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## Part III - BIOLOGY

(English Version)

Time Allowed: 3 Hours ] [ Maximum Marks: 150

N. B.: Candidates should answer Part - I (Botany) & Part - II (Zoology) in separate answer-books.

## PART - I (BOTANY)

(Marks: 75)

### SECTION - A

Note: i) Answer all the questions.

ii) Choose and write the correct answer.

iii) Each question carries one mark. 14 × 1 = 14

Stellate parenchyma is present in

a) Nymphaea b) Hydrilla

c) Canna d) Helianthus.

2. Lignified secondary wall is present in

a) Collenchyma

b) Aerenchyma

c) Parenchyma

d) Sclerenchyma.

3. Lamp brush chromosomes were first observed by

a) Bridges

b) Waldeyer

c) Balbiani

d) Flemming.

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4.	Inherent ability of plant cell to develop into a whole plant is called						
-	a)	Dedifferentiation	b)	Differentiation			
	c)	Redifferentiation	d)	Totipotency.			
5.	The	e 4-carbon compound entering	into	the bundle sheath cells during Hatch-			
	Sla	ck pathway is					
	a)	Pyruvic acid	b)	Glycolic acid			
	c)	Oxaloacetic acid	d)	Malic acid.			
6.	Ant	ibiotic streptocycline is used to	contro	ol mana di man			
	a)	Tikka disease of groundnut					
	b)	Tungro disease of rice					
	c)	Citrus canker of lemon					
	d)	Blast disease of rice.					
7.	Bot	anical name for pirandai is					
	a)	Oryza sativa	b)	Arachis hypogea			
	c)	Acalypha indica	d) <sup>*</sup>	Cissus quadrangularis.			
8.	The	pioneer of phylogenetic system	is	The control of the co			
	a)	Gily	b)	Adolf Engler			
	c)	Carolus Linnaeus	d)	George Bentham.			
9.	Plan	its having the flowers with epigy	nous	condition and inferior ovary are placed			
	in th	ne taxon in					
	a)	Thalamiflorae	b)	Bicarpellatae			
	c)	Inferae	d)	Unisexuales.			
10.	Whi	ch one of the following members	of So	planaceae is having berry fruit?			
	a)	Datura	b)	Petunia			
	c)	Nicotiana	d)	Lucopersicon.			

11.	Hug	go de Vries first observed mutation	on in		
	a).	Sorghum	b)	Oenothera	
	c)	Neurospora	d)	Cicer Gigas.	
12.	The	drug manufactured through re	comb	pinant DNA that helps the co	ells to resist
	viru	ises is			
	a)	Interferon	b)	Interleukin	
	c)	Insulin	d)	Renin inhibitors.	
13.	Mos	st effective light for photosynthes	sis is	between the wavelength of	
. *	a)	400 nm to 700 nm	b)	300 nm to 600 nm	
	c)	200 nm to 400 nm	d)	500 nm to 800 nm.	
14.	Ene	ergy currency of cell is			
	a)	AMP	b) ·	ATP	
	c)	NADH 2	d)	NADPH 2.	
					mante 14.2
			TION		
		Note: i) Answer any sever			
		ii) Each question car			$7 \times 3 = 21$
15.	Wri	ite any three merits of Bentham	and I	looker's classification.	
16.	Def	fine tautonym. Give an example.			
17.	Dra	aw diagram for bicollateral vascu	lar b	undle and label the parts.	
18.	Exp	plain exarch and endarch xylem	with	examples.	
19.	Dra	aw diagram for $t$ RNA and label $t$	he pa	rts.	
20.	Wr	ite any three monocot transgenio	plan	nts.	
		t the photosynthetic pigments.			
		ite the chain of electron carriers	in el	ectron transport system.	
			III CI		
		fine fermentation.		ministratives variety and on the	
24.	W	nat is humulin?			[ Turn over
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### SECTION - C

- Note: i) Answer any four questions including Question No. 25 which is compulsory.
  - ii) Draw diagrams wherever necessary.
  - iii) Each question carries five marks.

 $4 \times 5 = 20$ 

- 25. Write any five salient features of ICBN.
- 26. Give an account of classification of meristem with diagram.
- 27. Explain the special types of chromosomes with diagram.
- 28. How is DNA cut?
- 29. Explain Ganong's respiroscope experiment with diagram.
- 30. Bring about the physiological effects of cytokinin.
- 31. Write any five economic importances of cotton.

#### SECTION - D

- Note: i) Answer any two questions.
  - ii) Draw diagrams wherever necessary.
  - iii) Each question carries ten marks.

 $2 \times 10 = 20$ 

- 32. Describe Musa Paradisiaca in technical terms. Draw floral diagram and write floral formulae.
- 33. Describe the four types of cells found in phloem tissues.
- 34. Explain the basic techniques of plant tissue culture.
- 35. Draw C $_4$  cycle without explanation.

