

Directorate of Education, GNCT of Delhi

Practice Paper

(2024-25)

Class – XII

Biology (Code: 044)

Time: 3 hours

Maximum Marks: 70

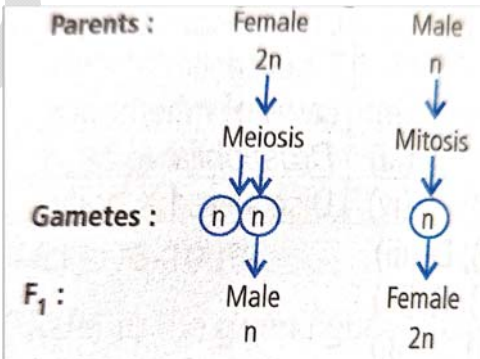
General Instructions :

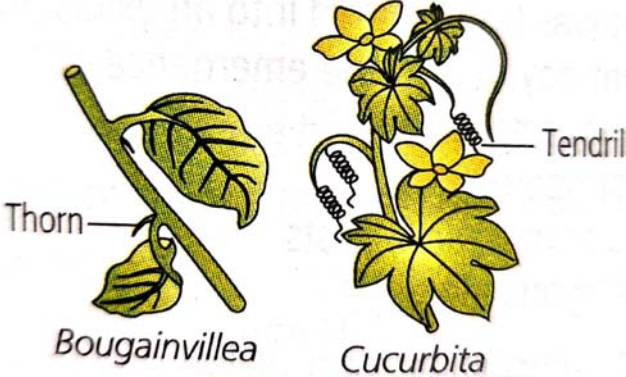
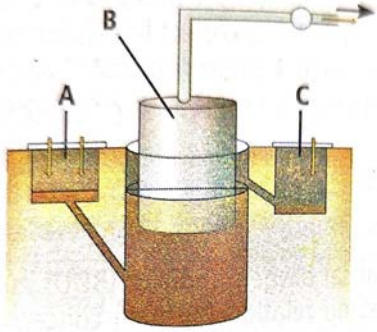
Read the following instructions very carefully and strictly follow them:

- All questions are compulsory.
- The question paper has five sections and 33 questions.
- Section–A has 16 questions of 1 mark each.
Section–B has 5 questions of 2 marks each.
Section–C has 7 questions of 3 marks each.
Section–D has 2 case-based questions of 4 marks each.
and
Section–E has 3 questions of 5 marks each.
- There is no overall choice. However, internal choices have been provided in some questions.
A student has to attempt only one of the alternatives in such questions.
- Wherever necessary, neat and properly labeled diagrams should be drawn.

Section – A

Q. No. 1 to 12 are multiple choice questions. Only one of the choices is correct. Select and write the correct choice as well as the answer to these questions.

Q. No	Question	Marks				
1.	Which function of tapetum is correct ? <table border="1"><tr><td>(a) Helps in pollen wall formation</td><td>(b) Transportation of nutrients to inner side of anther</td></tr><tr><td>(c) Synthesis of enzyme for separation of micropore tetrads</td><td>(d) All of these</td></tr></table>	(a) Helps in pollen wall formation	(b) Transportation of nutrients to inner side of anther	(c) Synthesis of enzyme for separation of micropore tetrads	(d) All of these	1
(a) Helps in pollen wall formation	(b) Transportation of nutrients to inner side of anther					
(c) Synthesis of enzyme for separation of micropore tetrads	(d) All of these					
2.	Which method can be used for women that cannot produce ovum but can provide suitable environment? <table border="1"><tr><td>(a) IUD</td><td>(b) GIFT</td></tr><tr><td>(c) IUI</td><td>(d) ICSI</td></tr></table>	(a) IUD	(b) GIFT	(c) IUI	(d) ICSI	1
(a) IUD	(b) GIFT					
(c) IUI	(d) ICSI					
3.	Refer to the given figure.  <p>This type of sex determination is found in</p> <table border="1"><tr><td>(a) grasshoppers and cockroaches</td><td>(b) birds and reptiles</td></tr><tr><td>(c) butterflies and moths</td><td>(d) honeybees, ants and wasps</td></tr></table>	(a) grasshoppers and cockroaches	(b) birds and reptiles	(c) butterflies and moths	(d) honeybees, ants and wasps	1
(a) grasshoppers and cockroaches	(b) birds and reptiles					
(c) butterflies and moths	(d) honeybees, ants and wasps					

