

# QUESTION BOOKLET – 2016

**Subject : Paper II : Biology** 

**Ouestion Booklet Version** 

33

(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

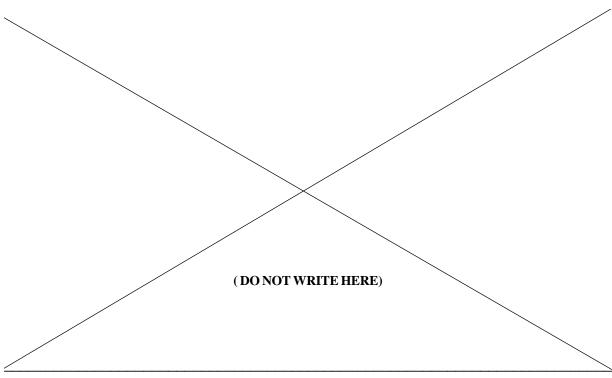
This is to certify that, the entries of Roll Number and Answer Sheet Number have been correctly written and verified.

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.
- 10. 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**

1.	The <u>CORRECT</u> sequence of events du A) Triple fusion, syngamy, porogam B) Syngamy, triple fusion, porogam C) Porogamy, syngamy, triple fusion D) Syngamy, porogamy, triple fusion	ny on
2.	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
3.	The guano deposits are obtained from	m the excreta of
	A) Reptiles	B) Human
	C) Marine birds	D) Micro-organisms
4.		ring 2n = 24 is crossed with a male plant romosome number of the endosperm?  B) 18 D) 30
5.	Two alternative forms of a gene or a A) Identical loci of the same chrome B) Non-identical loci of the same ch C) Identical loci of homologous chr D) Non-identical loci of homologou	osome hromosome romosomes
6.	Which of the following event does N	NOT lead into secondary succession?
	A) All organisms that existed are los	st
	B) Where no living organisms ever	existed
	C) Abandoned crop field	
	D) Land affected by flood	
7.	A nucleosome along with linker DN	A consists of
	A) eight molecules of histones and	146 base pairs
	B) eight molecules of histones and 2	200 base pairs
	C) nine molecules of histones and 1	46 base pairs
	D) nine molecules of histones and 2	200 base pairs



8.	. During aerobic respiration the final electron acceptor is			
	A) Cyto b	B)	$NADH_2$	
	C) Water	D)	Oxygen	
9.	In quantitative inheritance, when a genes, the ratio obtained in F <sub>2</sub> gener			
	<del>-</del>		1:4:6:4:1	
	C) 9:3:3:1	D)	1:6:15:20:15:6:1	
10.	Which one of the following pigment photosynthesis?	fur	actions as a reaction center in	
	A) Chlorophy <i>ll</i> -a	B)	Xanthophy <i>ll</i>	
	C) Carotenoid	D)	Anthocyanin	
11.	In Kreb's cycle Guanosine Triphosp	hate	e is formed during the conversion of	
	A) Isocitrate to oxalosuccinate	B)	Oxalosuccinate to $\alpha$ -ketoglutarate	
	C) Succinyl CoA to succinate	D)	Fumarate to malate	
12.	Mycorrhiza is			
	A) Alga	B)	Fungus	
	C) Bacteria	D)	Virus	
13.	During PCR technique, the pairing of J	prin	ners to ssDNA segment is called	
	A) Denaturation	B)	Annealing	
	C) Polymerisation	D)	Isolation	
14.	is the most convenient	and	cheap method of artificial vegetative	
	propagation.			
	A) Grafting		Budding	
	C) Cutting	D)	Micropropogation	
15.	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	
16.	•		angiosperms shows filiform apparatus?	
	A) Antipodals	B)	Polar nuclei	
	C) Egg	D)	Synergids	



