement is correct with regard to Cycas?

- A:-Antherozoids are the largest in size in the plant kingdom
- B:-Ovules are the biggest among the plant kingdom
- C:-Potential true polyembryony is present
- D:-All of the above

Correct Answer:- Option-D

Question12:-In Gymnosperms, the endosperm is

- A:-Haploid
- B:-Diploid
- C:-Triploid
- D:-Tetraploid

Correct Answer:- Option-A

Question13:-Generally, antibiotics are not effective for viral disease because

- A:-Viruses are without cell wall
- B:-Viruses are non-living
- C:-Viruses are non-cellular in nature
- D:-All of the above

Correct Answer:- Option-A

Question14:-Birbal Sahni Institute of Palaeosciences is located at

- A:-Delhi
- B:-Pune
- C:-Lucknow
- D:-Kolkata

Correct Answer:- Option-C

Question15:-A Jurassic angiosperm fossil found by the Indian Palaeobotanist Birbal Sahni is

- A:-Homoxylon
- B:-Trochodendron
- C:-Palmoxyton
- D:-Tetracentron

Correct Answer:- Option-A

Question16:-Passage cells are found in

- A:-Epidermis

B:-Hypodermis

C:-Endodermis

D:-Pericycle

Correct Answer:- Option-C

Question17:-Which tissue of Corchorus Capsularis is Jute Fibre?

A:-Xylem fibre

B:-Phloem fibre

C:-Sclerenchymatous hypodermis

D:-Endodermis

Correct Answer:- Option-B

Question18:-Which one of the following is a coal tar dye?

A:-Haematoxylin

B:-Brazilin

C:-Carmine

D:-Erythrosine

Correct Answer:- Option-D

Question19:-Phase contrast microscope was invented by

A:-Robert Hooke

B:-Knoll and Ruska

C:-Frits Zernike

D:-Leeuwenhoek

Correct Answer:- Option-C

Question20:-What is amphimixis?

A:-Normal act of sexual reproduction

B:-Formation of seedless fruits

C:-Embryo formation without fertilization

D:-Embryo formation from synergids

Correct Answer:- Option-A

Question21:-Male gametophyte in Angiosperm is

A:-Microspore mother cell

B:-Pollen grain

C:-Male gametes

D:-Sperm cells

Correct Answer:- Option-B

Question22:-Acetolysis of pollen grain is

A:-Treating with acetocarmine

B:-Treating with acetic acid

C:-Treating with a mixture of concentrated sulfuric acid and acetic anhydride

D:-All of the above

Correct Answer:- Option-C

Question23:-Sporopollenin is composed of

A:-Fatty acids

B:-Phenylpropanoids and phenolics

C:-Carotenoids

D:-All of the above

Correct Answer:- Option-D

Question24:-Which Travancore Maharaja introduced tapioca in Kerala?

A:-Sree. Vysakhram Tirunal

B:-Sree. Chithira Tirunal

C:-Sree. Moolam Tirunal

D:-Sree. Avittom Tirunal

Correct Answer:- Option-A

Question25:-Which of the following statement is correct with regard to selection method in plant breeding?

A:-Selection does not create any variation

B:-Selection utilizes the variation that is already present in a population

C:-Both 1 and 2 are correct

D:-None of the above are correct

Correct Answer:- Option-C

Question26:-Random fluctuations in the numbers of gene variants in a population is called

A:-Mutation

B:-Migration

C:-Genetic drift

D:-Natural selection

Correct Answer:- Option-C

Question27:-"Ontogeny repeats phylogeny". This theory is known as

A:-Natural Selection Theory

B:-Germplasm Theory

C:-Mutation Theory

D:-Recapitulation Theory

Correct Answer:- Option-D

Question28:-A specimen selected to serve as a substitute for the holotype when all material on which the name of the taxon was based, is missing is called

A:-Isotype

B:-Lectotype

C:-Neotype

D:-Syntype

Correct Answer:- Option-C

Question29:-Gynostemium is present in the family

A:-Asclepiadaceae

B:-Orchidaceae

C:-Scitamineae

D:-All of the above

Correct Answer:- Option-B

Question30:-Polyadelphous stamens are found in

A:-Bombax

B:-Citrus

C:-Both 1 and 2

D:-None of these

Correct Answer:- Option-C

Question31:-Morphology of the edible fleshy portion of Jack fruit is

A:-Bract

B:-Perianth

C:-Aril

D:-Mesocarp

Correct Answer:- Option-B

Question32:-A coffee substitute and food additive 'Chicory' (*Cichorium intybus*) belonging to the family

A:-Rubiaceae

B:-Asteraceae

C:-Boraginaceae

D:-Lamiaceae

Correct Answer:- Option-B

Question33:-Which of the following statement is/are correct about spices and condiments?

