

# MONTHLY TEST PAPER

**CLASS- XII**

**SUBJECT- BIOLOGY**

*(Based on new CBSE pattern)*

Prepared By

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TA, Biology

**KENDRIYA VIDYALAYA SANGATHAN****ZIET, CHANDIGARH****MONTHLY TEST***(Based on the CBSE pattern)***Chapter I- Sexual reproduction in flowering plants****Subject: Biology****Time: 1: 00 Hr.****Class: XII****Max. Marks: 20****Note:**

Section A- Question no one to four is of 01 mark each

Section B- Questions no five and six are of 02 marks each

Section C- Question number seven is of 03 marks

Section D- The eighth question is a case study worth four marks.

Section E- Question number nine is of 5 marks.

SN	Question	Marks
<b>Section A</b>		
1	Identify the correct statement about the male reproductive part of flowering plants- i- Usually, it is bilobed ii- Bilobed anther is tetragonal iii- Each bilobed anther contains four microsporangia iv- Microsporangia develop into pollen sacs. a- Only i and ii are correct b- Only i and iii are correct c- Only i,ii, and iv are correct d- All are correct	1
2	Assertion: Insects absorb honey from the flowers of sexually reproducing plants. Reason: The visit of honey bees protects the flowering plants from predators. a- Both assertion and reason are correct and the reason is the correct explanation of assertion. b- Both assertion and reason are correct and the reason is not a correct explanation of assertion. c- Assertion is true but the reason is false d- Assertion is false but the reason is true.	1
3	In an ovule of an angiosperm plant if chromosome no of the stem cell is 14 what will be the number of chromosomes in the nucellus and egg respectively- a- 14 and 14    b- 7 and 14    c- 14 and 7    d- 7 and 7	1
4	The point of attachment of the funiculus and ovule is termed - a- Integument b- Hilum c- Nucellus d- Micropyle	1
<b>Section- B</b>		
5	Give reason- i- In endospermic plants endosperm formation started before the division of fertilized egg. ii- Name the parts of the flower which the tassels of corn cob represent	2
6	i- State the function of filiform apparatus found in the mature embryo sac of an angiosperm ii- Give an example of one outbreeding device that occurs naturally in flowering plants.	2
<b>Section C</b>		

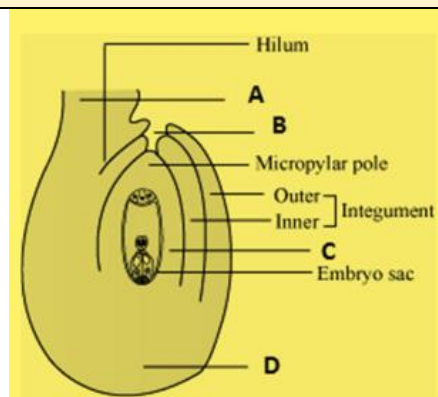
7	<p>Give reason-</p> <ul style="list-style-type: none"> <li>i- Some flowers show assured seed sets.</li> <li>ii- PMC form pollen tetrad</li> <li>iii- Geitonogamy is genetically similar to autogamy.</li> </ul>	3
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**Section- D**

8	<p><b>Case study-based questions (questions no 8- 11)</b>          Double fertilization and triple fusion are two important features observed in angiosperm plants. Flowers are the reproductive structures containing male and female reproductive structures called stamens and pistils respectively. Pollen grains are produced by the anthers of the stamens. After pollination, the pollen enters the embryo sac and performs the process of fertilization.</p> <ul style="list-style-type: none"> <li>a- Where does triple fusion take place in a flowering plant?</li> <li>b- Why is it so called?</li> <li>c- Mention one significance of each of double fertilization and triple fusion?</li> </ul>	4
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**Section- E**

9	<p>Observe the given diagram carefully- and write the answers of the following questions-</p> <ul style="list-style-type: none"> <li>a- Name the structure depicted in the diagram.</li> <li>b- Label A,B, C and D.</li> <li>c- Mention the role of 'B'</li> <li>d- How many nucleus are present in the embryo sac?</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>i- Explain any two adaptations in the following flowers-             <ul style="list-style-type: none"> <li>a- Water pollinated flower</li> <li>b- Wind pollinated flower</li> <li>c- Insect pollinated flower</li> </ul> </li> <li>ii- How apomictic seeds are formed? Explain.</li> </ul>	5
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**KENDRIYA VIDYALAYA SANGATHAN****ZIET, CHANDIGARH****MONTHLY TEST***(Based on the CBSE pattern)***Chapter II- Human Reproduction****Subject: Biology****Time: 1: 00 Hr.****Class: XII****Max. Marks: 20****Note:***Section A- Question no one to four is of 01 mark each**Section B- Questions no five and six are of 02 marks each**Section C- Question number seven is of 03 marks**Section D- The eighth question is a case study worth four marks.**Section E- Question number nine is of 5 marks.*

SN	Question	Marks
<b>Section A</b>		
1	Spermatids are transformed into spermatozoa by the process of – a- Spermatogenesis b- Spermiogenesis c- Spermiation d- Meiosis	1
2	The male sex accessory ducts include- a- Rete testis b- Vasa efferentia c- Epididymis d- All of these	1
3	Assertion- In humans, polyspermy is a rare event. Reason: During fertilization, the zona pellucida layer of the egg induces changes to prevent polyspermy. a- Both assertion and reason are correct and the reason is the correct explanation of assertion. b- Both assertion and reason are correct and the reason is not a correct explanation of assertion. c- Assertion is true but the reason is false d- Assertion is false but the reason is true.	1
4	Assertion: The signals for parturition originate from the fully developed fetus and the placenta. Reason: Oxytocin hormone induces uterine contractions that help in parturition. a. Both assertion and reason are correct and the reason is the correct explanation of assertion. b. Both assertion and reason are correct and the reason is not a correct explanation of assertion. c. Assertion is true but the reason is false d. Assertion is false but the reason is true.	1
<b>Section- B</b>		
5	a- Why does failure of the testes to descend into the scrotum produce sterility? b- Where is acrosome present in humans?	2
6	Name the ovarian and pituitary hormones involved in the menstrual cycle. What will happen in the menstrual event when the level of pituitary hormone raises significantly?	2