17.	Which one of the following organisthe first time as a vector by Stanley	sm's plasmid was used successfully for Cohen and Herbert Boyer?
	A) Salmonella typhimurium	-
	C) Staphylococcus aureus	
18.	During a dihybrid cross with contr parental genotypes will appear in	rasting characters in the F <sub>2</sub> generation ratio.
	A) $\frac{1}{16}$ C) $\frac{3}{16}$	B) $\frac{2}{16}$ D) $\frac{9}{16}$
	C) $\frac{3}{16}$	D) $\frac{9}{16}$
19.	The wall of pollen tube is made up of	$\mathbf{f}$
	A) Cellulose and Pectin	B) Only sporopollenin
	C) Lignin and Pectin	D) Pectin and Sporopollenin
20.	The micro consumers are commonly	called
	A) Autotrophs	B) Herbivores
	C) Decomposers	D) Carnivores
21.	What will be the genotype of parents	
	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) $I^A i \times I^B i$
22.	In Angiosperms, megaspores formed are arranged in	l after meiosis of megaspore mother cell
	A) Isobilateral tetrad	B) Linear tetrad
	C) Tetrahedral tetrad	D) T-shaped tetrad
23.	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
24.	Identify the <u>INCORRECT</u> statement operon.	from the following with reference to lac
	•	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	· · · · · · · · · · · · · · · · · · ·
	D) The structural gene 'z' codes for	β-galactosidase, 'y' for transacetylase and
	'a' for permease.	•



25.	<ol> <li>High levels of Aspartic acid, low nitrogen and sugar content in maize pla prevent the attack by</li> </ol>		
	A) Aphids	B) Jassids	
	C) Boll worms	D) Stem borers	
26.	Remarkable increase in rice producti tones during 1960 – 2000 was main! A) Improved semidwarf varieties B) Introduction of Golden rice C) Increased use of chemical fertilized D) Cultivation of wild varieties		
27.	Which of the following is the first ce Angiosperms?	ell of female gametophytic generation in	
	A) Megaspore mother cell	B) Microspore mother cell	
	C) Functional megaspore	_	
28.	<del>-</del>	eration, the ratio of individuals showing e character will be of parents	
	A) $\frac{4}{16}$ C) $\frac{8}{16}$	B) $\frac{6}{16}$ D) $\frac{9}{16}$	
	C) $\frac{8}{16}$	D) $\frac{9}{16}$	
29.	In an ecological succession the pion	neers are generally	
	A) Autotrophs	B) Carnivores	
	C) Herbivores	D) Detrivores	
30.	Given below are some antibiotics and pairs.	their microbial source. Match the correct	
	1) Chloromycetin	a) <u>Streptomyces</u> g <u>riseus</u>	
	2) Erythromycin	b) <u>Penicillium</u> <u>chrysogenum</u>	
	3) Penicillin	c) <u>Streptomyces</u> <u>erythreus</u>	
	4) Streptomycin	d) <u>Streptomyces</u> <u>venezuelae</u>	
	A) $1-a$ , $2-b$ , $3-c$ , $4-d$	B) $1 - d$ , $2 - c$ , $3 - b$ , $4 - a$	
	C) $1 - b$ , $2 - d$ , $3 - a$ , $4 - c$	D) $1-c$ , $2-a$ , $3-d$ , $4-b$	



31.	The common feature in CAM and C <sub>4</sub> A) Stomata open only during night B) Acid concentration increases dur C) Both C <sub>3</sub> and C <sub>4</sub> pathway occur D) Having Kranz anatomy	•
32.	Which one of the following electron a A) Cytochrome f C) Plastocyanin	acceptor is present in respiratory chain?  B) Cytochrome a <sub>3</sub> D) Ferredoxin
33.	<del>-</del>	
34.		ith axial flowers and dwarf with terminal th axial flowers and tall with terminal be the genotype of parents?  B) TtAa × ttaa  D) TTAA × ttaa
35.	Which one of the following is used by $CO_2$ to $CH_2O$ ?  A) $H_2S$ C) $CH_4$	y green sulphur bacteria for reduction of  B) H <sub>2</sub> O D) NH <sub>4</sub>
36.	Which of the following is a character A) Unisexuality C) Protandry	r of Castor plant to avoid autogamy ? B) Protogyny D) Heterostyly
37.	During hybridization offsprings with are self pollinated for few successive A) retain their parental characters C) get homozygosity	
38.	Which of the following is the <u>WRON</u> character for adaptation of cross pole A) <u>Zostera</u> → Bright coloured flowe B) <u>Bougainvillea</u> → Petaloid bracts C) Passion flower → Corona D) <u>Adansonia</u> → Copious nectar	lination ? ers with nectar



