

Name: _____ R. No. _____ Class/ Sec: _____ Date: _____ Invig. Sign _____

ATOMIC ENERGY CENTRAL SCHOOL, NARORA
CLASS XII BIOLOGY HALF YEARLY EXAMINATION 2018-19

MM: 70

TIME: 3Hr.

General Instructions:

- All questions are compulsory and marks are mentioned in front of each question.
- Electronic devices are prohibited to use in the examination.
- Use Blue or Black Pen only.

SECTION-A

1. Write the probable differences in eating habits of homo habilis & homo erectus . (1)
2. A male honeybee has 16 chromosomes whereas it's female has 32 chromosomes. Give one reason. (1)
3. Mention one difference between a monoecious and dioecious plant. Give one example of a monoecious plant . (1)
4. Name the transcriptional active region of chromatin in a nucleus. (1)
5. Write the two pre-fertilisation events from the list given below.
Syngamy , Gametogenesis , Embryogenesis , Pollination (1)

SECTION-B

6. Name the cells HIV gain entry into after infecting the human body. Explain the events that occur in these cells? (2)
7. Following are the features of genetic codes . What does each one indicate?
Stop codon , unambiguous codon, degenerate codon, universal codon. (2)
8. What is amniocentesis? Why has the government imposed a statutory ban in spite of its importance in medical field? (2)
9. Write any four reasons to justify the ban on intake of cannabinoids by sportsperson?
(OR)
Give two reasons why both the strands of DNA are not copied during transcription (2)
10. Gynaecium of a flower may be apocarpous or syncarpous . Explain with the help of an example . (2)

SECTION-C

11. Differentiate between divergent & convergent evolution. Give one example of each. (3)
12. (a) List any four characteristics of an ideal contraceptive.
(b) Name two intra-uterine contraceptive devices that affect the motility of sperms. (3)
13. (A) How does a farmer use the dormancy of seeds to his advantage.
(B) What advantages a seed provides to a plant. (3).

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14. A couple where both husband and wife are producing functional gametes, but the wife who is still unable to conceive is seeking medical aid. Describe any one method that you can suggest to this couple to become happy parents. (3)

15. What is a test-cross? How can it decipher the heterozygosity of a plant? (3)

16. (a) Mention the problems that are taken care of by reproduction and child health care programme.

(b) A Chimpanzee can hold objects by its hands and an elephant by its trunk. Are these organs analogous or homologous? Give reasons in support of your answer. (3)

17. (a) Name the organic material of pollen grains. How is this material advantageous to pollen grains?

(b) Still it is observed that it does not form a continuous layer around the pollen grains. Give reasons.

(c) How are 'pollen banks' useful. (3)

18. Write down the salient features of double helix structure of DNA. (3)

19. When tall pea plants were selfed, some of the offsprings were dwarf? Explain with the help of a Punnett square. (3)

(OR)

(a) Draw the diagram of nucleosome and label it. (3)

20. Name two hormones that are constituents of contraceptive pills. Why do they have high & effective contraceptive value? Name a common prescribed non-steroidal oral pill. (3)

21. (a) Name the scientist who called t-RNA an adaptor molecule.

(b) Draw a clover leaf structure of t-RNA showing the following.

(i) Tyrosine attached to its amino-acid site. (3)

(ii) Anticodon for this amino acid in its correct site. (codon for tyrosine is UCA)

(c) What does the actual structure of t-RNA look like?

22. (i) Why does DNA replication occur in small replication forks & not in its entire length?

(ii) Why is DNA replication continuous & discontinuous in a replication of 'origin of replication' in a replication fork? (3)

SECTION – D

23. The police department could get a bunch of hair from the gripped hand of a murdered man. There were two persons suspected in this criminal case. The forensic was able to identify the murderer.

(a) Name the technique used by the forensic department in such cases.

(b) Enumerate the steps involved in the technique.

(c) Indicate the value of such advanced technique to humans. (4)

SECTION – E

24. (a) Natural selection operates when nature selects for fitness. Explain.

(b) The rate of appearance of new forms is linked to the life span of an organism. Explain with the help of an example. (5)

(OR)

(a) How does Hardy-Weinberg equation explain genetic equilibrium?

(b) Describe how this equation may lead to founder effect. (5)

25. (a) Describe the events of spermatogenesis with help of schematic representation.

(b) Write two differences between spermatogenesis and Oogenesis. (5)

(OR)

- (a) When does Oogenesis start in human? Name the three hormones and their sources linked with Oogenesis. How do they influence the process of Oogenesis? Explain. (5)
26. (a) Who explained the transforming principle in an organism? How did the scientist perform the experiment to explain this principle?
- (b) How was the bio chemical nature of transforming material determined? Explain. (5)

(OR)

- (a) Differentiate between dominance & codominance
- (b) Explain codominance taking an example of human blood groups in the population. (5)

*****THE END*****