Q. No	Question	Marks				
4	Which of the following is not an example of recessive autosomal disease? <table border="1"> <tr> <td>(a) Haemophilia</td> <td>(b) Cystic fibrosis</td> </tr> <tr> <td>(c) Phenylketonuria</td> <td>(d) Sickle-cell anaemia</td> </tr> </table>	(a) Haemophilia	(b) Cystic fibrosis	(c) Phenylketonuria	(d) Sickle-cell anaemia	1
(a) Haemophilia	(b) Cystic fibrosis					
(c) Phenylketonuria	(d) Sickle-cell anaemia					
5	Which of the following criteria should be fulfilled by a molecule to act as a genetic material ? i) it should be able to replicate ii) it should be structurally and chemically stable. iii) it should be able to undergo slow mutations. iv) it should be able to express itself in the form of ' Mendelian characters ' . <table border="1"> <tr> <td>(a) (i) and (ii)</td> <td>(b) (ii) and (iii)</td> </tr> <tr> <td>(c) (i),(ii) and (iii)</td> <td>(d) (i),(ii),(iii) and (iv)</td> </tr> </table>	(a) (i) and (ii)	(b) (ii) and (iii)	(c) (i),(ii) and (iii)	(d) (i),(ii),(iii) and (iv)	1
(a) (i) and (ii)	(b) (ii) and (iii)					
(c) (i),(ii) and (iii)	(d) (i),(ii),(iii) and (iv)					
6	The given figure shows an example of <div style="text-align: center;">  </div> <table border="1"> <tr> <td>(a) homologous organs</td> <td>(b) convergent evolution</td> </tr> <tr> <td>(c) divergent evolution</td> <td>(d) both (a) and (c)</td> </tr> </table>	(a) homologous organs	(b) convergent evolution	(c) divergent evolution	(d) both (a) and (c)	1
(a) homologous organs	(b) convergent evolution					
(c) divergent evolution	(d) both (a) and (c)					
7	During the life cycle of plasmodium, sexual reproduction takes place in which of the following hosts? <table border="1"> <tr> <td>(a) Human</td> <td>(b) Female Anopheles mosquito</td> </tr> <tr> <td>(c) Male Anopheles mosquito</td> <td>(d) Both (a) and (b)</td> </tr> </table>	(a) Human	(b) Female Anopheles mosquito	(c) Male Anopheles mosquito	(d) Both (a) and (b)	1
(a) Human	(b) Female Anopheles mosquito					
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8	Marijuana is extracted from <table border="1"> <tr> <td>(a) dried leaves and flowers of hemp plant.</td> <td>(b) ergot fungus</td> </tr> <tr> <td>(c) roots of hemp plant</td> <td>(d) cocoa plant.</td> </tr> </table>	(a) dried leaves and flowers of hemp plant.	(b) ergot fungus	(c) roots of hemp plant	(d) cocoa plant.	1
(a) dried leaves and flowers of hemp plant.	(b) ergot fungus					
(c) roots of hemp plant	(d) cocoa plant.					
9	The given figure represents a typical biogas plant. Select the correct option for A, B, and C respectively. <div style="text-align: center;">  </div> <table border="1"> <tr> <td>(a) A is the inlet for cattle dung</td> <td>(b) C is the outlet for the release of biogas</td> </tr> <tr> <td>(c) B is the chamber which contains leftover slurry</td> <td>(d) All of these</td> </tr> </table>	(a) A is the inlet for cattle dung	(b) C is the outlet for the release of biogas	(c) B is the chamber which contains leftover slurry	(d) All of these	1
(a) A is the inlet for cattle dung	(b) C is the outlet for the release of biogas					
(c) B is the chamber which contains leftover slurry	(d) All of these					