- (i) A condiment is a spice or preparation that is added to food.
- (ii) A spice is a plant substance primarily used for flavouring or colouring food.
- (iii) A condiment is added to food, typically after cooking, to impart a specific flavour

A:-Only (ii)

B:-Only (i) and (ii)

C:-Only (i) and (iii)

D:-All of the above ((i) (ii) and (iii))

Correct Answer:- Option-D

Question34:-The largest sacred grove in Kerala State is

A:-Panachikkadu Kavu

B:-Vallikavu

C:-Iringol Kavu

D:-Kulathur Kavu

Correct Answer:- Option-C

Question35:-What is the botanical name of 'Kallur Vanchi' which is a famous herb traditionally used in Kerala for the treatment of kidney/bladder stone?

A:-Scoparia dulcis

B:-Homonoia retusa

C:-Homonoia riparia

D:-Rotula aquatica

Correct Answer:- Option-D

Question36:-Which wildlife sanctuary in Kerala owes its name to the rare endemic tree species, Gluta travancorica?

A:-Chimmony Wildlife Sanctuary

B:-Chulannur Wildlife Sanctuary

C:-Shendurney Wildlife Sanctuary

D:-Kurinjimala Wildlife Sanctuary

Correct Answer:- Option-C

Question37:-'Black dammer' is obtained from

A:-Canarium strictum

B:-Vateria indica

C:-Boswellia sacra

D:-Boswellia serrata

Correct Answer:- Option-A

Question38:-An example for a partial root parasite is

A:-Christisonia tubulosa

B:-Santalum album

C:-Aeginetia indica

D:-Orobancha aegyptiaca

Correct Answer:- Option-B

Question39:-The chapman cycle is associated with

A:-Global warming

B:-Acid rain

C:-Ozone layer

D:-El Nino

Correct Answer:- Option-C

Question40:-Tonoplast is the membrane of

A:-Vacuole

B:-Glyoxysome

C:-Peroxisome

D:-All of the above

Correct Answer:- Option-A

Question41:-Mitochondria is a semi-autonomous body because it contains

- A:-ATpase
- B:-DNA, RNA and Ribosomes
- C:-Oxysomes
- D:-Both 1 and 2

Correct Answer:- Option-B

Question42:-Holandric genes are

- A:-Genes of X chromosomes
- B:-Genes of Y chromosomes
- C:-Genes of Autosomes
- D:-None of these

Correct Answer:- Option-B

Question43:-An example of quantitative inheritance is

- A:-Blood group in man
- B:-Eye colour in man
- C:-Skin colour in man
- D:-Coat colour in mouse

Correct Answer:- Option-C

Question44:-Seeds which can survive drying/freezing during ex-situ conservation and with long viability period is termed as

- A:-Orthodox seeds
- B:-Recalcitrant seeds
- C:-Intermediate seeds
- D:-None of these

Correct Answer:- Option-A

Question45:-In eukaryotes, the link reaction of cellular respiration takes place in

- A:-Cytoplasm
- B:-Mitochondrial matrix
- C:-Mitochondrial inner membrane
- D:-Mitochondrial inter membrane space

Correct Answer:- Option-B

Question46:-Inulin is a

- A:-Monosaccharide
- B:-Oligosaccharide
- C:-Polysaccharide
- D:-None of these

Correct Answer:- Option-C

Question47:-Any of the variants of an enzyme that are coded by alleles at a single genetic locus is called

- A:-Isozyme
- B:-Allozyme
- C:-Coenzyme
- D:-Allosteric enzyme

Correct Answer:- Option-B

Question48:-In paper chromatography, the stationery phase is

- A:-Paper
- B:-Water
- C:-Both 1 and 2
- D:-None of these

Correct Answer:- Option-B

Question49:-The maximum probability of rejecting the null hypothesis when the null hypothesis is true is called

