

Booklet Code: B

Q-13

Hall Ticket Number:

Department of Animal Biology
M. Sc. Animal Biology & Biotechnology
ENTRANCE EXAMINATION June 2018

Time: 2 hours

Maximum Marks: 100

INSTRUCTIONS: PLEASE READ BEFORE ANSWERING!

- Enter your hall ticket number on this sheet and the answer (OMR) sheet.
- Answers have to be marked on the OMR answer sheet following the instructions provided there upon. Make sure that you have clearly mentioned the Booklet Code (A or B or C) on your OMR sheet.
- Hand over OMR answer sheet at the end of the examination.
- All questions carry one mark each. Answer all, or as many as you can.
- 0.33 mark will be deducted for every wrong answer.
- There are a total of 12 pages in this question paper. Answer sheet (OMR) will be provided separately. Check this before you start answering.
- The question paper consists of Part A and Part B. The marks obtained in Part A will be taken in consideration in case of a tie i.e., when more than one student gets equal marks, to prepare the merit list.

PART "A"

1. Which of the following amino acids contain nonpolar, aliphatic R groups?
A) Phenylalanine, tyrosine and tryptophan B) Glycine, alanine and leucine
C) Lysine, arginine and histidine D) Serine, threonine and cysteine
2. Which one of the following hormone causes senescence and bud dormancy in plants?
A) Ethylene B) Abscicic acid
C) Cytokinin D) Indole acetic acid
3. Which of the following are the major components of chloroplast membrane of plants and are absent from animal cells?
A) Glycolipids B) Phospholipids
C) Ether lipids D) Triacylglycerols

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4. Which one of the following wave properties is proportional to energy for the electromagnetic radiation?

- | | |
|---------------|----------------|
| A) Velocity | B) Wave number |
| C) Wavelength | D) Amplitude |

5. A structure important for movement and balance is

- | | |
|------------------|---------------|
| A) Thalamus | B) Cerebrum |
| C) Parietal lobe | D) Cerebellum |

6. Cluster of polar flagella is called

- | | |
|------------------|------------------|
| A) Lophotrichous | B) Amphitrichous |
| C) Monotrichous | D) Petritrichous |

7. A hydrazone will result from reaction of hydrazine with a

- | | |
|------------|-------------|
| A) Phenol | B) Aldehyde |
| C) Alcohol | D) Acid |

8. The vapour density of pure ozone is

- | | |
|-------|-------|
| A) 48 | B) 32 |
| C) 24 | D) 16 |

9. Contact dependent cell signaling is known as

- | | |
|---------------|--------------|
| A) Juxtacrine | B) Paracrine |
| C) Autocrine | D) Exocrine |

10. Brownian motion is property

- | | |
|---------------|----------------|
| A) Electrical | B) Mechanical |
| C) Optical | D) Colligative |

11. Chromosomes measurements are generally taken during

- | | |
|---------------|--------------|
| A) Interphase | B) Prophase |
| C) Anaphase | D) Metaphase |

12. A solution of pH=5 is times more acidic than solution of pH=7

- | | |
|-------|--------|
| A) 2 | B) 5 |
| C) 10 | D) 100 |

13. An example of homeothermic ectotherm is a

- | | |
|---------------------|---------|
| A) Deep sea fish | B) Frog |
| C) Fresh water fish | D) Toad |

A) Test cross
B) Reciprocal cross
C) Dihybrid cross
D) Back cross

A) 4.3 B) 3.7
C) 5.3 D) 5.12

A) Mitochondria
B) Peroxisomes
C) Lysosomes
D) Golgi complex

A) 0.032 B) 0.968
C) 0.90 D) 0.10

A) Ascaris B) Taenia
C) Earthworm D) Hook worm

A) 2 B) 4
C) 6 D) 8

A) Endoderm
B) Mesoderm
C) Ectoderm
D) Endoderm and mesoderm

A) 2 B) 4
C) 3 D) 6

A) Sucrose
B) KCl
C) Oxaloacetic acid
D) Palmitic acid

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23. Ketones react with Grignard reagents to form an addition product which on hydrolysis gives a

