

Set No. 1

18P/292/25

3607

Total No. of Printed Pages : 28

Question Booklet No.....

(To be filled up by the candidate by blue/black ball-point pen)

Roll No.

--	--	--	--	--	--	--	--	--	--

Roll No. (Write the digits in words)

(2018)

Serial No. of OMR Answer Sheet

Centre Code No.

--	--	--	--

Day and Date

(Signature of Invigilator)

INSTRUCTIONS TO CANDIDATES

(Use only **blue/black ball-point pen** in the space above and on both sides of the OMR Answer Sheet)

1. Within 30 minutes of the issue of the Question Booklet, check the Question Booklet to ensure that it contains all the pages in correct sequence and that no page/question is missing. In case of faulty Question Booklet bring it to the notice of the Superintendent/Invigilators immediately to obtain a fresh Question Booklet.
2. Do not bring any loose paper, written or blank, inside the Examination Hall *except the Admit Card*.
3. A separate OMR Answer Sheet is given. *It should not be folded or mutilated. A second OMR Answer Sheet shall not be provided. Only the OMR Answer Sheet will be evaluated.*
4. Write all the entries by blue/black ball pen in the space provided above.
5. **On the front page of the OMR Answer Sheet, write by pen your Roll Number in the space provided at the top, and by darkening the circles at the bottom. Also, write the Question Booklet Number, Centre Code Number and the Set Number (wherever applicable) in appropriate places.**
6. No overwriting is allowed in the entries of Roll No., Question Booklet No. and Set No. (if any) on OMR Answer Sheet and also Roll No. and OMR Answer Sheet Serial No. on the Question Booklet.
7. Any change in the aforesaid entries is to be verified by the Invigilator, otherwise it will be taken as unfair means.
8. Each question in this Booklet is followed by four alternative answers. *For each question, you are to record the correct option on the OMR Answer Sheet by darkening the appropriate circle in the corresponding row of the OMR Answer Sheet, by ball-point pen as mentioned in the guidelines given on the first page of the OMR Answer Sheet.*
9. For each question, darken only one circle on the OMR Answer Sheet. If you darken more than one circle or darken a circle partially, the answer will be treated as incorrect.
10. *Note that the answer once filled in ink cannot be changed. If you do not wish to attempt a question, leave all the circles in the corresponding row blank (such question will be awarded zero mark).*
11. For rough work, use the inner back page of the title cover and the blank page at the end of this Booklet.
12. On completion of the Test, the Candidate must handover the OMR Answer Sheet to the Invigilator in the examination room/hall. However, candidates are allowed to take away Text Booklet and copy of OMR Answer Sheet with them.
13. Candidates are not permitted to leave the Examination Hall until the end of the Test.
14. If a candidate attempts to use any form of unfair means, he/she shall be liable to such punishment as the University may determine and impose on him/her.

उपरोक्त निर्देश हिन्दी में अन्तिम आवरण-पृष्ठ पर दिये गए हैं।

SPACE FOR ROUGH WORK

रफ़ कार्य के लिए जगह

18P/292/25 Set No. 1

No. of Questions : 120

Time : 2 Hours

Full Marks : 360

- Note :**
- (1) Attempt as many questions as you can. Each question carries **3** marks. **One** mark will be deducted for each incorrect answer. Zero mark will be awarded for each unattempted question.
 - (2) If more than one alternative answers seem to be approximate to the correct answer, choose the closest one.

1. The Mathematics of exponential growth in micro-organisms can be expressed as

- | | |
|------------------------------------|------------------------------------|
| (1) $\log N_o = n \log 2 + \log N$ | (2) $n \log 2 = \log N + \log N_o$ |
| (3) $\log N = 2 \log N_o$ | (4) $\log N = \log N_o + n \log 2$ |

2. Malolactic fermentation is carried out during the production of

- | | | | |
|----------|----------|--------------|------------|
| (1) Beer | (2) Wine | (3) Biofuels | (4) Cheese |
|----------|----------|--------------|------------|

18P/292/25 Set No. 1

3. Cyanotoxins are produced by

- | | |
|-----------------|------------------------|
| (1) Green algae | (2) Blue-green algae |
| (3) Red algae | (4) Yellow-green algae |

4. In a scheme of classification, genetically related groups represent a

- | | | | |
|-----------|-----------|-------------|------------|
| (1) Clone | (2) Clade | (3) Kingdom | (4) Domain |
|-----------|-----------|-------------|------------|

5. Which one of the following is not found in phytoplasma cell membrane?

- | | | | |
|--------------|------------|-------------|-----------------|
| (1) Proteins | (2) Lipids | (3) Sterols | (4) Fatty acids |
|--------------|------------|-------------|-----------------|

6. Clinically useful aminoglycosides includes

- | | |
|------------------|-------------------|
| (1) Penicillin | (2) Cephalosporin |
| (3) Streptomycin | (4) Erythromycin |

7. Dipicolinic acid is formed mainly in which one of the following bacterial structures?

- | | | | |
|--------------|---------------|-------------|---------------|
| (1) Flagella | (2) Sex pilus | (3) Capsule | (4) Endospore |
|--------------|---------------|-------------|---------------|

8. *E. coli* genomic DNA has approximately how many base pairs?

