							Code No.	R -	2106
Entrance Examination for Admission to the P.G. Courses in the Teaching Departments, 2023									
				CSS					
	C	GENET		D PLA	NT BRI	EEDING	G		
			<u>Gener</u>	al Instru	<u>ctions</u>				
1. The	Question Paper	is havin	g 100 O	bjective	Questior	ns, each	carrying c	one ma	rk.
2. The	answers are to	be (✔) 't	ick mark	ed' only	in the " F	Respons	se Sheet"	provide	ed.
3. <u>Neg</u> a	ative marking :	0.25 ma	arks will	be dedu	cted for	each wro	ong answe	er.	
Time : 2 H	lours						Ма	ax. Mai	[.] ks : 100
To be fille	ed in by the Car	ndidate							
Register	in Figures								
Number	in words								

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Choose appropriate answer from the options in the questions.

(100 × 1 = 100 marks)

- 1. Which of the following is not a virus symptom in plants.
 - a) Necrosis
 - b) Vein clearing
 - c) Ring spot
 - d) Damping off

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2.	An exam	ple of a	parasitic	bacterium

- a) Xanthomonas citri b) Pseudomonas eruginosa
- c) Rhizobium leguminosarum d) Micrococcus denitrificans
- 3. Which among the following lacks heterocyst
 - a) Nostoc b) Oscillatoria
 - c) Gleotrichia d) Rivularia
- 4. Transfer of genetic material from one bacterium to another through the agency of a virus
 - a) Transformation b) Transduction
 - c) Transamination d) Conjugation

5.	Cry	ophytes are found		
	a)	in fresh water ponds	b)	on ice and snow
	c)	in deep sea	d)	on sea shore
6.	ln v	olvox the plakea stage is represen	ted b	У
	a)	2 cells	b)	4 cells
	c)	8 cells	d)	16 cells
7.	Life	cycle of <i>Polysiphonia</i> is referred a	S	
	a)	Haplontic	b)	Diplontic
	c)	Haplo-diplontic	d)	None of these
8.	Gre	en mould is		
	a)	Penicillium	b)	Rhizopus
	c)	Mucor	d)	Cercospora
9.	Rei	ndeer Moss is a		
	a)	Fungus	b)	Alga
	c)	Lichen	d)	Bryophyte
10.	Alg	ae and bryophytes resemble each	other	' in

- a) Spermatozoids are biflagellate and both flagella are whiplash type
- b) The zygote is not liberated from the plant and does not undergo any resting stage
- c) Oogamous type of sexual reproduction
- d) Pores or stomata are present
- 11. The sporophyte of Riccia contains
 - a) foot, seta and capsule b) foot only
 - c) seta only d) capsule only

12.	The	e medullated protostele is						
	a)	Eustele	b)	Solenostele				
	c)	Siphonostele	d)	Dictyostele				
13.	Ag	ymnosperm with vessels						
	a)	Pinus	b)	Cycas				
	c)	Gnetum	d)	Ephedra				
14.	Whi	ich is not a component of the plant	cell \	wall?				
	a)	Chitin	b)	Cellulose				
	c)	Hemicellulose	d)	Cutin				
15.	The	irritating substance found in the rh	nizom	ne of Colocasia				
	a)	Calcium carbonate crystals						
	b)	Calcium oxalate crystals						
	c)	Silica crystals						
	d)	None of these						
16.	An	example of primary meristem						
	a)	Cork cambium	b)	Interfascicular cambium				
	c)	Protoderm	d)	Medullary rays				
17.	Stor cell	matal type in which subsidiary cells s	are	indistinguishable from other epidermal				
	a)	Anamocytic	b)	Anisocytic				
	c)	Paracytic	d)	Diacytic				
18.	Whi	ich of the following clearly fits to a r	nonc	ocot root?				
	a)	Vascular bundles are radial, conjo	oint, o	collateral and open				
	b)	Radial, polyarch and closed vasc	ular k	oundles with exarch protoxylem				
	c)	Conjoint collateral and open vasc	ular I	bundles				
	d)	None of these						

