



BIOLOGY

BOOKS - MBD

MODEL TEST PAPER -1

Exercise

1. Mention two inherent characteristics of Amoeba and yeast that enable them to reproduce asexually.



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2. Why do you think the zygote is dormant for sometime in a fertilized ovule?



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3. Why is offspring formed by asexual reproduction referred to as clone ?



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4. How does colostrum provide initial protection against diseases to new-born infants? Give one reason.



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5. In antirrhinum (sanpdragon) all its flower was crossed with a white flower and in a F_1 generation pink flowers where obtained. when pink flower were selfed the F_2 generation show white, red and pink flowers. choose the incorrect statement from the following:



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6. What is biogenesis? Who proposed life is always formed from pre-existing life?



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7. Would it be appropriate to use DNA probes such as VNTR in DNA fingerprinting of a bacteriophage?



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8. Why is the time of treatment for a genetic disease different from an infectious disease?



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9. What is the function of TPA?



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10. Why are green plants not found beyond certain depth in the ocean?



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11. Assertion : Primary transcripts in eukaryotes are non-functional.

Reason : Methyl guanosine triphosphate is attached to 5' - end of hnRNA.

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 the correct explanation of assertion
- C. Assertion is true but reason is false.
- D. Both assertion and reason are false.

Answer:



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12. Assertion : E.coli having pBR322 with DNA insert at BamH 1 site cannot grow in medium containing tetracycline.

Reason: Recognition site for BamH 1 is present in tetR region of pBR322.

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 the correct explanation of

assertion

C. Assertion is true but reason is false.

D. Both assertion and reason are false.

Answer:



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13. Name the mode of reproduction that helps in producing genetically identical offspring.



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14. Assertion: In India , the human population is currently undergoing the lag phase

Reason: 90% of india population is still below poverty line.

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 the correct explanation of assertion

C. Assertion is true but reason is false.

D. Both asertion and reason are false.

Answer:



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15. Many diseases can be diagnosed by observing the symptoms in the patient. which group of symptoms in the patient of pneumonia ?

A. a. difficulty in respiration.

fever, chills, cough, headache

B. b. constipation, abdominal

pain, cramps, blood clots

C. c. nasal congestion and discharge,

cough, sore throat, headache

D. d. high fever, weakness, stomach pain, loss

of appetite and constipation

Answer:



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16. Read the paragraph and answer the following questions

Sex Determination

The sex is hereditary variation between two individuals of same species. Sex is one of the most noticeable and interesting kinds of hereditary differences seen among individuals of same species. It is determined at the time of fertilisation when the male and female gametes fuse together. In most of organisms, sex is determined by one pair of chromosomes called sex chromosomes or allosomes.

Note that all the eggs carry X-chromosome, but one-half of the sperm carries an X-chromosome and one half carries a Y-chromosome.

Genic balance theory that was given by Calvin Bridges states that instead of chromosomes, sex is determined by genic balance or ratio between X-chromosomes and autosome genomes.

(i) Male sex is:

- (a) heterogametic
- (b) homogametic
- (c) haplodiploid
- (d) none of above

(ii) Genic balance theory was give by:

- (a) Morgan
 - (b) Beadle and Tatum
 - (c) Calvin Bridges
 - (d) William Bateson
- (iii) Female gametes have chromosome set up as:
- (a) $(22 + XY)$
 - (b) $(22 + XX)$
 - (c) $(22 + X)$
 - (d) $(22 + Y)$
- (iv) ZZ/ZW type of sex determination is seen in:
- (a) Platypus
 - (b) Snails
 - (c) Cockroach
 - (d) Peacock
- (v) **Assertion:** XX-XY type of sex-determination mechanism is an example of female heterogamety.

Reason: Male heterogamety is seen in moths in which male produces two different types of gametes.

- (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.



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17. Comment on the essential features required for an ideal contraceptive.



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18. a man with blood group A married woman with blood group B. they have a son with AB blood group and a daughter with blood group O. work out the cross and show the possibility of such inheritance.