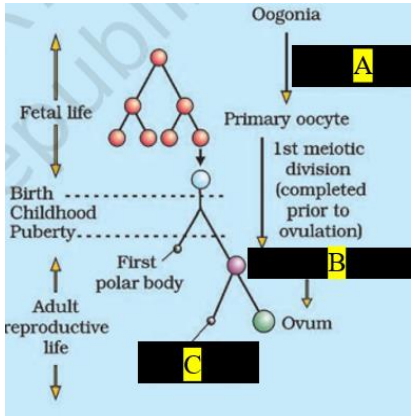
**Section C**

7	Draw a labeled diagram of a sectional view of the human female ovary showing various stages of follicular stages.	3
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**Section- D**

8	<p>The placenta is a temporary organ that forms in your uterus during pregnancy. The placenta develops shortly after conception. It attaches to your uterine wall and provides nutrients and oxygen to your baby through the umbilical cord. Certain conditions of the placenta can cause pregnancy complications.</p> <ol style="list-style-type: none"> <li>How does the placenta develop in human females?</li> <li>How is the placenta connected to the uterus?</li> <li>Placenta acts as an endocrine gland. Give two examples.</li> </ol>	4
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**Section- E**

9	<p>The given diagram is related to the oogenesis process in human females.</p> <ol style="list-style-type: none"> <li>Label 'A', 'B' and 'C' in the diagram. Write the significance of 'C'.</li> <li>How many ovum will be produced in one cycle if 12 oogonia are involved in the process?</li> <li>Why fetal life is shown in the diagram to explain oogenesis while ovum release is related with the puberty period.</li> </ol>		5
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**KENDRIYA VIDYALAYA SANGATHAN****ZIET, CHANDIGARH****MONTHLY TEST***(Based on the CBSE pattern)***Chapter III- Reproductive Health****Subject: Biology****Time: 1: 00 Hr.****Class: XII****Max. Marks: 20****Note:***Section A- Question no one to four is of 01 mark each**Section B- Questions no five and six are of 02 marks each**Section C- Question number seven is of 03 marks**Section D- The eighth question is a case study worth four marks.**Section E- Question number nine is of 5 marks.*

SN	Question	Marks
<b>Section A</b>		
1	Hepatitis can be spread to a non-infected person by - a- Blood transfusion b- Infected transfusion syringe c- Unprotected sex d- All of these	1
2	A married woman found herself incapable of conceiving. The doctor diagnosed that her fallopian tubes are blocked. What ART can help her to conceive a baby- a- IVF b- GIFT c- AI d- ZIFT	1
3	Assertion: lactational amenorrhea is an effective method of natural method of contraception. Reason: It is based on the fact of absence of menstruation during the period of intense lactation. a- Both assertion and reason are correct and the reason is the correct explanation of assertion. b- Both assertion and reason are correct and the reason is not a correct explanation of assertion. c- Assertion is true but the reason is false d- Assertion is false but the reason is true.	1
4	Assertion: Removal of Gonads is an excellent best contraceptive option. Reason: In these tubes are cut and tied using vasectomy and tubectomy. a- Both assertion and reason are correct and the reason is the correct explanation of assertion. b- Both assertion and reason are correct and the reason is not a correct explanation of assertion. c- Assertion is true but the reason is false d- Assertion is false but the reason is true.	1
<b>Section- B</b>		
5	Name any two copper-releasing IUDs. List two reasons that make them effective contraceptives.	2
6	Name the hormonal composition of oral contraception used by human females. Explain how does it act as a contraceptive?	2
<b>Section C</b>		
7	Why do some women use "Saheli" pills? Which institute developed it? How it is different from other pills.	3

**Section- D**

8	<p>Infertility is when people cannot conceive after a period of regular sexual intercourse without the use of birth control. The source indicates that worldwide, 8–12% of couples experience fertility problems, and 40–50% of cases may stem from factors that affect males. ARTs may become very significant to treat such problems.</p> <ul style="list-style-type: none"><li>a- What is ART?</li><li>b- Identify the following techniques-<ul style="list-style-type: none"><li>i- Transfer of an ovum collected from a donor into the fallopian tube of another female who is unable to produce.</li><li>ii- The process in which sperm is directly injected into the ovum.</li><li>iii- Semen from a donor is artificially introduced either into the vagina of the recipient female</li></ul></li></ul>	4
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**Section- E**

9	<ul style="list-style-type: none"><li>a- Compare different methods of barrier methods of contraception.</li><li>b- Why amniocentesis is considered a very useful technique? What are limitations of using amniocentesis.</li></ul>	5
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**KENDRIYA VIDYALAYA SANGATHAN****ZIET, CHANDIGARH****MONTHLY TEST***(Based on the CBSE pattern)***Chapter IV- Principles of Inheritance and Variation****Subject: Biology****Time: 1: 00 Hr.****Class: XII****Max. Marks: 20****Note:***Section A- Question no one to four is of 01 mark each**Section B- Questions no five and six are of 02 marks each**Section C- Question number seven is of 03 marks**Section D- The eighth question is a case study worth four marks.**Section E- Question number nine is of 5 marks.*

