

**B****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 Which of the following is used in DNA multiplication ?
 (A) DNA Polymerase (B) RNA polymerase
 (C) DNA endonuclease (D) DNA exonuclease
- 2 t - RNA attaches aminoacid at its
 (A) Loop (B) 3' end
 (C) 5' end (D) Anticodon
- 3 .DNA acts as a template for synthesis of
 (A) Protein
 (B) RNA
 (C) DNA
 (D) Both RNA and DNA
- 4 Antiparallel strand in DNA is due to
 (A) Ionic bond
 (B) Disulphide linkage
 (C) Hydorgen bond
 (D) Phosphodiester bond
- 5 Multiplication of DNA is called
 (A) Transcription (B) Translation
 (C) Replication (D) Transduction
- 6 Which is the smallest RNA ?
 (A) nuclear RNA (B) r RNA
 (C) m-RNA (D) t-RNA
- 7 Genetic information are transfered from nucleus to cytoplasm of cell through
 (A) Anticodon (B) DNA
 (C) RNA (D) Lysosomes
- 8 The information from RNA to DNA are transfered by which process
 (A) Reverse transcription (B) Replication
 (C) Transcription (D) Translation
- 9 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), (c), (d), (e)
 (B) (a), (b), (c), (d), (e)
 (C) (a), (b), (d)
 (D) (a), (c), (d)
- 10 DNA molecule has uniform diameter due to ?
 (A) Specific base pairing between purine and purine
 (B) Double stranded
 (C) Presence of phosphate
 (D) Specific base pairing between purine and pyrimidine

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

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

- 21 The two strands in a double helix DNA is joined by
(A) Phosphodiester bond
(B) Co-valent bond
(C) Hydrogen bond
(D) Ionic bond
- 22 A Nucleotide is composed of
(A) none of these
(B) a base + a sugar
(C) a base + a sugar + phosphate
(D) a base + a phosphate
- 23 The type of sugar in DNA are
(A) Hexose
(B) Triose
(C) Pentose
(D) Tetrose
- 24 The width of DNA molecule is
(A) 25 Å
(B) 15 Å
(C) 3.4 Å
(D) 20 Å
- 25 A short length of DNA has 70 Thymine and 70 Guanine bases, the total numbers of nucleotide in the DNA fragment is
(A) 380
(B) 160
(C) 280
(D) 340
- 26 RNA is the genetic material in
(A) Only in some viruses
(B) Viruses only
(C) In some viruses and some prokaryotes
(D) In some viruses, some prokaryotes and some eukaryotes
- 27 Thymine in RNA is replaced by
(A) Uracil
(B) Guanine
(C) Adenine
(D) Cytosine

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

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

- 41 By which bonds the purine and pyrimidine pairs of Complementary Strands of DNA held together ?
 (A) N - bonds (B) H - bonds
 (C) O - bonds (D) C - bonds
- 42 State the nature of the 2 Strands of DNA duplex.
 (A) Anti parallel and Non - complementary
 (B) Identical and Complementary
 (C) Anti parallel and complementary
 (D) Disimilar and non — complementary
- 43 The code AUG stands for
 (A) A lanine (B) Glycine
 (C) Methionine (D) N-formyl methionine
- 44 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) Termination Codon
 (B) Triplet Codon
 (C) Non - Sense Codon
 (D) Anti Codon
- 45 A Codon is made up of
 (A) Four nucleotides (B) Single nucleotide
 (C) Two nucleotides (D) Three nucleotides
- 46 Nucleus of a cell is the site of Synthesis of
 (A) All of these (B) DNA
 (C) m - RNA (D) t - RNA
- 47 DNA replication requires
 (A) RNA polymerase
 (B) DNA polymerase only
 (C) DNA polymerase and Ligase
 (D) Ligase only
- 48 The enzyme involved in transcription is
 (A) DNA polymerase III
 (B) RNA polymerase
 (C) DNA polymerase I
 (D) DNA polymerase II
- 49 Enzymes needed for formation of replication fork
 (A) Ligase and endo nuclease
 (B) RNA polymerase and DNA polymerase I
 (C) Helicase and gyrase
 (D) Hexokinase and aldolase
- 50 Okazaki fragments are Synthesized on
 (A) Complementary DNA Strand
 (B) Leading strands of DNA only
 (C) Lagging Strands of DNA only
 (D) Leading and Lagging Strands