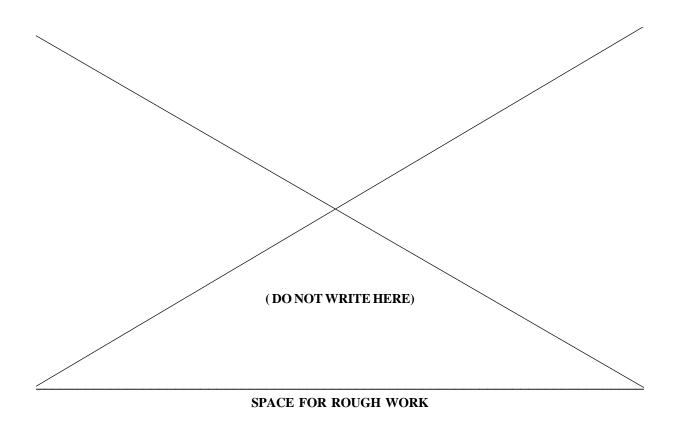
	QUESTION BOOKLET – 2016 Subject : Paper II : Biology	
Question Booklet Version	Roll No.	Question Booklet Sr. No.
22		
(Write this number on	Answer Sheet No.	(Write this number on
your Answer Sheet)		your Answer Sheet)
Duration : 1 Hour 30 Minutes       Total Marks : 100         This is to certify that, the entries of Roll Number and Answer Sheet Number have been correctly written and verified.		
Candidate's Signature		Invigilator's Signature
	Instructions to Candidates	
<ul><li>of Biology.</li><li>2. The question paper and OMR ( the beginning of the examinati</li><li>3. Choice and sequence for attem</li></ul>	100 Objective Type Questions (Single Best Resp Optical Mark Reader) Answer Sheets are issued to on session. pting questions will be as per the convenience of the instructions printed on the Question Booklet a	b examinees separately at 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.



#### BIOLOGY

- 1. 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
- 2. 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
- 3. During aerobic respiration the final electron acceptor is

A) Cyto b	B) NADH <sub>2</sub>
C) Water	D) Oxygen

4. In quantitative inheritance, when a character is controlled by two pairs of genes, the ratio obtained in F<sub>2</sub> generation is \_\_\_\_\_

A) 1:2:1	B) 1:4:6:4:1
C) 9:3:3:1	D) 1:6:15:20:15:6:1

5. Which one of the following pigment functions as a reaction center in photosynthesis ?

A)	Chlorophyll-a	B) Xanthoph	yll
C)	Carotenoid	D) Anthocya	nin

- 6. Which of the following is a character of Castor plant to avoid autogamy ?
  - A) UnisexualityB) ProtogynyC) ProtandryD) Heterostyly
- - C) get homozygosity D) segregate characters
- 8. Which of the following is the <u>WRONG</u> match between the plant and its character for adaptation of cross pollination ?
  - A) <u>Zostera</u>  $\rightarrow$  Bright coloured flowers with nectar
  - B) <u>Bougainvillea</u>  $\rightarrow$  Petaloid bracts
  - C) Passion flower  $\rightarrow$  Corona
  - D) <u>Adansonia</u>  $\rightarrow$  Copious nectar

- 9. What is the outbreeding device, where the stamens and carpels mature at different times called ?
  - A) Monoecy B) Self sterility
  - C) Dichogamy D) Heterostyly
- 10. In anaerobic respiration acetaldehyde is reduced to form alcohol by utilising NADH<sub>2</sub> obtained from \_\_\_\_\_
  - A) Glycolysis B) Terminal oxidation
  - C) Kreb's cycle D) Acetylation
- 11. Remarkable increase in rice production from 35 million tones to 89.5 million tones during 1960 2000 was mainly due to \_\_\_\_\_
  - A) Improved semidwarf varieties
  - B) Introduction of Golden rice
  - C) Increased use of chemical fertilizers
  - D) Cultivation of wild varieties
- 12. Which of the following is the first cell of female gametophytic generation in Angiosperms ?
  - A) Megaspore mother cell B) Microspore mother cell
  - C) Functional megaspore D) Egg cell
- 13. During dihybrid cross, in the  $F_2$  generation, the ratio of individuals showing one dominant and the other recessive character will be \_\_\_\_\_\_ of parents with contrasting characters.
  - A)  $\frac{4}{16}$ C)  $\frac{8}{16}$ B)  $\frac{6}{16}$ D)  $\frac{9}{16}$

