B. Sc. (Bioscience) (Sem. III) Examination
March / April – 2016
302 : Molecular Biology

Time : 2 Hours] [Total Marks : 50

Instructions :
(1) Fill up 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

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 भरवा अंगे-नी अंगानी सूचनाओ आपेक O.M.R. Sheet-ल पावतु आपेक छे.
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) Hydrogen 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 transferred from nucleus to cytoplasm of cell through
   (A) Anticodon  (B) DNA
   (C) RNA  (D) Lysosomes

8. The information from RNA to DNA are transferred 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 promotor 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 a 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 forming 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 in 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

[ Contd...]
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 repliction 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