- | | | | |
|------------|------------|------------|------------|
| (1) 4.5 Mb | (2) 1.8 Mb | (3) 2.1 Mb | (4) 8.5 Mb |
|------------|------------|------------|------------|

18P/292/25 Set No. 1

9. Vaccination was developed by
- | | |
|----------------------|-------------------|
| (1) Stanley Prusiner | (2) Edward Jenner |
| (3) Paul Ehrlich | (4) Robert Koch |
10. Genomic concatemeric DNA is formed during the replication of
- | | |
|-------------------|-----------------|
| (1) Bacteriophage | (2) Bacteria |
| (3) Yeast | (4) Plant virus |
11. Bacteroids surrounded by a plant cytoplasmic membrane form structures called as
- | | |
|----------------------|------------------|
| (1) Infection thread | (2) Symbiosome |
| (3) Nod factors | (4) Root nodules |
12. Which one of the following has been used to enrich rice paddies with fixed nitrogen?
- | | |
|-------------------------|--------------------------|
| (1) <i>Azolla</i> | (2) <i>Rhizobium</i> |
| (3) <i>Streptomyces</i> | (4) <i>Agrobacterium</i> |
13. The *cos* sites of bacteriophage lambda is made up of how many nucleotides?
- | | | | |
|-------|--------|--------|--------|
| (1) 8 | (2) 12 | (3) 16 | (4) 20 |
|-------|--------|--------|--------|
14. Which one of the following is not a mutagen?
- | | |
|----------------------|--------------------|
| (1) Ethidium bromide | (2) X-ray |
| (3) Transposons | (4) Salicylic acid |

18P/292/25 Set No. 1

15. The *lac* repressor functions as a

- (1) Monomer (2) Dimer (3) Trimer (4) Tetramer

16. A *oxygenic* phototroph, prochlorophyte, contains

- (1) Phycobilins and chlorophyll b
(2) Chlorophylls a and b, and no phycobilins
(3) Phycobilins and chlorophylls a and b
(4) Phycobilins and no chlorophylls

17. Which one of the following is a MoFe protein?

- (1) Dinitrogenase (2) Dinitrogenase reductase
(3) 1,3- β -glucanase (4) DNA polymerase

18. Taking up DNA by transformation is an inherited property of a bacterium. This is due to the presence of

- (1) *Com* protein genes (2) *Nif* genes
(3) *Trp* operon (4) siRNA

19. A mutant with a growth requirement for a specific nutrient is known as

- (1) Autotroph (2) Auxotroph (3) Heterotroph (4) Phototroph

- 20.** Some of the metabolic plasmids of bacteria carry genes for enzymes that direct
- (1) The formation of sex pili
 - (2) Destruction and modification of antibiotics
 - (3) Degradation of aromatic compounds
 - (4) Killing of other bacteria
- 21.** Chemoautotrophic bacteria derive energy for their physiological needs by
- (1) Oxidizing organic compounds (2) Reducing N_2
 - (3) Absorbing solar energy (4) Oxidizing inorganic chemicals
- 22.** 'Red-rust of tea' disease is caused by a member of
- (1) Algae (2) Bacteria (3) Plant viruses (4) Fungi
- 23.** The term cistron was given by
- (1) Muller (2) Sutton (3) Benzer (4) Nirenberg
- 24.** The famous microbiologist, who disapproved the theory of spontaneous generation was
- (1) Carl Woese (2) Martin Beijerinck
 - (3) Louis Pasteur (4) Stanley Miller

18P/292/25 Set No. 1

25. The mode of nutrition of methanogenic bacteria is

- | | |
|------------------------|------------------------|
| (1) Chemoautotrophic | (2) Photoheterotrophic |
| (3) Chemoorganotrophic | (4) Auxotrophic |

26. Select the mismatch :

- (1) Phycoerythrin pigment — Non-photosynthetic
- (2) Heterocyst — Anaerobic cell
- (3) Bacterial endospores — Heat resistant cells
- (4) Ammonium nitrogen — Electron donor

27. The association and dissociation of ribosomal subunits are dependent on the concentrations of

- | | | | |
|-------------|-------------|-------------|-------------|
| (1) Mg ions | (2) Ca ions | (3) Na ions | (4) Mn ions |
|-------------|-------------|-------------|-------------|

28. If a bacterial cell divides in every 20 minutes, how many bacterial cells will be formed in two hours?

- | | | | |
|--------|--------|--------|--------|
| (1) 16 | (2) 24 | (3) 64 | (4) 32 |
|--------|--------|--------|--------|

29. The main biological function of naturally occurring bacteria associated with the gold and copper mines is

- (1) To oxidize reduced sulfur and form H_2SO_4
- (2) To convert ammonia to nitrate
- (3) To oxidize Fe^{+2} to Fe^{+3}
- (4) To fix N_2

18P/292/25 Set No.

