LIONS SCHOOL, MIRZAPUR
PREBOARD 2020-21

CLASS XII M.M.70
SUBJECT- BIOLOGY TIME: 3 HRS.

GENERAL INSTRUCTIONS:

(i) All questions are compulsory.
(ii) The question paper has four sections: Section A, Section B, Section C and Section D. There are 33 questions in the question paper.
(iii) Section–A has 18 questions of 1 mark each and 01 case-based questions. Section–B has 9 questions of 2 marks each. Section–C has 5 questions of 3 marks each and Section–D has 3 questions of 5 marks each.
(iv) 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.
(v) Wherever necessary, neat and properly labeled diagrams should be drawn.

SECTION-A

QUESTIONS

1. Why is thermostable D.N.A polymerase needed in amplification? 1

2. Name the type of association that the genus Glomus exhibits with higher plants. 1

3. Name the alien fish species which is posing a threat to the indigenous catfishes in our rivers. 1

4. What are Ramsar sites? Name any two Ramsar sites. 1

5. Which extraembryonic membrane give rise to the fetal umbilical cord? 1

6. State the role of transposons in silencing of m RNA in eukaryotic cells. 1

7. Name two reason for rheumatoid arthritis. 1

8. Define epiblast and scutellum. 1

9. What is role of CaCl2 in preparation of competent cells? 1

10.You have created a recombinant DNA molecule by ligating a gene to plasmid vector. By mistake 1

your friend adds exonuclease enzyme to the tube containing the recombinant DNA. How will your experiment get affected as you plan to go for transformation now?

Assertion type question

These questions consist of two statements each printed as Assertion and Reason. While answering these questions you are required to choose any one of the following four responses.

A. If both assertion and reason are true and Reason is correct explanation of Assertion.

B. If both Assertion and Reason are true but Reasons are not correct explanation of Assertion.

C. If assertion is true but Reason is false.

D. If both Assertion and Reason are false.

11. Assertion--Potential natality is never realized. 1

Reason--Biotic potential is resisted by environmental resistance.

12. Assertion--The mRNA molecule attaches itself to the ribosome to the ribosome via its 3' end. 1

Reason--The mRNA has F- CAPSULAR nucleotide and base of lagging sequence.

13. Assertion--The operon is a unit of gene expression. 1

Reason--Lac operon in E. coli is an inducible control.

14. Assertion-- Alcohol act as a sedative. 1

Reason-- Sweating is enhanced by alcohol and so it is endothermic.

15.(i) Assertion--Cold blooded animals have no fat layer. 1

Reason--Cold blooded animals use their fat for metabolic process during hibernation.

(ii) Assertion--Hotspot of biodiversity on global scale refer to tropical forest 1

Reason--These also cause forest fires.

(iii) The most effective stage in the life cycle of dragon fly that eradicate mosquito are 1

a. Larva and adult
b. Caterpillar and adult
c. Nymph and adult
d. Pupa and adult

(iv) In some virus DNA is synthesized by using RNA as template such DNA is called 1

a. c-DNA
b. r-DNA
c. A-DNA
d. B-DNA

16. Read the following and answer any four question from 16(i) to 16(v) given below 4

Both the species benefit in mutualism and both lose in competition in their interactions with each other. In both parasitism and predation only one species benefits and the interaction is detrimental to the other species (host and prey, respectively). The interaction where one species is benefitted and the other is neither benefitted nor harmed is called commensalism. Predation, parasitism and commensalism share a common characteristic– the interacting species live closely together.

(i) Which one of the following is categorized as a

parasite in true sense?

(a) The female Anopheles bites and sucks blood from humans

(b) Human foetus developing inside the uterus draws nourishment from the mother

(c) Head louse living on the human scalp as well as laying eggs on human hair

(d) The cuckoo (koel) lays its eggs in crow's nest.

(ii) Which type of association is found in between entomophilous flower and pollinating agent?

