Class-: 12

Biology Practice paper

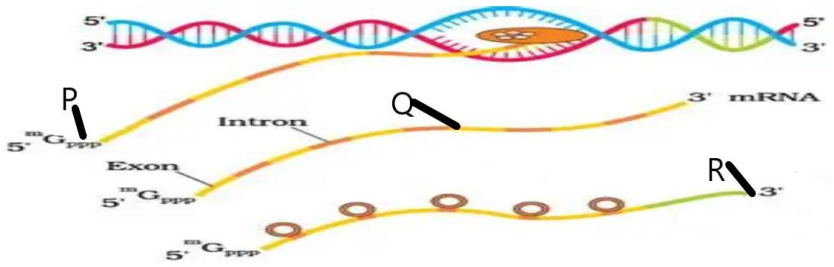
Subject code -:044

Time Allowed: 3 hours ***Maximum Marks: 70***

General Instructions:

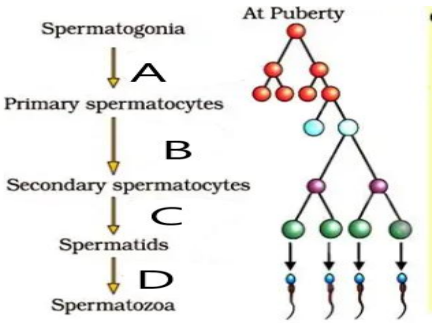
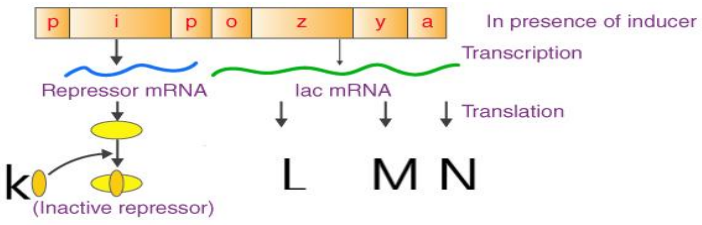
- Please check this question paper contains 33 questions.
- All questions are compulsory. However, internal choices have been provided in some questions.
- Attempt only one of the choices in such questions
- The paper is divided into 5 Sections- A, B, C, D and E.
- Section A consists of 16 questions (1 to 16). Each question carries 1 Mark.
- Section B consists of 5 questions (17 to 21). Each question carries 2 Marks.
- Section C consists of 7 questions (22 to 28). Each question carries 3 Marks.
- Section D consists of 2 case study type questions (29 to 30). Each question carries 4 Marks.
- Section E consists of 3 questions (31 to 33). Each question carries 5 Marks.
- Make a labeled diagram where it is necessary.

Q. No.	Section-A (16x 1 = 16 Marks)	Marks
1.	When an anther is young , a group of compactly arranged homogenous cell called as a) Tapetum b) Epidermis c) Middle layer d) Sporogenous tissue	1
2.	Below are a few statements with reference to placenta . i) It act as an endocrine tissue ii) It Facilitate the supply of oxygen and nutrient only iii) It is connected by embryo with an umbilical cord Iv) In later pregnancy relaxin is also secreted by placenta **Choose true option from following** a) i),ii) and iii) b) i) and iv) c) i), iii) and iv) d) iii) and iv)	1

3.	Which of the option has correct identification of P,Q and R in the illustration of transcription in eukaryotes given below:  a) P-Capping Q-Splicing R- Polyadenylation b) P-Capping Q-Polyadenylation R- Splicing c) P- Polyadenylation Q-Splicing R- capping d) P-Capping Q-Polyadenylation R- Splicing	1
4.	The correct statement in respect of thalassemia in human is : a) When production of beta globin chain is affected it cause Beta thalassemia b) Beta thalassemia is controlled by HBA-1 and HBA-2 c) Alpha thalassemia is controlled by HBB only d) The gene of alpha thalassemia lies on chromosome no 16	1
5.	Lobe Fins are the animals which can live on both land and water they give rise to a) Reptiles b) Amphibia c) Agnatha d) Aves	1
6.	Match the following : **Column I** **Column II** P) Industrial melanism i) *Bougainvillea and Cucurbita* Q) Adaptive Radiation ii) Spores R) Panspermia iii) Dark and light moth S) Divergent Evolution iv) Finches **Choose the correct option**: a)P- iiiQ-ii R -i S-iv	1

