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QUESTION BOOKLET – 2016 Subject : Paper II : Biology

Question Booklet Version

11

(Write this number on your Answer Sheet)

Roll No.							
Answer Sheet No.							

Question Booklet Sr. No.

(Write this number on your Answer Sheet)

Duration: 1 Hour 30 Minutes

Total Marks: 100

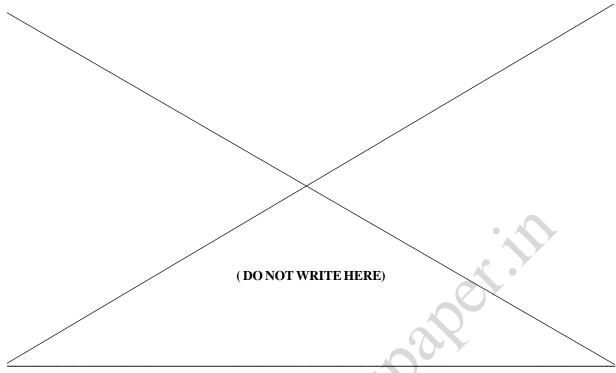
This is to certify that, the entries of Roll Number and Answer Sheet Number have been correctly written and verified.

Candidate's Signature

Invigilator's Signature

Instructions to Candidates

- 1. This question booklet contains 100 Objective Type Questions (Single Best Response Type) in the subjects of Biology.
- 2. The question paper and OMR (Optical Mark Reader) Answer Sheets are issued to examinees separately at the beginning of the examination session.
- 3. Choice and sequence for attempting questions will be as per the convenience of the candidate.
- 4. Candidate should carefully read the instructions printed on the Question Booklet and Answer Sheet and make the correct entries on the Answer Sheet. As Answer Sheets are designed to suit the OPTICAL MARK READER (OMR) SYSTEM, special care should be taken to mark appropriate entries/answers correctly. Special care should be taken to fill QUESTION BOOKLET VERSION, SERIAL No. and Roll No. accurately. The correctness of entries has to be cross-checked by the invigilators. The candidate must sign on the Answer Sheet and Question Booklet.
- 5. Read each question carefully.
- 6. Determine the correct answer from out of the four available options given for each question.
- 7. Fill the appropriate circle completely like this ●, for answering the particular question, with Black ink ball point pen only, in the OMR Answer Sheet.
- 8. Each answer with correct response shall be awarded **one** (1) **mark.** There is **no Negative Marking**. If the examinee has marked two or more answers or has done scratching and overwriting in the Answer Sheet in response to any question, or has marked the circles inappropriately e.g. half circle, dot, tick mark, cross etc, mark/s shall NOT be awarded for such answer/s, as these may not be read by the scanner. Answer sheet of each candidate will be evaluated by computerized scanning method only (Optical Mark Reader) and there will not be any manual checking during evaluation or verification.
- 9. Use of whitener or any other material to erase/hide the circle once filled is not permitted. Avoid overwriting and/or striking of answers once marked.
- Rough work should be done only on the blank space provided in the Question Booklet. Rough work should not be done on the Answer Sheet.
- 11. Immediately after the prescribed examination time is over, the Question Booklet and Answer sheet are to be returned to the Invigilator. Confirm that both the Candidate and Invigilator have signed on question booklet and answer sheet.
- 12. No candidate is allowed to leave the examination hall till the examination session is over.



