

CLASS XII

COMMONPREBOARD EXAMINATION

TIMEALLOTTED: 3HRS

SUBJECT-BIOLOGY

MAX.MARKS:70

General Instructions:

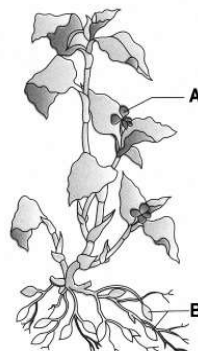
- (i) All questions are compulsory.
- (ii) This question paper consists of four Sections A, B, C and D. Section A contains 8 questions of one mark each, Section B is of 10 questions of two marks each, Section C is of 9 questions of three marks each and Section D is of 3 questions of five marks each.
- (iii) There is no overall choice. However, an internal choice has been provided in one question of 2 marks, one question of 3 marks and all the three questions of 5 marks weightage. A student has to attempt only one of the alternatives in such questions.
- (iv) Wherever necessary, the diagrams drawn should be neat and properly labelled.

Section - A

1. Coconut palm is monoicous while date palm is dioecious. Why are they called so?
2. The meiocyte of an onion plant contains 32 chromosomes. Work out the number of chromosomes found in its endosperm.
3. The gene I that controls the ABO blood grouping in human beings has three alleles IA, IB and i. (a) How many different genotypes are likely to be present in the human population?
(b) Also, how many phenotypes are possibly present?
4. Pick out the ancestral line of Cycads from the list given below -
Ferns, herbaceous lycopods, seed ferns, and horsetails
5. Name the source of smack. Mention one way in which it affects the human body.
6. How is alien DNA introduced into a plant cell?
7. Mr. Galgotia eats curd / yoghurt. In this case, which trophic level will he occupy?
8. How is population density of tiger measured?

Section - B

9.



Identify the type of flower shown in A and B. Which out of these two will produce an assured seed set?

10. Fed up of a large family, a couple wanted to adopt a terminal method of contraception. Describe the process conducted by the doctor in either of the cases (male / female partner)

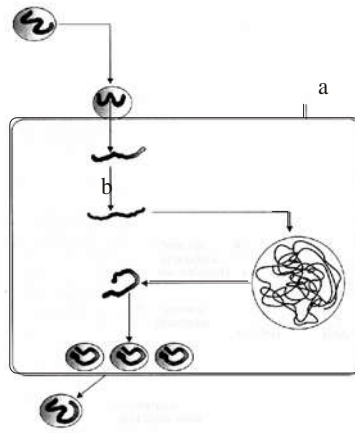
OR

- A mother of a one year old daughter wanted to space her second child. Her doctor suggested CuT. Explain its contraceptive actions.
11. The human male and female bird are heterogametic while the human female and male bird are homogametic. Why are they called so?
12. What are interferons? Explain its role in providing immunity. Also name the kind of immunity provided by it.
13. What is allergy? Name the antibody responsible for it. Also mention two chemicals released from the mast cells during an allergic reaction.
14. Give reason -
- (a) Bottled fruit juices bought from the market are clearer as compared to those made at home.
 - (b) Large holes are found in "Swiss cheese".
15. In which parts of the body of the hosts do the following events in the life cycle of *Plasmodium* take place? Along with the body parts name the hosts too -
- (i) Fertilisation
 - (ii) Development of gametocytes
 - (iii) Release of sporozoites
 - (iv) Asexual reproduction
16. What are the latest methods of detection of cancer?
17. State two important defense mechanisms in plants against herbivore, with an example each.
18. Compare the grazing food chain and detritus food chain in the aspect of their (a) origin and (b) energy status.

Section - C

19. Draw a labeled diagram of the sectional view of a mature pollen grain of angiosperms. Explain the function of any two of its parts.
20. In a pea plant, smooth seed coat is dominant over wrinkled seed coat. What will be the expected ratio of phenotypes of the offspring in a cross between
- (i) Heterozygous smooth \times Heterozygous smooth
 - (ii) Heterozygous smooth \times Homozygous wrinkled
 - (iii) Heterozygous smooth \times Homozygous smooth?
21. A tRNA is charged with amino acid methionine
- (i) Name the process involved in the attachment
 - (ii) Point out the mRNA codon and anticodon on tRNA for this amino acid.
 - (iii) What is heterochromatin?
22. (a) State Hardy Weinberg principle. Name any two factors which affect it.
- (b) Draw a graph to show that natural selection leads to directional change.