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19. Give an example for convergent evolution and identify the features to which they are converging.



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20. What do you understand by the term selectable marker?



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21. How is a continuous culture system maintained in bioreactors and why?



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22. Tropical regions are likely to have more biological diversity than temperate ones. Give two reasons to justify the statement.



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23. What is EcoRI? How does EcoRI differ from an exonuclease?



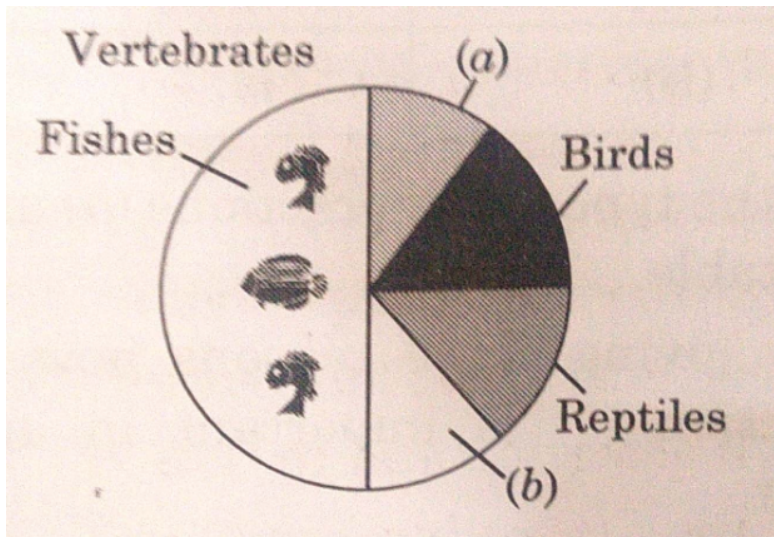
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24. What are two core techniques that enabled birth of biotechnology?



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25. Identify 'a' and 'b' in the figure given below representing proportionate number of major vertebrate taxa.



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26. What is the main idea behind "Joint farm management concept" introduced by Government of India?



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27. List a few transgenic organisms and their potential application.



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28. Draw a labelled diagram to show interrelationship of four accessory ducts in a human male reproductive system.



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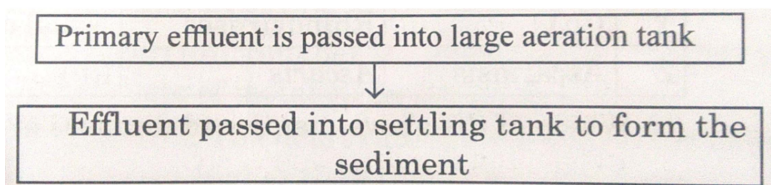
29. While creation and presence of variations is directionless, natural selection is directional as it is in the concept of adaptation . Explain.



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30. Large quantity of sewage is generated every day in cities and towns, Which is treated in Sewage Treatment Plants (STPs) to make it less polluted. Given below is the flow diagram of one of the stages of STP.

Observe the given flow diagram and answer the questions accordingly.



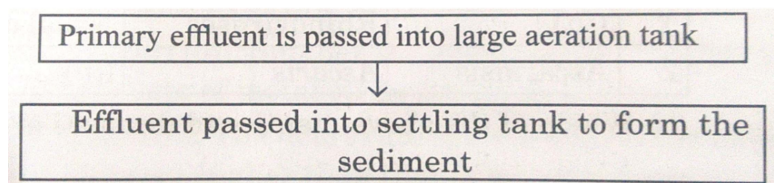
Why is primary effluent passed into large aeration tanks?



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31. Large quantity of sewage is generated every day in cities and towns, Which is treated in Sewage Treatment Plants (STPs) to make it less polluted. Given below is the flow diagram of one of the stages of STP.

Observe the given flow diagram and answer the questions accordingly.



