1.	The pl A) C)	ant part from which colchicing Fruit &seeds Seeds & corms	e is isola B) D)	ated Stem& leaf Fruit & bulb
2.	Album A) C)	inous cells are present in Monocotyledonous plants Gymnosperms	B) D)	Hydrophytes Bryophytes
3.	The Ca A) C)	asparian strip is usually compo Pectin Suberin	osed of B) D)	Lignin Chitin
4.	Histoc A) B) C) D)	hemical localization of protein Sudan black Mercuric bromophenol blue Periodic acid Schiffs (PAS) n Iodine potassium iodide (IKI	reagent	
5.	Orcein A) B) C) D)	is obtained from Fractionation of coal tar Heartwood of <i>Caesalpinia</i> <i>Roccella tinctoria</i> . Abdominal part of insects <i>Da</i>	actylopi	us coccus
6.	Janus g A) C)	green B is used to stain Chloroplast Vacuoles	B) D)	Golgi complex Mitochondria
7.	The se throug A) C)		or histo B) D)	enzymological study is made Sledge microtome Rocking microtome
8.	Molect A) C)	ular formula of chlorophyll a $C_{55}H_{70}O_5N_4Mg$ $C_{55}H_{70}O_6N_4Mg$	is B) D)	$\begin{array}{c} C_{55}H_{72}O_6N_4Mg\\ C_{55}H_{72}O_5N_4Mg \end{array}$
9.	RQ va A) C)	lue of protein is Higher than 1 Less than 1	B) D)	1 Infinite
10.	Recom A) C)	bination nodules are present i Kinetochore Synaptonemal complex	n B) D)	Centriole Nucleolar organizing region

- 11. The movement of solutes in the phloem is mainly
 - A) Lateral B) Acropetal
 - C) Basipetal D) Centripetal
- 12. The first stable compound in Hatch and Slack cycle is
 - A) Pyruvic acid B) Malic acid
 - C) Citric acid D) Oxalo acetic acid
- 13. ----- is an example for sulphur containing amino acid
 - A) Aspartic acid B) Methionine
 - C) Glycine D) Isoleucine

14. Microevolution means

- A) Evolution at geographical level
- B) Evolution in a small community
- C) Changes in gene frequency within a population
- D) Spatial evolution
- 15. When a population formerly continuous in range, splits into two or more geographically isolated populations and form new species, the mode of speciation is
 - A) Sympatric speciation B) Polytypic speciation
 - C) Allopatric speciation D) Evolutionary speciation
- 16. Endosperm is absent in
 - A) Orchidaceae B) Compositae
 - C) Poaceae D) Malvaceae

17. Tyloses are

- A) Composite sieve plate B) Specialized latice ferous canals
- C) Tracheal plugs D) Resin ducts
- 18. In *Dracaena*, secondary vascular bundle is
 - A) Bicollataral B) Amphicribral
 - C) Collateral D) Amphivasal
- 19. Osmium tetra oxide is used in electron microscopy as a
 - A) Fixing agentB) MordantC) Staining agentD) Precipitator
- 20. The pH of phloem sap is about-----
 - A) 5.5-6.5 B) 6.5 -7.5
 - C) 8.0-8.5 D) 4.5-5.5

- 21. Q_{10} refers to
 - A) Quantum recharge
 - B) Respiratory coefficient
 - C) A temperature coefficient
 - D) Photosynthetic active radiation (PAR) coefficient
- 22. Warburg effect explains decreased rate of photosynthesis due to
 - A) High concentration of CO_2 B) Low concentration of CO_2
 - C) High concentration of O_2 D) Low concentration of O_2

23. Fruit drop is caused by

- A) Accumulation of more auxin in fruit than in stem
- B) Accumulation of less auxin in fruit than in stem
- C) Absence of auxin in stem and roots
- D) Accumulation of auxin in roots