14. In an ecological succession the pioneers are generally \_\_\_\_\_

- A) Autotrophs B) Carnivores
- C) Herbivores D) Detrivores
- 15. Given below are some antibiotics and their microbial source. Match the correct pairs.
  - 1) Chloromycetina) Streptomyces griseus2) Erythromycinb) Penicillium chrysogenum3) Penicillinc) Streptomyces erythreus4) Streptomycind) Streptomyces venezuelaeA) 1 a, 2 b, 3 c, 4 dB) 1 d, 2 c, 3 b, 4 aC) 1 b, 2 d, 3 a, 4 cD) 1 c, 2 a, 3 d, 4 b

- 16. The common feature in CAM and  $C_4$  plants is \_\_\_\_\_
  - A) Stomata open only during night
  - B) Acid concentration increases during night
  - C) Both  $C_3$  and  $C_4$  pathway occur
  - D) Having Kranz anatomy
- 17. Which one of the following electron acceptor is present in respiratory chain ?
  - A) Cytochrome f B) Cytochrome  $a_3$
  - C) Plastocyanin D) Ferredoxin
- 18. The codon sequence on coding strand of transcription unit is ATG GTG AGC TAC GCG. What will be the codon sequence 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
- 19. A cross between two pea plants tall with axial flowers and dwarf with terminal flowers produced offsprings tall with axial flowers and tall with terminal flowers in the ratio 1 : 1. What will be the genotype of parents ?
  - A) TTAa  $\times$  ttaa B) TtAa  $\times$  ttaa D) TTAA × ttaa C) TtAA  $\times$  ttaa
- 20. Which one of the following is used by green sulphur bacteria for reduction of  $CO_2$  to  $CH_2O$ ?
  - B)  $H_2O$ A)  $H_2S$ D)  $NH_4$ C)  $CH_4$
- 21. In Kreb's cycle Guanosine Triphosphate is formed during the conversion of
  - A) Isocitrate to oxalosuccinate
  - C) Succinyl CoA to succinate
- B) Oxalosuccinate to  $\alpha$ -ketoglutarate D) Fumarate to malate
- 22. Mycorrhiza is \_\_\_\_\_
  - A) Alga B) Fungus D) Virus C) Bacteria
- 23. During PCR technique, the pairing of primers to ssDNA segment is called \_\_\_\_\_\_
  - A) Denaturation B) Annealing
  - C) Polymerisation D) Isolation
- 24. \_\_\_\_\_\_\_ is the most convenient and cheap method of artificial vegetative propagation.
  - A) Grafting B) Budding C) Cutting D) Micropropogation

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25.	5. Glycosidic bond exists in DNA molecule between		
	A) Sugar and phosphate	B) Any two nitrogen bases	
	C) Sugar and nitrogen base	D) Purines and pyrimidines	
26.	What will be the genotype of parent $A = A = A$	÷ .	
	A) $I^A I^A \times I^A I^A$ C) $I^A I^A \times I^B I^B$	B) $I^{B} I^{B} \times I^{B} I^{B}$ D) $I^{A} i \times I^{B} i$	
27.	In Angiosperms, megaspores formed are arranged in	d after meiosis of megaspore mother co	ell
	A) Isobilateral tetrad	B) Linear tetrad	
	C) Tetrahedral tetrad	D) T-shaped tetrad	
28.	During replication of DNA, the two from each other under the influence	strands of the double helix are separate of enzyme	ed
	A) rep-protein	B) SSBP	
	C) initiator protein	D) DNA polymerase	
29.	operon.	from the following with reference to l ad regulation for lactose sugar metabol	
		to the activity of enzyme permease.	
	C) Operators are present between p		
		$\beta$ -galactosidase, 'y' for transacetylas	se and
30.	High levels of Aspartic acid, low nit prevent the attack by	trogen and sugar content in maize plar	nts
	A) Aphids	B) Jassids	
	C) Boll worms	D) Stem borers	
31.	Which of the following wall layer o callose ?	f anther shows fibrous thickenings of	
	A) Epidermis	B) Tapetum	
	C) Middle layer	D) Endothecium	
32.	Photosynthesis is considered as an	oxidation reaction because	
	A) $CO_2$ is oxidised	B) $H_2O$ is oxidised	
	C) $O_2$ is released	D) $CH_2O$ is oxidised	

