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ZIET, CHANDIGARH
REVISION PAPER, SET- I
UNIT- VII

(Chapters Principles of inheritance and variation, Molecular basis of inheritance, Evolution)

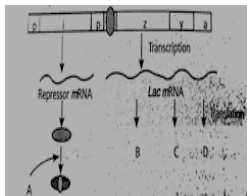
Subject: Biology

Class: XII

TIME: 1:00 Hr

Max. Marks: 20

Note: Question no. one to four is of 01 mark each, question no five and six is of 02 marks each, question number three is of 03 marks, question no five is a case study based and is of 04 marks and question number six is of 5 marks.

SN	Question	Marks
1	Which statement is correct about histone proteins- a- These are positively charged basic proteins b- Histone is rich in arginine and lysine c- Usually, it is present in octamer form in nucleosomes d- All are correct	1
2	Identify the correct pair- i- Colin MacLeod -----biochemical characterization ii- Martha chase -----bacteriophage iii- Messelson -----Streptococcus iv- Franklin Stahl----- CsCl centrifugation a- Only i and ii are correct b- Only iii and iv are correct c- Only ii and iii are correct d- All are incorrect	1
3	The sexes in insects and birds are determined by – a- XX- XY and XX- XO respectively b- XX- XO and ZW- ZZ respectively c- ZW- ZZ and XX- XO respectively d- ZW- ZZ and ZO- ZZ respectively	1
4	Unlinked genes show which type of dihybrid ratio- a- 1:2:1 b- 9:3:3:1 c- 3: 1 d- 3:9:9:3	1
5	Study the following diagram and label A, B, C and D 	2
6	What peculiar features you will observe on the basis of the following statements- i- Blood group AB is determined by $I^A I^B$ genotype. ii- A person has an additional copy of chromosome number 21 iii- An inborn error of metabolism in which specific acid is accumulated in the brain. iv- $HB^S HB^S$ is different from $HB^A HB^S$	2
7	The F_2 progeny of a monohybrid cross showed phenotypic and genotypic ratio as 1 : 2 : 1, With the help of a suitable example, work out a cross and explain how it is possible.	3
8	Case Study-Based Questions All living creatures are related by descent from common ancestors. Evolution in organisms occurs through changes in heritable traits—the inherited characteristics of an organism. It explains how life developed on Earth and how different species are connected. Divergent evolution, coevolution, parallel evolution, and convergent evolution are important types of evolution. There is much evidence regarding evolution like fossils, homologous and analogous organs, vestigial organs, biochemical evidence etc.	4

	<p>(i) Identify the examples of convergent evolution from the following</p> <p>a- Flippers of penguins and dolphins c- Eyes of Octopus and mammals b- Vertebrate brains d- all are correct</p> <p>(ii) Assertion: Darwin worked at Galapagos Island and observed the beak shape of birds. Reason- Such birds are called Darwi finches and these show adaptive radiation.</p> <p>a- Both assertion and reason are correct and reason is correct explanation of assertion. b-Both assertion and reason are correct and reason is not a correct explanation of assertion. c- Assertion is true but the reason is false d- Assertion is false but the reason is true.</p> <p>(iii) Which one of the following is not associated with marsupials of Australia-</p> <p>a- Tiger cat c- Kangaroo b- Koala d- All are associated with Australian marsupials</p> <p>(iv) Concept of saltation (single-step large mutation) was proposed by-</p> <p>a- Hugo devries c- Darwin b- Lamark d- Pasteur</p>	
9	<p>i- The template strand of DNA during transcription is as below- 5' TTAATTGGUUCGATTAATCGCGAAT3' What will be the sequence of mRNA formed on this template?</p> <p>ii- Sigma factor and initiation factor play a crucial role in the transcription process. Explain their specific roles.</p> <p>iii- Which type of RNA polymerase is involved in formation of hnRNA?</p> <p>iv- On the basis of cistron classify the structural genes in prokaryotes and eukaryotes.</p>	5