(a) Mutualism (b) Commensalism

(c) Cooperation (d) Co-evolution

(iii) A mutually beneficial association necessary for survival of both partners is

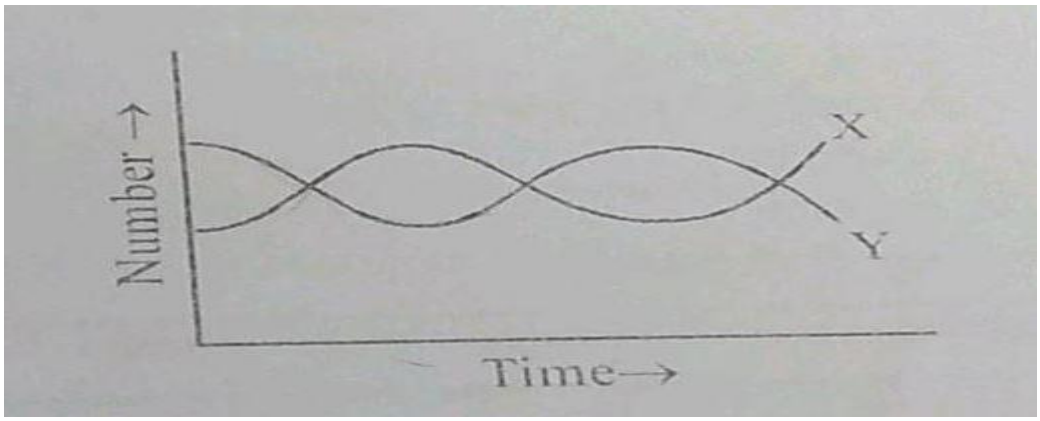
(a) mutualism/symbiosis

(b) commensalism

(c) amensalism

(d) both a and b.

(iv) Which type of interaction shows in this graph between two organism X and Y



(a) Parasitism (b) Mutualism

(c) commensalism (d) Predation

(v) Which one of the following is categorized as a

parasite in true sense?

(a) The female Anopheles bites and sucks blood from humans

(b) Human foetus developing inside the uterus draws nourishment from the mother

(c) Head louse living on the human scalp as well as laying eggs on human hair

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SECTION-B

17. List two essential role of ribosome during translation? 2

18. What are fertilizin's. Name the sperm lysin? 2

19. Why do some women use Saheli pills? 2

OR

What is mechanism of action of contraceptive pills?

20. Define interference competition. Give one example that supports competitive exclusion occurring in nature. 2

21. Name the bacteria responsible for the large hole seen in Swiss Cheese. What are these holes due to? 2

22. In a sea shore the benthic animals live in muddy, sandy, rocky, substrata and accordingly developed the following adaptations. find he suitable substratum against each adaptation. 2

a. Burrowing_____

b. building cubes_____

c. Holdfasts/peduncle_____

23. In a cross between a tall pea plant with yellow seeds (heterozygous of both the trait) and a tall pea plant with green seeds (heterozygous), what proportion of offspring could be expected to be:
2

(a) Tall and green

(b) dwarf and green

24. Expand LSD. Name its source organisms. What category of drug it? 2

OR

Categories brinjal and beans on the basis type of flower. how they different from each other?

25.(i) What happen when Meloidogyne incognita consumes cell with RNAi gene? 2

(ii) Define proto-oncogene?

SECTION-C

26.(i) What do you mean by The Evil Quartet. 3

(ii)Explain giving three reason why tropic show greater levels of species diversity.

27. A small stretch of DNA that code for a polypeptide is shown below 3

3'-----CAT CAT AGA TGA AAC-----5!

(a) Which type of mutation could have occurred in each type resulting in the following mistakes during replication of the above original sequence

(i) 3' ------CAT CAT AGA TGA ATC- 5'

(ii) 3' ------CAT ATA GAT GAA AC—5'

(b) How many amino acids will be translated from each of the above strands [i]and [ii]

(c)There are only one possible sequence of amino acids when deduced by given nucleotide but multiple nucleotide sequence can be deduced from a single amino acid sequence Explain this phenomenon.