- 33. Which one of the following is the <u>CORRECT</u> order of conversion of waste materials during biogas formation ?
  - A) Monomers  $\rightarrow$  polymers  $\rightarrow$  methane  $\rightarrow$  organic acids
  - B) Organic acids  $\rightarrow$  methane  $\rightarrow$  polymers  $\rightarrow$  monomers
  - C) Methane  $\rightarrow$  organic acids  $\rightarrow$  polymers  $\rightarrow$  monomers
  - D) Polymers  $\rightarrow$  monomers  $\rightarrow$  organic acids  $\rightarrow$  methane

#### 34. Match the plant and the part in relation to Vegetative Propagation.

1) <u>Dahlia</u>	a) Eyes
2) Solanum tuberosum	b) Runner
3) <u>Begonia</u>	c) Fasciculated tuberous roots
4) <u>Cynodon</u>	d) Epiphyllous buds
A) $(1) - c$ , $(2) - a$ , $(3) - b$ , $(4) - d$	B) $(1) - d$ , $(2) - a$ , $(3) - b$ , $(4) - c$
C) $(1) - c$ , $(2) - a$ , $(3) - d$ , $(4) - b$	D) $(1) - b$ , $(2) - c$ , $(3) - a$ , $(4) - d$

35. Agrobacterium tumefaciens is most widely used for gene transfer because

- B) of its ability to insert Ti plasmid into nuclear genome
- C) it can grow anywhere
- D) it has ability to kill pathogenic bacteria
- 36. Which of the following in embryo sac of angiosperms shows filiform apparatus ?A) AntipodalsB) Polar nuclei
  - C) Egg D) Synergids
- 37. Which one of the following organism's plasmid was used successfully for the first time as a vector by Stanley Cohen and Herbert Boyer ?
  - A) Salmonella typhimurium B) Streptococcus pneumoniae
  - C) Staphylococcus aureus D) Rhizobium leguminosarum
- 38. During a dihybrid cross with contrasting characters in the F<sub>2</sub> generation parental genotypes will appear in \_\_\_\_\_ ratio.

A) $\frac{1}{16}$	B) $\frac{2}{16}$
C) $\frac{3}{16}$	D) $\frac{9}{16}$

- 39. The wall of pollen tube is made up ofA) Cellulose and Pectin
  - B) Only sporopollenin
  - C) Lignin and Pectin D) Pectin and Sporopollenin

A) it causes crown gall tumours

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40.	The micro consumers are commonly	called	
	A) Autotrophs	B) Herbivores	
	C) Decomposers	D) Carnivores	
41.	<ul><li>The <u>CORRECT</u> sequence of events du</li><li>A) Triple fusion, syngamy, porogam</li><li>B) Syngamy, triple fusion, porogam</li><li>C) Porogamy, syngamy, triple fusion</li><li>D) Syngamy, porogamy, triple fusion</li></ul>	y n	
42.	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	
43.	The guano deposits are obtained from	m the excreta of	
	A) Reptiles	B) Human	
	C) Marine birds	D) Micro-organisms	
44.		ing 2n = 24 is crossed with a male plant comosome number of the endosperm ? B) 18 D) 30	
45.	<ul><li>Two alternative forms of a gene or a</li><li>A) Identical loci of the same chromo</li><li>B) Non-identical loci of the same ch</li><li>C) Identical loci of homologous chr</li><li>D) Non-identical loci of homologou</li></ul>	alleles are located on posome promosome pomosomes	
46.	In plasmid pBR 322, 'BR' stands for A) Baculovirus and Retrovirus C) Bolivar and Rodrigues	<ul><li>B) Boyer and Reed</li><li>D) <u>Bacillus</u> and <u>Rhizobium</u></li></ul>	
47.	How many glucose molecules are reacid molecules at the end of glycoly	equired for the formation of 52 pyruvic sis ?	
	A) 52	B) 46	
	C) 32	D) 26	