- A:-Degree of freedom

B:-Significant level

C:-Critical value

D:-Calculated value

Correct Answer:- Option-B

Question50:-Callus regeneration is an example for

A:-Re-differentiation

B:-De-differentiation

C:-Both 1 and 2

D:-None of these

Correct Answer:- Option-A

Question51:-The presence of which substance made the origin of photosynthetic prokaryotes in primitive sea

A:-Magnesium

B:-Sodium

C:-Porphyrin

D:-Haemocyanin

Correct Answer:- Option-C

Question52:-The pre-historic man who made use of fire is

A:-Cro-magnon man

B:-Neanderthal man

C:-Peking man

D:-Java man

Correct Answer:- Option-D

Question53:-In biological communities, some species are important in determining the ability of large number of species to persist there, they are termed as

A:-Flagship species

B:-Endemic species

C:-Keystone species

D:-Consumer species

Correct Answer:- Option-C

Question54:-Which of the following is an example for homology and similarity tool?

A:-BLAST

B:-RasMol

C:-EMBOSS

D:-PROSPECT

Correct Answer:- Option-A

Question55:-Selection favoring one extreme of a trait is called

A:-Centrifugal

B:-Directional

C:-Stabilizing

D:-Disruptive

Correct Answer:- Option-B

Question56:-Which is used to find out the extent of asymmetry and direction?

A:-SD

B:-Median

C:-Skewness

D:-Variance

Correct Answer:- Option-C

Question57:-Name a general-purpose multiple sequence alignment program for DNA or proteins.

A:-FASTA

B:-CLUSTAL

C:-BLAST

D:-None of the above

Correct Answer:- Option-B

Question58:-The international treaty in 1992, formed by United Nations Framework Convention on Climate Change (UNFCCC) that commits state parties to reduce greenhouse gas emissions

A:-Kyoto Protocol

B:-Montreal Protocol

C:-Earth Summit

D:-World Summit

Correct Answer:- Option-A

Question59:-Which of the following is the first completed and published gene sequence?

A:-ΦX174

B:-T4 phage

C:-M13 phage

D:-Lambda phage

Correct Answer:- Option-A

Question60:-Electrophoresis technique to separate charged molecular particles, was first developed by

A:-Tswett

B:-Tiselius

C:-Sanger

D:-Franklin

Correct Answer:- Option-B

Question61:-A statistical measure used in several fields to estimate the number of cases that have not yet been observed, based on two independent sets of observed cases

A:-Standard deviation

B:-Lincoln index

C:-Fischer index

D:-Students t-test

Correct Answer:- Option-B

Question62:-The computer simulation refers to

A:-Dry lab

B:-In Vitro

C:-In Silico

D:-Wet lab

Correct Answer:- Option-C

Question63:-In ECG, the P wave represents

A:-Atrial repolarization

B:-Atrial diastole

C:-Atrial depolarization

D:-Ventricular systole

Correct Answer:- Option-C

Question64:-Leptospirosis, the most widespread zoonotic disease is due to Leptospira interrogans. It is an

A:-aerobic, gram negative, spirochete

B:-aerobic, gram positive, spirochete

C:-aerobic, gram negative bacterium

D:-anaerobic bacterium

Correct Answer:- Option-A

Question65:-Match columns A and B choose the correct answer:

A	B
A. Epstein-Barr Virus	1. RNA tumor virus
B. Human Papilloma Virus	2. Syphilis
C. Hepatitis C Virus	3. Lymphoma
D. Treponema	4. Genital Warts
5. Mad Cow disease	5. Prison

A:-A-3, B-4, C-1, D-2, E-5



B:-A-4, B-3, C-1, D-2, E-5

C:-A-5, B-4, C-3, D-2, E-1

D:-A-1, B-4, C-3, D-2, E-5

Correct Answer:- Option-A

Question66:-Widal test is used to detect

A:-Tuberculosis

B:-Enteric fever

C:-Typhidot

D:-Pregnancy

Correct Answer:- Option-B

Question67:-Larger subunit of Eukaryotic ribosomes contains

A:-23 S rRNA, 18 S rRNA and about 33 proteins

B:-28 S rRNA, 18 S rRNA and about 50 proteins

C:-28 S rRNA, 5.8 S rRNA, 5 S rRNA and about 50 proteins

D:-18 S rRNA, 28 S rRNA, 5.8 S rRNA and about 33 proteins

Correct Answer:- Option-C

Question68:-The variation in the lengths of restriction DNA fragments between individuals of a species is called

A:-RAPD

B:-AFLP

C:-SSR

D:-RFLP

Correct Answer:- Option-D

Question69:-Identify the wrong statement.

