

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)

Total Marks: 100

Duration: 1 Hour 30 Minutes

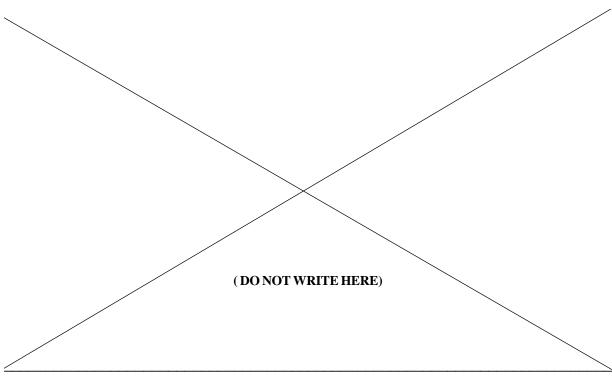
This is to certify that, the entries of Roll Number and Answer Sheet Number have been correctly written and verified.

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

BIOLOGY

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1.	What will be the genotype of parents	of a child with 'O' blood group?
	A) $I^A I^A \times I^A I^A$	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 s 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.	operon. A) It is a unit of gene expression and	from the following with reference to lac d regulation for lactose sugar metabolism in
	E. Coli.	to the activity of annual anamassa
	B) Lactose sugar enters the cell due	• • •
	C) Operators are present between prD) The structural gene 'z' codes for 'a' for permease.	β -galactosidase, 'y' for transacetylase and
5.	High levels of Aspartic acid, low nitroprevent the attack by	rogen and sugar content in maize plants
	A) Aphids	B) Jassids
	C) Boll worms	D) Stem borers
6.	The common feature in CAM and C ₂ A) Stomata open only during night B) Acid concentration increases dur	
	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



8.	<u>-</u>		ranscription unit is ATG GTG AGC TAC on mRNA formed on template strand?		
	A) ATG GTG AGC TAC GCG	B)	GCG TAC AGC GTG ATG		
	C) TAC CAC TGC ATG CGC	D)	AUG GUG AGC UAC GCG		
9.	A cross between two pea plants tall w flowers produced offsprings tall wi flowers in the ratio 1 : 1. What will be	th a	ixial flowers and tall with terminal		
	A) TTAa × ttaa	B)	$TtAa \times ttaa$		
	C) $TtAA \times ttaa$	D)	$TTAA \times ttaa$		
10.	Which one of the following is used b CO ₂ to CH ₂ O?	y gr	een sulphur bacteria for reduction of		
	A) H_2S	B)	H ₂ O		
	C) \overrightarrow{CH}_4		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		PCR technique		
13.	The guano deposits are obtained from	m tl	ne excreta of		
	A) Reptiles	B)	Human		
	C) Marine birds	D)	Micro-organisms		
14.	In an angiosperm a female plant have having $2n = 12$. What will be the chi	_	-		
	A) 12	B)	18		
	C) 24	D)	30		
15.	Two alternative forms of a gene or a A) Identical loci of the same chromo B) Non-identical loci of the same ch C) Identical loci of homologous chr D) Non-identical loci of homologou	osor nron romo	ne nosome osomes		



16.	. In Kreb's cycle Guanosine Triphosphate 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 p	orin	ners to ssDNA segment is called	
	A) Denaturation	B)	Annealing	
	C) Polymerisation	D)	Isolation	
19.	is the most convenient a	and	cheap method of artificial vegetative	
	propagation.			
	A) Grafting	B)	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 ?	an	ther shows fibrous thickenings of	
	A) Epidermis	B)	Tapetum	
	C) Middle layer	D)	Endothecium	
22.	Photosynthesis is considered as an o	xid	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 <u>CC</u> materials during biogas formation?	<u>)RR</u>	RECT order of conversion of waste	
	A) Monomers \rightarrow polymers \rightarrow meth	ane	→ organic acids	
	B) Organic acids \rightarrow methane \rightarrow po	lym	$ers \rightarrow monomers$	
	C) Methane \rightarrow organic acids \rightarrow polynomial polynomial \rightarrow polyno	lym	$ers \rightarrow monomers$	
	D) Polymers \rightarrow monomers \rightarrow organ	nic a	$acids \rightarrow methane$	