	b)P-iii Q-i R-ii S-iv c) P–iii Q-iv R-ii S-i d)P-iii Q-iv R-i S-ii	
7.	Mendel published his work in 1865.Identify the reason which c**ould not** be factor for non publishment of his work from following statement: a)Communication was not easy b)Mendel's approach of using mathematics was widely accepted c)He could not prove existence of factor d)His contemporaries did not accept that there are pairs of alleles which did not blend .	1
8.	Which is the correct features of Human Genome project i)Chromosome 1 has most genes ii)The human Genome contains 3164.7 billion nucleotide basis. iii)More than 2 percent of genome codes for protein iv)Scientists have identified about 1.4 million location of SNPs. Option: a) I & ii b) I & iii c) I & iv d) Only i	1
9.	Which of the following do not have the ability to fix Nitrogen gas *a)Anabaena b) Spirogyra c)Nostoc d) Azotobacter*	1
10.	The transgenic cow Rosie produce milk which is rich in a)Beta galactose b) alpha lactabumin c) Lactose d)Phenyl alanine	1
11.	Match the following interaction s Column A. COLUMN B p)Cuscuta growing on shoe flowers i) Brood parasitism q)Fungi living with root of the gymnosperm. ii) Parasitism r)Clownfish living in tentacles of sea anemone. iii) Commensalism s)Koel laying egg in crows nest iv) Mutualism	1

	Options: a)p-i,q-ii,r-iii,s-iv b)p-ii,q-iv,r-iii,s-i c)p-i,q-iii,r-ii,s-iv d)p-i,q-ii,r-iv,s-iii	
12.	Which of the following can be used as vector to transfer DNA segment 1)Bacteria 2) Plasmodium 3) Bacteriophage 4)Plasmid a) 1 and 2 b) 2 and 3 c) 3 and 4 d) 4 and 2	1
	For Question No.-13 to 16: A statement of Assertion is followed by a statement of Reason. Mark the correct choice as: (a)Both assertion and reason are true and reason is the correct explanation of assertion. (b)Both assertion and reason are true but reason is not the correct explanation of assertion. (c)Assertion is true but reason is false. (d)Both assertion and reason are false	
13.	Assertion: HIV infections can be avoided by use of condoms . Reason: Condoms secretes an antiviral protein called as interferons	
14.	Assertion: Morgan coined the term linkage to describe the physical association of genes on a chromosome. Reason:Linkage shows high frequency of parental type combination of genes.	1
15.	Assertion: In recombinant DNA technology human genes are often transferred into bacteria (prokaryotes) or yeast (eukaryote).	1

	Reason: Both bacteria and yeast multiply very fast to form huge population which expresses the desired gene.	
16.	Assertion:Enzyme Adenosine deaminase is produced by gene ADA . Reason ;This enzyme is found throughout the body and it is most active in secondary lymphoid tissues .	1
	Section-B (5 x 2 = 10 Marks)	
17.	A schematic representation of spermatogenesis is given below and write the names for A,B,C,and D.  Or a)Which part of the blastocyst gives rise to germ layers in later stages of pregnancy? (inner cell mass) b)"Parturition is induced by a complex neuroendocrine mechanism"What is responsible for inducing signals for parturition? (Fully developed baby and placenta)	2
18.	Enlist any two ways of measuring the standing crop of a trophic level.	2
19.	Given below is a operon unit showing incomplete labelling identify K,L,M,N  	2
20.	what is principle of immunisation and vaccination?	2

<table>
<tr><td>21.</td><td>a)Why are transgenic animals used for production of biological compounds?

b) Expand GEAC and state its function ?</td><td>2</td></tr>
<tr><td></td><td>Section-C (7x 3 = 21 Marks)</td><td></td></tr>
<tr><td>22.</td><td>What happens when

