

**BCM SCHOOL BASANT AVENUE, DUGRI ROAD LUDHIANA
XII BIOLOGY
ASSIGNMENT ANSWER KEY**

1	C
2	I d, ii c, iii b, iv a
3	Restriction endonuclease b) DNA ligase c) Taq polymerase d) chitinase
4	<p>a) Insertional inactivation in which recombinants differ from nonrecombinants on the basis of their ability to produce colour in presence of chromogenic substrate. A rDNA is inserted within the coding sequence of DNA, due to which it becomes inactive and unable to express. Non-recombinants produce blue colour due to the chromogenic substance as the gene product (enzyme Beta galactosidase) binds with the chromogenic substance.</p> <p>b) simultaneous plating on two plates having two antibiotics is a cumbersome procedure</p>
5	
6	<p>RNA interference (RNAi) RNAi in all eukaryotic organisms involves silencing of a specific mRNA due to a complementary dsRNA molecule that binds to and prevents translation of the mRNA (silencing). The source of this complementary could be virus having RNA genome or transposons. Through Agrobacterium vectors, nematode specific genes are introduced into the host plant. The DNA produces both sense and anti-sense RNA in host cells. The two RNA's being complementary form double stranded RNA and silence the specific mRNA</p>
7	b-Study of disease, d-Vaccine safety, e -Chemical safety testing
8	<p>I. (i) Replication of DNA occurs in small replication forks, because DNA is such a long molecule that the separation of the two strands along its entire length requires a very high amount of energy. (ii) a - Continuous synthesis. b - Discontinuous synthesis (iii) A - 5' II. -3'</p> <p>(i) Termination of transcription. (ii) A - Template strand of DNA. B - Coding strand of DNA. C - RNA synthesised D - RNA-polymerase E - rho (ρ) factor.</p> <p>(a) 11 amino acids will be coded, as the last codon is a termination codon that does not code for any amino acid. (b) Dual functions of AUG: (i) It acts as the initiation codon for translation. (ii) It codes for the amino acid, methionine.</p>