- | | |
|----------------------|---------------------|
| A) Primary alcohol | B) Tertiary alcohol |
| C) Secondary alcohol | D) Ketal |

24. Tools of stone and bones were used in age

- | | |
|---------------|----------------|
| A) Mesolithic | B) Bronze |
| C) Neolithic | D) Paleolithic |

25. Which of the following bonds is responsible for the primary structure of the protein?

- | | |
|-------------------|----------------------|
| A) Ionic bonds | B) Hydrogen bonds |
| C) Covalent bonds | D) Hydrophobic bonds |

PART "B"

26. The enzyme that was first obtained in crystalline form is

- | | |
|-----------|----------------|
| A) Zymase | B) Urease |
| C) Lipase | D) Nitrogenase |

27. Why do trans isomers of alkenes have lower boiling points than cis isomers?

- | | |
|---------------------------------------|-------------------------------------|
| A) Trans isomers have better symmetry | B) Cis isomers have better symmetry |
| C) Trans isomers are less polar | D) Cis isomers are less polar |

28. The shaft of long bone is called

- | | |
|----------------|---------------|
| A) Epiphysis | B) Hypophysis |
| C) Neurophysis | D) Diaphysis |

29. Oil of chenopodium is effective against

- | | |
|-----------------|---------------|
| A) Malaria | B) Typhoid |
| C) Tuberculosis | D) Ascariasis |

30. Following cells participate in blood brain barrier

- | | |
|----------------------|-----------------|
| A) Neuron | B) Astrocytes |
| C) Purkinjee neurons | D) Interneurons |

31. The people surrounding Japan's Minamata Bay are linked to toxicity to one of the following elements

- | | |
|-------|-------|
| A) Rg | B) Hg |
| C) Ag | D) Mg |

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32. Primary lymphoid organs include

- | | |
|-----------------------------------|---------------------------------------|
| A) Thymus and spleen | B) Thymus and bone marrow |
| C) Thymus, bone marrow and spleen | D) Thymus, bone marrow and lymphnodes |

33. Kalakkad Mundanthurai Tiger Reserve is situated in

- | | |
|-------------------|---------------|
| A) Kerala | B) Tamil Nadu |
| C) Andhra Pradesh | D) Karnataka |

34. Following genetically engineered bacteria is successfully used in bioremediation of oil spills and soil pesticide contamination

- | | |
|-----------------------|------------------------|
| A) <i>Pseudomonas</i> | B) <i>Azotobactor</i> |
| C) <i>Xanthomonas</i> | D) <i>Nirtosomonas</i> |

35. Which one of the following is correct ecological environment for Annelids?

- | | |
|----------------------------|---------------------------------------|
| A) Exclusively terrestrial | B) Exclusively marine |
| C) Marine and freshwater | D) Terrestrial, marine and freshwater |

36. An algae rich in proteins and used for making nutraceutical formulations is

- | | |
|-----------------|--------------|
| A) Chlorella | B) Ulothrix |
| C) Oscillatoria | D) Spirogyra |

37. Following is not a social behaviour displayed by animals

- | | |
|--------------------|----------------------------------------------|
| A) Parental care | B) Communal nesting |
| C) Channel surfing | D) Cooperatoin in brood care between parents |

38. Which of the following is an endotoxin?

- | | |
|-----------------------|----------------------|
| A) Lipopolysaccharide | B) Enterobactin |
| C) Hemolysins | D) Lipoteichoic acid |

39. Star fish is an example for

- | | |
|---------------|---------------|
| A) Echinoderm | B) Pisces |
| C) Mollusc | D) Crustacean |

40. Which of the following pigments occurs in the haemolymph of crustaceans?

- | | |
|----------------|------------------|
| A) Hemoglobin | B) Haemocyanin |
| C) Hemerythrin | D) Chlorocruorin |

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41. The X-ray diffraction studies conducted by were key to the discovery of the structure of DNA