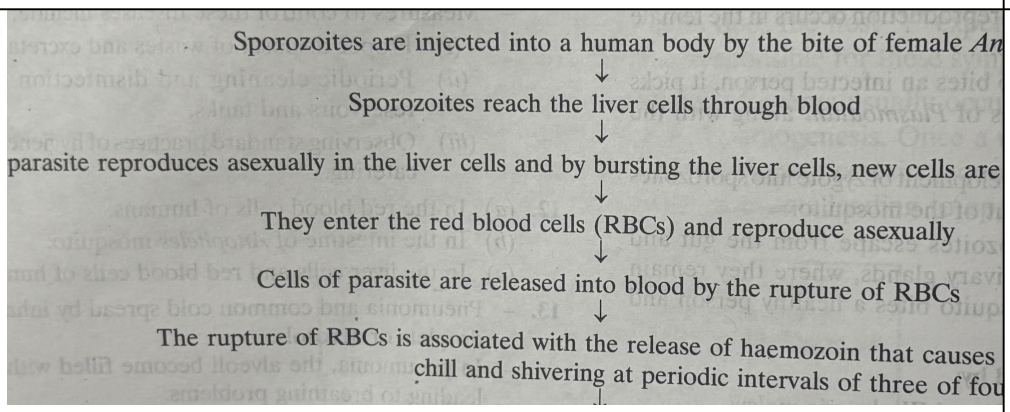
a) Testes fail to descend into sacrotal sac .
b) HCG blood test came negative in a human female.
c) Colostrum is not given to a newly born baby.</td><td>3</td></tr>
<tr><td>23.</td><td>Observe the table and complete the following:
<table>
<tr><td>Disease</td><td>Type of Disorder</td><td>Symptoms</td></tr>
<tr><td>a) ?</td><td>Mendelian Disorder</td><td>Haemoglobin molecule undergo polymerisation,causing change in shape of RBC</td></tr>
<tr><td>Phenylketonuria</td><td>Mendelian disorder</td><td>b)?</td></tr>
<tr><td>Turner’s syndrome</td><td>Chromosomal disorder</td><td>c) ?</td></tr>
</table>
Or

How are pleiotropy and mendelian patterns of inheritance different from polygenic patterns of inheritance ?</td><td>3</td></tr>
<tr><td>24.</td><td>Three codons on mRNA are not recognised by transfer RNA. What are these codons ?What is their significance in protein synthesis? Describe any one feature of Genetic Code.

Or

Why does a coding strand not code for anything in transcription?Which enzymes transcribe snRNA and hnRNA in eukaryotes ?</td><td>3</td></tr>
<tr><td>25.</td><td>Identify the name of technique

a)Which helps to find out the chromosomal disorder in babies in their embryonal stage.</td><td>3</td></tr>
</table>

	b)When sperm is injected into ova in the laboratory. c)When 8 blastomeres embryos are transferred into the fallopian tube.	
26.	a)Farmers are often suggested to use the *Rhizobium* or *Anabaena* for improving soil fertility .Explain. b)How is baculovirus used as a biological control agent?	3
27.	Describe age pyramids which occur in human population? Or Differentiate between logistic and Sigmoid growth curves of population?	3
28.	State any two benefits of Genetically modified crops? Define totipotency in context with plant tissue culture technique?	3
	SECTION -D (2X 4= 8) **Given below are case based question read carefully and answer the following questions**	
29.	 A)Which chemical is released after bursting of RBCs? b)Explain life cycle of plasmodium in mosquito? Or C)Give any four symptoms of malaria. D) Name any two other diseases caused by mosquitoes?	4
30.	In an airplane (Ecosystem) all parts are joined together using thousands of rivets (species). If every passenger travelling in it, starts popping a rivet to take home (causing a species to become extinct), it may not affect the flight safety (proper functioning of the ecosystem) initially, but as more and more rivets are removed, the plane becomes dangerously weak over a period of	4

	time. A)state ethical reason for conserving biodiversity? B)Give any two features which characterise a biological hotspot? C) Define endemism? D)Mention how cryopreservation is being used in conservation of biodiversity ?	
	Section-E (3 x 5 = 15 Marks)	
31.	a)Differentiate between Geitonogamy and Xenogamy. b) Explain the process of double fertilization and triple fusion in the embryo sac of angiosperms? Or a) How does microspore mother cell develop into mature pollen grain in angiosperms? b) What are the characteristics of insect pollinated flowers?	2+3
32.	a) Workout the distribution of phenotypic features Using a punnett square in the first filial generation after a cross between a homozygous female and heterozygous male for a single locus. b) Briefly highlight the contribution of T. H. Morgan in the field of genetics. Or a)How does gain or loss of chromosomes take place in humans ?Describe one example of each chromosomal disorder along with the symptom involving an autosome and a sex chromosome. b) Mendel's work was rediscovered by some scientists with the discovery of chromosomes. Name the scientists and describe their theory.	5
33.	a)Explain How is a continuous culture system maintained in a sparged stirred tank bioreactor ? b) Why is insertional inactivation method preferred over antibiotic resistant	5

	methods in biotechnology ? Or a) Name and explain the technique with which DNA is forced to enter into i) bacterial cell ii) Plant cell iii) an animal cell in biotechnological experiments . b) The hybrid DNA formed by combining DNA segments of different organisms. It involves use of specialised tools.Explain any two tools of rDNA technology.	