39.	what is the outbreeding device, whe different times called?	re ı	ne stamens and carpeis mature at
	A) Monoecy	B)	Self sterility
	C) Dichogamy		Heterostyly
40.	In anaerobic respiration acetaldehyde NADH <sub>2</sub> obtained from	e is	reduced to form alcohol by utilising
	A) Glycolysis	B)	Terminal oxidation
	C) Kreb's cycle	D)	Acetylation
41.	In plasmid pBR 322, 'BR' stands for		
	A) Baculovirus and Retrovirus	B)	Boyer and Reed
	C) Bolivar and Rodrigues	D)	Bacillus and Rhizobium
42.	How many glucose molecules are reacid molecules at the end of glycoly	_	
	A) 52	B)	46
	C) 32	D)	26
43.	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°
44.	Which one of the following processes involved in wine production?	s in	volved in alcohol production is NOT
	A) Malting	B)	Mashing
	C) Fermentation	,	Distillation
45.	Which one of the following is formed	as	a result of cyclic photophosphorylation?
	A) NADPH <sub>2</sub>	B)	$O_2$
	C) ATP	D)	$H_2O$
46.	Which of the following wall layer of callose ?	an	ther shows fibrous thickenings of
	A) Epidermis	B)	Tapetum
	C) Middle layer	D)	Endothecium
47.	Photosynthesis is considered as an o	oxid	ation reaction because
	A) CO <sub>2</sub> is oxidised	B)	H <sub>2</sub> O is oxidised
	C) O <sub>2</sub> is released	D)	CH <sub>2</sub> O is oxidised



48.	materials during biogas formation ?	ORRECT order of conversion of waste		
	A) Monomers $\rightarrow$ polymers $\rightarrow$ methane $\rightarrow$ organic acids			
	B) Organic acids $\rightarrow$ methane $\rightarrow$ po	•		
	C) Methane $\rightarrow$ organic acids $\rightarrow$ po	•		
	D) Polymers $\rightarrow$ monomers $\rightarrow$ orga	$nic acids \rightarrow methane$		
49.	Match the plant and the part in relat	ion to Vegetative Propagation.		
	1) <u>Dahlia</u>	a) Eyes		
	2) Solanum tuberosum	b) Runner		
	3) Begonia	c) Fasciculated tuberous roots		
		d) Epiphyllous buds		
	A) $(1) - c$ , $(2) - a$ , $(3) - b$ , $(4) - d$			
	C) $(1) - c$ , $(2) - a$ , $(3) - b$ , $(4) - b$	D) $(1) = a$ , $(2) = a$ , $(3) = b$ , $(4) = c$		
	C) (1) C, (2) a, (3) d, (4) 0	<i>D</i> ) (1) 0, (2) c, (3) a, (4) d		
50.	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 b	acteria		
51.	Linkage groups can be separated du	ring in meiosis.		
	A) Crossing over	B) Synapsis		
	C) Tetrad formation	D) Terminalization		
52.	One of the most polluted river in Ma	aharashtra is		
	A) Brahmaputra	B) Ganga		
	C) Jamuna	D) Panchaganga		
53.	Hypercalcemic hormone is			
	A) Aldosterone	B) Calcitriol		
	C) PTH	D) TCT		
54.	An oral contraceptive pill checks			
	A) Fertilization	B) Implantation		
	C) Infection	D) Ovulation		
55.	AB blood group was discovered by			
	A) Decastello and Sturli	B) Karl Landsteiner		
	C) William Harvey	D) Wallace Alfred		
	· · · · · · · · · · · · · · · · · · ·	,		