- | | |
|-----------------------|-------------|
| A) McClintock | B) Franklin |
| C) Meselson and Stahl | D) Chargaff |

42. One of the following cell type secretes luteinizing hormone

- | | |
|------------------|-----------------|
| A) Chief cells | B) Gonadotrophs |
| C) Corticotrophs | D) Leydig cells |

43. Fatty acids are

- | | |
|-----------------------------------|-------------------------------|
| A) Unsaturated dicarboxylic acids | B) Long-chain alkanolic acids |
| C) Aromatic carboxylic acids | D) Aromatic dicarboxylic acid |

44. Uptake of plasmid DNA into bacterial cell is facilitated in the presence of all except

- | | |
|---------|----------------------|
| A) NaCl | B) CaCl ₂ |
| C) KCl | D) MgCl |

45. A test cross distinguishes between

- | | |
|---------------------------|---------------------------------------------------|
| A) Two homozygous forms | B) A homozygous dominant and a heterozygous form |
| C) Two heterozygous forms | D) A homozygous recessive and a heterozygous form |

46. The headquarters for International Union for Conservation of Nature and Natural Resources is located in

- | | |
|-----------|----------------|
| A) USA | B) France |
| C) Sweden | D) Switzerland |

47. Which one of the following is an uncoupler of electron transport and oxidative phosphorylation?

- | | |
|----------------------|-----------------|
| A) Rotenone | B) Amytal |
| C) 2,4 dinitrophenol | D) Antimycin A1 |

48. Osphradium is an olfactory organ found in

- | | |
|----------------|-------------|
| A) Echinoderms | B) Molluscs |
| C) Amphibians | D) Whales |

49. Hardy-Weinberg equilibrium generally assumes all the following except

- | | |
|-------------------------|-------------------------|
| A) A large population | B) Absence of selection |
| C) Absence of migration | D) Genetic drift |

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50. A prophage is

- | | |
|---------------------------------------------------|----------------------------------------------|
| A) Phage DNA integrated with bacterial chromosome | B) Bacterial DNA integrated with phage DNA |
| C) Viral DNA in early stage virus | D) Viral DNA integrated with any foreign DNA |

51. Introduction of recombinant DNA in to eukaryotic cells is known as

- | | |
|-------------------|-----------------|
| A) Transformation | B) Transfection |
| C) Transduction | D) Conjugation |

52. The nobel prize in physiology/medicine for 2017 was awarded for the discovery of

- | | |
|------------------------------------------------------------|------------------------------------------------------|
| A) Mechanisms of autophagy | B) CRISPR Cas9 system for gene editing |
| C) Novel therapies for most devastating parasitic diseases | D) Molecular mechanisms controlling circadian rhythm |

53. An evolutionary change which facilitates spatial patterning and phenotypic variation in animals is called

- | | |
|----------------|-----------------|
| A) Heterotopy | B) Heterotypy |
| C) Heterometry | D) Heterochrony |

54. Which one of the following virus is extensively used for insect pest management?

- | | |
|--------------------|----------------|
| A) Rotavirus | B) Parvovirus |
| C) Cytomegalovirus | D) Baculovirus |

55. A group of potentially inbreeding individuals present at the same location are known as

- | | |
|-------------------|---------------|
| A) Biome | B) Community |
| C) Metapopulation | D) Population |

56. Following statement holds true for melting temperature of a duplex DNA

- | | |
|---------------------------------------------------------------------|---------------------------------------------------------------------|
| A) Addition of salt increases the melting temperature of duplex DNA | B) Addition of salt decreases the melting temperature of duplex DNA |
| C) Addition of salt converts B form of DNA into Z form of DNA | D) Addition of salt converts Z form of DNA into B form of DNA |

57. The equipment used for determination of rate of transcription in plants is

- | | |
|---------------|---------------|
| A) Auxometer | B) Protometer |
| C) Photometer | D) Barometer |

