

CET 2011

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Sr. No.

Booklet Series Code : A

Important : Please consult your Admit Card / Roll No. Slip before filling your Roll Number on the Test Booklet and Answer Sheet.

Roll No.

*In Figures**In Words*

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O.M.R. Answer Sheet Serial No.

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Signature of the Candidate : _____

Subject : Biotechnology

Time : 70 minutes

Number of Questions : 60

Maximum Marks : 120

DO NOT OPEN THE SEAL ON THE BOOKLET UNTIL ASKED TO DO SO

INSTRUCTIONS

1. Write your Roll No. on the Question Booklet and also on the OMR Answer Sheet in the space provided and nowhere else.
2. Enter the Subject and Series Code of Question Booklet on the OMR Answer Sheet. Darken the corresponding bubbles with **Black Ball Point / Black Gel pen.**
3. Do not make any identification mark on the Answer Sheet or Question Booklet.
4. To open the Question Booklet remove the paper seal (s) gently when asked to do so.
5. Please check that this Question Booklet contains **60** questions. In case of any discrepancy, inform the Assistant Superintendent within 10 minutes of the start of test.
6. Each question has four alternative answers (A, B, C, D) of which only one is correct. For each question, darken only one bubble (A or B or C or D), whichever you think is the correct answer, on the Answer Sheet with **Black Ball Point / Black Gel pen.**
7. If you do not want to answer a question, leave all the bubbles corresponding to that question blank in the Answer Sheet. No marks will be deducted in such cases.
8. Darken the bubbles in the OMR Answer Sheet according to the Serial No. of the questions given in the Question Booklet.
9. Negative marking will be adopted for evaluation i.e., 1/4th of the marks of the question will be deducted for each wrong answer. A wrong answer means incorrect answer or wrong filling of bubble.
10. For calculations, use of simple log tables is permitted. Borrowing of log tables and any other material is not allowed.
11. For rough work only the sheets marked "Rough Work" at the end of the Question Booklet be used.
12. The Answer Sheet is designed for **computer evaluation**. Therefore, if you do not follow the instructions given on the Answer Sheet, it may make evaluation by the computer difficult. **Any resultant loss to the candidate on the above account, i.e., not following the instructions completely, shall be of the candidate only.**
13. After the test, hand over the Question Booklet and the Answer Sheet to the Assistant Superintendent on duty.
14. In no case the Answer Sheet, the Question Booklet, or its part or any material copied/noted from this Booklet is to be taken out of the examination hall. Any candidate found doing so, would be expelled from the examination.
15. A candidate who creates disturbance of any kind or changes his/her seat or is found in possession of any paper possibly of any assistance or found giving or receiving assistance or found using any other unfair means during the examination will be expelled from the examination by the Centre Superintendent / Observer whose decision shall be final.
16. **Telecommunication equipment such as pager, cellular phone, wireless, scanner, etc., is not permitted inside the examination hall. Use of calculators is not allowed.**

1. **Clostridium acetobutylicum** helps in synthesis of :
(A) Acetone (B) Acetobutyrene
(C) Acetoacetate (D) Curd
2. **National compliance monitoring authority** deals with :
(A) Good lab practices (B) Consumer complaints
(C) Bioremediation (D) Product marketing
3. **If we add $[H^+]$ ions to the solution, the pH of solution will :**
(A) Increase (B) Decrease
(C) Remains unchanged (D) First increases than decreases
4. **In Reynold's number, $Re=Du \rho/\mu$, u stands for :**
(A) Fluid density (B) Fluid velocity
(C) Fluid viscosity (D) Pipe diameter
5. **TRIPS** comes under :
(A) WIPO (B) WTO
(C) GMO (D) PCT
6. **Scotish wine can be protected under :**
(A) Patents (B) Copyrights
(C) Geographical indications (D) Tradesecrets
7. **The protection of plant varieties and Farmer's rights Act, was enforced in :**
(A) 2000 (B) 2001
(C) 2002 (D) 2003
8. **Which one of these in not a reducing sugar ?**
(A) Glucose (B) Fructose
(C) Sucrose (D) None of these
9. **Which one of the following is not a hydrophobic amino acid ?**
(A) Phenylalanine (B) Proline
(C) Valine (D) Tyrosine
10. **Phosphoester is a functional group present on :**
(A) Amino acids (B) Phospholipids
(C) Carbohydrates (D) Nucleotides.
11. **At the end of glycolysis, number of ATP molecules yielded are :**
(A) One (B) Two
(C) Three (D) Four