30. When an old bacterial culture is transferred to fresh basal medium, the lag growth phase will be
- (1) Prolonged (2) Absent
(3) Reduced (4) Without any change
31. When mutation occurs due to the substitution of a pyrimidine base by a purine base, it is called as
- (1) Transition (2) Transgenic
(3) Transformation (4) Transversion
32. The 'Super Bug', a transgenic bacterial strain, was created to clean the pollution caused by
- (1) Pesticides (2) Eutrophication
(3) Heavy metals (4) Petroleum hydrocarbons
33. How many quanta of light energy are required for the use of 4 positive equivalents (with the production of 4 reducing equivalents), necessary for the evolution of one molecule of O_2 from two molecules of H_2O ?
- (1) 8 (2) 12 (3) 6 (4) 4
34. The entire network of cell cytoplasm of plant cells, interconnected by plasmodesmata is referred as
- (1) Apoplast (2) Spheroplast
(3) Symplast (4) Protoplast

18P/292/25 Set No. 1

- 35.** Which of the following is primary transporter?
- (1) Antiporter
 - (2) Symporter
 - (3) Uniporter
 - (4) ABC transporters
- 36.** Cyanobacteria differ from purple and green phototrophic bacteria because they
- (1) Show oxygenic photosynthesis
 - (2) Use H_2S as an electron donor
 - (3) Have a membrane-enclosed nucleus
 - (4) Do not require light
- 37.** Which of the following is not a sink in the plants?
- (1) Flower bud
 - (2) Developing fruit
 - (3) Photosynthetically active leaf
 - (4) A storage organ of the plant
- 38.** Zygotene is characterised by
- (1) Synapsis, crossing-over, tetrad formation
 - (2) Synapsis, bivalents, crossing-over
 - (3) Recombination nodules, synapsis and bivalents
 - (4) Bivalents, synapsis, tetrad formation

39. Which of the following is arginine rich?
(1) H1 (2) H2A (3) H2B (4) H3
40. Cell cycle is regulated by the master control molecules known as
(1) Transferases (2) Lipases
(3) Kinases (4) Dehydrogenases
41. Which of the following is a microfilament?
(1) Keratin (2) Actin (3) Desmin (4) Tubulin
42. Which of the following is hemizygous?
(1) Male mice (2) Male *Drosophila*
(3) Female *Drosophila* (4) Male plant of *Melandrium*
43. Which of the following combinations is true as proponents of 'synthetic theory of evolution'?
(1) T. Dobzhansky, R. A. Fisher, Lamarck, J. B. S. Haldane, Ernst Mayr
(2) T. Dobzhansky, R. A. Fisher, Darwin, J. B. S. Haldane, Ernst Mayr
(3) T. Dobzhansky, R. A. Fisher, Hugo de Vries, J. B. S. Haldane, Ernst Mayr
(4) T. Dobzhansky, R. A. Fisher, J. B. S. Haldane, Ernst Mayr, Sewall Wright, G. L. Stabbins
44. 'Linkage map' is also referred to as
(1) Chromosome map (2) Physical map
(3) Restriction map (4) Ganetic map

18P/292/25 Set No. 1

- 45.** In glycolysis fructose-6-phosphate is transformed to fructose 1,6-diphosphate by the enzyme
- | | |
|-------------------------|-----------------------------|
| (1) Hexokinase | (2) Phosphohexoisomerase |
| (3) Phosphofructokinase | (4) Phosphotriose isomerase |
- 46.** Chitin is a
- | | |
|-------------------|--------------------|
| (1) Polypeptide | (2) Polysaccharide |
| (3) Polyphosphate | (4) Lipid |
- 47.** Which of the following enzyme is responsible for DNA chain elongation?
- | | |
|------------------------|-----------------------|
| (1) DNA polymerase I | (2) DNA polymerase II |
| (3) DNA polymerase III | (4) RNA polymerase |
- 48.** Agarose-gel electrophoresis is used for separating
- | | |
|--------------|-------------------|
| (1) Proteins | (2) Nucleic acids |
| (3) Lipids | (4) Carbohydrates |
- 49.** Which of the following element is responsible for evolving oxygen in plant through splitting of water by changing its oxidation states?
- | | | | |
|--------|--------|--------|--------|
| (1) Fe | (2) Mg | (3) Mn | (4) Cu |
|--------|--------|--------|--------|
- 50.** Psammophytes grow on
- | | | | |
|-----------|-----------------|----------|------------------|
| (1) Stone | (2) Saline land | (3) Sand | (4) Marshy lands |
|-----------|-----------------|----------|------------------|