58. Which one of the following is used as a bioplastic?

- | | |
|------------------------|------------------|
| A) Polystyrene | B) Polypropylene |
| C) Polyhydroxybutyrate | D) Dextran |

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59. Thrombosis can be best related to one of the following vitamin

- A) K
- B) C
- C) H
- D) B

60. The substance whose resistance gets reduced to virtually zero at very low temperature is called

- A) Electrical conductor
- B) Hyper conductor
- C) Semiconductor
- D) Superconductor

61. Binary or shuttle vector is a type of

- A) Cosmid
- B) Plasmid
- C) BAC
- D) YAC

62. RR (red) flowered plant of *Mirabilis* is crossed with rr (white) flowered plant of *Mirabilis*. All the Rr offsprings are pink. This is an indication that the R gene is

- A) Codominant
- B) Recessive
- C) Incompletely dominant
- D) Linked

63. Bharatpur bird sanctuary is located in

- A) Gujarat
- B) Rajasthan
- C) Jharkand
- D) Bihar

64. One of the following is a common feature seen in both Arthropods and Annelids

- A) Nephridia
- B) Ommatidia
- C) Parapodia
- D) Ventral nerve cord

65. Albinos have visual problem in bright light because they lack

- A) Melanin
- B) Rods
- C) Cones
- D) Keratin

66. Which one of the following is used as a catalyst during hydrogenation of oil?

- A) Fe
- B) Ni
- C) Pt
- D) Mo

67. Which one of the following statements are true with reference to enhancer?

- A) Always present upstream of a given gene promotor
- B) Always present downstream of a given gene promotor
- C) Always present in the middle of the gene body
- D) Present at any distance from a gene promotor

68. Which of the following T cells primarily act against virus infected cells?

- A) Th1 helper cells
- B) Th2 helper cells
- C) CD8+ cytotoxic T cells
- D) CD4+ cytotoxic T cells

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69. How many grams of NaCl is required to make 50 ml of 1M solution?

- A) 2.92 g
- B) 1.92 g
- C) 5.92 g
- D) 3.92 g

70. During embryonic development of animals, optic lobe of brain is derived from

- A) Telencephalon
- B) Diencephalon
- C) Mesencephalon
- D) Rhombencephalon

71. Major food crops of the world belong to the family

- A) Leguminosae
- B) Solanaceae
- C) Cruciferae
- D) Graminaceae

72. The rate of a chemical reaction generally increases rapidly even for small increase in temperature because of rapid increase in one of the following

- A) Collision frequency
- B) Fraction of molecules with energies in excess of the activation energy
- C) Activation energy
- D) Average kinetic energy of molecules

73. Eco RI is a

- A) Exonuclease
- B) Endonuclease
- C) Polymerase
- D) Ligase

74. Damage to one of the following structures of the brain affects processing of language

- A) Spinal cord
- B) Frontal lobe
- C) Occipital lobe
- D) Hippocampus

75. Maternal portion of the placenta is known as

- A) Endometrium
- B) Decidua
- C) Chorion
- D) Umbilical cord

76. In plant tissue culture, callus differentiation is induced by

- A) Auxin and cytokinin
- B) Auxin and jasmonic acid
- C) Auxin and ethylene
- D) Auxin and gibberellin

77. The relative strength of the different bonds/interactions, from weakest to strongest, that exist in protein structural levels is

- A) Hydrophobic interaction < hydrogen bond < ionic bond < covalent bond
- B) Hydrophobic interactions < ionic bond < hydrogen bond < covalent bond
- C) Ionic bond < hydrogen bond < hydrophobic interactions < covalent bond
- D) Ionic bond < hydrophobic interactions < hydrogen bond < covalent bond

