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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. Sheet*ની પાછળ છાપેલ છે.**

Important instructions to fillup O.M.R. Sheet is given back side of provided O.M.R. Sheet.

1 In a transcription unit promotor is said to be located towards

(A) 5' end of structural gene

(B) 5' end of template strand

(C) 3' end of template strand

(D) 3' end of structural gene

2 In DNA replication the primer is

(A) A small ribonucleotide polymer

(B) Helix destalilizing protein

(C) Enzyme taking part in joining nucleotides of new strands

(D) A Small deoxyribonucleotide polymer

3 Non - sense codons take part in

(A) Terminating message of gene controlled protein synthesis

(B) Releasing t-RNA from polynucleotide chain

(C) Conversion of sense DNA in to non-sense one

(D) formation of unspecified aminoacids

4 Select the correct sequence of following in DNA replication

(A) Helicase - single stranded binding proteins -Topoisomerase - DNA polymerase

(B) Helicase - DNA polymerase - Topoisomerase - Single stranded binding proteins

(C) Helicase - Topoisomerase - DNA polymerase - Single stranded binding proteins

(D) Single stranded binding proteins - Helicase - Topoisomerase - DNA polymerase

5 Which of the following enzymes can detect and correct the wrong inserted base during DNA replication ?

(A) DNA polymerase - II

(B) Primase

(C) Ligase

(D) DNA polymerase - I

6 Which one is a responsible for unwinding of DNA ?

(A) Ribonuclease

(B) Peptidyl transferase

(C) Both Ribonuclease and Peptidyl transferase

(D) Helicase

7 Which of the following pairs is not correctly matched ?

(A) ATP - The principal energy carrying compound in the cell

(B) r-RNA - RNA molecules found in ribosomes

(C) Recombinant DNA - DNA forming by union of segments of DNA from different Sources

(D) Purines - Nitrogenous bases Cytosine , thymine and Uracil

8 Which one of the following pairs is correctly matched ?

(A) Transcription - Process by which protein in synthesized

(B) Anticodon - Site of t-RNA that binds to the m-RNA

(C) Translation - Process by which m RNA carries the information from nucleus to ribosomes

(D) Ribosomal RNA - Carries amino acids to the site of protein synthesis

9 Which is not the step of transcription ?

(A) Replication

(B) Elongation

(C) Termination

(D) Initiation

10 The enzyme RNA polymerase facilitates.

(A) Synthesis of m- RNA in eukaryotes

(B) Synthesis of all RNA in eukaryotes

(C) Synthesis of t- RNA in bacteria

(D) Synthesis of all RNA in prokaryotes

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

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

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

14 The width of DNA molecule is
(A) 3.4 $\mathring{A}$
(B) 20 $\mathring{A}$
(C) 25 $\mathring{A}$
(D) 15 $\mathring{A}$

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

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

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

18 Ribosome are composed of
(A) RNA and Proteins
(B) DNA and Proteins
(C) RNA only
(D) DNA and RNA

19 Brings amino acids to the ribosome for protein synthesis
(A) tRNA
(B) rRNA
(C) snRNA
(D) mRNA

20 The sites of protein synthesis is
(A) Nucleus
(B) Cytoplasm
(C) Mitochondria
(D) Ribosome

21 The basic repeating units of DNA molecule is
(A) Nucleotide
(B) Histones
(C) Amino acids
(D) Nucleoside

22 The experiment by _____ showed that DNA not protein is the genetic material.
(A) Watson and Crick
(B) Hershey and Chase
(C) Mendel
(D) Griffith

23 If one side of a DNA molecule contains the following sequence of nucleotides, AGTCCG, the complementary sequence on the other side would be:
(A) AGTCCG
(B) TCAGGC
(C) CTGAAT
(D) GCCTGA

24 In Griffith's experiment
(A) R strain bacteria killed the mice
(B) heat-killed S strain bacteria killed the mice
(C) a mixture of heat-killed S strain bacteria and R strain bacteria failed to kill the mice
(D) S strain bacteria killed the mice

25 Genetic information must _____.

(A) stable so it can be replicated and passed from one generation to the next

(B) be able to undergo changes that increase genetic variability

(C) all of these

(D) be able to store information

26 Hershey and Chase used radioactive _____ to label the DNA core of the bacteriophage.

(A) Carbon

(B) Sulfur

(C) Nitrogen

(D) Phosphorus

27 Which of the following statement is false ?

(A) The genetic code is universal.