18P/292/25 Set No. 1

51. 'Stone leprosy' is caused by
- | | |
|---------------------------------|------------------|
| (1) <i>Mycobacterium leprae</i> | (2) Lightening |
| (3) Acid rain | (4) Dust on sand |
52. The site of glycosidation of lipids and proteins to produce glycolipids and glycoproteins in the cell is
- | | |
|-------------------|-----------------|
| (1) Mitochondria | (2) Chloroplast |
| (3) Golgi complex | (4) Lysosomes |
53. One gene-one enzyme hypothesis was given by
- | | |
|----------------------|------------------------|
| (1) Beadle and Tatum | (2) Jacob and Monad |
| (3) Watson and Crick | (4) Luria and Delbrick |
54. Clathrin coated vesicles are meant for
- | | |
|---------------------------|---------------------------|
| (1) Extracellular traffic | (2) Intracellular traffic |
| (3) Coating vacuole | (4) Protein synthesis |
55. Which one of the following are terminator codons?
- | | |
|-------------------|-------------------|
| (1) UAA, UAG, UGA | (2) AUG, UAG, UGA |
| (3) UAC, AUG, UAG | (4) AUG, ACG, GAG |

18P/292/25 Set No. 1

- 56.** The starting tRNA of prokaryotes is loaded with
- (1) Valine
 - (2) Methionine
 - (3) Tryptophan
 - (4) Formylated methionine
- 57.** Which of the following contains hydrolytic enzymes?
- (1) Dictyosomes
 - (2) Peroxisomes
 - (3) Lysosomes
 - (4) Carboxysomes
- 58.** K_m (Michaelis-Menten constant) is defined as
- (1) The substrate concentration at which all of the enzyme molecules are forming ES complex
 - (2) The substrate concentration at which $\frac{3}{4}$ of the enzyme molecules are forming ES complex
 - (3) The substrate concentration at which $\frac{1}{2}$ of the enzyme molecules are forming ES complex
 - (4) The substrate concentration at which $\frac{1}{3}$ of the enzyme molecules are forming ES complex
- 59.** The study of genetic material recovered directly from environmental samples is known as
- (1) Metagenomics
 - (2) Proteomics
 - (3) Genomics
 - (4) Metabolomics
- 60.** MAB stands for
- (1) Man and Biology
 - (2) Man and Biosphere Programme
 - (3) Map and Biology
 - (4) Management and Biosphere

- 61.** How many CO_2 molecules exit from citric acid cycle?
(1) One (2) Two (3) Three (4) Four
- 62.** Which one of the following immunoglobulins is associated with anaphylactic delayed hypersensitivity reaction?
(1) IgE (2) IgA (3) IgG (4) IgM
- 63.** A population of individuals of species, having genetic differences is referred as
(1) Ecotype (2) Ecad (3) Ecotone (4) Biotype
- 64.** Which one of the following gases is microbiocidal in nature?
(1) Nitrogen (2) Ethylene oxide
(3) Hydrogen (4) Oxygen
- 65.** Edman's reagent is preferred for sequence determination of a protein because during one cycle of reaction it
(1) Modifies and cleaves only N-terminal amino acid residue
(2) Modifies and cleaves only C-terminal amino acid residue
(3) Cleaves N-terminal amino acid residue in native form
(4) Cleaves C-terminal amino acid residue in native form

18P/292/25 Set No. 1

- 66.** In a dipeptide, peptide bond is generated between
- (1) α -COOH of 1st and α -NH₂ of 2nd amino acid
 - (2) α -NH₂ of 1st and α -COOH of 2nd amino acid
 - (3) β/γ -NH₂ of 1st and β/γ -COOH of 2nd amino acid
 - (4) α -C of 1st and α -C of 2nd amino acid
- 67.** Which one of the following stabilizes α -helix structure of a protein?
- (1) Peptide bonds
 - (2) Disulphide bonds
 - (3) Ionic bonds
 - (4) Hydrogen bonds
- 68.** Exposure of a native protein to heat results into partial denaturation of the protein due to breaking of
- (1) Disulphide bonds
 - (2) Hydrophobic interaction
 - (3) Hydrogen bonds
 - (4) Peptide bonds
- 69.** Enzymes, which do not follow normal Michaelis-Menten kinetics and exhibit cooperativity are
- (1) Isoenzymes
 - (2) Coenzymes
 - (3) Allosteric enzymes
 - (4) Abzymes
- 70.** Lactate dehydrogenase belongs to which major class of the enzymes?
- (1) Ligases
 - (2) Transferases
 - (3) Oxido-reductases
 - (4) Isomerases

(61)