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# PART - II ( ZOOLOGY )

( Marks : 75 )

## SECTION - A

Answer all questions.

Note: i)

A

	Fig. So.	ii) Cho	ose and wri	te the	correct answer.	
		iii) Eac	h question	carries	one mark.	$16 \times 1 = 16$
•	The	'gastroenteritis' is o	caused by			
	a)	Salmonella cholero	esuis			
	b)	Entamoeba histoly	ıtica			
	c)	Yersinia pestis			oliquits (et	
	d)	Salmonella typhi.				
2.	Сус	loguanosine is an			okas; alien no tovo suppre-	
	a)	antiviral antibiotic		b)	antibacterial antibiotic	
	c)	antifungal antibio	tic	d)	antiprotozoan antibiotic.	
3.	The	e pathogenic form o	f Entamoebo	a histol	ytica is	
	a)	encysted spores		b)	vegetative trophozoite	
	c)	merozoite		d)	schizont.	
4.	The	e region of brain wh	ich secretes	cereb	rospinal fluid is	en wer Di
	a)	Vermis		b)	Flocculus	
	c)	Choroid plexus		d)	Medulla.oblongata.	
5.	Ag	good choice among a	all the altern	ative fi	uel options is	
	a)	natural gas		b)	butane	
	c)	hydrogen	4	d)	biogas.	

during the

1			U	
6.	0	zone loss was first detected in		
	a)	Antarctic region	b)	Equatorial region
	c)	Arctic region	d)	Siberian region.
7.	Th	ne record of the electric poten ardiac cycle is	tial cha	anges that occur in the heart
	a)	Electrocardiogram	b)	Computed Tomography-CT
	c)	Auto-analyser	d)	Sphygmomanometer.
8.	Th	e book 'Philosophie Zoologique	' was w	ritten by
	a)	Charles Darwin	b)	Jean Baptiste de Lamarck
	c)	McDougall	d)	G. J. Mendel.
9.	De	eficiency of Vitamin D causes		Employed active come.
	a)	Nyctalopia	b)	Xerophthalmia
,	c)	Osteomalacia	d)	Pellagra.
10.	W	nich enzyme acts on milk prote	in?	
	a)	Pepsin	b)	Renin
	c)	Lipase	d)	Erypsin.
11.	Ap	ermanent birth control method	l in mal	e is
	a)	Copper-T	b)	Tubectomy
	c)	Vasectomy	d)	Contraceptive pills.
2.	The	immunoglobulin molecules are	e made	up of
	a)	Lipoproteins	b)	Phosphoproteins
	c)	Glycoproteins	d)	Simple proteins.
3.	Whi	ch one of the following is an er	ythrobl	
	a)	Hepatomegaly	b)	Sickle cell anaemia
	c)	Thalassemia	d)	Albinism.

14.	The	chromosomes of 19 ar	id 20 represen	it as
	a)	Group C	b)	Group E
	c)	Group F	d)	Group G.
15.	Ch	ittagong breed of fowls i	s largely found	d in
				West Don

Gujarat

a)

West Bengal

Andhra Pradesh c)

- Tamil Nadu. d)
- 16. The tastiest fish among the carps is
  - Catla catla a)

Labeo rohita b)

Cirrhina mrigala c)

Channa striatus. d)

## SECTION - B

Answer any eight questions. Note: 1)

Each question carries three marks.

 $8 \times 3 = 24$ 

- 17. Mention the symptoms of 'Marasmus'.
- 18. What is Hering-Breuer reflex?
- 19. Define recombinant DNA.
- 20. List out the names of any three oncogenic viruses.
- 21. What is the primary function of the 'Thymus'?
- 22. How is the multiple sclerosis formed?
- 23. Write the significance of superbugs.
- 24. Define Bioinformatics.
- 25. List out the names of any three bio-reserves in India.
- 26. Mention the important points to be considered during the selection of eggs for hatching.
- 27. Mention the uses of sphygmomanometer.
- 28. Define Pangenesis theory.

### SECTION - C

- Note: i) Answer any three questions including Question No. 31 which is compulsory.
  - ii) Each question carries five marks.

 $3 \times 5 = 15$ 

- 29. Enumerate the functions of skin.
- 30. Describe the structure of HIV virus.
- 31. Describe the types of grafts.
- 32. Write the scope of Bio-informatics.
- 33. Describe Polymorphism.

### SECTION - D

Note: i) Answer any two questions.

ii) Each question carries ten marks.

 $2 \times 10 = 20$ 

- 34. Describe the structure of a skeletal muscle with simple diagram.
- 35. Explain how adrenal medulla functions as an endocrine gland.
- 36. Write an essay on freshwater management.
- 37. Write a detailed account on the preparation of fish pond and its maintenance.