22 -9-48. The pitch angle of deflection between two successive base pairs in DNA double helix is A) 20° **B**) 34° D) 360° C) 36° 49. Which one of the following processes involved in alcohol production is NOT involved in wine production ? A) Malting B) Mashing C) Fermentation D) Distillation 50. Which one of the following is formed as a result of cyclic photophosphorylation? A) NADPH<sub>2</sub> B)  $O_2$ D) H<sub>2</sub>O C) ATP 51. Which of the following organisms is <u>NOT</u> involved in genome sequencing and mapping technique ? A) *Drosophila* <u>melanogaster</u> B) <u>E. Coli</u> D) <u>Salmonella</u> typhi C) <u>Mus</u> musculus 52. The most common chemical compounds formed in Urey-Miller's experiment were A) Amino acids B) Ammonia C) Methane D) Vitamins 53. Select the <u>CORRECT</u> pair of endodermal derivatives. A) Adrenal medulla – Dermis of skin B) Lungs - Thyroid gland C) Lymphatic vessel – Vagina D) Retina – Tonsil 54. Peacock shows following genotype. A) XX B) XY C) ZZ D) ZW 55. Incubation period of *Treponema Pallidum* is about A) 2 to 14 days B) 7 to 21 days C) 1 to 2 weeks D) 3 to 4 weeks 56. Lac is used in the A) Production of guano B) Production of Isinglass C) Silvering mirrors D) Production of soaps

57.	. Bacterial poultry diseases mainly include	
	A) Avian influenza, Bronchitis, Ranikhet	
	<ul><li>B) Enteritis, TB, CRD</li><li>C) Essent Threat Association</li></ul>	
	C) Favus, Thrush, Aspergillosis	
	D) Bird Flu, Coccidiosis, Pullorum	
58.	A change in a wart or mole on the sl	kin is observed in
	A) Adenoma	B) Carcinoma
	C) Lymphoma	D) Melanoma
59.	The spermatozoa not ejaculated are	reabsorbed in the
	A) Ejaculatory duct	B) Urethra
	C) Vas efferns	D) Vas deferens
60.	All of the following are ape-men stag	ges in origin of man <u>EXCEPT</u>
	A) <u>Ramapithecus</u>	B) <u>Kenyapithecus</u>
	C) <u>Dryopithecu</u> s	D) <u>Australopithecus</u>
61.	Acromegaly is caused by hypersecre	etion of in the adult.
	A) ACTH	B) GH
	C) MSH	D) TSH
62.	Restriction endonuclease, in DNA fiprocess.	inger printing, carries out following
	A) Fragmentation of DNA	B) Getting copies of DNA
	C) Loading DNA on agaroseplate	
63.	Which one of the following is <u>NOT</u>	the symptom of malaria ?
	A) Arthralgia	B) Fever
	C) Dysentery	D) Shivering
64.	In ECG, P – wave represents	
	A) Ventricular repolarization	B) Ventricular depolarization
	C) Atrial depolarisation	D) Atrial repolarization
65.	The isthmus which connects right a	nd left lobes of thyroid gland is located
	from tracheal carti	-
	A) $1^{\text{st}}$ to $3^{\text{rd}}$	B) $2^{nd}$ to $4^{th}$
	C) $5^{\text{th}}$ to $7^{\text{th}}$	D) $6^{\text{th}}$ to $8^{\text{th}}$

66. The interaction observed in this diagram is



- A) Commensalism
- C) Mutualism

- B) Competition
- D) Predation
- 67. Select the correct match :

Ι	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) $i - a - o$ , $ii - d - m$ , $iii - c - l$ , $iv - b - n$		
A) Central sulcus	nporal lobes are separated l	by tudinal fissure
C) Lateral sulcus		o-occipital sulcus
69. The corpus callosum interconnects		
A) Cerebral hemis	pheres B) Cereb	ellar hemispheres
C) Corpora quadrig	gemina D) Crura	Cerebri
70. The parotid salivary glands are innervated by branches of nerve		canches of nerve.
A) Vagus	B) Spinal	l accessory
C) Facial	D) Gloss	opharyngeal
<ul><li>71. Asexual reproduction</li><li>A) Ascidian</li></ul>	on through formation of gen B) Hydra	