SPACE FOR ROUGH WORK

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BIOLOGY

1.	What will be the genotype of parents A) $I^A I^A \times I^A I^A$	s of a child with 'O' blood group ? B) $I^B I^B \times I^B I^B$
	C) $I^A I^A \times I^B I^B$	D) $I^A i \times I^B i$
2.	In Angiosperms, megaspores formed are arranged in	after meiosis of megaspore mother cell
	A) Isobilateral tetrad	B) Linear tetrad
	C) Tetrahedral tetrad	D) T-shaped tetrad
3.	During replication of DNA, the two from each other under the influence	strands of the double helix are separated of enzyme
	A) rep-protein	B) SSBP
	C) initiator protein	D) DNA polymerase
4.	-	from the following with reference to lac
	operon.	
	A) It is a unit of gene expression an E. Coli.	d regulation for lactose sugar metabolism in
	B) Lactose sugar enters the cell due	to the activity of enzyme permease.
	C) Operators are present between pr	comoters and structural genes.
	D) The structural gene 'z' codes for 'a' for permease.	$\beta\text{-galactosidase, 'y' for transacetylase and}$
5.	High levels of Aspartic acid, low nit	rogen and sugar content in maize plants
	prevent the attack by	
	A) Aphids	B) Jassids
	C) Boll worms	D) Stem borers
6.	The common feature in CAM and CAA Stomata open only during night	plants is
		ing night
	B) Acid concentration increases dur	ing ingit
	C) Both C_3 and C_4 pathway occur	
	D) Having Kranz anatomy	
7.	Which one of the following electron	acceptor is present in respiratory chain?
	A) Cytochrome f	B) Cytochrome a ₃
	C) Plastocyanin	D) Ferredoxin

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8.	GCG. What will be the codon sequer A) ATG GTG AGC TAC GCG		С			
	C) TAC CAC TGC ATG CGC	D) AUG GUG AGC UAC GCG				
9.	• •	ith axial flowers and dwarf with terminal th axial flowers and tall with terminal be the genotype of parents?				
	A) $TTAa \times ttaa$	B) TtAa × ttaa				
	C) TtAA × ttaa	D) TTAA×ttaa				
10.	CO ₂ to CH ₂ O ? A) H ₂ S	by green sulphur bacteria for reduction of B) H ₂ O				
	C) CH ₄	D) NH ₄				
11.	 The <u>CORRECT</u> sequence of events during double fertilization in Angiosperms is A) Triple fusion, syngamy, porogamy B) Syngamy, triple fusion, porogamy C) Porogamy, syngamy, triple fusion D) Syngamy, porogamy, triple fusion 					
12.	When genomic DNA is fragmented gene is done by using	and cloned, the screening of the desired				
	A) Plasmid DNA	B) DNA probes				
	C) Southern blotting	D) PCR technique				
13	The guano deposits are obtained fro	m the excreta of				
10.	A) Reptiles	B) Human				
	C) Marine birds	D) Micro-organisms				
14.	,	ing 2n = 24 is crossed with a male plant romosome number of the endosperm? B) 18 D) 30				
15.	Two alternative forms of a gene or a A) Identical loci of the same chrome B) Non-identical loci of the same cl C) Identical loci of homologous chr D) Non-identical loci of homologous	osome nromosome romosomes				

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16.	In Kreb's cycle Guanosine Triphosp	hate	e is formed during the conversion of	
	A) Isocitrate to oxalosuccinate	B)	Oxalosuccinate to α-ketoglutarate	
	C) Succinyl CoA to succinate	D)	Fumarate to malate	
17.	Mycorrhiza is			
	A) Alga	B)	Fungus	
	C) Bacteria	D)	Virus	
18.	During PCR technique, the pairing of	prin	ners to ssDNA segment is called	
	A) Denaturation	B)	Annealing	
	C) Polymerisation	D)	Isolation	
19.	is the most convenient	and	cheap method of artificial vegetative	
	propagation.		207	
	A) Grafting		Budding	
	C) Cutting	D)	Micropropogation	
20.	Glycosidic bond exists in DNA mole	ecul	e between	
	A) Sugar and phosphate	B)	Any two nitrogen bases	
	C) Sugar and nitrogen base	D)	Purines and pyrimidines	
21.	Which of the following wall layer of callose ?	f an	ther shows fibrous thickenings of	
	A) Epidermis	B)	Tapetum	
	C) Middle layer	D)	Endothecium	
22.	Photosynthesis is considered as an o	oxid	ation reaction because	
	A) CO ₂ is oxidised	B)	H ₂ O is oxidised	
	C) O ₂ is released	D)	CH ₂ O is oxidised	
23.	Which one of the following is the CO materials during biogas formation?	<u>ORI</u>	RECT order of conversion of waste	
	A) Monomers \rightarrow polymers \rightarrow meth	ane	\rightarrow organic acids	
	B) Organic acids \rightarrow methane \rightarrow po	lyn	$ners \rightarrow monomers$	
	C) Methane \rightarrow organic acids \rightarrow po	lym	$ders \rightarrow monomers$	
	D) Polymers \rightarrow monomers \rightarrow organ	nic	acids → methane	