24. The closure of lid of pitcher in *Nepenthes* is

24.	The c	losure of lid of pitcher in <i>Nepe</i>	enthes 19	5
	A)	A turgor movement	B)	A paratonic movement
	C)	A tropic movement	D)	
25.	Natio	nal park is an example of		
	A)	In vitro conservation	B)	Ex situ conservation
	C)	In situ conservation	D)	All of these
26.	In Fu	naria capsule, the peristome c	onsist o	f
	A)	16 teeth	B)	32 teeth
	C)	64 teeth	D)	128 teeth
27.	Protor	nema is found in		
	A)		B)	Anthoceros
	Ć	Marchantia	D)	Funaria
28.	Weste	ern Ghats passes through	Si	tates in India
-0.	A)	6	B)	4
	C)	7	D)	5
29.	Partia	l or complete loss of virulence	- in nath	nogen is called
_).	A)	Abortive parasitism	B)	-
	$\frac{1}{C}$	Neutralism	D)	Susceptibility
	CJ	1 youti alisili	D)	Susceptionity
30.	2	alexins are produced		
	A)	During infection	B)	During flowering

C) Throughout the lifecycle D) By seedlings only

31.	A) Co	ase of cardamom olletotrichum elet ardamom mosaic	tariae	d due to B) D)	Phyto	ophthora med rium sp.	ii	
32.	-		• -					• •
33.		l has a diploid nu s are present in r				•	osis how	many
34.	chromoson A) Ma		pe of a d	iploid fi B) D)	ruit fly t Femal Metar	e	YY sex	
35.	•							•
36.	How many A) 15	y genotypes are j B)	present at 10	a locus	with fo C)	ur alleles? 8	D)	16
37.		sm has 10 pairs o y types of gamet B)						
38.	A) Co	ocess of DNA tra onjugation ansformation	nsfer in b	acteria B) D)	-	duction		
39.	many chro A) 21	has 2n=16 chron omosomes would or 24 or 23		-		oid of these tw		
40.	-		in doubl	e strand B) D)	led DNA 60% 10%	A molecule is	40%. W	hat is the

- 41. What type of replication require a break in the nucleotide strand to get started
 - A) Theta replication B) Rolling cycle replication
 - C) Linear eukaryotic replication D) All of these
- 42. If two loci are 10 map units apart, what proportion of the meiotic events will contain a single cross over in the region between these two loci, assuming that no multiple cross over occur?
 - A)10%B)15%C)5%D)20%
- 43. What is the effect of high level glucose in lac operon
 - A) Transcription is stimulated
 - B) Little transcription takes place
 - C) Transcription not affected
 - D) Transcription may be stimulated or inhibited depending upon the level of lactose.
- 44. In RNA silencing, si RNAs and mi RNAs usually bind to which part of the mRNA molecule that they control
 - A) 5'UTR B) Segments that encodes aminoacids
 - C) 3'poly(A) tail D) 3'UTR
- 45. DNA binding regulatory proteins are grouped into distinct classes based on the motif found within the binding domains. In the following group which are common bacterial regulatory proteins
 - A) Helix –turn- helix B) B.zinc finger
 - C) Leucine zipper D) Helix –loop -helix
- 46. In a group of students, about 36% could roll their tongues, a trait determined by a dominant gene (R). The other 64% of the students were nonrollers (r). The population is in Hardy-Wienberg equilibrium. What is the frequency of the gene R and its recessive allele r?
 - A) R=0.3 and r=0.1 B) R=0.64 and r=0.36
 - C) R=0.8 and r=0.2 D) R=0.2 and r=0.8
- 47. Which of the following changes is a transition base substitution?
 - A) Adenine replaced by thymine
 - B) Cytosine replaced by adenine
 - C) Guanine replaced by adenine
 - D) Three nucleotide pairs are inserted into DNA
- 48. A genetically engineered squash called Freedom II carries genes from
 - A) Watermelon mosaic virus B) Zucchini virus
 - C) Cauliflower mosaic virus D) Both A & B