- 71.** Identify an aldose from the options given below
- | | |
|-----------------------|--------------------|
| (1) Dihydroxy acetone | (2) Glyceraldehyde |
| (3) Xylulose | (4) Ribulose |
- 72.** Which one of the following pairs represents an isomer to each other?
- | | |
|-----------------------------|--|
| (1) D-glucose and L-glucose | (2) α -D-glucose and β -D-glucose |
| (3) D-glucose and D-mannose | (4) D-glucose and D-fructose |
- 73.** Identify the glycolytic enzyme which is associated with substrate level ATP synthesis
- | | |
|-------------------------|----------------|
| (1) Phosphofructokinase | (2) Hexokinase |
| (3) Pyruvate kinase | (4) Aldolase |
- 74.** Identify a decarboxylase out of the TCA cycle enzymes given below
- | | |
|------------------------------|-----------------------------|
| (1) Isocitrate dehydrogenase | (2) Succinate dehydrogenase |
| (3) Fumerase | (4) Malate dehydrogenase |
- 75.** The 'Fo' domain of the mitochondrial Fo-F1 complex is named so because it represents
- | |
|---|
| (1) The protein fragment given no number |
| (2) The protein fragment that does not perform catalytic function |
| (3) Cofactor binding domain |
| (4) Domain that confers oligomycin sensitivity to the complex |

18P/292/25 Set No. 1

- 76.** Which one of the following enzymes synthesize a cell signaling factor?
- (1) Cyclooxygenase (2) Cytochrome oxidase
(3) Cytochrome-Q-reductase (4) Co-A reductase
- 77.** The protein part of an enzyme, which utilizes cofactors for its catalytic functions, is known as
- (1) Apoenzyme (2) Coenzyme
(3) Holoenzyme (4) Native enzyme
- 78.** Which one of the following is an amphoteric molecule?
- (1) α -Glycine (2) Triglyceride (3) Sucrose (4) Phospholipid
- 79.** Out of the following lipids, which one contains maximum number of fatty acids?
- (1) Cholesterol (2) Biological wax
(3) Prostaglandin (4) Triglyceride
- 80.** In a nucleotide structure, phosphate is attached to the ribose sugar by a
- (1) Phosphoester bond (2) Phosphodiester bond
(3) Glycoside (4) Peptide
- 81.** 2'-deoxy-cytidine is a
- (1) Nucleotide (2) Di-nucleotide
(3) Modified base (4) Nucleoside

18P/292/25 Set No. 1

- 82.** Which one of the following RNAs assume tertiary structure for its functions?
 (1) Hn-RNA (2) mRNA (3) tRNA (4) 5S rRNA
- 83.** During prokaryotic DNA synthesis, RNA primers at lagging strand are removed by
 (1) S1 nuclease (2) DNA polymerase I
 (3) DNA polymerase III (4) RNase II
- 84.** Which analytical tool was used by Hershey and Chase to demonstrate that DNA serves as hereditary material and not the proteins?
 (1) Radiotracer technique
 (2) X-ray diffraction analysis
 (3) Spectrometry
 (4) Density gradient centrifugation
- 85.** The polymerase that synthesizes a polynucleotide chain in a template independent manner is
 (1) DNA Pol-I (2) DNA Pol-III
 (3) RNA polymerase (4) Poly-a polymerase
- 86.** Discovery of ribozymes associates with
 (1) RNA splicing (2) Transcriptional silencing
 (3) Translational silencing (4) DNA ligase activity

18P/292/25 Set No. 1

87. Identify the factor that terminates prokaryotic translation

- (1) 1F2-GTP (2) 1F2 (3) RF1 (4) RG3

88. In a charged tRNA, amino acid is linked at

- (1) 3'-end
(2) 5'-end
(3) D-loop
(4) Adjacent to anti-codon sequences

89. A human recombinant gene can be successfully translated in *E. coli*. This is because

- (1) Genetic code is universal
(2) Genetic code is degenerate type
(3) *E. coli* and human have similar translational factors
(4) *E. coli* and human have similar ribosomal organization

90. Which one is used as a genetic vector?

- (1) λ -Phage DNA (2) Retroviral RNA
(3) Retroviral cDNA (4) RNA primer

- 91.** In a P700 reaction centre of chlorophyll, 700 denotes for
- (1) Light wavelength
 - (2) Number of reaction centres
 - (3) Potential of the photosystem
 - (4) Number of water molecule split
- 92.** During photosynthetic dark reaction, the inorganic C is fixed with
- (1) Ribulose 2,5-bisphosphate
 - (2) Ribose 2,5-bisphosphate
 - (3) Ribulose 1,5-bisphosphate
 - (4) Ribose 1,5-bisphosphate
- 93.** Identify the Cu containing photosynthetic pigment
- (1) Chlorophyll
 - (2) Plastocyanin
 - (3) Thioredoxin
 - (4) Ferredoxin
- 94.** In eukaryotes, the first transcript synthesized by RNA polymerase II is referred as
- (1) mRNA
 - (2) sn-RNA
 - (3) Hn-RNA
 - (4) t-RNA
- 95.** The conformation of 2'-deoxy-ribose in a DNA double strand is
- (1) Chair type
 - (2) Boat type
 - (3) Furanose ring type
 - (4) Puckered type