11 -6-24. Match the plant and the part in relation to Vegetative Propagation. 1) Dahlia a) Eyes 2) Solanum tuberosum b) Runner 3) Begonia c) Fasciculated tuberous roots 4) Cynodon d) Epiphyllous buds A) (1) - c, (2) - a, (3) - b, (4) - d B) (1) - d, (2) - a, (3) - b, (4) - cC) (1) - c, (2) - a, (3) - d, (4) - b D) (1) - b, (2) - c, (3) - a, (4) - d25. Agrobacterium tumefaciens is most widely used for gene transfer because A) it causes crown gall tumours B) of its ability to insert Ti plasmid into nuclear genome C) it can grow anywhere D) it has ability to kill pathogenic bacteria 26. Which of the following event does NOT lead into secondary succession? A) All organisms that existed are lost B) Where no living organisms ever existed C) Abandoned crop field D) Land affected by flood 27. A nucleosome along with linker DNA consists of _ A) eight molecules of histones and 146 base pairs B) eight molecules of histones and 200 base pairs C) nine molecules of histones and 146 base pairs D) nine molecules of histones and 200 base pairs 28. During aerobic respiration the final electron acceptor is B) NADH₂ A) Cyto b C) Water D) Oxygen 29. In quantitative inheritance, when a character is controlled by two pairs of genes, the ratio obtained in F₂ generation is _____ B) 1:4:6:4:1 A) 1:2:1

A) Chlorophy*ll*-a

B) Xanthophy*ll*C) Carotenoid

D) Anthocyanin

30. Which one of the following pigment functions as a reaction center in

D) 1:6:15:20:15:6:1

C) 9:3:3:1

photosynthesis?

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31.	Remarkable increase in rice production tones during 1960 – 2000 was mainled A) Improved semidwarf varieties B) Introduction of Golden rice C) Increased use of chemical fertilized D) Cultivation of wild varieties	y dı	
32.	Which of the following is the first ce Angiosperms? A) Megaspore mother cell C) Functional megaspore	B)	Microspore mother cell
33.	During dihybrid cross, in the F ₂ gene one dominant and the other recessive with contrasting characters.	erati	on, the ratio of individuals showing
	A) $\frac{4}{16}$	B)	6/ /16 9/ 16
	C) $\frac{8}{16}$	D)	9/16
34.	In an ecological succession the pion	eers	are generally
	A) Autotrophs		Carnivores
	C) Herbivores	D)	Detrivores
35.	Given below are some antibiotics and	thei	r microbial source. Match the correct
	pairs. 1) Chloromycetin	a)	Streptomyces griseus
	2) Erythromycin		Penicillium chrysogenum
	3) Penicillin		Streptomyces erythreus
	4) Streptomycin		Streptomyces venezuelae
	A) $1-a$, $2-b$, $3-c$, $4-d$		1 - d, 2 - c, 3 - b, 4 - a
	C) $1 - b$, $2 - d$, $3 - a$, $4 - c$	-	1-c, $2-a$, $3-d$, $4-b$
36.	In plasmid pBR 322, 'BR' stands for		
	A) Baculovirus and Retrovirus	B)	Boyer and Reed
	C) Bolivar and Rodrigues	D)	Bacillus and Rhizobium
37.	How many glucose molecules are reacid molecules at the end of glycolyst	_	
	A) 52	B)	46