- 49. Which gene is inserted to the target gene to create knockout mice?
 - A) 'tk' gene B) 'neo' gene
 - C) Both A & B D) Neither A & B
- 50. In the following common bioinformatic data bases, which contains protein sequence data?
 - A) Gene Bank B) EMBL-Bank
 - C) dbEST D) UniProt
- 51. Genes found in different species that evolved from same gene in a common ancestor is called
 - A) Homologs B) Paralogs
 - C) Orthologs D) Homeologs
- 52. Which lichen is known as "Reindeer moss?"
 - A) Cladonia rengiferina B) Peltigera canina
 - C) Lobaria pulmonaria D) Rocella montaignei
- 53. Proflavin and acridine oranges are chemicals that cause mutations because
 - A) They distort the structure of DNA
 - B) They chemically modify the normal bases
 - C) They are similar in structure to the normal bases
 - D) They sandwich between adjacent bases in DNA

54. A codon that specifies aminoacid Tryptophan undergoes a single base substitution that yields a nonsense codon. What is the mutated codon?

- A)UUGB)UGAC)UAAD)UGG
- 55. The retrovirus genome is
 - A) RNA
 - B) DNA
 - C) RNA in free virus but converted to DNA inside the host cell
 - D) DNA in free virus but converted to RNA inside the host cell

56. A recombinant cross is performed between two organisms producing a total of 400 offspring. There were two distinct types of recombinants, with 36 of the first type and 58 of the second type present. The recombination frequency of the gene is

- A) 0.145 B) 0.235
- C) 0.345 D) 0.445
- 57. What are known as "safe havens" during insertion of transposable elements?
 - A) Centromere regions
- B) Retrotransposon regions
- C) Heterochromatin regions D) All these

58.	Total length of life cycle in yeast A) 90 minutes B) 1 hour	C) 12	have D)	24 haven		
	A) 90 minutes B) 1 hour	C) 12	hours D)	24 hours		
59.	P elements are transposable elements for	und in				
	A) Maize B)	Yeast				
	C) Drosophila D)	Arabdiops	is			
60.	60. Hammerling performed experiments to prove that nucleus is the physical heredity by working on					
	A) Neurospora crassa B)	Drosophile	a melanogaster			
	C) Acetabularia crenulata D	Saccharon	nyces pombi			
61.	Minute granular structures found on the	inner face of th	e thyalakoid me	mbrane		
	A) Quantasomes B)	Diplosome	es			
	C) Oxysomes D	Lysosome	S			
62.	When a cell with $2n = 60$ chromosomes resulting cells has chromosomes	undergoes mei	osis, each of the	four		
	A) 30 B) 60	C) 40	D)	10		
63.	The somatic chromosome number (2n)A)20B)10	of Arabidopsis i C) 5	thaliana is D)	30		
64.	The normal sequence of markers on a certain <i>Drosophila</i> chromosome is 123.456789, where the dot represents the centromere. One fly was isolated with the following aberration, 1654.32789. What could be the structural aberration involved?					
	A) Paracentric inversion B)	Deletion				
	C) Duplication D		e inversion			
65.	If the somatic chromosome number for number would be	an organism is 2	2n = 16, the hexa	aploid		
	A) 16 B)	32				
	C) 48 D)	64				
66.	is a drooping pendant fruti	ose lichen				
	A) <i>Physcia</i> B)	Cladonia				
	C) Usnea D)	Haematon	ıma			
67.	Cyphellae in lichens are analogous to A) Palisade tissue B)					
	C) Bundle sheath D	Stomata				
	C) Dundie Sheath D	Stomata				
68.	Which of the following is called 'walking	-				
	A) Selaginella rupestris B)	Selaginelle	a bryopteris			
	C) Adiantus incisum D)	Adiantum	caudatum			