28. A person show strong unusual hypersensitive reaction when exposed to certain substances present in the air identify the condition. Name the cells and Ig responsible for such reaction. What precautions should be taken to avoid such reaction.
3

29. Study the flow chart given below. Name the hormones involved at each stage and explain their role. 3

Ovulation

↓

Pregnancy

↓

Placenta

↓

Foetal growth

↓

Parturition

(a) Where is microsporangium located in an angiosperm. Describe the structure of male gametophyte.

(b)What are significance of apomixis.

OR

(a) DNA polymorphism is the basis of DNA fingerprinting technique. Explain.

(b) Mention the causes of DNA polymorphism.

30. A plasmid DNA and linear DNA have one site for a restriction endonuclease. When cut and separated on agarose gel electrophoresis plasmid show one DNA band while linear DNA SHOWS two fragments. Explain. 3

SECTION-D

31.[i]Explain the work carried by Cohen and Boyer that contributed immensely in biotechnology. 5

[ii]Name a recombinant vaccine that currently being used in vaccination program.

[iii] You have identified a useful gen in a bacterium. Make a flow chart of this steps you would follow to transfer this gen to a plant.

OR

(i) How have a transgenic animal proved to the beneficial in

(a) Production of biological products

(b) Chemical safety testing

(c) Study of diseases

(ii) What do the differently written terms Cry and cry represent respectively.

32(i) Why is aerobic degradation more important than anaerobic degradation for treatment of large volumes of waste water rich in organic matter. 5

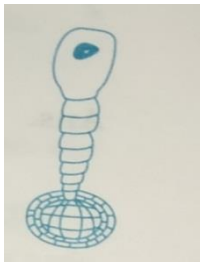
(ii) What is the organ that releases the female gamete under formation? How is this release triggered?

(iii) What is condition in which medical termination of pregnancy is advised

iv) Name the different type of cells providing cellular barriers responsible for innate immunity in humans.

33. (i) Why some allele is dominant and some are recessive? 5

(ii)



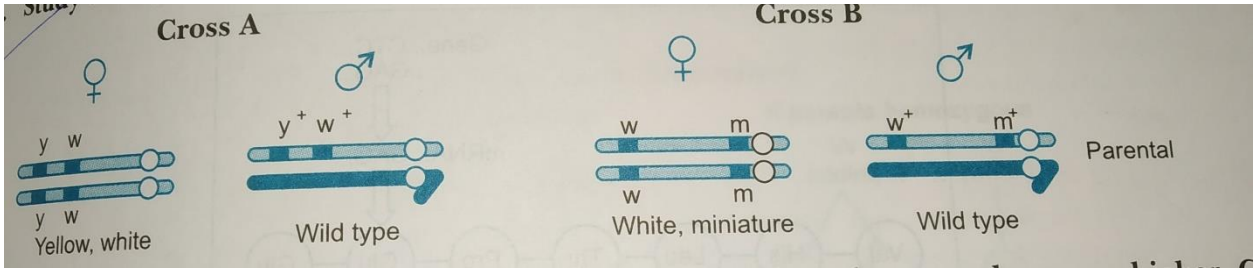
(a) Identify the figure given alongside?

(b) Name the initial cell from which this structure has developed and draw the next mature stage and label the part?

(iii) Describe the endosperm development in coconut

(iv) Rose plants produce large attractive bisexual flower but they seldom produce fruits. On the other hand, Lady's finger produces plenty of fruits. Analyzed the reasons for failure of fruit formation in rose.

OR



(a) Identify in which of the cross is the strength of linkage between the genes higher? Give reason in support of your answer.

(b) What is aminocylation? Draw a clover leaf structure of t RNA showing the tyrosine attached to its ammino acid site and anticodon for this amino acid in its correct site.

(c) What is satellite DNA in a genome? Explain their role in DNA fingerprinting .