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| **PERIODIC TEST I (2023-24)-SET-2** | | | | | | | |
| **Subject: BIOLOGY**  **Grade: XII** | | | Max. Marks:35Time: 1.5 Hrs | | | | |
| **Name:** | | | | | **Section:** | **Roll No:** | |
| ***General Instructions:*** | | | | | | | |
|  | **SECTION A** | | | | | | 1\*10 |
|  | a | | | | | | |
| **2.** | a | | | | | | |
| **3.** | b | | | | | | |
| **4.** | c | | | | | | |
| **5.** | d | | | | | | |
| **6.** | **c** |  | |  |  | | |
| **7.** | a | | | | | | |
| **8.** | d | | | | | | |
|  | Question No. 9 to 10 consists of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below:  a) Both A and R are true, and R is the correct explanation of A.  b) Both A and R are true, and R is not the correct explanation of A.  c) A is true but R is false.  d) Both false | | | | | |  |
| **9** | **b** | | | | | |  |
| **10** | **a** | | | | | |  |
|  | **SECTION B** | | | | | | 2\*2 |
| **11.** | (a) If both the strands of DNA are copied, two different RNA which are  complementary to each other and hence two different polypeptides will be produced; If a segment of DNA produces two polypeptides, the genetic  information machinery becomes complicated. (b) The two complementary RNA molecules (produced simultaneously)would  form a double-stranded RNA rather than getting translated into polypeptides.  (c) RNA polymerase carries out the polymerization in 53 direction and hence the  DNA strand with 35 polarity acts as the template strand. (Any two) | | | | | | 2 |
| **12.** | Replica should be generated.  (ii) It should be chemically and structurally stable.  (iii) It should be able to express itself in the form of Mendelian characters.  (iv) It should provide the scope for slow changes (mutations) that are necessary  for evolution. | | | | | | 2 |
|  | **SECTION -C** | | | | | | 4\*3 |
| **13.** |  | | | | | | 3 |
| **14.** | any 6 | | | | | | 3 |
| **15.** |  | | | | | | 3 |
| **16.** | hnRNA is the precursor of mRNA. It undergoes:  A. Splicing: Introns are removed and exons are joined together.  B. Capping: an unusual nucleotide (methyl guanosine triphosphate is added to the  5´ end of hnRNA.  C. Adenylate residues (200-300) are added at the 3´ end of hnRNA. | | | | | | 3 |
|  | **SECTION -D** | | | | | | 1\*4 |
|  | Q. No. 17 is case-based question which has 3 subparts with internal choice in one subpart. | | | | | |  |
| 17. | a)  „a‟ =Terminator (ii) „b‟ =Coding strand (iii) „c‟ =Template strand (iv) „d‟ =Promotor  b)  All the reference point while defining a transcription unit is made with coding strand.  (i) ‘a’ = Terminator –The terminator is located towards 3'-end (downstream) of the coding  strand and it usually defines the end of the process of transcription.  (ii) ‘b’ = Coding strand –the strand which has the polarity (5'®3') and the sequence same as  RNA (except thymine at the place of uracil), is displaced during transcription. Strangely,  this strand (which does not code for anything), is referred to as coding strand.  (iii) ‘c’ = Template strand –the strand that has the polarity 3'®5' acts as a template, and is also  referred to as template strand.  (iv) ‘d’ = Promotor -The promoter is said to be located towards 5'-end (upstream) of the  structural gene (the reference is made with respect to the polarity of coding strand). It is a  DNA sequence that provides binding site for RNA polymerase, and it is the presence of a  promoter in a transcription unit that also defines the template and coding strands.  OR  DNA-dependant RNA polymerase -catalyse the polymerisation in only one direction, that  is, 5' to 3'.-sigma factor,rho factor in initiation and termination. | | | | | |  |
|  | **SECTION -E** | | | | | | 1\*5 |
| **18** |  | | | | | |  |