SN	Question	Marks
<b>Section A</b>		
1	In human XX and XY determines the sex of the child. The sex of the son is determined by- a. Sex chromosome of the father b. Sex chromosome of the mother c. Type of ovum of the mother d. Phenotype of parents	1
2	Failure of segregation of chromatids during the cell division cycle results in the gain or loss of a chromosome(s) is called- a. XX and XY chromosomes b. Female heterogamety c. Aneuploidy d. (d) None of the above	1
3	Assertion- The offspring/ progeny produced has characters of both parents. Reason: Inheritance is the process by which hereditary characters pass from parent to progeny. a- Both assertion and reason are correct and the reason is the correct explanation of assertion. b- Both assertion and reason are correct and the reason is not a correct explanation of assertion. c- Assertion is true but the reason is false d- Assertion is false but the reason is true.	1
4	Assertion- An allele is an alternative form of a gene. Reason: hat occupy a specific location on a particular chromosome and control the same trait. a- Both assertion and reason are correct and the reason is the correct explanation of assertion. b- Both assertion and reason are correct and the reason is not a correct explanation of assertion. c- Assertion is true but the reason is false d- Assertion is false but the reason is true.	1
<b>Section- B</b>		
5	The male Fruit fly and female Fowl are heterogametic while the female Fruitfly and the male Fowl are homogametic. Why are they called so?	2
6	Compare linkage and linked genes. How Linkage and crossing-over is affected by the distance between genes?	2



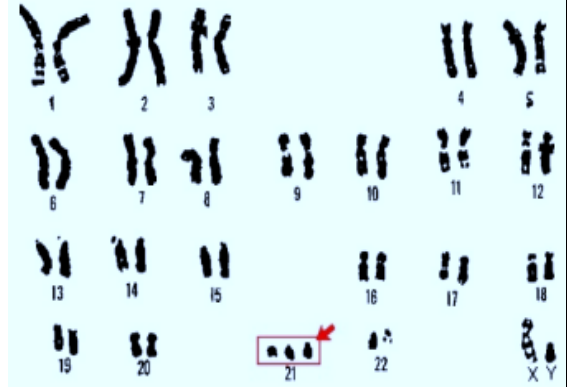
### Section C

7 Blood shows dominance, codominance, and multiple alleles. Explain.

3

### Section- D

8 A karyotype is an individual's complete set of chromosomes. Joe Hin Tjio and Albert Levan discovered that the number of chromosomes (karyotype) in humans was 46 chromosomes, that is, 23 pairs and not 48 as was thought previously. By using karyotypes, we can diagnose various types of chromosomal and genetic disorders. In the given diagram a karyotype is presented.

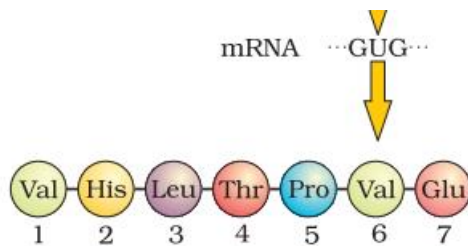


4

- a- Which type of chromosomal disorder is possible with such a karyotype?
- b- What does numerical values written in the karyogram depicts?
- c- Write any two symptoms of such a disorder.

### Section- E

- a- Categorize following either autosomal or sex-linked disease- Hemophilia, Sickle cell anemia, Phenylketonuria
- b- Identify the disorder by the following symptom- Individuals with overall masculine development with i.e., Gynecomastia
- c- In the given diagram a polypeptide is given. What conclusion will you arrive after careful observation-



5

**KENDRIYA VIDYALAYA SANGATHAN****ZIET, CHANDIGARH****MONTHLY TEST***(Based on the CBSE pattern)***Chapter V- Molecular Basis of Inheritance****Subject: Biology****Time: 1: 00 Hr.****Class: XII****Max. Marks: 20****Note:***Section A- Question no one to four is of 01 mark each**Section B- Questions no five and six are of 02 marks each**Section C- Question number seven is of 03 marks**Section D- The eighth question is a case study worth four marks.**Section E- Question number nine is of 5 marks.*

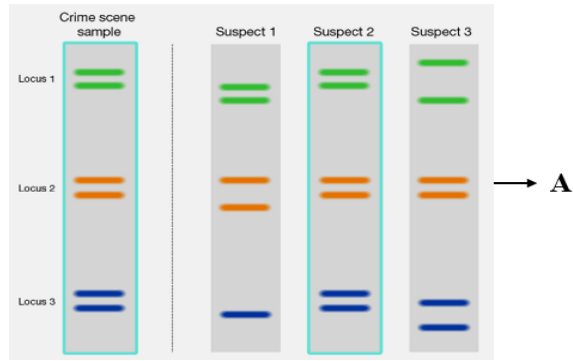
SN	Question	Marks
<b>Section A</b>		
1	DNA is a double-stranded, helical molecule. Watson and Crick's model is based on the X-ray crystallography provided by- a- Wilkins and Franklin b- Messelson and Stahl c- McLeod and McCarty d- Singer and Nicholson	1
2	Identify the correct answer related to the statement, : Fredrick Griffith injected a smooth strain of Streptococcus in the mouse- a- Mouse remains live b- Mouse died c- He does not use the S- Strain of the bacteria d- He used Pneumococcus instead of Streptococcus.	1
3	Assertion- Histone proteins are organized to form a unit of eight molecules called the histone octamer. Reason: Histone is an acidic molecule that helps in the formation of Nucleosomes. a- Both assertion and reason are correct and the reason is the correct explanation of assertion. b- Both assertion and reason are correct and the reason is not a correct explanation of assertion. c- Assertion is true but the reason is false d- Assertion is false but the reason is true.	1
4	Assertion- DNA is a polynucleotide molecule like mRNA, t RNA and r RNA. Reason: Both DNA and RNA contain the same type of ribose sugar. a- Both assertion and reason are correct and the reason is the correct explanation of assertion. b- Both assertion and reason are correct and the reason is not a correct explanation of assertion. c- Assertion is true but the reason is false d- Assertion is false but the reason is true.	1
<b>Section- B</b>		
5	Why do Alfred Hershey and Martha Chase use radioactive phosphorus and Sulphur in their experiment to prove DNA is a genetic material?	2
6	Write the coding sequence of the following m RNA strand-  <b>5' AAUGUUAGAGAGUAGGGAAU3'</b>	2

