(1) The molecular knives of DNA are ..... .

(a) Ligases (b) Polymerases

(c) Endonucleases (d) Transcriptase

(2) The enzyme required for transcription is ..... .

(a) DNA polymerase (b) RNA polymerase

(c) Restriction enzyme (d) RNase

(3) How many codons are needed to specify three amino acids?
(a) 3 (b) 6 (c) 9 (d) 12

(4) Transcription is the transfer of genetic information from ..... .
(a) DNA to RNA (b) t-RNA to m-RNA
(c) DNA to m-RNA (d) m-RNA to t-RNA

(5) In prokaryotes, ... recognizes the promoter sequence.
(a) alpha factor (b) rho factor
(c) theta factor (d) sigma factor

(6) The sequence of nitrogenous bases on DNA molecule is ATCGA. Which of the following is the correct complementary sequence of nitrogenous bases on mRNA Molecule? ***(July '22)***
(a) TAGCT (b) TAGCA
(c) UAGCU (d) UACGU

(7) During capping, methylated guanosine triphosphate is added to 5′ end of ..... .
(a) m-RNA (b) t-RNA (c) hnRNA (d) r-RNA

(8) A strand of DNA has following base sequence – 3′ AAAAGTGAATAGTGA 5′. On transcription it produces an m-RNA.
Which of the following anticodon of t-RNA recognizes the third codon of this m-RNA?
(a) AAA (b) CUG (c) AAG (d) CTG

(9) Out of 64 codons, only 61 code for the 20 different amino acids. This is known as ..... of genetic code.
(a) non-ambiguity (b) overlapping nature
(c) ambiguity (d) degeneracy

(10) Mutation that results in Sickle-cell anaemia is a ..... .
(a) deletion (b) frame-shift mutation
(c) point mutation (d) insertion

(11) Which out of the following is NOT an example of inducible operon?
(a) Lactose operon (b) Histidine operon
(c) Arabinose operon (d) Tryptophan operon

(12) Place the following event of translation in the correct sequence.

i. Binding of met-t-RNA to the start codon.

ii. Covalent bonding between two amino acids.

iii. Binding of second t-RNA.

iv. Joining of small and large ribosome subunits.

(a) iii, iv, i, ii (b) i, iv, iii, ii

(c) iv, iii, ii, i (d) ii, iii, iv, i

(13) Select the correct pair.

(a) Gene z – Transacetylase

(b) Gene y – Beta-galactocidase

(c) Gene a – Beta-galactoside permease

(d) Gene I – Repressor

(14) In lac operon, the structural gene Z codes for ..... enzyme. ***(July '22)***

(a) β-galactosidase (b) β-galactosidase permease

(c) transacetylase (d) RNA polymerase

(15) Sequence of various steps in DNA fingerprinting is ..... .

i. Southern blotting iv. DNA isolation

ii. Restriction digestion v. Photography

iii. Agarose gel electrophoresis vi. Selection of DNA probe

vii. Hybridization

(a) iv, iii, ii, i, v, vi, vii (b) iv, v, iii, i, vi, vii, ii

(c) iv, ii, iii, i, vi, vii, v (d) ii, iii, iv, i, vi, vii, v

(16) During replication of DNA, the separated strands are prevented from recoiling by using ..... . ***(March '22)***

(a) single strand binding protein

(b) reverse transcriptase

(c) endonuclease

(d) polymerase

Ans. (1) (c) Endonucleases **(2)** (b) RNA polymerase **(3)** (a) 3 **(4)** (a) DNA to RNA **(5)** (d) sigma factor **(6)** (c) UAGCU **(7)** (c) hnRNA **(8)** (c) AAG **(9)** (d) degeneracy **(10)** (c) point mutation **(11)** (d) Tryptophan operon **(12)** (b) i, iv, iii, ii **(13)** (d) Gene I–Repressor **(14)** (a) β-galactosidase **(15)** (c) iv, ii, iii, i, vi, vii, v **(16)** (a) single strand binding protein.