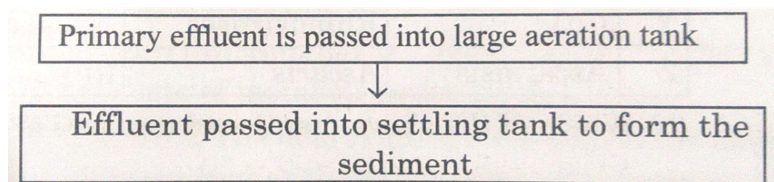
Write the technical term used for the sediment formed. Mention its significance.



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32. Large quantity of sewage is generated every day in cities and towns, Which is treated in Sewage Treatment Plants (STPs) to make it less polluted. Given below is the flow diagram of one of the stages of STP.

Observe the given flow diagram and answer the questions accordingly.



Explain the final step that results in the formation of biogas in the large tank before the treated effluent is released into waterbodies.



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33. "Species Bt Toxin gene is incorporated into cotton plant so as to control infestation of Bollworm". Mention the organism from which the gene was isolated and explain its mode of action.



34. Given below is a table depicting population interactions between species A and Species B.

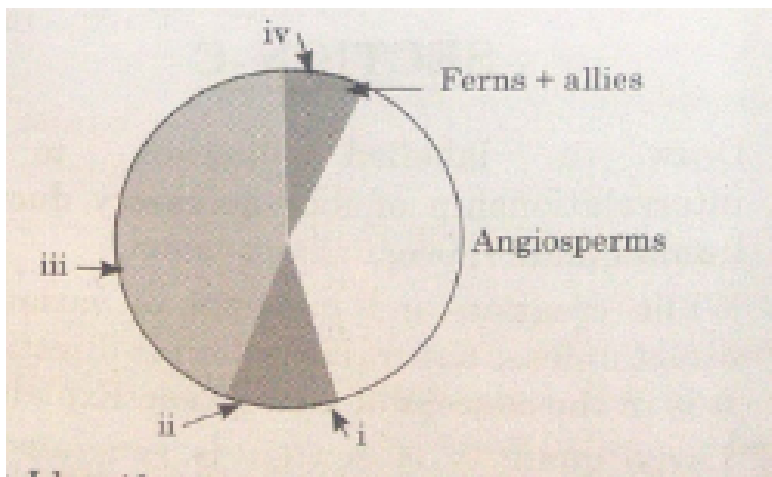
Type of interaction	Species A	Species B
(a)	(-)	(+)
(b)	(+)	(-)

Name the types of interactions (a) and (b) in the above table.

Justify giving three reasons how the type of interaction (b) is important in an ecological context.

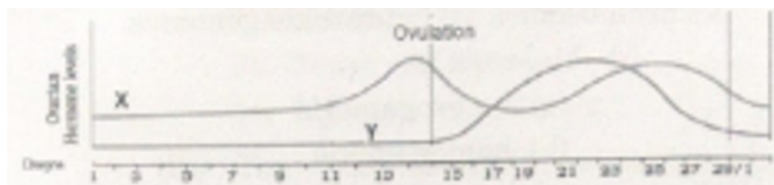


35. Identify the areas labelled as I, ii, iii, and iv in the pie chart given below representing the biodiversity of plants showing their proportionate number of species of major taxa.



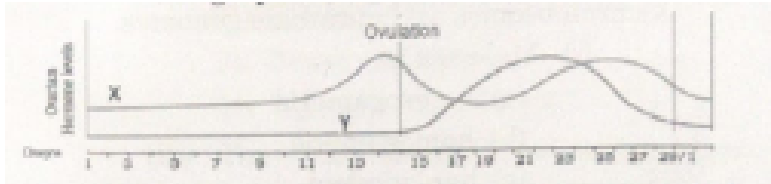
36. Study the graph given below related to menstrual cycle in females:

Identify ovarian hormones X and Y mentioned in the graph and specify their source.