**Section C**

7	a- What is the charging of t RNA? Mention its importance. b- What are the inducers in Lac operon? c- AUG codon performs a dual function. Justify the statement.	3
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**Section- D**

8	<p>DNA fingerprinting is used in a variety of situations, such as criminal investigations, other forensic purposes and paternity testing. In these situations, one aims to “match” two DNA fingerprints with one another, such as a DNA sample from a known person and one from an unknown person.</p> <p><i>(Source: National Human Genome Research Institute)</i></p> a- What does ‘A’ represent? b- What is the basis of DNA fingerprinting? c- What is the use of autoradiography in DNA fingerprinting? d- Of the total base sequence present in humans- i- 99.9% of all human beings are identical. ii- 0.01 % of all human beings are identical iii- 100 % different iv- No difference is observed till now	4
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**Section- E**

9	a- Give a brief description of the role of DNA-dependent DNA polymerase. b- Why Okazaki fragments are formed in short fragments? c- Write two roles of dNTPs.	5
<p><b>OR</b></p> <p>Explain the characteristic features of genetic code.</p>		

**KENDRIYA VIDYALAYA SANGATHAN**

**ZIET, CHANDIGARH**

**MONTHLY TEST**

*(Based on the CBSE pattern)*

**Chapter VI- Evolution**

**Subject: Biology**

**Time: 1: 00 Hr.**

**Class: XII**

**Max. Marks: 20**

**Note:**

*Section A- Question no one to four is of 01 mark each*

*Section B- Questions no five and six are of 02 marks each*

*Section C- Question number seven is of 03 marks*

*Section D- The eighth question is a case study worth four marks.*

*Section E- Question number nine is of 5 marks.*

SN	Question	Marks																
<b>Section A</b>																		
1	<p>Match the scientists listed under column 'I' with ideas listed in column 'II'.</p> <table border="1"> <thead> <tr> <th align="center" colspan="2">column 'I'</th> <th align="center" colspan="2">column 'II'</th> </tr> </thead> <tbody> <tr> <td align="center">A</td> <td>Darwin</td> <td align="center">i</td> <td>Abiogenesis</td> </tr> <tr> <td align="center">B</td> <td>Lamarck</td> <td align="center">ii</td> <td>Evolution by natural selection</td> </tr> <tr> <td align="center">C</td> <td>Oparin</td> <td align="center">iii</td> <td>Use and disuse of organs</td> </tr> </tbody> </table> <p>(a) A-(ii); B-(iii); C-(i)                      (b) A-(iii); B-(i); C-(ii)                      (c) A-(ii); B-(i); C-(iii)                      (d) A-(i); B-(ii); C-(iii)</p>	column 'I'		column 'II'		A	Darwin	i	Abiogenesis	B	Lamarck	ii	Evolution by natural selection	C	Oparin	iii	Use and disuse of organs	1
column 'I'		column 'II'																
A	Darwin	i	Abiogenesis															
B	Lamarck	ii	Evolution by natural selection															
C	Oparin	iii	Use and disuse of organs															
2	<p>The first autotrophic organisms were-</p> <p>a- Photoautotrophs                      b- Chemoautotrophs                      c- Heterotrophs                      d- Symbionts</p>	1																
3	<p>Assertion- Oparin and Haldane proposed that the first form of the could have come from pre-existing non-living organic molecules.                      Reason: This explains the theory of spontaneous genesis as well as the theory of biogenesis.</p> <p>a- Both assertion and reason are correct and the reason is the correct explanation of assertion.                      b- Both assertion and reason are correct and the reason is not a correct explanation of assertion.                      c- Assertion is true but the reason is false                      d- Assertion is false but the reason is true.</p>	1																
4	<p>Assertion- Primitive atmosphere was of reducing type.                      Reason: It contains hydrogen, methane, ammonia and water vapours.</p> <p>a- Both assertion and reason are correct and the reason is the correct explanation of assertion.                      b- Both assertion and reason are correct and the reason is not a correct explanation of assertion.                      c- Assertion is true but the reason is false                      d- Assertion is false but the reason is true.</p>	1																
<b>Section- B</b>																		

5	a- What does the following equation represent- $(p+q)^2 = p^2 + 2pq + q^2 = 1$ b- Who postulated the above equation?	2
6	What is "survival of the fittest" as proposed by Darwin?	2

**Section C**

7	a- Compare the work of Darwin and DeVries. (Only 2 comparisons) b- Mention any two factors which can alter the allelic frequency of a population. c- Name the scientist who had also come to similar conclusion as that of Darwin.	3
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**Section- D**

8	<p>In 1953, Stanley Miller performed an experiment that may explain what occurred on primitive Earth billions of years ago. His experiment was based on a hypothesis that stated life could have originated from basic molecules present on the early Earth.</p> <p>a- Label 'A', 'B', and 'C'</p> <p>b- What is the role of 'A'?</p> <p>c- What was the conclusion made by Miller after this experiment?</p>		4
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**Section- E**

9	<p>a- Differentiate between convergent &amp; divergent evolution? Provide one example of each.</p> <p>b- Name the type of evolution that has resulted in the development of structures like the wings of butterflies and birds.</p> <p>c- Identify the examples of homologous and analogous structures from the following-</p> <p>(i) Thorns in Bougainvillea and tendrils of Cucurbita.</p> <p>(ii) Vertebrate hearts</p> <p style="text-align: center;"><b>OR</b></p> <p>Give a detailed account on the various stages of human evolution.</p>	5
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**KENDRIYA VIDYALAYA SANGATHAN****ZIET, CHANDIGARH****MONTHLY TEST***(Based on the CBSE pattern)***Chapter VII- Human Health and Disease****Subject: Biology****Time: 1: 00 Hr.****Class: XII****Max. Marks: 20****Note:**

Section A- Question no one to four is of 01 mark each

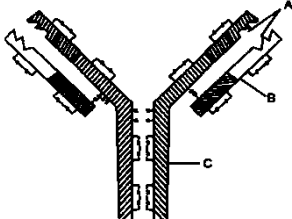
Section B- Questions no five and six are of 02 marks each

Section C- Question number seven is of 03 marks

Section D- The eighth question is a case study worth four marks.