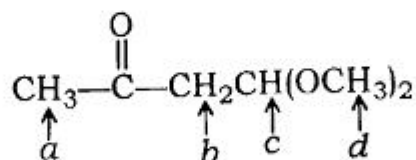
18P/292/25 Set No. 1

- 96.** Titration of a completely protonated solution of α -arginine against a base would produce pK values of
- (1) One (2) Two (3) Three (4) Four
- 97.** Maximum number of electrons in a subshell with $l = 3$ and $n = 4$ is
- (1) 10 (2) 12 (3) 14 (4) 16
- 98.** Mg^{2+} is isoelectronic with
- (1) Ca^{2+} (2) Na^+ (3) Zn^{2+} (4) Cu^{2+}
- 99.** How many stereoisomers of 3-bromo-2-butanol $\text{CH}_3\text{CH}(\text{OH})\text{CHBrCH}_3$ exist?
- (1) 2 (2) 4 (3) 3 (4) 1
- 100.** The isomers which can be interconverted through rotation around a single bond are
- (1) Conformers (2) Diastereomers
- (3) Enantiomers (4) Positional isomers
- 101.** Standard enthalpy change of combustion occurs when 1 mol of substance is burnt in excess of
- (1) Nitrogen (2) Oxygen
- (3) Carbon dioxide (4) Helium

- 102.** CH_3CHO and $\text{C}_6\text{H}_5\text{CH}_2\text{CHO}$ can be distinguished chemically by
- (1) Tollen's reagent test (2) Fehling solution test
(3) Benedict test (4) Iodoform test
- 103.** The enzyme, tyrosinase, is activated by
- (1) iron (2) copper (3) zinc (4) potassium
- 104.** In hemoglobin, the transition from T state to R state is triggered by
- (1) Fe^{2+} binding (2) Heme binding
(3) Oxygen binding (4) Subunit association
- 105.** Ethylene glycol reacts with dimethyl terephthalate to form
- (1) Nylon-6·6 (2) Teflon (3) Orlon (4) Dacron
- 106.** The number of asymmetric carbon atoms in the α -D-glucopyranose molecule is
- (1) 2 (2) 3 (3) 4 (4) 5
- 107.** Which is a disaccharide?
- (1) Glucose (2) Maltose (3) Fructose (4) Cellulose

18P/292/25 Set No. 1

108. Which of hydrogens *a-d* in the following molecule gives a triplet signal in a normal ^1H NMR spectrum?



- (1) Hydrogen *a* (2) Hydrogen *b* (3) Hydrogen *c* (4) Hydrogen *d*
109. Which one of the following set of quantum numbers represents highest energy?
(1) $n = 2, l = 1$ (2) $n = 3, l = 2$ (3) $n = 3, l = 1$ (4) $n = 2, l = 0$
110. Strength of hydrogen bond is intermediate between
(1) van der Waal and covalent (2) ionic and covalent
(3) ionic and metallic (4) metallic and covalent
111. For a reaction to be spontaneous, the following is essential to be negative
(1) $\Delta H - T\Delta S$ (2) $\Delta H + T\Delta S$ (3) ΔH (4) ΔS
112. When ice melts into water, entropy
(1) becomes zero (2) decreases
(3) increases (4) remains same
113. The value of free energy change at equilibrium is
(1) positive (2) negative (3) zero (4) not definite

18P/292/25 Set No. 1

114. Which one of the following is not a hard base?

- (1) NH_3 (2) H_2O (3) Cl^- (4) CN^-

115. Hg^{2+} is classified as

- (1) soft acid (2) hard acid (3) soft base (4) hard base

116. Winkler method is used to determine

- (1) Dissolved Oxygen (DO)
(2) Biochemical Oxygen Demand (BOD)
(3) Organic Carbon (OC)
(4) Elemental Carbon (EC)

117. The smog is generally caused by the presence of

- (1) O_2 and O_3 (2) NO_x and SO_x
(3) O_2 and N_2 (4) O_3 and N_2

118. The prefixes Z and E stand for

- (1) Zeigler-Erhard (2) Zwitter-Erythro
(3) Zirco-Estrogen (4) Zusammen-Enteggen