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37. Study the graph given below related to menstrual cycle in Females:



Correlate and describe the uterine events that take place according to the ovarian hormone levels X and Y mentioned in the graph during 6-15 days

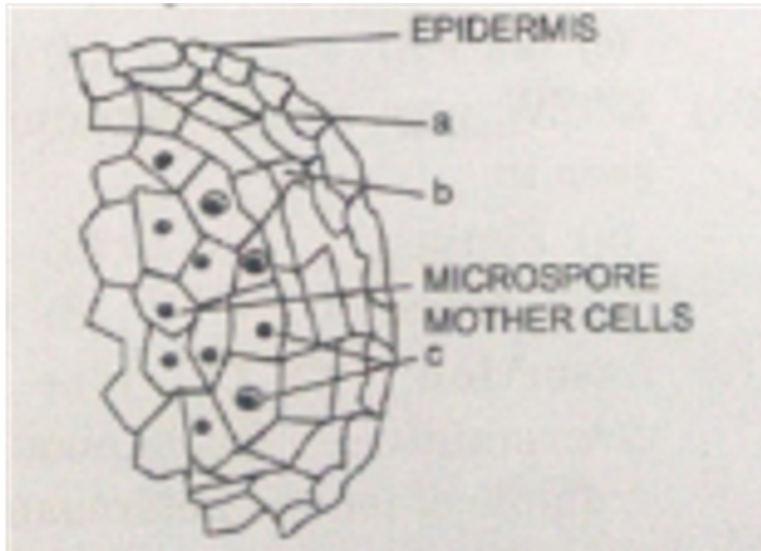
16-25 days

26-28 days (when ovum is not fertilised)



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38. Given below is an enlarged view of one microsporangium of a mature anther.

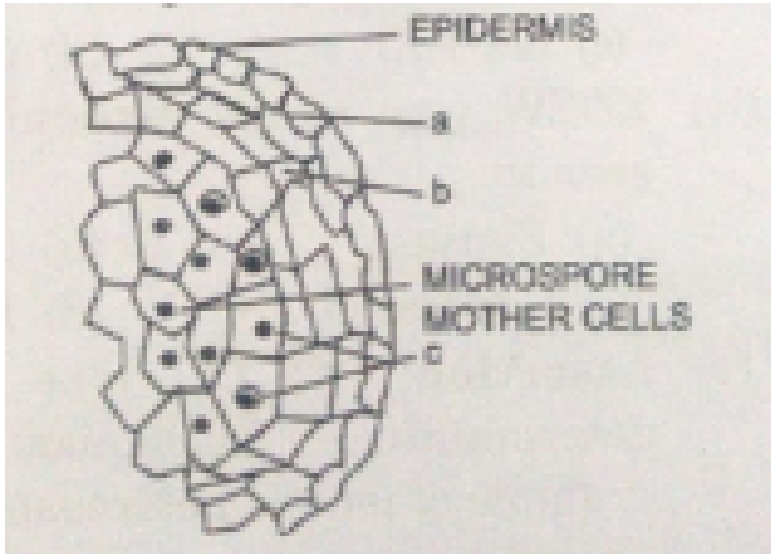


Name 'a', 'b' and 'c' wall layers.



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39. Given below is an enlarged view of one microsporangium of a mature anther.



Mention the characteristics and function of the cells forming wall layer 'c'.



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40. Describe Meselson's and Stahl's experiment to explain semiconservative mode of replication.



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41. Describe the structure of a polymer of deoxyribonucleotides.



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42. Name the mode of reproduction that ensures the creation of new variants.



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43. Which of the following represents the female gametophyte in angiosperms?

A. a. Embryo

B. b. Embryo sac

C. c. Synergid

D. d. Endosperm

Answer:



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	Name of Disease	Causative Organism	Symptoms
W	Pneumonia	<i>Streptococcus</i>	(i)
X	Typhoid	(ii)	High fever, weakness, headache, stomach pain
Y	(iii)	Rhinoviruses	Nasal congestion and discharge, sore throat, cough, headache
Z	Ascariasis	<i>Ascaris</i>	(iv)

44.

Which of the above mentioned diseases are transmitted through mechanical carriers?



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45. Give two important contributions of Dr. M. S. Swaminathan .



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46. Suggest two features of plants that will prevent insect and pest infestation.



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