Section E- Question number nine is of 5 marks.

SN	Question	Marks
<b>Section A</b>		
1	Find the correct statements- i- Dengue is caused by a virus ii- Chikungunya is caused by bacteria iii- Ringworm is a fungal disease a- Only i and ii are correct b- Only ii and iii are correct c- Only i and iii are correct d- All are correct	1
2	Filariasis is a disease of- a- Muscles b- Lymphatic vessels c- Limbs only d- Genitals only	1
3	Assertion- Widal test is a type of diagnosis used for Typhoid testing. Reason: The pathogen of typhoid is a bacterium, <i>Salmonella typhi</i> . a- Both assertion and reason are correct and the reason is the correct explanation of assertion. b- Both assertion and reason are correct and the reason is not a correct explanation of assertion. c- Assertion is true but the reason is false d- Assertion is false but the reason is true.	1
4	Assertion- Breast fed newly born have better immunity than the bottle-fed babies Reason: The colostrum (mother's milk) contains antibodies (Ig A). a- Both assertion and reason are correct and the reason is the correct explanation of assertion. b- Both assertion and reason are correct and the reason is not a correct explanation of assertion. c- Assertion is true but the reason is false d- Assertion is false but the reason is true.	1
<b>Section- B</b>		
5	Write the location of the Thymus gland in the human body. What will happen when Thymus is removed by surgical procedure?	2

6	<p>a- Label 'A', 'B' and 'C' in the diagram.</p> <p>b- Write the role of 'A'.</p>		2
<b>Section C</b>			
7	<p>a- Allergens are weak antigens? Write your view for /against the statement.</p> <p>b- Give two examples of autoimmune diseases.</p> <p>c- Retroviruses have no DNA. However, the DNA of the infected host cell does possess viral DNA. Mention the process by which it becomes possible.</p>	3	
<b>Section- D</b>			
8	<p>The estimated number of incident cases of cancer in India for the year 2022 was found to be 14,61,427. In India, one in nine people is likely to develop cancer in his/her lifetime. Lung and breast cancers were the leading sites of cancer in males and females, respectively. Among the childhood (0-14 yr) cancers, lymphoid leukemia (boys: 29.2% and girls: 24.2%) was the leading site. The incidence of cancer cases is estimated to increase by 12.8 percent in 2025 as compared to 2020.</p> <p>i- Enumerate the two properties of cancer cells that distinguish them from normal cells.</p> <p>ii- Compare malignant tumors and benign tumors.</p> <p>iii- What are the methods used to detect cancer?</p> <p>iv- Write two methods of cancer treatment.</p>	4	
<b>Section- E</b>			
9	<p>Explain the stages of the malaria parasite that occur inside female anopheles mosquitoes. Provide a labeled diagram in support of your answer.</p> <p style="text-align: center;">OR</p> <p>Give a detailed account on types of immunity.</p>	5	

**KENDRIYA VIDYALAYA SANGATHAN****ZIET, CHANDIGARH****MONTHLY TEST***(Based on the CBSE pattern)***Chapter VIII- Microbes in Human Welfare****Subject: Biology****Time: 1: 00 Hr.****Class: XII****Max. Marks: 20****Note:***Section A- Question no one to four is of 01 mark each**Section B- Questions no five and six are of 02 marks each**Section C- Question number seven is of 03 marks**Section D- The eighth question is a case study worth four marks.**Section E- Question number nine is of 5 marks.*

SN	Question	Marks
<b>Section A</b>		
1	Adenovirus is pathogenic to human kids. It causes- a- STDs b- Respiratory infections c- UTI d- Blue baby syndrome	1
2	What is the correct statement about LAB – i- It represents a group of lactic acid bacteria ii- It converts milk to curd iii- LAB produces some alkaline substances that coagulate milk proteins a- Only i and ii are correct b- Only i and iii are correct c- Only ii is correct d- Only iii is correct	1
3	Assertion- <i>Saccharomyces cerevisiae</i> is also known as baker's yeast. Reason: It is used to prevent fermentation during the production of beverages. a- Both assertion and reason are correct and the reason is the correct explanation of assertion. b- Both assertion and reason are correct and the reason is not a correct explanation of assertion. c- Assertion is true but the reason is false d- Assertion is false but the reason is true.	1
4	Assertion- Biofertilizers are very obtained from bacteria and plants. Reason: Only problem associated with biofertilizer is it adversely affects soil quality. a- Both assertion and reason are correct and the reason is the correct explanation of assertion. b- Both assertion and reason are correct and the reason is not a correct explanation of assertion. c- Assertion is true but the reason is false d- Assertion is false but the reason is true.	1
<b>Section- B</b>		
5	i- Which microorganism is responsible for large holes in 'Swiss cheese'? ii- Write two advantages of organic farming.	2
6	i- How does pollution affect the BOD of the water bodies? ii- Give an example of two bioactive molecules and their advantages.	2



<b>Section C</b>		
7	a- Give the scientific name of the source organisms from which the first antibiotic was produced. b- Bottled fruit juices are clearer as compared to those made at home. Give reason. c- What is the advantage of distillation of some alcoholic drinks?	3
<b>Section- D</b>		
8	Biopesticides are formulations derived from naturally occurring compounds that manage pests through non-toxic and environmentally favorable means. Being living organisms (natural enemies) or products, biopesticides represent less of a risk to the environment and to human health. The global Biopesticides were valued at USD 5.75 Billion in 2020 and are expected to reach USD 17.57 Billion in 2028. a- What are biopesticides? b- Give one example of fungus and viruses used as biopesticides. c- Write two advantages of biopesticides.	4
<b>Section- E</b>		
9	Explain the secondary sewage treatment process by using a flow chart. OR Describe the use of microbes in the production of biogas with the help of labelled diagram.	5

