

**A****DF-3033****B. Sc. (Bioscience) (Sem. III) Examination****March / April – 2016****302 : Molecular Biology**

Time : 2 Hours]

[Total Marks : 50

Instructions :

(1)

નીચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of signs on your answer book.

Name of the Examination :
B. Sc. (BIOSCIENCE) (SEM. 3)

Name of the Subject :
302 : MOLECULAR BIOLOGY

Subject Code No. : 3 0 3 3 Section No. (1, 2,.....) : Nil

Seat No. :

Student's Signature

- (2) There are total-50 multiple choice questions (MCQ) in question paper.
- (3) All questions are compulsory.
- (4) Select the best one from given options to give an answer.
- (5) Answer the questions only into the OMR answer-sheet which is given to you.

***O.M.R. Sheet ભરવા અંગેની અગત્યની સૂચનાઓ આપેલ
O.M.R. Sheetની પાછળ છે.
Important instructions to fillup O.M.R. Sheet
is given back side of provided O.M.R. Sheet.***

- 1 The two strands in a double helix DNA is joined by
 - (A) Co-valent bond
 - (B) Hydrogen bond
 - (C) Ionic bond
 - (D) Phosphodiester bond

- 2 A Nucleotide is composed of
 - (A) a base + a sugar
 - (B) a base + a sugar + phosphate
 - (C) a base + a phosphate
 - (D) none of these

- 3 The type of sugar in DNA are
 - (A) Triose
 - (B) Pentose
 - (C) Tetrose
 - (D) Hexose

- 4 The width of DNA molecule is
 - (A) 15 Å
 - (B) 3.4 Å
 - (C) 20 Å
 - (D) 25 Å

- 5 A short length of DNA has 70 Thymine and 70 Guanine bases, the total numbers of nucleotide in the DNA fragment is
 - (A) 160
 - (B) 280
 - (C) 340
 - (D) 380

- 6 RNA is the genetic material in
 - (A) Viruses only
 - (B) In some viruses and some prokaryotes
 - (C) In some viruses, some prokaryotes and some eukaryotes
 - (D) Only in some viruses

- 7 Thymine in RNA is replaced by
 - (A) Guanine
 - (B) Adenine
 - (C) Cytosine
 - (D) Uracil

- 8 Ribosome are composed of
(A) DNA and RNA
(B) RNA and Proteins
(C) DNA and Proteins
(D) RNA only
- 9 Brings amino acids to the ribosome for protein synthesis
(A) mRNA
(B) tRNA
(C) rRNA
(D) snRNA
- 10 The sites of protein synthesis is
(A) Ribosome
(B) Nucleus
(C) Cytoplasm
(D) Mitochondria
- 11 The basic repeating units of DNA molecule is
(A) Nucleoside
(B) Nucleotide
(C) Histones
(D) Amino acids
- 12 The experiment by _____ showed that DNA not protein is the genetic material.
(A) Griffith
(B) Watson and Crick
(C) Hershey and Chase
(D) Mendel
- 13 If one side of a DNA molecule contains the following sequence of nucleotides, AGTCCG, the complementary sequence on the other side would be:
(A) GCCTGA
(B) AGTCCG
(C) TCAGGC
(D) CTGAAT
- 14 In Griffith's experiment
(A) S strain bacteria killed the mice
(B) R strain bacteria killed the mice
(C) heat-killed S strain bacteria killed the mice
(D) a mixture of heat-killed S strain bacteria and R strain bacteria failed to kill the mice

- 15 Genetic information must _____.
(A) be able to store information
(B) stable so it can be replicated and passed from one generation to the next
(C) be able to undergo changes that increase genetic variability
(D) all of these
- 16 Hershey and Chase used radioactive _____ to label the DNA core of the bacteriophage.
(A) Phosphorus
(B) Carbon
(C) Sulfur
(D) Nitrogen
- 17 Which of the following statement is false ?
(A) The genetic code is overlapping.
(B) The genetic code is universal.
(C) Degenerate codons specify the same amino acids.
(D) The genetic code is triplet.
- 18 The first mRNA codon to specify an amino acid is always
(A) TAC
(B) UAA
(C) UAG
(D) AUG
- 19 The effort to decipher the genetic code was led by _____ who was awarded a Nobel Prize for his work.
(A) Nirenberg
(B) Lederberg
(C) Watson
(D) Crick
- 20 Central dogma of protein synthesis is
(A) DNA → RNA → Protein
(B) DNA → DNA → Protein
(C) RNA → DNA → Protein
(D) DNA → protein → RNA