19. The loose mass of parenchyma at the base of lenticel a) Complementary cells b) Passage cells **Bulliform cells** c) Subsidiary cells d) 20. A persistent calyx that continues to grow as a loose jacket around the fruit Deciduous a) b) Acrescent None of these c) Caducous d) 21. Prevention of self - pollination by physical barriers in bisexual flowers a) Dichogamy b) Herogamy c) Cleistogamy d) Geitonogamy 22. Select a plant that follows malacophily Colocasia Salvia a) b) Musa d) Callistemon c) 23. Which of the following is a common ingredient in Farmer's, Carnoy's and Rawlin's formula Formalin Chloroform b) a) Glacial acetic acid c) Chromic acid d) 24. A non-histone protein present in the chromosome a) H1 b) H₂A c) H3 d) Tubulin 25. The substage of prophase-1 of meiosis in which chiasmata appear Zygotene a) Leptotene b) Pachytene Diplotene c) d)

26.	The	e genotype and phenotype ratios re	emain	the same in
	a)	Back cross and test cross	b)	Incomplete dominance
	c)	Co dominance	d)	Both (b) and (c)
27.	Rea	appearance of ancestral characters	s in th	e present generation
	a)	Attavism	b)	Pleiotropism
	c)	Epistasis	d)	Teminism
28.	A co hav	olourblind man marries a carrier fe ing colour blindness in this cross?	male	. What is the percentage of individuals
	a)	25%	b)	50%
	c)	75%	d)	100%
29.	Inhe	eritance pattern of ear length in ma	ize is	an example of
	a)	Multiple allelism	b)	Co-dominance
	c)	Polygenic inheritance	d)	Dominant epistasis
30.	The	process of hormonal control of se	x det	ermination occurs in
	a)	Protenor	b)	Alligator
	c)	Drosophila	d)	Bonelia
31.	An	example of total root parasite		
	a)	Rafflesia	b)	Santalum
	c)	Cuscuta	d)	Loranthus
32.	The duri	process by which organism mo	dify	each other's life through competition
	a)	Reaction	b)	Coaction
	c)	Ecesis	d)	Invasion

33.	A free floating hydrophyte							
	a)	Nymphaea	b)	Nelumbo				
	c)	Trapa	d)	Salvinia				
34.	Dive	ersity within a single community or	ecos	ystem is called				
	a)	Alpha diversity	b)	Beta diversity				
	c)	Gamma diversity	d)	None of these				
35.	An e	ecotourism project of Kerala						
	a)	Mangalavanam	b)	Athirappalli				
	c)	Malampuzha	d)	All of these				
36.	The	first Earth Summit was held in the	year					
	a)	1990	b)	1992				
	c)	1999	d)	2000				
37.	The	most important green house gas						
	a)	Carbon monoxide	b)	Carbon tetrachloride				
	c)	Chlorofluorocarbon	d)	Carbon dioxide				
38.	The	Indian Biodiversity Act was establ	ished	in				
	a)	2000	b)	2002				
	c)	2004	d)	2006				
39.	An Pan	ecologically sensitive locality ider el (Gadgil Committee) from Kerala	ntified	d by Western Ghats Ecology Expert				
	a)	Periyar Sanctuary	b)	Cardamom Hills				
	c)	Athirappaly-Vazhachal	d)	All of these				