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- 78. Which one of the following best explains the process of evolution?**
A) Natural selection B) Horizontal gene transfer
C) Comparative genomics D) Darwinism
- 79. Which of the following metabolites are not directly produced in the hexose monophosphate pathway?**
A) Fructose-6-phosphate B) Dihydroxyacetone phosphate
C) Erythrose-4-phosphate D) Gluconolactone-6-phosphate
- 80. The order of stability of carbonium ions is**
A) Tertiary>secondary>primary B) Secondary>tertiary>primary
C) Primary>secondary>tertiary D) Primary>tertiary>secondary
- 81. Which one of the following is not an ectodermal derivative?**
A) Brain B) Spinal cord
C) Mammary gland D) Thyroid gland
- 82. In liquids, one of the following properties increases with rise in temperature**
A) Viscosity B) Surface tension
C) Vapour pressure D) Density
- 83. Peptidoglycan accounts for percentage of the dry weight of cell wall in gram positive bacteria**
A) 50% B) 10%
C) 20% D) 1%
- 84. Which one of the following molecular/genetic techniques is used to identify protein-protein interactions?**
A) Yeast two hybrid system B) Southern hybridization
C) Northern hybridization D) Fluorescence *in-situ* hybridization
- 85. Humoral immunity was discovered by**
A) Robert Koch B) Paul Ehrlich
C) Jules Bordet D) Edward Jenner
- 86. Which one of the following amino acid does not contribute to the fluorescence?**
A) Tryptophan B) Tyrosine
C) Cysteine D) Phenylalanine
- 87. Maximum biodiversity is found in**
A) Mangrooves B) Temperate Rain forest
C) Coral reefs D) Taiga

A) Estrogen
B) Progesterone
C) Prolactin
D) Oxytocin

A) Carbon dioxide B) Carbon monoxide
C) Water D) Alkyl chains

A) Metamorphosis
B) Stem cell differentiation
C) Carcinogenesis
D) Gastrulation

A) NH_3
B) H_2
C) O_2
D) CH_4

A) Locomotion B) Respiration
C) Feeding D) Excretion

A) Ohm-cm B) Ohm⁻¹cm
C) Ohm⁻¹cm⁻¹ D) Ohm cm⁻¹

A) Somatic cells B) Follicular cells
C) Sperms D) Zygote

A) Nutrition
B) Osmoregulation
C) Locomotion
D) Reproduction

A) Chitin B) Silica
C) Lignin D) Collagen

A) Pheromones
B) Kairomones
C) Allomones
D) Synomones

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98. Which one of the following compounds will react with ammonical silver nitrate?

- | | |
|-------------|-------------|
| A) 1-Butene | B) 1-Butyne |
| C) 2-Butene | D) 2-Butyne |