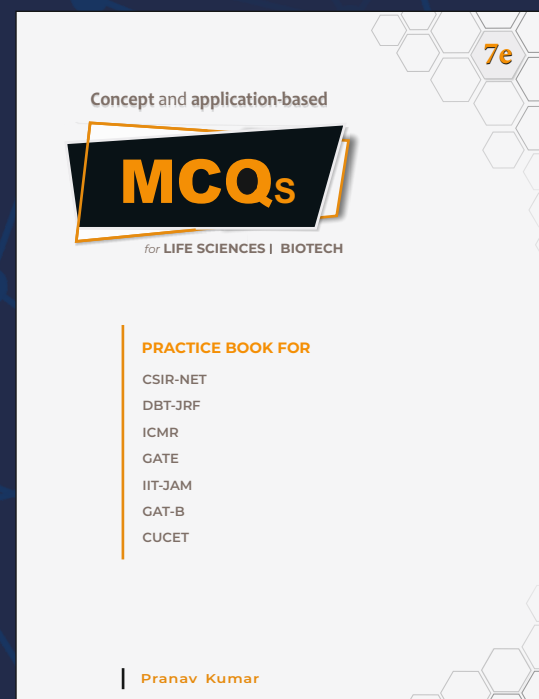
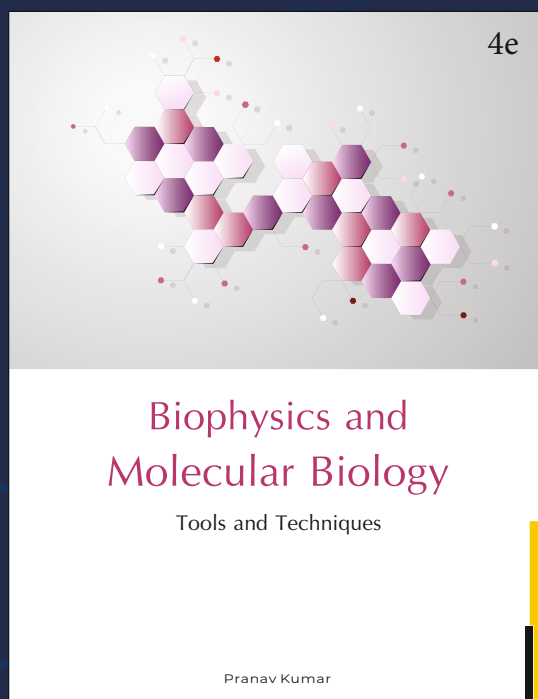
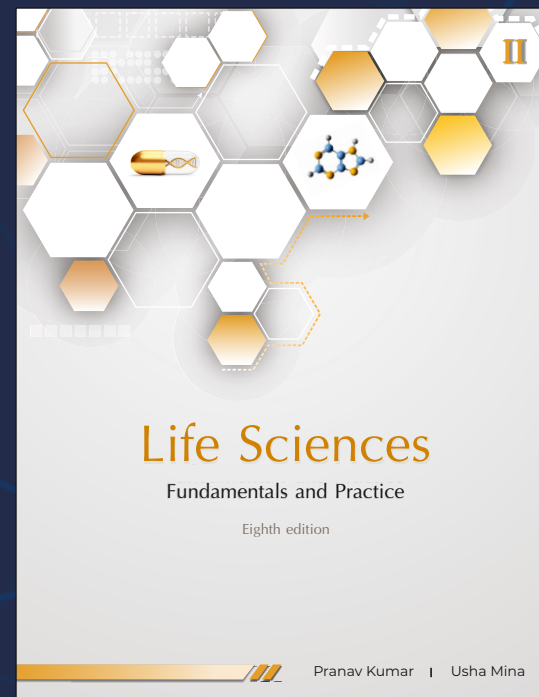
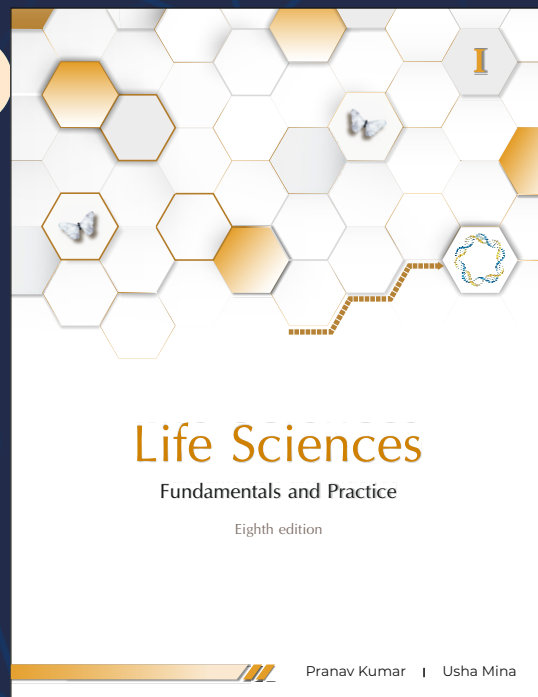
18P/292/25 Set No. 1

119. Bakelite is a cross-linked polymer of

- | | |
|----------------------------------|------------------|
| (1) Phenol | (2) Formaldehyde |
| (3) Both phenol and formaldehyde | (4) Wool |

120. α -D-glucose and β -D-glucose are

- | | |
|----------------------|------------------------|
| (1) anomeric sugar | (2) epimeric sugar |
| (3) position isomers | (4) functional isomers |



MSc

Entrance Exam Combo Set

Biotechnology & Life Sciences



<https://www.amazon.in/Pathfinder-Academy-Biotechnology-Sciences-Entrance/dp/8190642766>