A:-Monoflagellated spermatozoa is present in sea urchin and Amphioxus

B:-Sperm is star shaped in cray fishers

C:-Most elasmobranchs have biflagellate sperms

D:-In human, sperm mitochondria can be seen twisted spirally around axial filament of tail piece to provide energy

Correct Answer:- Option-D

Question70:-In which of the following hormone, receptor is found associated on the cell membrane?

A:-T3

B:-Aldosterone

C:-Insulin

D:-Both 1 and 3

Correct Answer:- Option-C

Question71:-The ratio between energy flow at different points in a food chain and expressed as percentage is known as

A:-Ecological capacity

B:-Ecological potential

C:-Ecological assimilation

D:-Ecological efficiency

Correct Answer:- Option-D

Question72:-In Drosophila, white eye mutation leads to de-pigmentation of body parts. It is an example for

A:-Multiple allelism

B:-Pleiotropy

C:-Polygenic inheritance

D:-Complementary inheritance

Correct Answer:- Option-B

Question73:-Which among the following belongs to Urochordata?

A:-Amphioxus

B:-Myxine

C:-Salpa

D:-Balanoglossus

Correct Answer:- Option-C

Question74:-Which area in human brain is concerned with the comprehension of speech?

A:-Broca's area

B:-Association area

C:-Wernicke's area

D:-Hippo campus

Correct Answer:- Option-C

Question75:-Which of the following is the characteristics of a cancer cell?

A:-Density dependent inhibition

B:-Contact inhibition

C:-Loss of anchorage dependence

D:-Apoptosis

Correct Answer:- Option-C

Question76:-Biosphere reserves differ from National Park and Wildlife Sanctuaries because in the former

A:-human beings are not allowed to enter

B:-people are integral part of the system

C:-plants are given greater attention than the animals

D:-living organisms are brought from all over the world and preserved

Correct Answer:- Option-B

Question77:-Which among the following phenomena play an important role in driving small animal populations to extinction?

A:-Shannon index

B:-Simpson's diversity index

C:-Allee's effect

D:-Whittaker's effect

Correct Answer:- Option-C

Question78:-Deamination of bases is a common chemical event that produces spontaneous mutation. Which one of the following bases will be formed by deamination of 5-methylcytosine?

A:-Uracil

B:-Thymine

C:-Cytosine

D:-Guanine

Correct Answer:- Option-B

Question79:-The first step in glycogen breakdown releases glucose units as

A:-glucose 6-phosphate

B:-glucose 1-phosphate

C:-glucose

D:-glucose and glucose 6-phosphate

Correct Answer:- Option-B

Question80:-Which one of the following does NOT contribute to micro-evolutionary change?

A:-Mutation

B:-Random mating

C:-Genetic drift

D:-Natural selection

Correct Answer:- Option-B

Question81:-The inborn error of amino acid metabolism, alkaptonuria is due to the lack of one of the following enzymes

A:-Fumaryl acetoacetate hydrolase

B:- $\alpha$ -keto acid decarboxylase

C:-Homogentisate oxidase

D:-p-hydroxyphenyl pyruvate dehydroxylase

Correct Answer:- Option-C

Question82:-The key determinant of the plane of cytokinesis in mammalian cells is the position of

- A:-Centriole
- B:-Chromosome
- C:-Central spindle
- D:-Pre-prophase band

Correct Answer:- Option-C

Question83:-Which protein secreted by the amphibian organizer induces neural tissue formation by inhibiting bone morphogenetic protein?

- A:- $\beta$ -catenin
- B:-Noggin
- C:-Dickkopf
- D:-Dishevelled

Correct Answer:- Option-B

Question84:-Cladistic classification is based on

- A:-sequential order in which branches arise from a phylogenetic tree
- B:-the order of sequence of divergence
- C:-morphological features and skeleton of individuals
- D:-cellular organization and cytoskeleton

Correct Answer:- Option-A

Question85:-Microbial leaching involves the process of dissolution of metals from ore breaking rocks using microorganisms. Which one of the following bacteria helps in leaching copper from its ore?