D) 26

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C) 32

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38.	The pitch angle of deflection betwee double helix is	n tv	vo successive base pairs in DNA
	A) 20°	B)	34°
	C) 36°	D)	360°
39.	Which one of the following processe involved in wine production?	s in	volved in alcohol production is NOT
	A) Malting	B)	Mashing
	C) Fermentation	D)	Distillation
40.	Which one of the following is formed	as	a result of cyclic photophosphorylation?
	A) NADPH ₂		O_2
	C) ATP		H ₂ O
41.			angiosperms shows filiform apparatus ?
	A) Antipodals	B)	Polar nuclei
	C) Egg	D)	Synergids
42.	Which one of the following organis the first time as a vector by Stanley		
	A) Salmonella typhimurium	B)	Streptococcus pneumoniae
	C) Staphylococcus aureus	D)	Rhizobium leguminosarum
43.	During a dihybrid cross with contr parental genotypes will appear in		-
	A) $\frac{1}{16}$	B)	2/ /16
	C) $\frac{3}{16}$	D)	9/ 16
44.	The wall of pollen tube is made up o	f	
	A) Cellulose and Pectin	B)	Only sporopollenin
	C) Lignin and Pectin	D)	Pectin and Sporopollenin
45.	The micro consumers are commonly	cal	led
	A) Autotrophs		Herbivores
	C) Decomposers		Carnivores
46	Which of the following is a characte	r of	Castor plant to avoid autogamy?
	A) Unisexuality		Protogyny
	C) Protandry		Heterostyly
	C, 110001101j	ر ب	11010100111

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47.	During hybridization offsprings with are self pollinated for few successive	•	
	A) retain their parental charactersC) get homozygosity		remove their parental characters segregate characters
48.	Which of the following is the WRON character for adaptation of cross pol	llina	tion ?
	 A) Zostera → Bright coloured flow B) Bougainvillea → Petaloid bracts 		with nectar
	 C) Passion flower → Corona D) <u>Adansonia</u> → Copious nectar 		
49.	What is the outbreeding device, who	ere tl	he stamens and carpels mature at
	different times called ?	D)	0.10 (37)
	A) Monoecy		Self sterility
	C) Dichogamy	D)	Heterostyly
50.	In anaerobic respiration acetaldehyde NADH ₂ obtained from	e is	reduced to form alcohol by utilising
	A) Glycolysis	B)	Terminal oxidation
	C) Kreb's cycle	D)	Acetylation
51.	A pair of analogous organs is		
	A) Wing of bird – flipper of whale		
	C) Wing of bird – forelimb of horse	D)	Wing of insect and wing of bird
52.	In diploid set of chromosomes, delet	ion	or addition of a member leads to
	A) Aneuploidy	B)	Euploidy
	C) Polyploidy	D)	Triploidy
53.	Select the correct match:		
	I		II
	i) Competition	a)	Tapeworm and man
	ii) Commensalism	b)	Lichen
	iii) Mutualism	c)	Cattle egret and cattle
	iv) Parasitism		Lions and Leopards
	A) $i - d$, $ii - c$, $iii - b$, $iv - a$,	i - d, $ii - b$, $iii - c$, $iv - a$
	C) $i-c$, $ii-b$, $iii-d$, $iv-a$	D)	i - a, $ii - b$, $iii - d$, $iv - c$

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- 54. Which one of the following statement is <u>CORRECT</u>?
 - A) Fertilization in human takes place in womb
 - B) Zygote contains haploid number of chromosomes
 - C) Fertilization membrane avoids polyspermy
 - D) Primary oocyte inhibits the process of oogenesis
- 55. Osmoreceptors are present in the
 - A) Hypothalamus

B) Hypophysis

C) Epiphysis

- D) Epithalamus
- 56. The interaction observed in this diagram is



A) Commensalism

B) Competition

C) Mutualism

- D) Predation
- 57. Select the correct match:

Ι III

- i) Monocyte
- a) Large round nucleus
- *l*) Antihistamine property

- ii) Lymphocyte
- b) Twisted nucleus
- m) Release heparin

- iii) Basophil
- c) Bilobed nucleus
- n) Phagocytic

- iv) Eosinophil
- d) Kidney shaped nucleus o) Produce antibodies
- A) i d n, ii a o, iii b m, iv c l
- B) i b m, ii a l, iii c n, iv d o
- C) i c n, ii b o, iii d m, iv a l
- D) i a o, ii d m, iii c l, iv b n
- 58. The parietal and temporal lobes are separated by
 - A) Central sulcus