<https://www.flipkart.com/pathfinder-academy-m-sc-biotechnology-life-sciences-entrance-exam-combo-set/p/itmeqchtfm9nkytk?>

Pathfinder Academy

pathfinderacademy.in | 9818063394

रफ़ काय क लिए जगह

अभ्यर्थियों के लिए निर्देश

(इस पुस्तिका के प्रथम आवरण-पृष्ठ पर तथा ओ०एम०आर० उत्तर-पत्र के दोनों पृष्ठों पर केवल नीली/काली बाल-प्वाइंट पेन से ही लिखें)

1. प्रश्न-पुस्तिका मिलने के 30 मिनट के अन्दर ही देख लें कि प्रश्नपत्र में सभी पृष्ठ मौजूद हैं और कोई पृष्ठ या पृष्ठ छूटा नहीं है। पुस्तिका दोषयुक्त पाये जाने पर इसकी सूचना तत्काल कक्ष-निरीक्षक को देकर सम्पूर्ण प्रश्नपत्र की दूसरी पुस्तिका प्राप्त कर लें।
2. परीक्षा भवन में प्रवेश-पत्र के अतिरिक्त, लिखा या सादा कोई भी खुला कागज साथ में न लायें।
3. ओ०एम०आर० उत्तर-पत्र अलग से दिया गया है। इसे न तो मोड़ें और न ही विकृत करें। दूसरा ओ०एम०आर० उत्तर पत्र नहीं दिया जायेगा। केवल ओ०एम०आर० उत्तर-पत्र का ही मूल्यांकन किया जायेगा।
4. सभी प्रविष्टियाँ प्रथम आवरण-पृष्ठ पर नीली/काली बाल पेन से निर्धारित स्थान पर लिखें।
5. ओ०एम०आर० उत्तर-पत्र के प्रथम पृष्ठ पर पेन से अपना अनुक्रमांक निर्धारित स्थान पर लिखें तथा नीचे दिये वृत्त को गाढ़ा कर दें। जहाँ-जहाँ आवश्यक हो वहाँ प्रश्न-पुस्तिका का क्रमांक एवं केन्द्र कोड नम्बर तथा सेट का नम्बर उचित स्थानों पर लिखें।
6. ओ०एम०आर० उत्तर-पत्र पर अनुक्रमांक संख्या, प्रश्न-पुस्तिका संख्या व सेट संख्या (यदि कोई हो) तथा प्रश्न पुस्तिका पर अनुक्रमांक सं० और ओ०एम०आर० उत्तर-पत्र सं० की प्रविष्टियों में उपरिलेखन की अनुमति नहीं है।
7. उपर्युक्त प्रविष्टियों में कोई भी परिवर्तन कक्ष निरीक्षक द्वारा प्रमाणित होना चाहिये अन्यथा यह एक अनुचित साधन का प्रयोग माना जायेगा।
8. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार वैकल्पिक उत्तर दिये गये हैं। प्रत्येक प्रश्न के वैकल्पिक उत्तर के लिये आपको ओ०एम०आर० उत्तर-पत्र की सम्बन्धित पंक्ति के सामने दिये गये वृत्त को ओ०एम०आर० उत्तर-पत्र के प्रथम पृष्ठ पर दिये गये निर्देशों के अनुसार पेन से गाढ़ा करना है।
9. प्रत्येक प्रश्न के उत्तर के लिये केवल एक ही वृत्त को गाढ़ा करें। एक से अधिक वृत्तों को गाढ़ा करने पर अथवा एक वृत्त को अपूर्ण भग्ने पर वह उत्तर गलत माना जायेगा।
10. ध्यान दें कि एक बार स्याही द्वारा अंकित उत्तर बदला नहीं जा सकता है। यदि आप किसी प्रश्न का उत्तर नहीं देना चाहते हैं, तो सम्बन्धित पंक्ति के सामने दिये गये सभी वृत्तों को खाली छोड़ दें। ऐसे प्रश्नों पर शून्य अंक दिये जायेंगे।
11. रफ कार्य के लिये प्रश्न-पुस्तिका के मुखपृष्ठ के अन्दर वाले पृष्ठ तथा अंतिम पृष्ठ का प्रयोग करें।
12. परीक्षा की समाप्ति के बाद अभ्यर्थी अपना ओ०एम०आर० उत्तर-पत्र परीक्षा कक्ष/हाल में कक्ष निरीक्षक को सौंप दें। अभ्यर्थी अपने साथ प्रश्न-पुस्तिका तथा ओ०एम०आर० उत्तर-पत्र की प्रति ले जा सकते हैं।
13. परीक्षा समाप्त होने से पहले परीक्षा भवन से बाहर जाने की अनुमति नहीं होगी।
14. यदि कोई अभ्यर्थी परीक्षा में अनुचित साधनों का प्रयोग करता है, तो वह विश्वविद्यालय द्वारा निर्धारित दंड का/की, भाग होगा/होगी।