69.	Which of the following has amphiphA) MarsilleaC) Pteris	nloic sip B) D)	bhonostele? Lycopodium Dryopteris
70.	The fossil fern, <i>Rhynia</i> was discoverA) Sir William DawsonC) De Bary	red by B) D)	Kidson and Lang Captain Cooke
71.	Smallest fern among the following isA) <i>Drynaria</i>C) <i>Cyathea</i>	s B) D)	Anogramma Woodsia
72.	Endosperm in gymnosperm isA) Generally diploidC) Triploid	B) D)	Always haploid With different ploidy levels
73.	Characters of both conifer and cycadA) GinkgoC) Cupress	ds are fo B) D)	ound in Ephedra Thuja
74.	The number of neck canal cells in th A) 2 C) 6	e arche B) D)	egonium of Cycas is 4 0
75.	The dwarf shoots of <i>Pinus wallichia</i> A) Monofoliar C) Trifoliar	na are B) D)	Bifoliar Pentafoliar
76.	Species that occur in different geograreA) AutogenicC) Allopatric	raphical B) D)	regions separated by special barrier Allogenic Sympatric
77.	Area within the centre of diversity pA) Gene sanctuaryC) Biosphere	rotecte B) D)	d from human interference. Gene bank Microcentre
78.	Which is the age of 'higher gymnospA) MesozoicC) Archaeozoic	perms'é B) D)	Palaeozoic Proterozoic
79.	The storage of energy at consumer'sA) Gross primary productivityC) Net primary productivity	s level i B) D)	s Secondary productivity Primary productivity

80.	Ozone in the atmosphere absorbs:A) All UV-CC) All UV-A and UV-B	B) D)	All UV-C and most of UV-B All UV-A and UV-C			
81.	The taxa which is believed likely to join the endangered category in near future is					
	called: A) Extinct	B)	Rare			
	C) Vulnerable	D)	Living fossil			
			C .			
82.	Total soluble salts in soil are measu	-				
	A) Tensiometer	B)	Conductivity meter None of these			
	C) pH meter	D)	None of these			
83.	Yeast is an important source of					
	A) Vitamin C	B)	Riboflavin			
	C) Sugar	D)	Fat			
84.	Powdery mildews of crops are caus	ed by				
01.	A) Bacteria	B)	Ascomycetes			
	C) Phycomycetes	D)	Basidiomycetes			
85.	fuse but divide independently and sA) Phycomycetes	imultar B)	Zygomycetes			
	C) Deuteromycetes	D)	Basidiomycetes			
86.	The type of ovule in which micropy	yle and	funicle lie in one line			
	A) Orthotropous	B)	Anatropous			
	C) Amphitropous	D)	Campylotropus			
87.	Study of pollen grains in honey is k	nown				
07.	A) Iatropalynology		Aeropalynology			
	C) Melissopalynology	D)	Pharmacopalynology			
	c) wienssoparynology	2)	That have open yno to gy			
88.	Sporopollinin is seen in					
	A) Intine	B)	Exine			
	C) Endocarp	D)	Mesocarp			
89.	The common bread wheat is called:					
	A) Triticum aestivum	B)	Triticum turgidum			
	C) Triticum monococcum	D)	None of these			
90.	Major component of 'Jeevani' is					
<i>J</i> 0.	A) Ocimum basilicum	B)	Acorus calamus			
	C) Trichopus zeylanicus	D)	Bacopa monnieri			
	, <u>F</u>	- /	T ··· ···			

91. Predominant ethnic group in Thiruvananthapuram district is:

- A) Kani B) Malavedan
- C) Malapandaram D) Cholanaikan

92. X^2 test is used to

- A) Measure the degree of deviation of the experimental result from the expected result
- B) To test the closeness of observed and expected frequency
- C) To test the population variance and sample variance
- D) All of the above

93. Mode can be located graphically with the help of

- A) Line diagram B) Bar diagram
- C) Histogram D) Pie diagram
- 94. X-ray diffraction analysis is based on
 - A) Beer-Lambert's law B) Bragg's equation
 - C) Partition coefficient D) Sedimentation coefficient

95. Sudan Black B is often used for visualization of

- A) Protein B) Carbohydrates
- C) Aminoacids D) Lipids

96. Which instrument is more useful to study the surface details of a specimen?

- A) Phase contrast microscope B) Scanning electron microscope
 - Light microscope D) Transition electron microscope