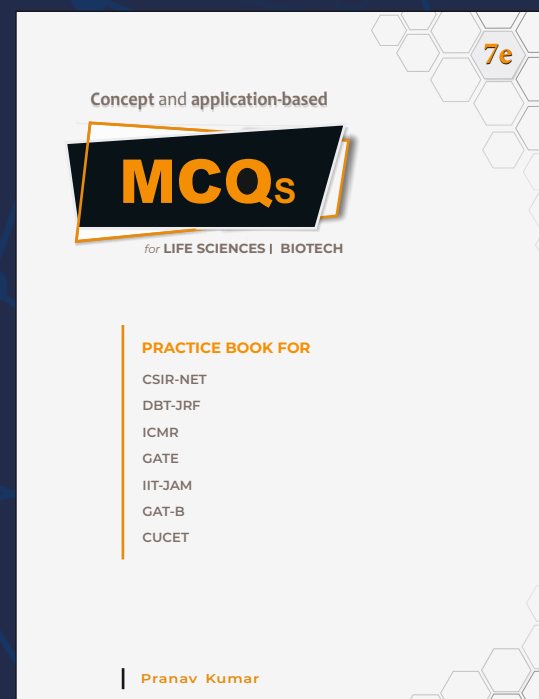
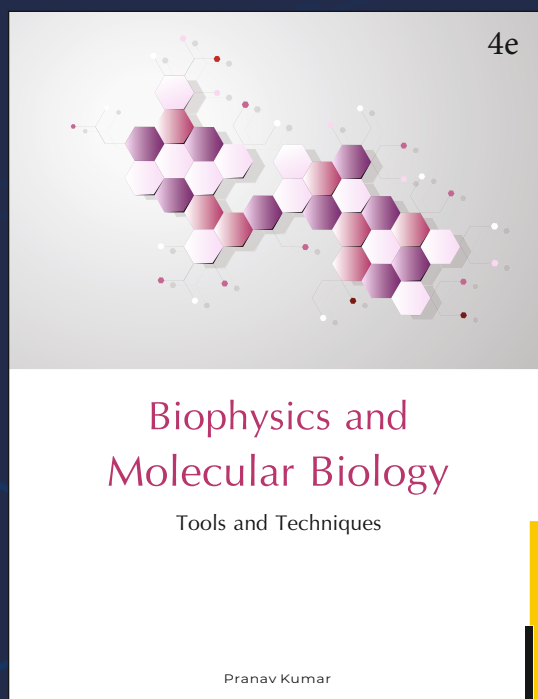
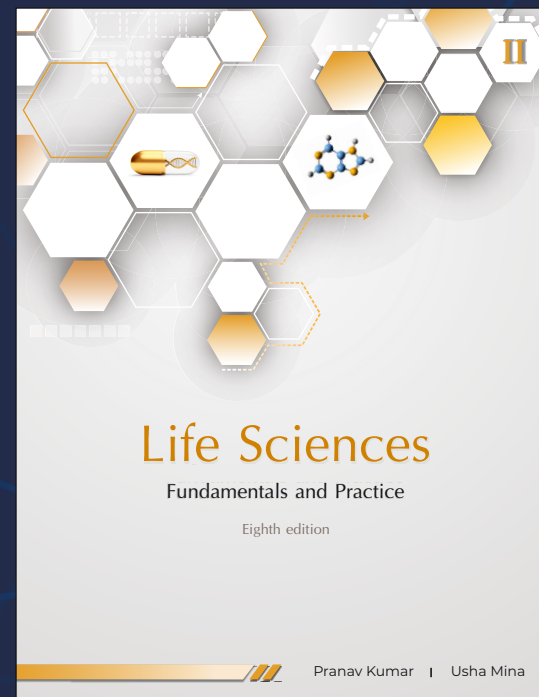
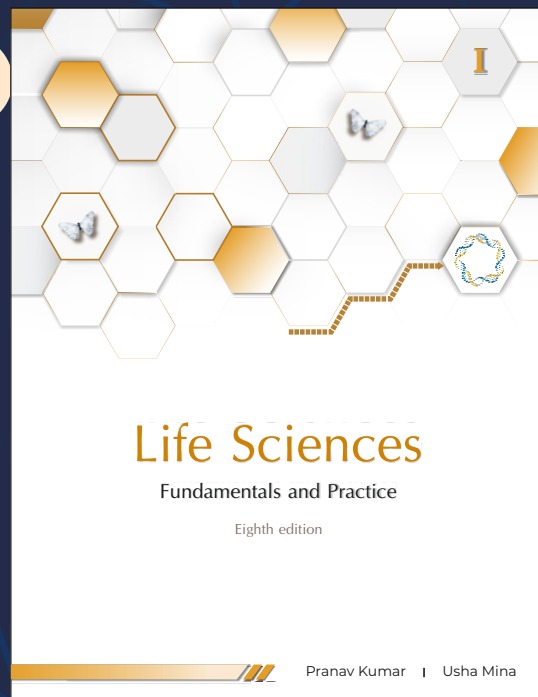
99. Oxytocin is synthesized by and secreted at

- | | |
|-------------------------------------|--------------------------------------|
| A) Hypothalamus and adenohypophysis | B) Hypothalamus and neurohypophysis |
| C) Thalamus and neurohypophysis | D) Telencephalon and adenohypophysis |

100. Which of the following chromosomal changes is not responsible for position -effect variegation of a gene?

- | | |
|------------------|---------------------|
| A) Transposition | B) Translocation |
| C) Inversion | D) Polyploidization |

For rough work



MSc

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