56.	Acromegaly is caused by hypersecre	etion of in the adult.
	A) ACTH	B) GH
	C) MSH	D) TSH
57.	Restriction endonuclease, in DNA fin process.	inger printing, carries out following
	A) Fragmentation of DNA	B) Getting copies of DNA
	C) Loading DNA on agaroseplate	D) Synthesis of DNA
58.	Which one of the following is <u>NOT</u>	the symptom of malaria ?
	A) Arthralgia	B) Fever
	C) Dysentery	D) Shivering
59.	In ECG, P – wave represents	
	A) Ventricular repolarization	B) Ventricular depolarization
	C) Atrial depolarisation	D) Atrial repolarization
60.	The isthmus which connects right a from tracheal cartif.  A) 1 <sup>st</sup> to 3 <sup>rd</sup> C) 5 <sup>th</sup> to 7 <sup>th</sup>	nd left lobes of thyroid gland is located lages.  B) 2 <sup>nd</sup> to 4 <sup>th</sup> D) 6 <sup>th</sup> to 8 <sup>th</sup>
	,	,
61.	Which of the following organisms i and mapping technique?	s <u>NOT</u> involved in genome sequencing
	A) <u>Drosophila</u> <u>melanogaster</u>	B) <u>E. Coli</u>
	C) <u>Mus musculus</u>	D) <u>Salmonella</u> <u>typhi</u>
62.	The most common chemical compou	ands formed in Urey-Miller's experiment
	A) Amino acids	B) Ammonia
	C) Methane	D) Vitamins
63.	Select the <u>CORRECT</u> pair of endode	
	A) Adrenal medulla – Dermis of ski	n
	B) Lungs – Thyroid gland	
	C) Lymphatic vessel – Vagina	
	D) Retina – Tonsil	
64.	Peacock shows following genotype.	D) 1/3/
	A) XX	B) XY
	C) ZZ	D) ZW



65.	Incubation period of <u>Treponema</u> <u>Pal</u>	<i>lidum</i> i	is about
	A) 2 to 14 days	B) 7 t	to 21 days
	C) 1 to 2 weeks	D) 3 t	to 4 weeks
66.	Asexual reproduction through forma	tion of	gemmule occurs in
	A) Ascidian	B) Hy	ydra
	C) Planaria	D) Sp	oongilla
67.	The marsupial mammal amongst the	follow	ring animals is
	A) Gibbon	B) Ka	angaroo
	C) Lemur	D) Sp	piny ant-eater
68.	When white eyed and miniature wing with its wild type, it produces follow		
	A) 1.3%	B) 37	7.2%
	C) 62.8%	D) 98	3.7%
69.	Asiatic wild ass is an example of		
	A) Endangered species	B) Ex	ctinct species
	C) Rare species	•	ulnerable species
70.	The quantitative and statistical study	of hu	man population is
	A) Calligraphy	B) De	emography
	C) Topography	D) Se	eismography
71.	Lac is used in the		
	A) Production of guano	B) Pro	oduction of Isinglass
	C) Silvering mirrors	D) Pro	oduction of soaps
72.	Bacterial poultry diseases mainly in	clude	
	A) Avian influenza, Bronchitis, Ran	khet	
	B) Enteritis, TB, CRD		
	C) Favus, Thrush, Aspergillosis		
	D) Bird Flu, Coccidiosis, Pullorum		
73.	A change in a wart or mole on the sk	in is ol	bserved in
	A) Adenoma	B) Ca	arcinoma
	C) Lymphoma	D) Me	elanoma
74.	The spermatozoa not ejaculated are	eabsor	rbed in the
	A) Ejaculatory duct	B) Ur	rethra
	C) Vas efferns	D) Va	as deferens