40.	A h	eterosporous fern		
	a)	Selaginella	b)	Marsilea
	c)	Azolla	d)	All of these
41.	Rac	lially elongated endodermal cells in	the s	stem of Selaginella
	a)	Trabeculae	b)	Transfusion tissue
	c)	Raphae	d)	Exodermis
42.	Hea	art shaped lamina		
	a)	Ovate	b)	Cordate
	c)	Deltoid	d)	Acicular
43.	Fus	ion of carpels along their entire len	gth is	seen in
	a)	Hibiscus	b)	Catharanthus
	c)	Citrus	d)	Calotropis
44.	The	special type of inflorescence of Od	cimun	n
	a)	Hypanthodium	b)	Vertcillaster
	c)	Thyrsus	d)	Cyathium
45.	An	example of Hesperidium		
	a)	Mango	b)	Banana
	c)	Orange	d)	Melon
46.	A p orig	lant specimen selected to serve inal type specimen is missing	as a	nomenclatural type so long as the
	a)	Syntype	b)	Lectotype
	c)	Neotype	d)	Topotype
47.	Bota	anical gardens where only trees are	e grov	wn
	a)	Arboreta	b)	Bambuseta
	c)	Pineta	d)	Orchidaria

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48.	Parthenium argentatum belongs to the family					
	a)	Papilonaceae	b)	Asclepiadaceae		
	c)	Asteraceae	d)	Euphorbiaceae		
49.	Wha	at is the morphology of useful part o	of Ra	ıgi?		
	a)	Endosperm	b)	Seed		
	c)	Fruit	d)	Seed coat		
50.	The	patented product 'Jeevani' is obtai	ined [·]	from		
	a)	Curcuma longa	b)	Trichopus zeylanicus		
	c)	Alpinia galalnga	d)	Acorus calamus		
51.	A m Whi	an with blood group B (heterozygo ch blood group will not appear amo	ous) ong ti	marries a woman of blood group AB. neir offsprings ?		
	a)	A group	b)	B group		
	c)	O group	d)	AB group		
52.	Inhe	eritance of ear length in Maize is an	ı exa	mple of		
	a)	Multiple allelism	b)	Polygenic inheritance		
	c)	Epistasis	d)	Cytoplasmic inheritance		
53.	Gen fem	es that are transmitted directly ales are	from	father to son and never appear in		
	a)	Holandric genes	b)	Plasmagenes		
	c)	Pseudogenes	d)	Isoalleles		
54.	The expe	reason behind the reduction of ected in a three-point test cross is	obs	erved double cross overs than the		
	a)	Interference	b)	Coupling		
	c)	Repulsion	d)	Coincidence		
55.	The	"Amber" codon refers to				
	a)	UAG	b)	UAA		
	. \		N			

c) UGA d) AUG

- 56. A chromosome with diffused centromere
 - a) Polycentric b) Monocentric
 - c) Holocentric d) Telocentric
- 57. A condition where one chromosome is missing in the haploid set
 - a) Monoploidy b) Aneuploidy
 - c) Nullisomic haploidy d) Substitution haploidy
- 58. In humans a trisomy in chromosome 13 results in
 - a) Edward's syndrome b) Patau's syndrome
 - c) Turner's syndrome d) Klinefelter's syndrome
- 59. A mutagen that act as an alkylating agent
 - a) Ethyl methane sulphonate b) 5-bromouracil
 - c) Hydroxylamine d) Acriflavin
- 60. Function of DNA Polymerase III in DNA replication
 - a) Removal of RNA primers
 - b) Synthesis of RNA primers
 - c) Addition of nucleotides to the 5' end of the growing strand
 - d) Addition of nucleotides to the 3' end of the growing strand
- 61. Role of single stranded binding proteins in DNA replication
 - a) Stabilize the unwound DNA b) Joining of okazaki fragments
 - c) Removal of Okazaki fragments d) Cutting of DNA
- 62. What will be the effect of a gene located on a chromosome that has undergone inversion
 - a) Duplication b) Deletion
 - c) Translocation d) Gene will be turned off