Q. No	Question	Marks				
10	<p>Read the given statements and select the correct option.</p> <p>Statement 1 : GMO tomato `Flavr Savr` has increased shelf life and better nutrient quality.</p> <p>Statement 2 : This is achieved by reducing the amount of cell wall degrading enzyme 'polygalacturonase' responsible for fruit softening.</p> <table border="1"> <tr> <td>(a) Both statements 1 and 2 are correct.</td> <td>(b) Statement 1 is correct but Statement 2 is incorrect.</td> </tr> <tr> <td>(c) Statement 1 is incorrect but Statement.2 is correct</td> <td>(d) Both Statements 1 and 2 are incorrect.</td> </tr> </table>	(a) Both statements 1 and 2 are correct.	(b) Statement 1 is correct but Statement 2 is incorrect.	(c) Statement 1 is incorrect but Statement.2 is correct	(d) Both Statements 1 and 2 are incorrect.	1
(a) Both statements 1 and 2 are correct.	(b) Statement 1 is correct but Statement 2 is incorrect.					
(c) Statement 1 is incorrect but Statement.2 is correct	(d) Both Statements 1 and 2 are incorrect.					
11	<p>The given pie diagram represents the proportionate number of species of major taxa of vertebrates. Identify the groups A and B.</p> <div style="text-align: center;"> </div> <table border="1"> <tr> <td>(a) A- Reptiles. B- Birds</td> <td>(b) A- Fish. B- Birds</td> </tr> <tr> <td>(c) A- Birds. B- Fish</td> <td>(d) A- Birds. B- Reptiles</td> </tr> </table>	(a) A- Reptiles. B- Birds	(b) A- Fish. B- Birds	(c) A- Birds. B- Fish	(d) A- Birds. B- Reptiles	1
(a) A- Reptiles. B- Birds	(b) A- Fish. B- Birds					
(c) A- Birds. B- Fish	(d) A- Birds. B- Reptiles					
12	<p>Gametes of threatened species can be preserved in viable and fertile conditions for long periods using</p> <table border="1"> <tr> <td>(a) cryopreservation techniques</td> <td>(b) invitro fertilisation</td> </tr> <tr> <td>(c) tissue culture</td> <td>(d) All of these</td> </tr> </table>	(a) cryopreservation techniques	(b) invitro fertilisation	(c) tissue culture	(d) All of these	1
(a) cryopreservation techniques	(b) invitro fertilisation					
(c) tissue culture	(d) All of these					
	<p>Question No. 13 to 16 consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:</p> <p>a) Both A and R are true, and R is the correct explanation of A. b) Both A and R are true, and R is not the correct explanation of A. c) A is true, but R is false. d) A is False, but R is true.</p>					
13	<p>Assertion: Founder effect may lead to formation of new species.</p> <p>Reason: Founders carry all the parental gene pool to a new location.</p>	1				
14	<p>Assertion: Immunisation is achieved by the successful delivery of vaccines.</p> <p>Reason: Vaccine is a preparation of one or more microbial agents, used to induce active immunity.</p>	1				
15	<p>Assertion: A piece of DNA inserted into an alien organism generally does not replicate if not inserted into a chromosome.</p> <p>Reason: Chromosomes have specific sequences called 'ori ' region where DNA replication is initiated.</p>	1				
16	<p>Assertion: The Nile perch introduced into lake Victoria in East Africa led to the extinction of an ecologically unique assemblage of more than 200 species of cichlid fish in the lake.</p> <p>Reason: When alien species are introduced deliberately for economic or other uses, they often become invasive end cause extnction of indigenous species.</p>	1				

Section – B

Q. No	Question	Marks
17	Name the hormones involved in regulation of spermatogenesis.	2
18	Explain the mechanism of ' sex determination ' in birds. How does it differ from that of human beings?	2
19	Explain why hnRNA need to undergo splicing? Where does splicing occur in the cell ?	2
20	How does a simple stirred tank bioreactor differ from sparged stirred-tank bioreactor ?	2
21	What is GEAC and what are its objectives ?	2

