

# CET(UG)-2016

Sr. No. : 160248

**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*

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*In Words*

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 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.**

**SEAL**

1. Which is the longest phase of cell cycle ?  
(A) Mitotic phase (B) Cytokinesis  
(C) S phase (D) Interphase
2. IPR is defined as \_\_\_\_\_.  
(A) Important Property Rights (B) Intellectual Property Rights  
(C) Indian Patent Rights (D) Intellectual Provisional Rights
3. Which of the following is an Archaeobacteria?  
(A) Methanogens (B) Cyanobacteria  
(C) Helicobacter (D) Proteobacteria
4. Enzyme used in Polymerase Chain reaction is \_\_\_\_\_.  
(A) DNA Pol III (B) Ligase  
(C) Taq Polymerase (D) Hind III
5. Aneuploidy refers to \_\_\_\_\_.  
(A) Loss of a part of a chromosome  
(B) Gain of a part of chromosome  
(C) Presence of an abnormal number of chromosomes  
(D) Both (A) and (B)
6. The uptake of naked DNA by the bacteria is called \_\_\_\_\_.  
(A) Electrophoresis (B) Transformation  
(C) Conjugation (D) Recombination
7. Net yield of ATP's in complete oxidation of one molecule of glucose is \_\_\_\_\_.  
(A) 38 (B) 32  
(C) 33 (D) 12

8. Study of interaction among organism and their environment is called :
- (A) Synecology (B) Ecology  
(C) Autecology (D) Diversity
9. A test cross is carried between an individual with a phenotypically recessive individual to determine its zygosity, will have phenotypic ratio \_\_\_\_\_.
- (A) 3:1 (B) 3:4  
(C) 1:2:1 (D) 1:1
10. Which antibody is responsible for response during allergic and hypersensitive reaction ?
- (A) IgM (B) IgE  
(C) IgG (D) IgA
11. In an experiment you have to use two reducing sugars which of the following combination you will choose ?
- (A) Lactose and Maltose (B) Trehalose and Sucrose  
(C) Maltose and Trehalose (D) Lactose and Sucrose
12. The enzyme that catalyses the reduction of nitrogen to ammonia is \_\_\_\_\_.
- (A) Nitrogenase (B) Nitrate reductase  
(C) Nitrite reductase (D) Deaminase
13. Restriction Enzyme which recognizes the same sequence are called \_\_\_\_\_.
- (A) Neoisochizomer (B) Isochizomer  
(C) Isocaudomer (D) Neocaudomer
14. Choose the right combination:
- | Stop codon      | Start codon |
|-----------------|-------------|
| (A) AUG/UGA/AGA | AUG         |
| (B) AAG/UAA/AGU | GAG         |
| (C) UAA/UAG/UGA | AUG         |
| (D) UAA/UAG/UGA | UAG         |

15. Which is not an auto immune disease?

- (A) Grave's disease (B) Hashimoto disease  
(C) Herpes disease (D) Myasthenia gravis

16. Isoelectric focusing separate molecules by their \_\_\_\_\_.

- (A) Conductivity (B) Molecular size  
(C) Positive or negative charge (D) Isoelectric point

17. First stable product in C3 plant is \_\_\_\_\_.

- (A) 3-phosphoglycerate (B) 3-phosphoglycolate  
(C) Oxaloacetate (D) Phosphoenol pyruvate

18. What are the basic building blocks of cellulose and what type of linkage they have ?

- (A) Glucose  $\beta$  1-4 (B) Maltose  $\alpha$  1-4  
(C) Glucose  $\alpha$  1-4 (D) Maltose  $\beta$  1-4