97. Stock and scion are needed for doing

C)

A)

- A) Budding B) Grafting
 - C) Layering D) None of these
- 98. Insecticide that remains active in environment for the longest period of time
 - A) Organophosphates
- B) Chlorinated hydrocarbons

None of these

- C) Carbonyles D)
- 99. The large center root of plant used in bonsai is cut off
 - A) To dwarf the plant
 - B) To cause root brancing
 - C) To make the root system shallow enough to fit in the container
 - D) To simplify the root pruning job
- 100. Which vegetable crops use large amounts of nitrogen fertilizer?
 - Leaf B) Root
 - C) Fruit D) All of these

101	D1 ' '	.1	• •
101.	Rhinoviruses are	the callestive	organism for
101.			organishi ior

- A) Tuberculosis B) Whooping cough
- C) Diphtheria D) Common cold

102. Bacterial cell divides once in every minute. It takes I hour to fill a petri plate. How much time is taken to fill half of the plate?

- A) 59 minutes B) 49 minutes
- C) 30 minutes D) 29 minutes

103. Infective RNA particles without protein sheath are:

- A) Rickettse B) Mycoplasma
- C) Virus D) Viroid

104. Operating system is

C)

- A) A collection of hardware components
- B) A collection of input-output devices
- C) A collection of software routines
- D) All of the above

105. A data base of current sequence map of the human genome is called

- A) OMIM B) HGMD
- C) Golden path D) GeneCards

106. Laminarin is the reserve food material of

- A) Chlorophyta B) Rhodophyta
- C) Phaeophyta D) Cyanophyta

107. Chlamydomonas and Volvox are similar because

- A) Both of them are motile
 - em are motile B) They are filamentous
 - They are colonial D) They have diploid thallus
- 108. Which of the following algal group never produces motile, flagellated cells among any of its members?
 - A) Chrysophyta B) Phaeophyta
 - C) Chlorophyta D) Rhodophyta

109. The most primitive algal group is

- A)Green algaeB)Brown algae
- C) Red algae D) Blue-green algae
- 110. The newly collected specimen which is used as a substitute, when the original type material is missing in a herbarium, is designated as
 - A) Lectotype B) Holotype
 - C) Neotype D) Isotype

111. Hypanthodium is the characteristic of

- A) Amorphophallus B) Acrocephalus
- C) Ficus D) Euphorbia

112. A single seeded fruit with inseparably fused testa and pericarp is

- A) Achene B) Caryopsis
- C) Cypsella D) Cremocarp

113. A family having unisexual flowers with parietal placentation is

- A) Cruciferae B) Euphorbiaceae
- C) Orchidaceae D) Cucurbitaceae

114. The family Lythraceae belongs to the series

- A) Disciflorae B) Calyciflorae
- C) Heteromerae D) Inferae

115. The family Amaryllidaceae differs from Liliaceae in having

- A) Actinomorphic to slightly zygomorphic flowers
- B) Inferior ovary
- C) Axile placentation
- D) Perianth of six tepals

116. The lowest ranking taxa in numerical taxonomy is

- A) Species B) Operational taxonomic unit
- C) Character states D) Variety
- 117. Cladistic relationship is expressed in terms of correlation amongst individuals with regard to
 - A) Phenotypic characters
 - B) Their evolutionary history
 - C) Relationship between operational taxonomic unit
 - D) Their chromosomal behaviour

118. Primary centre of origin of rice is

- A) Asia minor centre B) Central Asia centre
- C) Hindustan centre D) Mediterranean centre

119. Heterosis results from

A)

- A) Harmfull effects of recessive alleles and heterozygosity
- B) Homozygosity
- C) Heterozygosity
- D) Heterozygosity and masking of harmfull effects of recessive alleles

120. Production of a double cross hybrid involves

- Two inbreds B) Four inbreds
- C) Six inbreds D) Three inbreds

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