**KENDRIYA VIDYALAYA SANGATHAN****ZIET, CHANDIGARH****MONTHLY TEST***(Based on the CBSE pattern)***Chapter IX Biotechnology - Principles and Processes****Subject: Biology****Time: 1: 00 Hr.****Class: XII****Max. Marks: 20****Note:***Section A- Question no one to four is of 01 mark each**Section B- Questions no five and six are of 02 marks each**Section C- Question number seven is of 03 marks**Section D- The eighth question is a case study worth four marks.**Section E- Question number nine is of 5 marks.*

SN	Question	Marks
<b>Section A</b>		
1	Which enzyme is used in linking the nucleotides- a- DNA polymerase b- Restriction endonuclease c- DNA ligase d- Eco RI	1
2	The 'ori' segment is responsible for- a- Initiation of transcription b- Initiation of translation c- Initiation of replication d- None of these	1
3	Assertion- Biolistic method is used to transfer desired r- DNA into the host cell. Reason: cells are bombarded with high-velocity micro-particles of gold or tungsten coated with DNA. a- Both assertion and reason are correct and the reason is the correct explanation of assertion. b- Both assertion and reason are correct and the reason is not a correct explanation of assertion. c- Assertion is true but the reason is false d- Assertion is false but the reason is true.	1
4	Assertion- A bioreactor provides the optimal conditions for achieving the desired product by optimum growth conditions. Reason: Quality and quantity of bacterial culture is the main optimal condition. a- Both assertion and reason are correct and the reason is the correct explanation of assertion. b- Both assertion and reason are correct and the reason is not a correct explanation of assertion. c- Assertion is true but the reason is false d- Assertion is false but the reason is true.	1
<b>Section- B</b>		
5	What is plasmid? Write its properties which makes it a suitable vector for genetic engineering.	2
6	Draw an artificial vector and label the followings- a- Two correct cleavage sites b- rop c- ampicillin resistant site	2

<b>Section C</b>		
7	a- What are the three basic steps of biotechnology? b- What are phenotypic markers? Give one example.	3
<b>Section- D</b>		
8	PCR (Polymerase Chain Reaction) is a revolutionary method developed by Kary Mullis in the 1980s. PCR is an invitro technique. The basic steps involved in PCR are- denaturation, annealing and extension. If the process of replication of DNA is repeated many times, the segment of DNA can be amplified to approximately a billion times- Name the specific type of DNA polymerase enzyme used in PCR. ii- what do you mean by the annealing process? iii- In PCR varied temperature levels are required. What is the advantage of high temperature? iv- what are the source of nucleotides in PCR.	4
<b>Section- E</b>		
9	a. Why Hind II and Eco RI are named so? b. Why such sequences are named so? c. Give an example of a sequence cleaved by Eco RI. <p style="text-align: center;">OR</p> a- In electrophoresis why do fragments separate in different bands? b- How can you visualize separated DNA? c- Name two different matrix used in electrophoresis process.	5

**KENDRIYA VIDYALAYA SANGATHAN****ZIET, CHANDIGARH****MONTHLY TEST***(Based on the CBSE pattern)***Chapter X Biotechnology and its Applications****Subject: Biology****Time: 1: 00 Hr.****Class: XII****Max. Marks: 20****Note:***Section A- Question no one to four is of 01 mark each**Section B- Questions no five and six are of 02 marks each**Section C- Question number seven is of 03 marks**Section D- The eighth question is a case study worth four marks.**Section E- Question number nine is of 5 marks.*

SN	Question	Marks
<b>Section A</b>		
1	With the help of biotechnology, food production can be increased by - a- Agro-chemical based agriculture b- Organic agriculture c- Genetically engineered crop-based agriculture. d- All of these	1
2	Bt cotton is made with the help of a- Bacillus thuringiensis b- Bacillus thoringensis c- Bacillus LAB d- Agrobacterium	1
3	Assertion- GM plants may enhance the national variety of crops. Reason: Golden pulse is such a variety that is rich in Vitamin A a- Both assertion and reason are correct and the reason is the correct explanation of assertion. b- Both assertion and reason are correct and the reason is not a correct explanation of assertion. c- Assertion is true but the reason is false d- Assertion is false but the reason is true.	1
4	Assertion- Biotechnology is also used in the testing of safety testing like testing of toxicity Reason: GMOs are exposed to toxic substances and observed for safety testing. a- Both assertion and reason are correct and the reason is the correct explanation of assertion. b- Both assertion and reason are correct and the reason is not a correct explanation of assertion. c- Assertion is true but the reason is false d- Assertion is false but the reason is true.	1
<b>Section- B</b>		
5	Why do some organisms are called GMOs? Illustrate using one example.	2
6	a- Write two advantages and two disadvantages of GM crops. b- Write one disadvantage of insulin obtained from sources other than genetic engineering.	2

<b>Section C</b>		
7	a- What are cry genes? In which organisms are they present? b- Name any two techniques that serve the purpose of early diagnosis of diseases. c- Why do the toxic insecticidal proteins secreted by <i>Bacillus thuringiensis</i> kill the insect and not the bacteria itself?	3
<b>Section- D</b>		
8	<p>Tobacco (<i>Nicotiana tabacum</i> L.), an important non-food narcotic cash crop, occupies less than 0.27 percent of the net cultivated area and earns a sizable amount of foreign exchange (Rs. 4,210 crores). Plant-parasitic nematodes cause on average 12.3% losses annually in 40 major crops at a global level; the losses are more in developing countries (14.6%) than in developed nations (8.8%). Microscopic worms called nematodes may seem harmless, but they can devastate a tobacco field, reducing yields, stunting plant growth and cutting into farmer profits.</p> a- On which principal RNA interference is based? b- Which nematode infects the crop of tobacco plants? c- Which vector is used to create nematode resistant tobacco plants? d- Mention the source organism of the vector	4
<b>Section- E</b>		
9	Explain various methods of gene therapy. <p style="text-align: center;">OR</p> Describe the method of production of genetically synthesized Insulin	5