23.



(i) What does this diagrammatic sketch depict? (ii) Identify 'a' and 'b'

(iii) Name the widely used diagnostic test when a person gets this disease

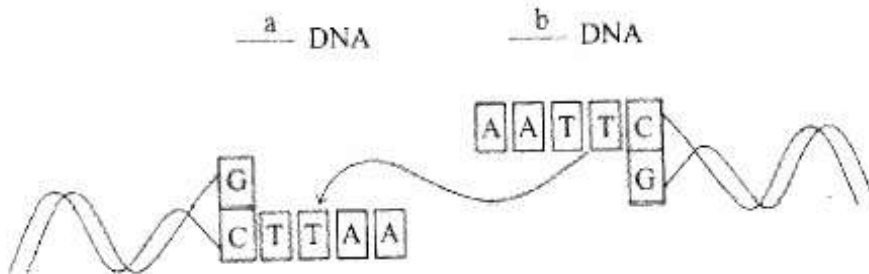
OR

- A) How does intake of tobacco raise BP?
B) Mention any two withdrawal syndrome.

24. a) Though phosphates and nitrates act as plant nutrients, they are also reported as prime contaminants. Why?

b) Name the process in which pollutants from man's activities can accelerate the ageing process of a lake.

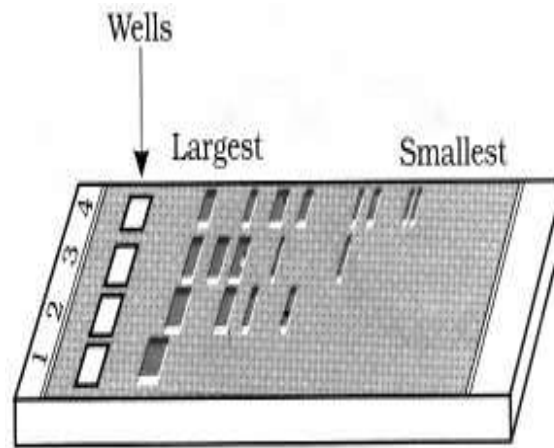
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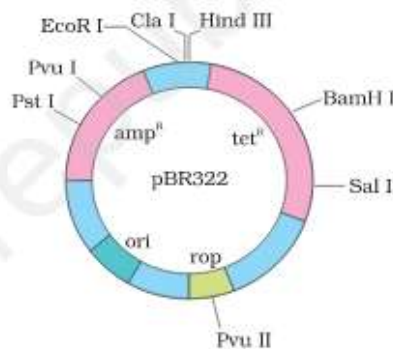
Study the linking of DNA fragments shown above.

- (i) Name 'a' DNA and 'b' DNA
(ii) Name the restriction enzyme that recognises this palindrome
(iii) Name the enzyme that can link these two DNA fragments.

26.



- (a) What does this diagram depict?
(b) What is meant by largest and smallest in the picture?
(c) Name the compound used to visualise them.
(d) Define elution.
27. (a) Why is origin of replication (ori) required to facilitate cloning into a vector?
(b) Explain the importance of a) amp^r b) rop in the E.coli vector shown below.



Section - D

28. A woman has conceived and implantation has occurred in her uterus. Explain the sequence of changes upto parturition which takes place within her body.

OR

What you mean by development of Embryo in plants?
Support the answer with diagrams

29. (a) Give reasons for -
(i) Both strands of DNA are not copied during transcription.
(ii) Transcription and translation in bacteria can be coupled.
(b) Differentiate between the process of transcription in prokaryotes and eukaryotes.

OR

Stanley Miller performed an experiment by recreating in the lab the probable conditions of the

atmosphere of the primitive earth.

- (i) What was the purpose of the experiment?
 - (ii) In what form was the energy supplied for the chemical reaction to occur?
 - (iii) What is biogenesis?
 - (iv) Give a diagrammatic representation of Miller's experiment.
30. (a) On seeing the bad state of roads in your locality, as a student, you have recommended to the Municipal Corporation to use polyblend.
- (i) What is polyblend? Point out its raw material?
 - (ii) How will it be advantageous?
- (b) What are e-wastes? Explain the method of their disposal.