- 21 By which bonds the purine and pyrimidine pairs of Complementary Strands of DNA held together ?
 (A) H - bonds (B) O - bonds
 (C) C - bonds (D) N - bonds
- 22 State the nature of the 2 Strands of DNA duplex.
 (A) Identical and Complementary
 (B) Anti parallel and complementary
 (C) Disimilar and non — complementary
 (D) Anti parallel and Non - complementary
- 23 The code AUG stands for
 (A) Glycine (B) Methionine
 (C) N-formyl methionine (D) A lanine
- 24 A Sequence of three Consecutive bases in a t- RNA molecule which Specifically binds to a complementary Codon Sequence in m - RNA is known as
 (A) Triplet Codon
 (B) Non - Sense Codon
 (C) Anti Codon
 (D) Termination Codon
- 25 A Codon is made up of
 (A) Single nucleotide (B) Two nucleotides
 (C) Three nucleotides (D) Four nucleotides
- 26 Nucleus of a cell is the site of Synthesis of
 (A) DNA (B) m - RNA
 (C) t - RNA (D) All of these
- 27 DNA replication requires
 (A) DNA polymerase only
 (B) DNA polymerase and Ligase
 (C) Ligase only
 (D) RNA polymerase
- 28 The enzyme involved in transcription is
 (A) RNA polymerase
 (B) DNA polymerase I
 (C) DNA polymerase II
 (D) DNA polymerase III
- 29 Enzymes needed for formation of replication fork
 (A) RNA polymerase and DNA polymerase I
 (B) Helicase and gyrase
 (C) Hexokinase and aldolase
 (D) Ligase and endo nuclease
- 30 Okazaki fragments are Synthesized on
 (A) Leading strands of DNA only
 (B) Lagging Strands of DNA only
 (C) Leading and Lagging Strands
 (D) Complementary DNA Strand

- 31 Which of the following is used in DNA multiplication ?
 (A) RNA polymerase (B) DNA endonuclease
 (C) DNA exonuclease (D) DNA Polymerase
- 32 t - RNA attaches aminoacid at its
 (A) 3' end (B) 5' end
 (C) Anticodon (D) Loop
- 33 .DNA acts as a template for synthesis of
 (A) RNA
 (B) DNA
 (C) Both RNA and DNA
 (D) Protein
- 34 Antiparallel strand in DNA is due to
 (A) Disulphide linkage
 (B) Hydorgen bond
 (C) Phosphodiester bond
 (D) Ionic bond
- 35 Multiplication of DNA is called
 (A) Translation (B) Replication
 (C) Transduction (D) Transcription
- 36 Which is the smallest RNA ?
 (A) r RNA (B) m-RNA
 (C) t-RNA (D) nuclear RNA
- 37 Genetic information are transfered from nucleus to cytoplasm of cell through
 (A) DNA (B) RNA
 (C) Lysosomes (D) Anticodon
- 38 The information from RNA to DNA are transfered by which process
 (A) Replication (B) Transcription
 (C) Translation (D) Reverse transcription
- 39 Which statement is correct ?
 (a) Degeneracy of code is related to third member of codon
 (b) Single codon, codes for more than one aminoacid
 (c) In codon first two bases are more specific
 (d) In codons third base is wobble
 (e) code is universal
 (A) (a), (b), (c), (d), (e)
 (B) (a), (b), (d)
 (C) (a), (c), (d)
 (D) (a), (c), (d), (e)
- 40 DNA molecule has uniform diameter due to ?
 (A) Double stranded
 (B) Presence of phosphate
 (C) Specific base pairing between purine and pyrimidine
 (D) Specific base pairing between purine and purine

- 41 In a transcription unit promoter is said to be located towards
- (A) 3' end of structural gene
 - (B) 5' end of structural gene
 - (C) 5' end of template strand
 - (D) 3' end of template strand
- 42 In DNA replication the primer is
- (A) A Small deoxyribonucleotide polymer
 - (B) A small ribonucleotide polymer
 - (C) Helix destabilizing protein
 - (D) Enzyme taking part in joining nucleotides of new strands
- 43 Non - sense codons take part in
- (A) formation of unspecified aminoacids
 - (B) Terminating message of gene controlled protein synthesis
 - (C) Releasing t-RNA from polynucleotide chain
 - (D) Conversion of sense DNA in to non-sense one
- 44 Select the correct sequence of following in DNA replication
- (A) Single stranded binding proteins - Helicase - Topoisomerase - DNA polymerase
 - (B) Helicase - single stranded binding proteins -Topoisomerase - DNA polymerase
 - (C) Helicase - DNA polymerase - Topoisomerase - Single stranded binding proteins
 - (D) Helicase - Topoisomerase - DNA polymerase - Single stranded binding proteins
- 45 Which of the following enzymes can detect and correct the wrong inserted base during DNA replication ?
- (A) DNA polymerase - I
 - (B) DNA polymerase - II
 - (C) Primase
 - (D) Ligase

- 46 Which one is responsible for unwinding of DNA ?
- (A) Helicase
 - (B) Ribonuclease
 - (C) Peptidyl transferase
 - (D) Both Ribonuclease and Peptidyl transferase
- 47 Which of the following pairs is not correctly matched ?
- (A) Purines - Nitrogenous bases Cytosine , thymine and Uracil
 - (B) ATP - The principal energy carrying compound in the cell
 - (C) r-RNA - RNA molecules found in ribosomes
 - (D) Recombinant DNA - DNA forming by union of segments of DNA from different Sources
- 48 Which one of the following pairs is correctly matched ?
- (A) Ribosomal RNA - Carries amino acids to the site of protein synthesis
 - (B) Transcription - Process by which protein is synthesized
 - (C) Anticodon - Site of t-RNA that binds to the m-RNA
 - (D) Translation - Process by which m RNA carries the information from nucleus to ribosomes
- 49 Which is not the step of transcription ?
- (A) Initiation
 - (B) Replication
 - (C) Elongation
 - (D) Termination
- 50 The enzyme RNA polymerase facilitates.
- (A) Synthesis of all RNA in prokaryotes
 - (B) Synthesis of m- RNA in eukaryotes
 - (C) Synthesis of all RNA in eukaryotes
 - (D) Synthesis of t- RNA in bacteria