12. In eukaryotes, all enzymes of TCA cycle are present in mitochondria except for :

- (A) Succinate dehydrogenase
- (B) Succinate hydrogenase
- (C) Succinate transferase
- (D) Succinate reductase

13. Anaerobic degradation of glucose occurs in :

- (A) Muscles
- (B) Retina
- (C) RBCs
- (D) All of the above

14. P700 is the term associated with :

- (A) Photosystem I
- (B) Photosystem II
- (C) Fermentation
- (D) Fatty acid metabolism

15. Plants absorb nitrogen in the form of :

- (A) Nitrite
- (B) Nitrate
- (C) Ammonium ions
- (D) N₂

16. Nitrogen fixing *Azotobacter vinelandii* is :

- (A) An obligate aerobe
- (B) An obligate anaerobe
- (C) Facultative anaerobe
- (D) A photosynthetic bacteria

17. Protein + nucleic acids constitute :

- (A) Lipoprotein
- (B) Chromatin
- (C) Glycoprotein
- (D) Glycolipids

18. NCBI Stands for :

- (A) National center for biotechnology information
- (B) National center for biological information
- (C) National consortium for biotechnology information
- (D) National consortium for biological information.

19. Beta-glycosidic configuration is found in :

- (A) Starch
- (B) Glycogen
- (C) Cellulose
- (D) All of them

20. Endorphins regulates activity of :

- (A) Brain
- (B) Eye
- (C) Oxygen transport
- (D) Sugar level

- 21. A-DNA form hasbp per one turn.**
- (A) 10 (B) 11
(C) 12 (D) 13
- 22. Cation exchange is :**
- (A) Strongly acidic (B) Strongly basic
(C) Intermediate basic (D) Neutral
- 23. During PAGE gel formation acrylamide is activated by free radicals formed by :**
- (A) Ammonium persulphate (B) TEMED
(C) Oxygen (D) SDS
- 24. The Beer Lambert's law assumes that the incident light is :**
- (A) Parallel and monochromatic (B) Unparallel and monochromatic
(C) Parallel and dichromatic (D) Unparallel and dichromatic
- 25. Non-photosynthetic coloured plastids are known as :**
- (A) Chloroplasts (B) Chromoplasts
(C) Leucoplasts (D) Amyloplasts
- 26. Cell membrane consisted of :**
- (A) A lipid bilayer and protein layer on both sides
(B) A lipid layer and a protein layer
(C) A protein bilayer surrounded on both sides by lipid layer
(D) Trilamilar lipids
- 27. Tracheids are part of :**
- (A) Phloem (B) Xylem
(C) Mesophyll (D) Lignin
- 28. Geographical barriers leads to :**
- (A) Allopatric speciation (B) Sympatric speciation
(C) Natural selection (D) Symbiotic speciation
- 29. The alignment of chromosomes occurs during :**
- (A) Prophase (B) Metaphase
(C) Anaphase (D) Telophase
- 30. White eye colour is an example of :**
- (A) Extra-nuclear inheritance (B) Quantitative inheritance
(C) Sex-linked inheritance (D) Gene mutation
- 31. All of the following are types of secondary structures except :**
- (A) α -helix (B) β -sheet
(C) bends & turns (D) domain

32. In animal cell culture the enzyme which can be used for disaggregation is :

- (A) Collagenase
- (B) Lyase
- (C) Proteinase
- (D) Caspase

33. Peptide bond in proteins is :

- (A) nonplanar & fixed in trans conformation
- (B) nonplanar but rotates to three preferred dihedral angles
- (C) Planar & usually found in trans conformation
- (D) Planar but rotates to three preferred dihedral angles

34. Ti plasmid is an example of :

- (A) *Col* plasmid
- (B) Degradative plasmid
- (C) Virulence plasmid
- (D) Fertility plasmid

35. How would you best define a prophage ?

- (A) Phage DNA before entering bacterium
- (B) Integrative form of Phage DNA
- (C) Phage DNA which always follows Lytic phase
- (D) Phage DNA with modified bases like bromo uridine

36. Ribonuclease H is an important nuclease for degrading :

- (A) RNA of RNA duplex
- (B) RNA of RNA DNA hybrid
- (C) RNA bound to cytosolic proteins
- (D) RNA bound to nuclear proteins

37. Klenow fragment refers to :

- (A) DNA polymerase I lacking 3' →5' endonuclease activity
- (B) DNA polymerase I lacking 3' →5' exonuclease activity
- (C) DNA polymerase I lacking 5' →3' exonuclease activity
- (D) DNA polymerase I lacking 5' →3' endonuclease activity

38. The difference between a simple tandem array and a compound tandem array is :

- (A) the frequency of different sequences
- (B) the direction of sequences face (left or right)
- (C) the number of different sequences involved
- (D) the number of repetitions of sequences.