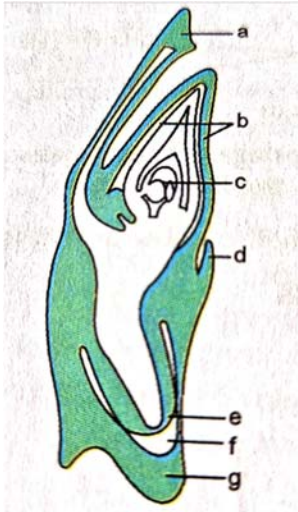
Section – C

Q. No	Question	Marks
22	Mention the roles and locations of the myometrium and endometrium within the human reproductive system.	3
23	What is Thalassemia? How is Thalassemia different from Sickle-cell anaemia? OR Is Haemophilia in humans a sex linked or autosomal disorder? Work out a cross in support of your answer.	3
24	i. Write a short note on adaptive radiation. ii. Who among the Dryopithecus and Ramapithecus was more man - like ?	3
25	From which plant cannabinoids are obtained? Which part of the body is affected by consuming these substances?	3
26	Explain with reference to PCR a) A specific enzyme helps in application in PCR . Name the bacterium from which it is isolated and state how its thermostable nature is helpful. b) Explain its use in molecular diagnosis.	3
27	CryIAb is introduced in a plant to prevent infestation by corn borer. a) What is the resultant plant referred as ? b) Summarize the action of the gene introduced. .	3
28	Name and Explain the processes earthworm and bacteria carry on detritus. Or Flow of energy through various trophic levels in an ecosystem is unidirectional and non-cyclic. Explain	3

Section – D

Q. No	Question	Marks
29	<p>Read the following passage and answer the questions that follows: -</p> <p>Infertility is the inability to conceive or produce children even after two years of unprotected sexual co-habitation. According to recent findings, every fifth Male Indian in the age group of 18 to 20 years is infertile. Infertility is also found in human females as well. There are number of causes of infertility. Government of India has established specialised health care clinics to assist the infertile couples to have children with the help of these special techniques called ARTs.</p> <p>1) Name the health clinics which help the infertile couples to have a child. 2) Which techniques is used for direct injection of sperm into ovum of females ? 3) Write the full form of GIFT. OR Write the full form of ZIFT.</p> <p>4) How does the inability of the insemination in male partner or very low sperm count can be corrected?</p>	4
30	<p>Read the following passage and answer the questions that follows: -</p> <p>In nature, no living organism, whether it be plants, animals, or microbes, exist in isolation. They engage in various forms of interaction, giving rise to the formation of biological communities. These interactions, involving populations of two or more distinct species, are referred to as interspecific interactions. These interactions can take on different characteristics, including positive (beneficial), negative, or neutral (neither harmed nor beneficial) relationships, encompassing phenomena such as mutualism or parasitism.</p> <p>1) Mutualism is which type of interaction. a) positive b) negative c) neutral d) positive and negative</p> <p>2) Cuscuta is an example of a) ectoparasitism b) brood parasitism c) predation d) endoparasitism</p> <p>3) Mycorrhizae is the a) fungistasis b) amensalism c) mutualism d) antibiosis</p> <p>4) Cuckoo and Crow are a) competition b) ectoparasites c) brood parasitism d) predation</p>	4

Section – E

Q. No	Question	Marks
31	<p>a) i) In the given diagram, Write names of parts labelled a-g. for Visually-impaired students What is meant by emasculation? When and why does a plant breeder employ this technique ?</p> <div style="text-align: center;">  </div> <p>ii) How is pollination carried out in water plants?</p> <p style="text-align: center;">OR</p> <p>What is double fertilisation? Describe the process with diagrams from the stage of megaspore formation to zygote formation.</p> <p>b) Cyclosporin- A and Streptokinase are two bioactive molecules name the microbe which produces these bioactive molecules. Write their use.</p>	5
32	<p>i) Differentiate between leading strand and lagging strand. ii) Define Okazaki fragments. iii) Describe the structure of a nucleosome.</p> <p style="text-align: center;">OR</p> <p>What is transforming principle? Explain it with the help of experiment done by Frederick Griffith. What do you mean by intron and exon ?</p>	5
33	<p>a) Explain the role of three micro- organisms as biocontrol agents. b) What is significance of BOD? c) Give an example for a fungus found in mycorrhiza.</p> <p style="text-align: center;">OR</p> <p>a) What is baker's yeast? Give its application</p>	5