19. Which of the following is not a fat soluble vitamin ?

- (A) D (B) B  
(C) E (D) A

20. Apart from protein which molecule can act as an enzyme ?

- (A) RNA (B) DNA  
(C) Carbohydrate (D) Lipids

21. The only antibody capable of crossing the placenta in humans is \_\_\_\_\_.

- (A) IgA (B) IgM  
(C) IgG (D) IgE

- 22. Which of the following is not present in the eukaryotic cell ?**
- (A) Microsome (B) Mesosome  
(C) Centrosome (D) Glycosome
- 23. The most abundant protein in nature :**
- (A) Collagen (B) Chlorophyll  
(C) RUBISCO (D) Haemoglobin
- 24. A Single mRNA molecule that codes for more than one protein :**
- (A) Cistronic mRNA (B) Intronic mRNA  
(C) Polycistronic mRNA (D) Both (B) and (C)
- 25. Allosteric enzymes functions through \_\_\_\_\_.**
- (A) Reversible noncovalent binding of a regulatory metabolite  
(B) Irreversible noncovalent binding of a regulatory metabolite  
(C) Reversible covalent binding of a regulatory metabolite  
(D) Irreversible covalent binding of a regulatory metabolite
- 26. Which of the following enzyme complex converts pyruvate obtained from the glucose breakdown into the acetyl Co-A to enter the citric acid cycle ?**
- (A) Cytochrome c oxidase (B) NADH-Q oxidoreductase  
(C) Pyruvate dehydrogenase (D) Pyruvate oxidase
- 27. Which microbiologist disproved the doctrine of spontaneous generation ?**
- (A) Francesco Redi (B) Robert Koch  
(C) Elie Metchnikoff (D) Louis Pasteur
- 28. Which of the following is not a vector ?**
- (A) pSC101 (B) PAC  
(C) EcoRI (D) Lambda phage

29. Glycolysis results in the production of two pyruvate molecules, before entering into the citric acid cycle this pyruvate are transported into which cell organelle ?
- (A) Endoplasmic Reticulum (B) Golgi body  
(C) Lysosome (D) Mitochondria
30. Which of the following is an example of negative interaction ?
- (A) Epiphyte growing on some woody plant (B) Rhizobacterium and leguminous plant  
(C) Antibiosis (D) Lichen
31. The five different classes of antibodies are defined on the basis of \_\_\_\_\_.
- (A) Structure of constant region of the heavy chain  
(B) Structure of variable region of the heavy chain  
(C) Structure of constant region of the light chain  
(D) Structure of variable region of the light chain
32. Operon has :
- (A) A group of closely linked structural genes regulated by the same operator  
(B) Single promoter for all structural genes  
(C) Produces polycistronic mRNA  
(D) All of the above
33. The repetitive stretches of DNA located at the ends of linear chromosomes :
- (A) Kinetochore (B) Acromere  
(C) Telomere (D) Centromere
34. First genetically modified plant was :
- (A) An antibiotic resistant tobacco plant  
(B) *Flavr Savr* tomato which has longer shelf life  
(C) Bt cotton  
(D) Bt tobacco plant

35. Considering meiosis which of the following is true statement ?

- (A) Recombination occurs in Prophase I
- (B) Meiosis I is called the equational division and meiosis II is the reductional division
- (C) Creates germ cells only
- (D) Both (A) and (C)

36. Plant tissue culture is possible because :

- (A) Plant cells exhibit plasticity
- (B) Plant cells exhibit totipotency
- (C) Plant cells have higher regeneration power
- (D) All of the above

37. Each chromosome is made up of :

- (A) Tightly coiled DNA many times around proteins called histones
- (B) Condensation of chromatins
- (C) DNA only
- (D) Both (A) and (B)

38. Match the column :

- |                          |   |
|--------------------------|---|
| A. Lysosome              | 1. Makes lipid, breakdown drugs and pack proteins   |
| B. Golgi Body            | 2. Power house of the cell                          |
| C. Mitochondria          | 3. Digest food particle and foreign invaders        |
| D. Endoplasmic Reticulum | 4. Processes and transport proteins out of the cell |

- (A) A-3/B-3/C-2/D-1
- (C) A-2/B-3/C-4/D-1

- (B) A-1/B-2/C-3/D-4
- (D) A-3/B-4/C-2/D-1

39. Which of the following is defined as the law of independent assortment ?

- (A) Allele pairs separate independent of each other during the formation of gametes. Hence traits are transmitted to offspring independently of one another.
- (B) During the production of gametes the allele of each hereditary factor segregate so that offspring acquire one factor from each parent.
- (C) One factor in a pair of traits dominates the other inheritance unless both factors in the pair are recessive.
- (D) All of the above