- A:-Acidithiobacillus ferrooxidans
- B:-Pseudomonas putida
- C:-Deinococcus radiodurans
- D:-Rhodospseudomonas capsulate

Correct Answer:- Option-A

Question86:-Which of the following atomic nuclei cannot be probed by nuclear magnetic resonance spectroscopy?

- A:- $^1_1\text{H}$
- B:- $^{31}_{15}\text{P}$
- C:- $^{16}_8\text{O}$
- D:- $^{14}_7\text{N}$

Correct Answer:- Option-C

Question87:-In the case of monoclonal antibody production by hybridoma technology, myeloma cells used lack the enzyme 'hypoxanthine-guanine phosphoriboxyl transferase (HGPRT) such that fused cells can only survive when selected on hypoxanthine-aminopterin-thymidine (HAT). What is the role of aminopterin in this medium?

- A:-To be used as cell cycle inhibitor of myeloma cells
- B:-To block the pathway for nucleotide synthesis
- C:-To facilitate fusion of myeloid B cells and antibody producing B cells
- D:-To facilitate production of antibody producing B cells

Correct Answer:- Option-B

Question88:-DiGeorge syndrome is caused by

- A:-11p22 deletion
- B:-22p11 deletion
- C:-11q22 deletion
- D:-22q11 deletion

Correct Answer:- Option-D

Question89:-Michaelis and Menten derived their equation using which of the following assumption?

- A:-Rate limiting step in the reaction is the breakdown of ES complex to product and free enzyme
- B:-Rate limiting step in the reaction is the formation of ES complex
- C:-Concentration of the substrate can be ignored
- D:-Non-enzymatic degradation of the substrate is the major step

Correct Answer:- Option-A

Question90:-Most common type of phospholipid in the cell membrane of nerve cells is

- A:-phosphatidylcholine
- B:-phosphatidylinositol
- C:-phosphatidylserine
- D:-sphingomyelin

Correct Answer:- Option-A

Question91:-The maternal effect gene products that regulate the production of anterior structures in *Drosophila* embryo?

- A:-Bicoid and Nanos
- B:-Bicoid and Hunchback
- C:-Bicoid and Caudal
- D:-Nanos and Caudal

Correct Answer:- Option-B

Question92:-Release of intracellular  $Ca^{2+}$  is due to

- A:-Absence of  $PIP_2$  hydrolysis
- B:-Rapid dephosphorylation of  $IP_3$
- C:-Retention of DAG in cytoplasm
- D:-Activation of  $IP_3$  receptors

Correct Answer:- Option-D

Question93:-Which of the following is a component of the coenzyme A?

- A:-Retinol
- B:-Pantothenic acid
- C:-Pyridoxine
- D:-Retinoic acid

Correct Answer:- Option-B

Question94:-Production of excessive amount of corticotropin (ACTH) occurs in which one of the following

- A:-Grave's disease
- B:-Cushing's syndrome
- C:-Grieg's syndrome
- D:-Addison's syndrome

Correct Answer:- Option-B

Question95:-The Biosafety Protocol, 2000 was conducted in

- A:-Montreal
- B:-Kyoto
- C:-Stockholm
- D:-Rio de Janeiro

Correct Answer:- Option-A

Question96:-The first DNA vaccine approved in India is

- A:-Engerix-B
- B:-ActHIB
- C:-ZyCov D
- D:-Havrix

Correct Answer:- Option-C

Question97:-Which of the following functions are macrophages unable to carry out?

- A:-Pinocytosis
- B:-Phagocytosis
- C:-T cell priming
- D:-Antigen presentation to activated cells

Correct Answer:- Option-C

Question98:-Which of the following selection pressure is obtained in late succession stage?

- A:-K-selection
- B:-R-selection
- C:-E-selection
- D:-L-selection

Correct Answer:- Option-A

Question99:-What is chromosome walking?

- A:-Hybridization technique
- B:-Sequencing technique
- C:-Genetic marker
- D:-Chemical degradation technique

Correct Answer:- Option-A

Question100:-What is microsome?

- A:-Compartment of Golgi complex
- B:-Smaller ribosomes
- C:-Small ER compartments
- D:-Small vesicles of fragmented ER

Correct Answer:- Option-D