75.	All of the following are ape-men stag	ges i	n origin of man <u>EXCEPT</u>
	A) Ramapithecus	B)	<u>Kenyapithecus</u>
	C) <u>Dryopithecu</u> s	D)	Australopithecus
76.	Cystic fibrosis can be treated byA) TGF-B		in gene therapy. TPA
	C) DNase	D)	BGH
77.	ADH carries out following functions  A) Increases blood pressure  B) Increases glomerular filtrate rate  C) Increases permeability for water in  D) Increases Na <sup>+</sup> excretion		
78.	Which of the following are NOT pro	duc	ed as transgenic animals?
	A) Sheep and Pig	B)	Rat and Rabbit
	C) Dog and Banded Krait	D)	Cow and Fish
79.	Temporal lobe of cerebrum is conc sensations <u>EXCEPT</u>	ern	ed with the detection of following
	A) Hearing	B)	Pressure
	C) Smell	D)	Taste
80.	The sterilization procedure in human	ı fei	nale is
	A) Coitus interruptus		Rhythm method
	C) Tubectomy	-	Vasectomy
81.	The process by which primary germi	inal	layers are formed is called
	A) Blastulation		Cleavage
	C) Gastrulation		Implantation
82.	Select the group of animals adapte ureotelism respectively from the foll A) Tadpole larva of frog, spider, pig B) Scorpion, turtle and labeo C) Catla, penguin and cat D) Cobra, cockroach and Bombay de	low: geon	ing
83.	Muscular ridges at inner surface of v	vent	ricles are called
	A) Chordae tendinae	B)	Inter ventricular septum
	C) Papillary muscle	D)	Trabeculae carnae



84. Which of the following is **NOT** a breed of buffalo?

A) Gir

C) iii

B) Nili

C) Nagpuri

D) Surti

D) iv

85.	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 C	Columns A, B and C is	S
	A) i	B) ii	

86. The interaction observed in this diagram is



A) Commensalism

B) Competition

C) Mutualism

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

I II 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) 
$$i - a - o$$
,  $ii - d - m$ ,  $iii - c - l$ ,  $iv - b - n$ 



88.	The parietal and temporal lobes are	separated by
	A) Central sulcus	B) Longitudinal fissure
	C) Lateral sulcus	D) Parieto-occipital sulcus
89.	The corpus callosum interconnects	
	A) Cerebral hemispheres	B) Cerebellar hemispheres
	C) Corpora quadrigemina	D) Crura Cerebri
90.	The parotid salivary glands are inner	vated by branches of nerve.
	A) Vagus	B) Spinal accessory
	C) Facial	D) Glossopharyngeal
91.	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 ventricl	es
92.	A pair of hormones produced by kid	neys is
	A) Erythropoietin and relaxin	
	B) Erythropoietin and calcitriol	
	C) Calcitonin and relaxin	
	D) Calcitonin and calcitriol	
93.	Alec Jeffreys used	as genetic marker.
	A) HUMULIN	B) Radioactive probe
	C) RFLP	D) VNTR



1188188 1111	III IIII IIII	-13-	
94.	Which constituent of seminal fluid be ejaculation?		
	A) Fibrin	B) Fibrinogen	
	C) Fructose	D) Prostaglandins	
95.	5. 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		
96.	<ul><li>A pair of analogous organs is</li><li>A) Wing of bird – flipper of whale</li><li>C) Wing of bird – forelimb of horse</li></ul>	<ul><li>B) Forelimbs of horse and man</li><li>D) Wing of insect and wing of bird</li></ul>	
97.	In diploid set of chromosomes, delet A) Aneuploidy C) Polyploidy	ion or addition of a member leads to  B) Euploidy  D) Triploidy	
98. 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) $i - a$ , $ii - b$ , $iii - d$ , $iv - c$	
99.	9. 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		
100.	Osmoreceptors are present in the		
	A) Hypothalamus	B) Hypophysis	
	C) Epiphysis	D) Epithalamus	

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### SPACE FOR ROUGH WORK