- 63. Which of the following events occurs during the second phase of meiosis
 - a) Crossing over
 - b) Separation of homologous chromosomes
 - c) Separation of sister chromatids
 - d) Pairing of homologous chromosomes
- 64. Number chromatids in a tetrad
 - a) two b) four
 - c) six d) eight
- 65. The characteristic of TATA box in prokaryotes
 - a) Located upstream of the transcription start site
 - b) It is recognized by Sigma factor
 - c) Involved in alternate splicing
 - d) Occupy the same position relative to the start site in all genes
- 66. What is the role of poly(A) tail on the mRNA molecule during translation in eukaryotes?
 - a) Signaling start codon
 - b) Prevent degradation by exonucleases
 - c) Binding with ribosome
 - d) Stabilizing mRNA molecule
- 67. A post-transcriptional modification that occurs in eukaryotic mRNA
 - a) Polyadenylation b) Capping
 - c) Splicing d) All of these
- 68. Function of enhancers in gene regulation
 - a) Bind to transcription factors and modulate gene expression
 - b) Bind to DNA and promote transcription
 - c) Bind to mRNA and promote translation
 - d) Bind to RNA polymerase II and activate transcription

69. The most frequently mutated gene in human cancer is BRCA 1 BRCA 2 a) b) c) **TP53** d) EGFR 70. A virus that causes cancer Measles virus a) Influenza virus b) Human papilloma virus d) All of these c) 71. Function of electron transport chain in photosynthesis a) Absorb light energy b) Produce oxygen c) Fix carbon dioxide d) Generate ATP 72. Splitting of water during photosynthesis occurs in the Cytoplasm Nucleus a) b) c) Stroma d) Thylakoid membrane 73. The final electron acceptor in photosynthesis ATP a) ADP b) NADP+ d) Chlorophyll c) 74. The molecule that regenerate RuBP during Calvin cycle Phospho glyceraldehyde a) b) Phosphoglycolate Phosphoenol pyruvate Glucose 6 phosphate c) d) 75. Which is not a microelement in plant nutrition a) Boron b) Manganese c) Magnesium d) Copper 76. Aerobic oxidation of pyruvic acid to CO₂ and water normally takes place in Chloroplast Mitochondria a) b) c) Ribosome d) Golgi bodies

77. The amino acid that act as the precursor of ethylene

- a) Tryptophan b) Methionine
- c) Phenyl alanine d) Tyrosine

78. How many ATP molecules are needed for the synthesis of a glucose molecule in Calvin cycle?

- a) 8 b) 18 c) 38 d) 16
- 79. Which among the following has a positive value
 - a) Osmotic potential b) Water potential
 - c) Pressure potential d) All of these
- 80. How much energy is released during the complete aerobic oxidation of one molecule of glucose?
 - a) 684 k cal b) 686 k cal
 - c) 786 k cal d) 586 k cal
- 81. The site of oxidative phosphorylation in eukaryotes
 - a) Chloroplast
 - b) Mitochondria
 - c) Cytoplasm
 - d) Peroxisome
- 82. A protein sequence database
 - a) GenBank b) PIR
 - c) EMBL d) DDBJ

83. Which among the following is a phylogenetic tree

- a) Dendrogram b) Chronogram
- c) Cladogram d) All of these

84. The complete sequence of human genome was first published in

- a) 2000 b) 2001
- c) 2003 d) 2004

85. The optimum value of dissolved oxygen (DO) for a good quality water is

- a) 1-3 mg/lb) 4-6 mg/lc) 8-10 mg/ld) 10-12 mg/l
- 86. Si RNA are produced by

a)	RNA damage	b)	RNA damage
c)	Enzymatic reaction	d)	None of these

87. RNA interference was discovered using the model organism

- a) Drosophila
- b) Caenorhabditis
- c) Arabidopsis
- d) Meloidogyne

88. The RNA polymerase required for the synthesis of mRNA in eukaryotes is

- a) RNA Polymerase I
- b) RNA Polymerase II
- c) RNA Polymerase III
- d) None of these

- 89. A transcription factor in prokaryotes
 - a) rho factor
 - c) gamma factor
- 90. Which of the following is not a pulse
 - a) Green gram
 - b) Black gram
 - c) Rice
 - d) Peas
- 91. Pearl millet is
 - a) Pennisetum
 - b) Eleusine
 - c) Panicum
 - d) Paspalum
- 92. An ethernet port connects the computer with
 - a) a network
 - b) a key board
 - c) a printer
 - d) a monitor

