

Test / Exam Name: PYQ

Standard: 12TH SCIENCE

Subject: BIOLOGY

Student Name:

Section:

Roll No.:

Questions: 50	Time: 60 Mins	Marks: 100
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Q1. Name the blank spaces a, b, c and d from the table given below:

2 Marks

Type of Microbe	Scientific Name	Commercial Product
Bacterium	a	Lactic acid
Fungus	b	Cyclosporin A
c	Monascus purpureus	Statin
Fungus	Penicillium notatum	d

Q2. How can DNA segments, separated by gel electrophoresis, be visualised and isolated?

2 Marks

Q3. " β " galactosidase enzyme is considered a better selectable marker. Justify the statement.

2 Marks

Q4. A mature embryo-sac in a flowering plant may possess 7-cells, but 8-nuclei. Explain with the help of a diagram only.

2 Marks

Q5. Why should antibiotics not be taken indiscriminately? Give any two reasons.

2 Marks

b. "It is advisable to complete the course of antibiotics as prescribed by the doctor."
Justify.

Q6. How does EcoRI specifically act on DNA molecule?
Explain?

2 Marks

Q7. Why is using tobacco in any form injurious to the health?
Explain.

2 Marks

Q8. Scientists are trying to solve the issues of malnutrition and hunger by using microbes. By taking one suitable example, explain how they have been able to help.

2 Marks

Q9. Differentiate between male and female heterogamety.

2 Marks

Q10. Spirulina is a rich source of proteins. Mention the two ways by which large scale culturing of these microbes is possible.

2 Marks

Q11. Mention the number of primers required in each cycle of polymerase chain reaction (PCR). Write the role of primers and DNA polymerase in PCR.

2 Marks

ii. Give the characteristic feature and source organism of the DNA polymerase used in PCR.

Q12. Lactic Acid Bacteria (LAB) sets milk into curd and also plays a very beneficial role for human health. Give any two suitable reasons.

2 Marks

Q13. Name the type of immunity the colostrum provides to a newborn baby. Write giving an example where this type of immunity should be provided to a person.

2 Marks

Q14. In angiosperms, zygote is diploid while primary endosperm cell is triploid. Explain.

2 Marks

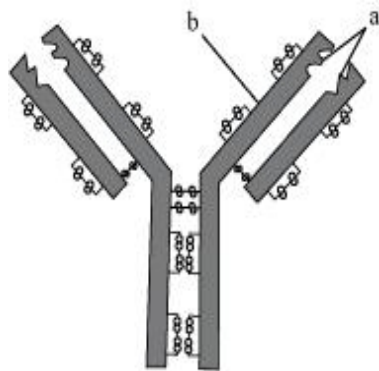
Q15. State the difference between the structural genes in a Transcription Unit of Prokaryotes and Eukaryotes. **2 Marks**

Q16. List the two main propositions of Oparin and Haldane. **2 Marks**

Q17. Why are certain animals called 'transgenic'? Give an example of such an animal that is being used for testing the vaccine safety for a specific human disease. Name the disease. **2 Marks**

Q18. You are conducting artificial hybridization on papaya and potato. Which one of them would require the step of emasculation and why? However for both you will use the process of bagging. Justify giving one reason. **2 Marks**

Q19.  **2 Marks**



1. What does the above diagram illustrate?
2. Name the parts labelled 'a' and 'b'.
3. Name the type of cells that produce this molecule.

Q20. Write the scientific name of the source from where cocaine is obtained. How does its use affect the human body? **2 Marks**

Q21. In Snapdragon, A cross between true breeding red flower (RR) plants and true breeding white flower (rr) plants showed a Progeny of plants with all pink flowers. **2 Marks**

- a. The appearance of pink flowers is not known as blending. Why?
- b. What is the phenomenon known as?

Q22. Name the microbes that help production of the following products commercially: **2 Marks**

- a. Statin.
- b. Citric acid.
- c. Penicillin.
- d. Butyric acid.

Q23. An infertile couple is advised to adopt test-tube baby programme. Describe two principle procedures adopted for such technologies. **2 Marks**

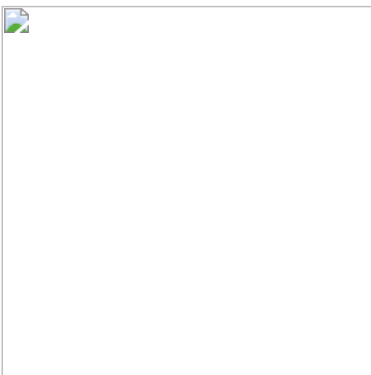
Q24. Explain the relationship between B-lymphocytes and T-lymphocytes in developing an immune response. **2 Marks**

Q25. State what are biofertilizers. Name any three sources of biofertilizers. **2 Marks**

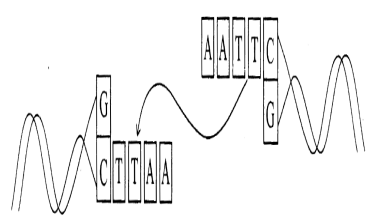
Q26. Differentiate between 'ZZ' and 'XY' type of sex-determination mechanisms. **2 Marks**

Q27. Explain how a hereditary disease can be corrected. Give an example of first successful attempt made towards correction of such diseases. **2 Marks**

Q28.  **2 Marks**



a DNA b DNA



Study the linking of DNA fragments shown above.