(B) Degenerate codons specify the same amino acids.

(C) The genetic code is triplet.

(D) The genetic code is overlapping.

28 The first mRNA codon to specify an amino acid is always

(A) UAA

(B) UAG

(C) AUG

(D) TAC

29 The effort to decipher the genetic code was led by _____ who was awarded a Nobel Prize for his work.

(A) Lederberg

(B) Watson

(C) Crick

(D) Nirenberg

30 Central dogma of protein synthesis is

(A) DNA $\rightarrow$ DNA $\rightarrow$ Protein

(B) RNA $\rightarrow$ DNA $\rightarrow$ Protein

(C) DNA $\rightarrow$ protein $\rightarrow$ RNA

(D) DNA $\rightarrow$ RNA $\rightarrow$ Protein

31 By which bonds the purine and pyrimidine pairs of Complementary Strands of DNA held together ?
(A) O - bonds (B) C - bonds
(C) N - bonds (D) H - bonds

32 State the nature of the 2 Strands of DNA duplex.
(A) Anti parallel and complementary
(B) Disimilar and non — complementary
(C) Anti parallel and Non - complementary
(D) Identical and Complementary

33 The code AUG stands for
(A) Methionine (B) N-formyl methionine
(C) A lanine (D) Glycine

34 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) Non - Sense Codon
(B) Anti Codon
(C) Termination Codon
(D) Triplet Codon

35 A Codon is made up of
(A) Two nucleotides (B) Three nucleotides
(C) Four nucleotides (D) Single nucleotide

36 Nucleus of a cell is the site of Synthesis of
(A) m - RNA (B) t - RNA
(C) All of these (D) DNA

37 DNA replication requires
(A) DNA polymerase and Ligase
(B) Ligase only
(C) RNA polymerase
(D) DNA polymerase only

38 The enzyme involved in transcription is
(A) DNA polymerase I
(B) DNA polymerase II
(C) DNA polymerase III
(D) RNA polymerase

39 Enzymes needed for formation of repliction fork
(A) Helicase and gyrase
(B) Hexokinase and aldolase
(C) Ligase and endo nuclease
(D) RNA polymerase and DNA polymerase I

40 Okazaki fragments are Synthesized on
(A) Lagging Strands of DNA only
(B) Leading and Lagging Strands
(C) Complementary DNA Strand
(D) Leading strands of DNA only

41 Which of the following is used in DNA multiplication ?
(A) DNA endonuclease (B) DNA exonuclease
(C) DNA Polymerase (D) RNA polymerase

42 t - RNA attaches aminoacid at its
(A) 5' end (B) Anticodon
(C) Loop (D) 3' end

43 .DNA acts as a template for synthesis of
(A) DNA
(B) Both RNA and DNA
(C) Protein
(D) RNA

44 Antiparallel strand in DNA is due to
(A) Hydorgen bond
(B) Phosphodiester bond
(C) Ionic bond
(D) Disulphide linkage

45 Multiplication of DNA is called
(A) Replication (B) Transduction
(C) Transcription (D) Translation

46 Which is the smallest RNA ?
(A) m-RNA (B) t-RNA
(C) nuclear RNA (D) r RNA

47 Genetic information are transfered from nucleus to cytoplasm of cell through
(A) RNA (B) Lysosomes
(C) Anticodon (D) DNA

48 The information from RNA to DNA are transfered by which process
(A) Transcription (B) Translation
(C) Reverse transcription (D) Replication

49 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), (d)
(B) (a), (c), (d)
(C) (a), (c), (d), (e)
(D) (a), (b), (c), (d), (e)

50 DNA molecule has uniform diameter due to ?
(A) Presence of phosphate
(B) Specific base pairing between purine and pyrimidine
(C) Specific base pairing between purine and purine
(D) Double stranded