B) Longitudinal fissure

C) Lateral sulcus

- D) Parieto-occipital sulcus
- 59. The corpus callosum interconnects
 - A) Cerebral hemispheres
- B) Cerebellar hemispheres
- C) Corpora quadrigemina
- D) Crura Cerebri

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60. The parotid salivary gland	s are innervated by branches of nerve.
A) Vagus	B) Spinal accessory
C) Facial	D) Glossopharyngeal
61. Lac is used in the	
A) Production of guano	B) Production of Isinglass
C) Silvering mirrors	D) Production of soaps
62. Bacterial poultry diseases	mainly include
A) Avian influenza, Brone	chitis, Ranikhet
B) Enteritis, TB, CRD	
C) Favus, Thrush, Asperg	gillosis
D) Bird Flu, Coccidiosis,	Pullorum
63. A change in a wart or mol	e on the skin is observed in
A) Adenoma	B) Carcinoma
C) Lymphoma	D) Melanoma
64. The spermatozoa not ejac	ulated are reabsorbed in the
A) Ejaculatory duct	B) Urethra
C) Vas efferns	D) Vas deferens
65. All of the following are ap	be-men stages in origin of man EXCEPT
A) Ramapithecus	B) <u>Kenyapithecus</u>
C) <u>Dryopithecus</u>	D) <u>Australopithecus</u>
66. Linkage groups can be se	parated during in meiosis.
A) Crossing over	
C) Tetrad formation	D) Terminalization
67. One of the most polluted in	river in Maharashtra is
A) Brahmaputra	B) Ganga
C) Jamuna	D) Panchaganga
68. Hypercalcemic hormone i	.S
A) Aldosterone	B) Calcitriol
C) PTH	D) TCT
69. An oral contraceptive pill	checks
A) Fertilization	B) Implantation
C) Infection	D) Ovulation

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A)	B blood group was disc Decastello and Sturli	B)	Karl Landsteiner
C)	William Harvey	D)	Wallace Alfred
71. Th	ne process by which pr	imary germinal	layers are formed is called
A)	Blastulation	B)	Cleavage
C)	Gastrulation	D)	Implantation
(A) B) C) D) 73. M(A) C) 74. W(A)	eotelism respectively for Tadpole larva of frog Scorpion, turtle and la Catla, penguin and catla, cockroach and uscular ridges at inner Chordae tendinae Papillary muscle hich of the following is Gir	rom the following, spider, pigeon abeo at the Bombay duck surface of vents about the Bombay duck by the Bomb	ricles are called Inter ventricular septum Trabeculae carnae of buffalo ? Nili
C)	Nagpuri	D)	Surti
75.	Column A	Column B	Column C
i) Coenozoic	2-65 mya	Origin of vertebrates
ii) Palaeozoic	500 – 165 mya	Rise of egg laying mammals
iii) Mesozoic	135 – 225 mya	Reptiles dominant
iv	y) Proterozoic	350 – 500 mya	Trilobites dominant
Th	ne correct match of Col	umns A, B and	Cis
A)	i	B)	ii
C)	iii	D)	iv
an A)	hich of the following of d mapping technique of the description of the following of the description of the following of the description of the following of the	aster B)	OT involved in genome sequencing E. Coli Salmonella typhi