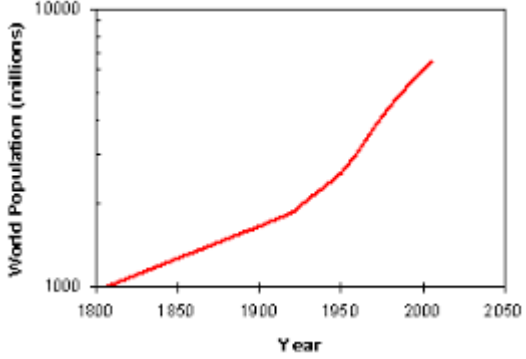
**KENDRIYA VIDYALAYA SANGATHAN****ZIET, CHANDIGARH****MONTHLY TEST***(Based on the CBSE pattern)***Chapter 11- Organism and Population****Subject: Biology****Time: 1: 00 Hr.****Class: XII****Max. Marks: 20****Note:***Section A- Question no one to four is of 01 mark each**Section B- Questions no five and six are of 02 marks each**Section C- Question number seven is of 03 marks**Section D- The eighth question is a case study carrying four marks.**Section E- Question number nine is of 5 marks.*

SN	Question	Marks
<b>Section A</b>		
1	What is the term for the interaction between species in which the fitness of one organism dominates and surpasses the presence and fitness of another? a- Parasitism b- Competition c- Coexistence d- Predation	1
2	<b>Fill in the blanks with the correct answer-</b>  Gause's _____ Principle' states that two closely related species competing for the same resources cannot co-exist indefinitely and the competitively inferior will be eliminated eventually.	1
3	Assertion- Cuckoos exhibit a unique form of parasitism called brood parasitism. Reason: Cuckoos lays their egg in the nest of crows to nourish their offspring. a- Both assertion and reason are correct and the reason is the correct explanation of assertion. b- Both assertion and reason are correct and the reason is not a correct explanation of assertion. c- Assertion is true but the reason is false d- Assertion is false but the reason is true.	1
4	Assertion- The presence of an orchid plant on a mango tree is an example of commensalism. Reason: The mango tree is dependent on Orchids to absorb nutrients from the soil. a- Both assertion and reason are correct and the reason is the correct explanation of assertion. b- Both assertion and reason are correct and the reason is not a correct explanation of assertion. c- Assertion is true but the reason is false d- Assertion is false but the reason is true.	1
<b>Section- B</b>		
5	a- Provide a definition of amensalism and an example to illustrate it. b- State one similarity between parasitism and predation.	2
6	Based on the formulae answer the given questions-	2

### Section C

7	$dN/dt = rN \left( \frac{K - N}{K} \right)$	3
	<p>i- Which category of growth does the formula belong to?</p> <p>ii- Give the graphical representation of such a growth curve.</p> <p>iii- What is “K”?</p>	

### Section- D

8	<p>The growth of a population is determined by four essential factors, namely birth rate, death rate, immigration, and emigration. The population of the world has increased by more than three times since the mid-twentieth century.</p> <p>a- How can we calculate natality?</p> <p>b- Represent of expanding age pyramids for the human population</p> <p>c- During a certain time period, 10 fruit flies out of a population of 100 in a laboratory died, resulting in a mortality rate of 0.1. Is this statement correct? Please explain.</p>	
		4

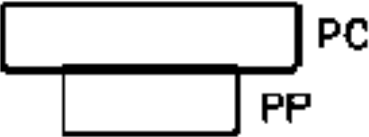
### Section- E

9	<p>a- Draw and explain a logistic curve that represents the density (N) of a population over time (t). Assume that the population has an intrinsic rate of natural increase of (r) and a carrying capacity of (K).</p> <p>b- Can you identify the population growth pattern represented by the equation <math>dN / dt = rN</math>? Additionally, what is the significance of 'r' in this equation and how does it relate to population growth?</p> <p style="text-align: center;">OR</p> <p>a- Explain why herbivores are often compared to predators in the context of ecology.</p> <p>b- Differentiate between the following interspecific interactions in a population with a suitable example of each.</p> <p style="margin-left: 20px;">(i) Mutualism and competition</p> <p style="margin-left: 20px;">(ii) Commensalism and amensalism</p>	5
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**KENDRIYA VIDYALAYA SANGATHAN****ZIET, CHANDIGARH****MONTHLY TEST***(Based on the CBSE pattern)***Chapter 12- Ecosystem****Subject: Biology****Time: 1: 00 Hr.****Class: XII****Max. Marks: 20****Note:***Section A- Question no one to four is of 01 mark each**Section B- Questions no five and six are of 02 marks each**Section C- Question number seven is of 03 marks**Section D- The eighth question is a case study carrying four marks.**Section E- Question number nine is of 5 marks.*

SN	Question	Marks
<b>Section A</b>		
1	The vertical distribution of different species occupying different levels is called- a- Trophic Level b- Stratification c- Ecological niche d- Succession	1
2	Phytoplankton are- a- Terrestrial and autotrophic b- Aquatic and heterotrophic c- Aquatic and autotrophic d- Terrestrial and heterotrophic	1
3	Assertion- An ecosystem is a functional unit of nature. Reason: Living beings engage in interactions with both their own kind and their physical surroundings. a- Both assertion and reason are correct and the reason is the correct explanation of assertion. b- Both assertion and reason are correct and the reason is not a correct explanation of assertion. c- Assertion is true but the reason is false d- Assertion is false but the reason is true.	1
4	Assertion- The amount of organic matter produced per unit area over a time period by plants known as primary productivity. Reason: This is produced as a result of photosynthesis and expressed in terms of weight (gm <sup>-2</sup> ) or energy (kcal m <sup>-2</sup> ). a- Both assertion and reason are correct and the reason is the correct explanation of assertion. b- Both assertion and reason are correct and the reason is not a correct explanation of assertion. c- Assertion is true but the reason is false d- Assertion is false but the reason is true.	1
<b>Section- B</b>		
5	List four components of the ecosystem.  OR  Why are oceans the least productive?	2