39. Increased genetic diversity following extended time in a tissue culture is a problem :

- (A) temporal modification
- (B) gene alteration
- (C) somaclonal variation
- (D) culture shock

40. A mass of dividing, undifferentiated cells in a tissue culture is called :

- (A) an aggregate (B) a callus
(C) scaffold (D) a shield

41. Electroporation is techniques used with :

- (A) protoplast (B) petal
(C) callus (D) pollen

42. Genetic engineering has succeeded in modifying canola oil to replace :

- (A) coconut oil (B) palm oil
(C) cocoa butter (D) margarine

43. If you want to use a plant tissue culture as a chemical factory for vitamins, choose :

- (A) suspension culture (B) organ culture
(C) protoplast culture (D) pollen culture

44. The function of “low-copy-number DNA” is :

- (A) encoding most genes (B) encoding rRNA
(C) encoding tRNA (D) encoding only one gen

45. The fastest way to a ripe tomato using tissue culture is by :

- (A) protoplast culture (B) plant organ culture
(C) anther culture (D) callus culture

46. A short DNA molecule is subjected to Sanger’s enzymatic method for DNA sequencing using dideoxynucleoside triphosphates as chain-terminators and a ³²P-labeled primer. The autoradiogram of the sequencing gel is shown. The nucleotide sequence read from the gel is :

(A) 5' GACTGGAGCC 3'
(B) 5' CCGAGGTCAG 3'
(C) 5' AACCCGGGGT 3'
(D) 5' TGGGGCCCAA 3'

A C G T

⊖ migration ⊕

47. Protein secondary structures such as α -helices and β -sheets are stabilized mainly by :

- (A) dipole moment (B) disulfide bond formation
(C) van der Waals force (D) hydrogen bond formation.

48. The greatest buffering capacity at physiological ph would be provided by a protein rich in which of the following amino acids ?

- (A) alanine (B) Histidine
(C) Aspartic Acid (D) Valine

49. RNA expression can be studied using :

- (A) Southwestern blotting
- (B) Northern blotting
- (C) Southern blotting
- (D) Western blotting

50. Which mutation in the sequence GGATCA generates a palindrome ?

- (A) GGATCC
- (B) AGATCA
- (C) GGATCG
- (D) GGGTCA

51. The first protein to be sequenced is :

- (A) insulin
- (B) myosine
- (C) myoglobin
- (D) hemoglobin

52. During which PCR cycle you would get the exact size fragment for the first time ?

- (A) 3rd cycle
- (B) 1st cycle
- (C) 17th cycle
- (D) 37th cycle

53. The transgenic crops rich in vitamin A are :

- (A) golden rice
- (B) pink rice
- (C) yellow rice
- (D) orange rice

54. STR stands for :

- (A) stirred tank reactor
- (B) superior tank reactor
- (C) shivering tank reactor
- (D) shaking tank reactor

55. Milk is pasteurised at :

- (A) 62.8 °C for 30 min
- (B) 62.8 °C for 10 min
- (C) 64.8 °C for 10 min
- (D) 63.8 °C for 30 min

56. The slender filamentous form of fungi are called :

- (A) hyphae
- (B) pilli
- (C) cilia
- (D) dendrite

57. BLAST stands for

- (A) Basic local alignment search tool
- (B) Basic legalized amplified sequence tool
- (C) Basic linearized aligned sequence tool
- (D) Basic localized aligned search technology

58. Chemoautotrophic bacteria depend on source of energy.

- (A) Chemicals
- (B) Chemical and sunlight
- (C) Sunlight
- (D) None of above

59. Genetic maps :

- (A) identify the relative positions of genetic makers on a chromosome
- (B) identify the correct positions of genes on a operon
- (C) generated from a gene sequence data
- (D) generated using a gene sequence data and comparing it with homologues

60. Bioinformatics is that branch of science which :

- (A) uses biometric algorithms to develop more efficient software
- (B) integrates concepts and techniques from information technology and molecular biology.
- (C) requires complete genome sequences
- (D) has come into existence in last five years.

ROUGH WORK