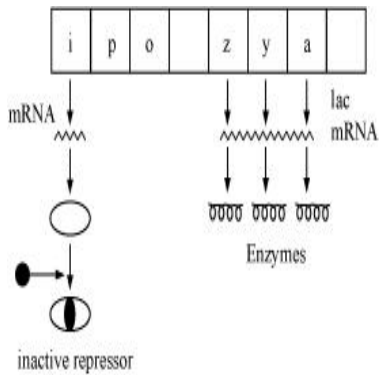
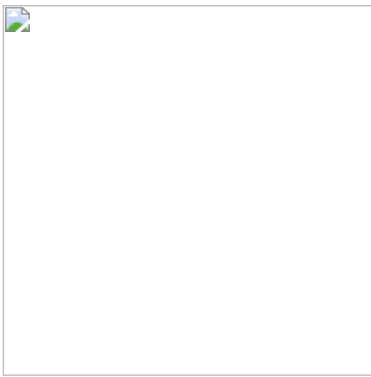
1. Name 'a' DNA 'b' DNA.
2. Name the restriction enzyme that recognises this palindrome.
3. Name the enzyme that can link these two DNA fragments.

Q29. What would be the best method to measure the total population density of a dense bacterial culture in a petridish and why? **2 Marks**

Q30. Name and mention the events that occur in the cells when HIV gets into blood after gaining entry into the human body. **2 Marks**

Q31. Why does the Bt toxin not kill the bacterium that produces it but kills the insect that ingests it? **2 Marks**

Q32. Study the figure given below and answer the questions: **2 Marks**



1. How does the repressor molecule get inactivated?
2. When does the transcription of lac mRNA stop?
3. Name the enzyme transcribed by the gene 'Z'.

Q33. During the secondary treatment of the primary effluent, how does the significant decrease in BOD occur?

2 Marks

Q34. A pollen grain in angiosperm at the time of dehiscence from an anther could be 2-celled or 3-celled. Explain. How are the cells placed within the pollen grain when shed at a 2-celled stage?

2 Marks

Q35. Explain when is a genetic code said to be:

2 Marks

- a. Degenerate.
- b. Universal.

Q36. How can childless couples be helped by the following assisted reproductive technologies:

2 Marks

- a. GIFT.
- b. Cytoplasmic Sperm Injection.

Q37. Explain the role of histones in forming a nucleosome.

2 Marks

Q38. Can we use slurry of human excreta instead of cowdung slurry to produce biogas in a typical biogas plant? Support your answer giving reasons.

2 Marks

Q39. Write the steps in sequence as carried in multiple ovulation embryo transfer technology.

2 Marks

Q40. List the symptoms of Ascariasis. How does a healthy person acquire this infection?

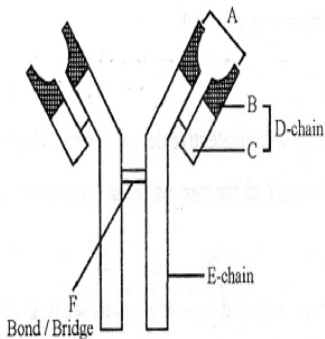
2 Marks

Q41. From which end of the ovule, and how does the pollen tube gain its entry into the embryo sac of a Hibiscus flower?

2 Marks

- b. State the fate of the male nuclei present in the pollen tube.

- Q42.** Explain the cause responsible in a human to have sex chromosomes as 'XXY' instead of 'XX' or 'XY'. **2 Marks**
- b. List any two ways such individuals are different from the normal being.
- Q43.** How is DNA isolated in purified form from a bacterial cell? **2 Marks**
- Q44.** Write the palindromic nucleotide sequence that EcoRI reads, and indicate the site of its action. **2 Marks**
- Q45.** Mention one application for each of the following: **2 Marks**
- Passive immunisation.
 - Antihistamine.
 - Colostrum.
 - Cytokinin-barrier.
- Q46.** Why is the introduction of genetically engineered lymphocytes into an ADA deficiency patient not a permanent cure? Suggest a possible permanent cure. **2 Marks**
- Q47.** Name the lymphoid organ in humans where all the blood cells are produced. **2 Marks**
- B. Where do the lymphocytes produced by the lymphoid organ mentioned above migrate and how do they affect immunity?
- Q48.** Explain the dual function of AUG codon. Give the sequence of bases it is transcribed from and its anticodon. **2 Marks**
- Q49.** Identify A,D,E and F in the diagram of an antibody molecule given below: **2 Marks**



- Q50.** Name the Scientists and write how did they explain Mendel's laws after the chromosomes were discovered. **2 Marks**