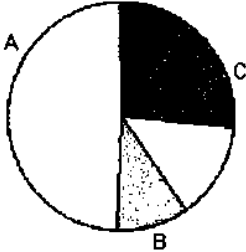


6	Compare NPP and GPP in terms of productivity.	2
<b>Section C</b>		
7	<p>a- Provide two examples each of natural ecosystems and artificial ecosystems.</p> <p>b- Zooplankton belongs to which level of the food chain.</p> <p>c- Give one example which represents an inverted pyramid.</p> <p style="text-align: center;">OR</p> <p>a- Provide information on the limitations of ecological pyramids.</p> <p>b- Observe the diagram given below and answer the given questions-</p> <p>i- Identify the situation where such a pyramid is possible.</p> <p>ii- one which belongs to PC</p> <p>iii- one on which PC depends</p> <div style="text-align: center; margin: 10px 0;">  </div>	3
<b>Section- D</b>		
8	<p>There are two types of food chains: the grazing food chain and the detrital food chain. A food chain is a sequence of organisms that are connected based on their feeding habits, with producers at the bottom and consumers at higher levels, including prey, predators, scavengers, and decomposers. In a food chain, each organism occupies a different trophic level.</p> <p>i- What is the fundamental purpose of preparing a food web?</p> <p>ii- How grazing food chain differ from the detrital food chain?</p> <p>iii- What is the trophic level?</p> <p>iv- Earthworms belong to which type of food chain?</p>	4
<b>Section- E</b>		
9	<p>a- Explain, how the oxygen levels and chemical makeup of detritus impact the process of decomposition.</p> <p>b- List two importance of decomposers.</p> <p style="text-align: center;">OR</p> <p>What is decomposition – Describe the different processes involved in decomposition?</p>	5

**KENDRIYA VIDYALAYA SANGATHAN****ZIET, CHANDIGARH****MONTHLY TEST***(Based on the CBSE pattern)***Chapter 13- Biodiversity and its Conservation****Subject: Biology****Time: 1: 00 Hr.****Class: XII****Max. Marks: 20****Note:***Section A- Question no one to four is of 01 mark each**Section B- Questions no five and six are of 02 marks each**Section C- Question number seven is of 03 marks**Section D- The eighth question is a case study carrying four marks.**Section E- Question number nine is of 5 marks.*

SN	Question	Marks
<b>Section A</b>		
1	Who popularized the term Biodiversity- a- Stanley b- Darwin c- Paul Ehrlich d- Edward Wilson	1
2	Which one is an example of in situ conservation- a- Cryopreservation b- Aquarium c- Biosphere reserve d- All of these	1
3	Assertion- The diversity at the species level is known as species diversity. Reason: Western Ghats have a greater amphibian species diversity than Eastern Ghats is an example of species diversity. a- Both assertion and reason are correct and the reason is the correct explanation of assertion. b- Both assertion and reason are correct and the reason is not a correct explanation of assertion. c- Assertion is true but the reason is false d- Assertion is false but the reason is true.	1
4	Assertion- In Ex- situ conservation the species are protected in specified areas with utmost care. Reason: The biosphere is a good example of the ex-situ conservation of biodiversity. a- Both assertion and reason are correct and the reason is the correct explanation of assertion. b- Both assertion and reason are correct and the reason is not a correct explanation of assertion. c- Assertion is true but the reason is false d- Assertion is false but the reason is true.	1
<b>Section- B</b>		
5	Identify the type of diversity displayed in the following examples: a- India boasts over 50,000 genetically distinct rice strains and 1,000 mango varieties. b- India is home to various natural wonders such as mangroves, coral reefs, and wetlands. c-	2
6	List two characteristics of “hot spots” regions. Mention two examples of Hot Spots located in India.  <b>OR</b> State a difference between endemic and exotic species. Also, provide an example of each.	2

**Section C**

7	<p>Identify A, B, and C in the given diagram of a proportionate number of species of major taxa of vertebrates-</p> <div style="text-align: center;"><p style="text-align: center;"><b>OR</b></p></div> <p>Can you explain the differences between the current occurrence of species extinction and earlier mass extinctions?</p>	3
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**Section- D**

8	<p>According to researchers, the rate of species loss is currently estimated to be somewhere between 100 to 10,000 times higher than the background extinction rate. The background extinction rate is typically one to five species per year when considering the entire fossil record. (Source: Britannica). Loss of biodiversity occurs when a specific species is extinct or the habitat required for its survival is damaged. One method of biodiversity preservation can be observed as sacred groves. Sacred Groves are the tracts of virgin forests that are left untouched by the local inhabitants and are protected by the local people due to their culture and religious beliefs.</p> <p>a- Write two disadvantages of loss of biodiversity. b- What are 'evil quarters'? c- How cryopreservation technique could be helpful for biodiversity conservation. d- Give an example that shows alien species can affect biodiversity.</p>	4
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**Section- E**

9	<p>a- The stability of a community relies on the diversity of its species. Can you provide insight into David Tilman's experimental demonstration? b- List two reasons why there is greater species diversity in tropical latitudes compared to temperate regions. c- Explain co-extinction with a suitable example.</p> <p style="text-align: center;"><b>OR</b></p> <p>Explain Species- Area relationship by giving suitable graphical representation.</p>	5
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