40. The phenomenon in which a single gene affects a number of phenotypic traits in the same organism is known as :
- (A) Polytypism (B) Co-dominance  
(C) Pleiotropism (D) Imprinting
41. Haemoglobin is an example of \_\_\_\_\_ protein.
- (A) Storage (B) Protective  
(C) Regulatory (D) Transport
42. Subunits of prokaryotic and eukaryotic ribosomes are :
- (A) 60S, 40S and 50S, 30S respectively  
(B) 50S, 40S and 60S, 30S respectively  
(C) 50S, 30S and 60S, 40S respectively  
(D) 60S, 30S and 50S, 40S respectively
43. In bacterial conjugation F plasmid is called :
- (A) Fertility factor (B) Female factor  
(C) Facilitating factor (D) Functional factor
44. Activated Sludge process is \_\_\_\_\_.
- (A) Aerobic (B) Anaerobic  
(C) Ionic (D) Non Ionic
45. Bioremediation is :
- (A) Use of plants for the degradation of pollutant  
(B) Use of microorganisms for the degradation of pollutant  
(C) Both (A) and (B)  
(D) Use of chemicals for the degradation of pollutant



46. **pUC stands for :**
- (A) Plasmid Universal Coding (B) Plasmid University of California  
(C) Plasmid University of Cambridge (D) Plasmid Unknown Coding
47. **Which of the following is not a Green House Gas ?**
- (A) Methane (B) Carbon dioxide  
(C) Argon (D) Carbon Monoxide
48. **First amino acid incorporated to make protein chain during translation is :**
- (A) Lysine (B) Arginine  
(C) Methionine (D) Valine
49. **Na<sup>+</sup>/K<sup>+</sup> pump in a cell helps in transportation across the membrane by :**
- (A) Passive Transport (B) Active Transport  
(C) Facilitated Diffusion (D) Osmosis
50. **What do you mean by degeneracy of genetic code ?**
- (A) One amino acid can be coded by more than one codon  
(B) One codon can code for more than one amino acid  
(C) Gene sequence degenerate with time  
(D) Genetic code varies with the cell type
51. **If protein of interest forms 10% of total protein present in crude enzyme, how many maximum folds of it can be purified?**
- (A) 90 (B) 10  
(C) 100 (D) 0
52. **Specific activity is :**
- (A) enzyme per milligram of total protein (B) enzyme per microgram of total protein  
(C) enzyme per nanogram of total protein (D) enzyme per milliliter of total protein

53. ELISA is defined as :

- (A) Enzyme Linked Immuno Soluble Assay      (B) Enzyme Linked Immuno Sorbent Assay  
(C) Enzyme Linked Instant Soluble Assay      (D) Enzyme Linked Immuno Sandwich Assay

54. Which of the following are the essential components of the plasmid vector ?

- (A) Origin of replication      (B) Multiple Cloning Site  
(C) Antibiotic resistant gene      (D) All of the above

55. The light reaction of photosynthesis :

- (A) Occurs in the stroma of chloroplast      (B) Involves only photosystem II  
(C) Produce ATP and NADH      (D) Also called Calvin Benson Cycle

56. Stem cells are :

- (A) Present only in embryo      (B) The cells which are differentiated  
(C) Can develop into any kind of cell      (D) Examples are nerve cell, muscle cell, RBC

57. Which of the following statements are true regarding PS(Photosystem) II ?

- (A) In PS II, Photocenter is p680  
(B) Participates only in non cyclic photophosphorylation  
(C) Located at the inner surface of thylakoid membrane  
(D) All of the above

58. Hybridoma is used for :

- (A) Hybridization      (B) Gene amplification  
(C) Monoclonal antibody production      (D) DNA segments separation

59. Mostly used soil bacteria in plant biotechnology for transformation is :

- (A) *Bacillus thuringiensis*      (B) *Agrobacterium tumefaciens*  
(C) *Rhizobacterium*      (D) *Escherichia coli*

60. Enzyme used for stitching two fragments of DNA is :

- (A) Alkaline phosphatase      (B) DNA ligase  
(C) DNA topoisomerase      (D) DNA gyrase