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24.	Match the plant and the part in relat 1) <u>Dahlia</u>	a) Eyes	
	2) Solanum tuberosum	b) Runner	
	3) Begonia	c) Fasciculated tuberous roots	
	4) Cynodon	d) Epiphyllous buds	
	A) $(1) - c$, $(2) - a$, $(3) - b$, $(4) - d$ C) $(1) - c$, $(2) - a$, $(3) - d$, $(4) - b$		
25.	Agrobacterium tumefaciens is most	widely used for gene transfer because	ause
	A) it causes crown gall tumours B) of its ability to insert Ti plasmid C) it can grow anywhere D) it has ability to kill pathogenic b	-	
26.	Which of the following event does A A) All organisms that existed are lo B) Where no living organisms ever C) Abandoned crop field D) Land affected by flood	st	?
27.	A nucleosome along with linker DN A) eight molecules of histones and B) eight molecules of histones and C) nine molecules of histones and 1 D) nine molecules of histones and 2	146 base pairs 200 base pairs 46 base pairs	
28.	During aerobic respiration the final	electron acceptor is	
	A) Cyto b	B) NADH ₂	
	C) Water	D) Oxygen	
29.	In quantitative inheritance, when a genes, the ratio obtained in F_2 generally A :		s of
30.	Which one of the following pigment photosynthesis?		
	A) Chlorophy <i>ll</i> -a	B) Xanthophy <i>ll</i>	
	C) Carotenoid	D) Anthocyanin	
		-	



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	ly dı	
32.	Which of the following is the first ce Angiosperms ?	ell o	f female gametophytic generation in
	A) Megaspore mother cellC) Functional megaspore	B) D)	Microspore mother cell Egg cell
33.	During dihybrid cross, in the F ₂ generated one dominant and the other recessive with contrasting characters.		
	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	B)	Carnivores
	C) Herbivores	D)	Detrivores
35.	Given below are some antibiotics and pairs.	thei	r microbial source. Match the correct
	1) Chloromycetin	a)	Streptomyces griseus
	2) Erythromycin	b)	Penicillium chrysogenum
	3) Penicillin		Streptomyces erythreus
	4) Streptomycin		Streptomyces venezuelae
	A) $1-a$, $2-b$, $3-c$, $4-d$		$\frac{1}{1-d, 2-c, 3-b, 4-a}$
	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 glycoly	_	
	A) 52	B)	46
	C) 32	D)	26



38.	The pitch angle of deflection betwee double helix is	n two 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 involved 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	B) O ₂
	C) ATP	D) H ₂ O
41.		of 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 0	m's plasmid was used successfully for Cohen and Herbert Boyer?
	A) Salmonella typhimurium	B) Streptococcus pneumoniae
	C) Staphylococcus aureus	D) Rhizobium leguminosarum
43.	During a dihybrid cross with contr parental genotypes will appear in	rasting characters in the F ₂ generation ratio.
	A) $\frac{1}{16}$	B) $\frac{2}{16}$
	A) $\frac{1}{16}$ C) $\frac{3}{16}$	B) $\frac{2}{16}$ D) $\frac{9}{16}$
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	called
	A) Autotrophs	B) Herbivores
	C) Decomposers	D) Carnivores
46.	Which of the following is a characte	r of Castor plant to avoid autogamy?
	A) Unisexuality	B) Protogyny
	C) Protandry	D) Heterostyly



47.	During hybridization offsprings with are self pollinated for few successive	hybrid vigour superior to both parents e generations to
	A) retain their parental characters	B) remove their parental characters
	C) get homozygosity	D) segregate characters
48.	Which of the following is the <u>WRON</u> character for adaptation of cross pol A) <u>Zostera</u> → Bright coloured flowe B) <u>Bougainvillea</u> → Petaloid bracts C) Passion flower → Corona	lination ? ers with nectar
	D) $\underline{Adansonia} \rightarrow \text{Copious nectar}$	
49.	What is the outbreeding device, whe different times called ?	re the stamens and carpels mature at
	A) Monoecy	B) 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	B) Forelimbs of horse and man
	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	d) Lions and Leopards
	A) $i-d$, $ii-c$, $iii-b$, $iv-a$	B) $i-d$, $ii-b$, $iii-c$, $iv-a$
	C) $i-c$, $ii-b$, $iii-d$, $iv-a$	D) $i - a$, $ii - b$, $iii - d$, $iv - c$



- 54. Which one of the following statement is **CORRECT**?
 - 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:

II

III

i) Monocyte

Ι

- 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



60.	The parotid salivary glands are inner	vated 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 in A) Avian influenza, Bronchitis, Rar B) Enteritis, TB, CRD C) Favus, Thrush, Aspergillosis D) Bird Flu, Coccidiosis, Pullorum		
63.	A change in a wart or mole on the sl	in is observed in	
	A) Adenoma	B) Carcinoma	
	C) Lymphoma	D) Melanoma	
64.	The spermatozoa not ejaculated are	reabsorbed in the	
	A) Ejaculatory duct	B) Urethra	
	C) Vas efferns	D) Vas deferens	
65.	All of the following are ape-men stage	ges in origin of man EXCEPT	
	A) Ramapithecus	B) <u>Kenyapithecus</u>	
	C) <u>Dryopithecus</u>	D) <u>Australopithecus</u>	
66.	Linkage groups can be separated du	ring in meiosis.	
	A) Crossing over	B) Synapsis	
	C) Tetrad formation	D) Terminalization	
67.	One of the most polluted river in Ma	harashtra is	
	A) Brahmaputra	B) Ganga	
	C) Jamuna	D) Panchaganga	
68.	Hypercalcemic hormone is		
	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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70.	AB blood group was disc A) Decastello and Sturli C) William Harvey	B)	Karl Landsteiner Wallace Alfred
71.	The process by which pr A) Blastulation C) Gastrulation	B)	layers are formed is called Cleavage Implantation
72.	Select the group of animureotelism respectively fand Tadpole larva of frog B) Scorpion, turtle and la C) Catla, penguin and cat D) Cobra, cockroach and	from the following, spider, pigeon abeo	
73.	Muscular ridges at inner A) Chordae tendinae C) Papillary muscle	B)	ricles are called Inter ventricular septum Trabeculae carnae
74.	Which of the following is A) Gir C) Nagpuri	B)	of buffalo ? Nili 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) Proterozoic	350 – 500 mya	Trilobites dominant
	The correct match of Col	umns A, B and	C is
	A) i	B)	ii
	C) iii	D)	iv
76.	Which of the following and mapping technique	_	OT involved in genome sequencing
	A) <u>Drosophila</u> <u>melanogo</u>		<u>E. Coli</u>
	C) <u>Mus</u> <u>musculus</u>	D)	<u>Salmonella</u> <u>typhi</u>



77.	7. The most common chemical compounds formed in Urey-Miller's experime were			
	A) Amino acids	B) Ammonia		
	C) Methane	D) Vitamins		
78.	Select the <u>CORRECT</u> pair of endode A) Adrenal medulla – Dermis of ski B) Lungs – Thyroid gland C) Lymphatic vessel – Vagina D) Retina – Tonsil			
79.	Peacock shows following genotype.			
	A) XX	B) XY		
	C) ZZ	D) ZW		
80.	Incubation period of <u>Treponema Par</u>	<i>llidum</i> is about		
	A) 2 to 14 days	B) 7 to 21 days		
	C) 1 to 2 weeks	D) 3 to 4 weeks		
81.	Acromegaly is caused by hypersecre	etion of	in the adult.	
	A) ACTH	B) GH		
	C) MSH	D) TSH		
82.	Restriction endonuclease, in DNA fiprocess.	inger printing, carries out	following	
	A) Fragmentation of DNA	B) Getting copies of DN.	A	
	C) Loading DNA on agaroseplate			
83.	Which one of the following is <u>NOT</u>	the symptom of malaria?		
	A) Arthralgia	B) Fever		
	C) Dysentery	D) Shivering		
84.	In ECG, P – wave represents			
	A) Ventricular repolarization	B) Ventricular depolarization		
	C) Atrial depolarisation	D) Atrial repolarization		
85.	The isthmus which connects right a from tracheal carti		and is located	
	A) 1 st to 3 rd	B) 2 nd to 4 th		
	C) 5 th to 7 th	D) 6 th to 8 th		



86.	. Asexual reproduction through formation of gemmule occurs in			
	A) Ascidian	B)]	Hydra	
	C) Planaria	D)	Spongilla	
87.	The marsupial mammal amongst the	follo	owing 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) 3	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	y of l	numan population is	
	A) Calligraphy	B)]	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	EXC	<u>CEPT</u>	
	A) Increases blood pressure			
	B) Increases glomerular filtrate rate	•		
	C) Increases permeability for water	in D0	CT	
	D) Increases Na ⁺ excretion			
93.	Which of the following are NOT pro	oduce	ed 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 concesensations <u>EXCEPT</u>	cerne	ed with the detection of following	
	A) Hearing	B)]	Pressure	
	C) Smell	-	Taste	



		-15-
95.	The sterilization procedure in human A) Coitus interruptus C) Tubectomy	B) Rhythm method D) Vasectomy
96.	5. In the given diagram, the role of 'X' is to	
	'X'	
	A) Generate cardiac impulse	
	B) Cause atrial systole	
	C) Cause ventricular diastole	
	D) Carry cardiac impulse to ventric	les
97.	A pair of hormones produced by kid	lneys is
	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 CORRECT ?	
	A) Lysergic acid diethylamide is a depressant	

B) Heroin is diacetylmorphine

D) Cocaine is opioid drug

C) Hashish has hallucinogenic property

SPACE FOR ROUGH WORK