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77.	The most common chemical compou	nds	formed in Urey-Miller's	s experiment
	A) Amino acids	B)	Ammonia	
	C) Methane	D)	Vitamins	
78.	Select the <u>CORRECT</u> pair of endode A) Adrenal medulla – Dermis of skir B) Lungs – Thyroid gland C) Lymphatic vessel – Vagina D) Retina – Tonsil		l derivatives.	
79.	Peacock shows following genotype.			•′
	A) XX	B)	XY ,	
	C) ZZ	D)	ZW	
80.	Incubation period of <u>Treponema Pal</u>			
	A) 2 to 14 days		7 to 21 days	
	C) 1 to 2 weeks	D)	3 to 4 weeks	
81.	Acromegaly is caused by hypersecre	etior	ofi	in the adult.
	A) ACTH	B)	GH	
	C) MSH	D)	TSH	
82.	Restriction endonuclease, in DNA fi process.	nge	r printing, carries out fo	ollowing
	A) Fragmentation of DNA	B)	Getting copies of DNA	
	C) Loading DNA on agaroseplate	D)	Synthesis of DNA	
83.	Which one of the following is <u>NOT</u> to	the s	symptom of malaria ?	
	A) Arthralgia		Fever	
	C) Dysentery	D)	Shivering	
84.	In ECG, P – wave represents			
	A) Ventricular repolarization		Ventricular depolarizat	tion
	C) Atrial depolarisation	D)	Atrial repolarization	
85.	The isthmus which connects right are from tracheal cartil		• •	nd is located
	A) 1 st to 3 rd	_	2 nd to 4 th	
	C) 5 th to 7 th	,	6 th to 8 th	

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86.	Asexual reproduction through forma	tion	of gemmule occurs in	
	A) Ascidian	B)	Hydra	
	C) Planaria	D)	Spongilla	
87.	The marsupial mammal amongst the	fol	lowing animals is	
	A) Gibbon	B)	Kangaroo	
	C) Lemur	D)	Spiny ant-eater	
88.	When white eyed and miniature wing with its wild type, it produces follow			
	A) 1.3%	B)	37.2%	
	C) 62.8%	D)	98.7%	
89.	Asiatic wild ass is an example of			
	A) Endangered species	B)	Extinct species	
	C) Rare species	D)	Vulnerable species	
90.	The quantitative and statistical study	of	human population is	
	A) Calligraphy		Demography	
	C) Topography		Seismography	
91.	Cystic fibrosis can be treated by		in gene therapy.	
	A) TGF-B	B)	TPA	
	C) DNase	D)	BGH	
92.	ADH carries out following functions	<u>EX</u>	CEPT	
	A) Increases blood pressure			
	B) Increases glomerular filtrate rate			
	C) Increases permeability for water	in D	OCT	
	D) Increases Na ⁺ excretion			
93.	Which of the following are NOT pro	oduc	ced as transgenic animals?	
	A) Sheep and Pig	B)	Rat and Rabbit	
	C) Dog and Banded Krait	D)	Cow and Fish	
94.	Temporal lobe of cerebrum is cond sensations <u>EXCEPT</u>	cern	ed with the detection of following	
	A) Hearing	B)	Pressure	
	C) Smell	D)	Taste	

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95.	The sterilization procedure in human A) Coitus interruptus C) Tubectomy	B) Rhythm method D) Vasectomy	
96.	6. In the given diagram, the role of 'X' is to		
	'X'		
	A) Generate cardiac impulse		
	B) Cause atrial systole	2007	
	C) Cause ventricular diastole		
	D) Carry cardiac impulse to ventricl	es	
97.	7. A pair of hormones produced by kidneys is		
<i>,</i> , ,	A) Erythropoietin and relaxin		
	B) Erythropoietin and calcitriol		
	C) Calcitonin and relaxin		
	D) Calcitonin and calcitriol		
98.	Alec Jeffreys used	as genetic marker.	
	A) HUMULIN	B) Radioactive probe	
	C) RFLP	D) VNTR	
99.	Which constituent of seminal fluid helps in coagulation of semen after ejaculation ?		
	A) Fibrin	B) Fibrinogen	
	C) Fructose	D) Prostaglandins	
100. Which one of the following statement is <u>CORRECT</u> ?			
	A) Lysergic acid diethylamide is a depressant		
	B) Heroin is diacetylmorphine		
	C) Hashish has hallucinogenic property		
	D) Cocaine is opioid drug		



SPACE FOR ROUGH WORK

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