C) Planaria D) Spongilla

72. The marsupial mammal amongst the following animals is			
A) Gibbon	B) Kangaroo		
C) Lemur	D) Spiny ant-eater		
73. When white eyed and miniature win with its wild type, it produces following the second se	nged <i>Drosophila melanogaster</i> is crossed owing percent of recombinants.		
A) 1.3%	B) 37.2%		
C) 62.8%	D) 98.7%		
74. Asiatic wild ass is an example of			
A) Endangered species	B) Extinct species		
C) Rare species	D) Vulnerable species		
75. The quantitative and statistical stud	ly of human population is		
A) Calligraphy	B) Demography		
C) Topography	D) Seismography		
76. The process by which primary germinal layers are formed is called			
A) Blastulation	B) Cleavage		
C) Gastrulation	D) Implantation		
77. Select the group of animals adapted for ammonotelism, guanotelism and ureotelism respectively from the following			
A) Tadpole larva of frog, spider, p	A) Tadpole larva of frog, spider, pigeon		
B) Scorpion, turtle and labeo			
C) Catla, penguin and cat			
D) Cobra, cockroach and Bombay	duck		
78. Muscular ridges at inner surface of	ventricles are called		
A) Chordae tendinae	B) Inter ventricular septum		
C) Papillary muscle	D) Trabeculae carnae		
79. Which of the following is <u>NOT</u> a b	reed of buffalo ?		
A) Gir	B) Nili		

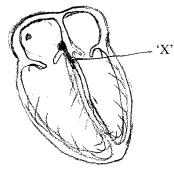
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C) Nagpuri D) Surti

		10			
80.	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 Columns A, B and C is				
	A) i	B) ii			
	C) iii	D) iv			
81. Linkage groups can be separated during in meiosis.					
	A) Crossing over				
	B) Synapsis				
	C) Tetrad formation				
	D) Terminalization				
82. One of the most polluted river in Maharashtra is					
	A) Brahmaputra	B) Ga	nga		
	C) Jamuna	D) Par	nchaganga		
83.	Hypercalcemic hormone	e is			
	A) Aldosterone	B) Ca	lcitriol		
	C) PTH	D) TC	2T		
84.	An oral contraceptive p	ill checks			
	A) Fertilization				
	B) Implantation				
	C) Infection				
	D) Ovulation				
85.	AB blood group was dis	scovered by			
	A) Decastello and Sturl	i			
	B) Karl Landsteiner				
	C) William Harvey				
	D) Wallace Alfred				

86. In the given diagram, the role of 'X' is to



- A) Generate cardiac impulse
- B) Cause atrial systole
- C) Cause ventricular diastole
- D) Carry cardiac impulse to ventricles
- 87. A pair of hormones produced by kidneys is
  - A) Erythropoietin and relaxin
  - B) Erythropoietin and calcitriol
  - C) Calcitonin and relaxin
  - D) Calcitonin and calcitriol

88. Alec Jeffreys used _	as genetic marker.
A) HUMULIN	B) Radioactive probe
C) RFLP	D) VNTR

- 89. Which constituent of seminal fluid helps in coagulation of semen after ejaculation ?
  - A) FibrinB) FibrinogenC) FructoseD) Prostaglandins
- 90. 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
- 91. 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
- 92. In diploid set of chromosomes, deletion or addition of a member leads to
  - A) Aneuploidy B) Euploidy
  - C) Polyploidy D) Triploidy

93. Select the correct match : I	п		
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) $i - a, ii - b, iii - d, iv - c$		
<ul> <li>94. Which one of the following statement is <u>CORRECT</u>?</li> <li>A) Fertilization in human takes place in womb</li> <li>B) Zygote contains haploid number of chromosomes</li> <li>C) Fertilization membrane avoids polyspermy</li> <li>D) Primary oocyte inhibits the process of oogenesis</li> </ul>			
95. Osmoreceptors are present in the			
A) Hypothalamus	B) Hypophysis		
C) Epiphysis	D) Epithalamus		
<ul><li>96. Cystic fibrosis can be treated by</li><li>A) TGF-B</li><li>C) DNase</li></ul>	B) TPA D) BGH		
<ul> <li>97. ADH carries out following functions <u>EXCEPT</u></li> <li>A) Increases blood pressure</li> <li>B) Increases glomerular filtrate rate</li> <li>C) Increases permeability for water in DCT</li> <li>D) Increases Na<sup>+</sup> excretion</li> </ul>			
98. Which of the following are <u>NOT</u> produced as transgenic animals ?			
A) Sheep and Pig	B) Rat and Rabbit		
C) Dog and Banded Krait	D) Cow and Fish		
<ul> <li>99. Temporal lobe of cerebrum is cor sensations <u>EXCEPT</u></li> <li>A) Hearing</li> <li>C) Smell</li> </ul>	B) Pressure D) Taste		
	, ,		
100. The sterilization procedure in huma			
A) Coitus interruptus	B) Rhythm method		

- C) Tubectomy
- D) Vasectomy

# SPACE FOR ROUGH WORK

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