93. A terrestrial alga

- a) Chara
- c) Spirogyra
- 94. 'Peat moss' is
 - a) Lycopodium
 - c) Cladonia

- b) Trentepholia
- d) Sargassum
- b) Sphagnum
- d) Funaria

b)

d)

delta factor

epsilon factor

- 95. Blast disease of paddy is caused by
 - a) Pyricularia oryzae
 - b) Phytophthora palmivora
 - c) Tapioca mosaic virus
 - d) Xanthomonas citri
- 96. A modified dihybrid ratio
 - a) 9:7b) 15:1c) 12:3:1d) All of these
- 97. The distance between two consecutive nitrogen bases in Z DNA is
 - a) 2.56 A°
 b) 3.4 A°
 c) 3.71 A°
 d) 3.5 A°

98. 5 bromouracil in its keto form substitute for

a) Adenineb) Thyminec) Guanined) Cytosine

99. An allopolyploid possess

- a) 2 genomesb) 3 genomesc) 4 genomesd) none of these
- 100. The genotype of the mother dictates the phenotype of the offspring in
 - a) Incomplete dominance
 - b) Co dominance
 - c) Cytoplasmic inheritance
 - d) All of these

ANSWER SHEET

1	А	В	С	D	Е
2	Α	В	С	D	Е
3	Α	В	С	D	Е
4	Α	В	С	D	Е
5	Α	В	С	D	Е
6	Α	В	С	D	Е
7	А	В	С	D	Е
8	Α	В	С	D	Е
9	Α	В	С	D	Е
10	А	В	С	D	Е
11	А	В	С	D	Е
12	А	В	С	D	Е
13	А	В	С	D	Е
14	Α	В	С	D	Е
15	А	В	С	D	Е
16	Α	В	С	D	Е
17	Α	В	С	D	Е
18	А	В	С	D	Е
19	Α	В	С	D	Е
20	Α	В	С	D	Е
21	Α	В	С	D	Е
22	Α	В	С	D	Е
23	Α	В	С	D	Е
24	Α	В	С	D	Е
25	Α	В	С	D	Е

26	Α	В	С	D	Е
27	Α	В	С	D	Е
28	А	В	С	D	Е
29	А	В	С	D	Е
30	А	В	С	D	Е
31	А	В	С	D	Е
32	Α	В	С	D	Е
33	Α	В	С	D	Ε
34	А	В	С	D	Е
35	Α	В	С	D	Ε
36	Α	В	С	D	Е
37	Α	В	С	D	Ε
38	Α	В	С	D	Е
39	Α	В	С	D	Е
40	Α	В	С	D	Е
41	Α	В	С	D	Е
42	А	В	С	D	Е
43	Α	В	С	D	Е
44	Α	В	С	D	Е
45	А	В	С	D	Е
46	Α	В	С	D	Е
47	Α	В	С	D	Е
48	Α	В	С	D	Е
49	А	В	С	D	Е
50	Α	В	С	D	Е

51	Α	В	С	D	Е
52	Α	В	С	D	Е
53	Α	В	С	D	Е
54	Α	В	С	D	Е
55	Α	В	С	D	Ε
56	А	В	С	D	Е
57	Α	В	С	D	Е
58	Α	В	С	D	Ε
59	Α	В	С	D	Е
60	Α	В	С	D	Е
61	Α	В	С	D	Е
62	Α	В	С	D	Е
63	А	В	С	D	Е
64	А	В	С	D	Е
65	А	В	С	D	Е
66	Α	В	С	D	Е
67	А	В	С	D	Е
68	А	В	С	D	Е
69	А	В	С	D	Е
70	А	В	С	D	Е
71	А	В	С	D	Е
72	Α	В	С	D	Е
73	Α	В	С	D	Е
74	Α	В	С	D	Е
75	Α	В	С	D	Е



ROUGH WORK

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