

16P/216/22

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

Roll No.

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Serial No. of OMR Answer Sheet

(2016)

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 **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 without its envelope*.
3. *A separate Answer Sheet is given. It should not be folded or mutilated. A second Answer Sheet shall not be provided. Only the Answer Sheet will be evaluated.*
4. Write your Roll Number and Serial Number of the Answer Sheet by pen in the space provided above.
5. *On the front page of the Answer Sheet, write by pen your Roll Number in the space provided at the top and by darkening the circles at the bottom. Also, wherever applicable, write the Question Booklet Number and the Set Number in appropriate places.*
6. *No overwriting is allowed in the entries of Roll No., Question Booklet no. and Set no. (if any) on OMR sheet and Roll No. and OMR sheet 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 Answer Sheet by darkening the appropriate circle in the corresponding row of the Answer Sheet, by pen as mentioned in the guidelines given on the first page of the Answer Sheet.*
9. For each question, darken only one circle on the 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 marks).*
11. For rough work, use the inner back page of the title cover and the blank page at the end of this Booklet.
12. Deposit only **OMR Answer Sheet** at the end of the Test.
13. You 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.

Total No. of Printed Pages : 32

[उपर्युक्त निर्देश हिन्दी में अन्तिम आवरण पृष्ठ पर दिये गए हैं।]

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ROUGH WORK
रफ़ कार्य

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No. of Questions : 150

Time : 2 Hours

Full Marks : 450

Note : (1) Attempt as many questions as you can. Each question carries 3 (Three) 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.

01. Water is a very efficient thermal buffer, because :

- (1) Its high heat capacity
- (2) Concentration of more salt
- (3) Low surface tension
- (4) Dissolve many organic matters

02. Macroherbivory is best illustrated by :

- (1) Protozoan
- (2) Insect
- (3) Moluccas
- (4) Echinodermata

03. Life cycle of monocystis includes

- (1) Gametogony and Sporogony
- (2) Schizogony and Gametogony
- (3) Syzygy and Gametogony
- (4) Sporogony only

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04. Leech is blood sucking animal nutritionally therefore leech is :

- | | |
|-----------------|-----------------|
| (1) Sangivorous | (2) Omnivorous |
| (3) Herbivorous | (4) Carnivorous |

05. Gastric filament occur in :

- | | |
|----------------|-----------------|
| (1) Hormiphora | (2) Aurelia |
| (3) Obelia | (4) Sea anemone |

06. Sense organ of Aurelia is called :

- | | |
|--------------------|----------------|
| (1) Tentaculocytes | (2) Tester |
| (3) Tentilla | (4) Nematocyst |

07. Groove of Pharynx is called :

- | | |
|------------------|---------------------------|
| (1) Stomodaeum | (2) Limbus |
| (3) Siphonoglyph | (4) Chidoglandular groove |

08. Bladder worm is found in :

- | | |
|------------------|-------------------|
| (1) Human muscle | (2) Muscle of pig |
| (3) Human faeces | (4) Soil |

09. Final moult in life cycle of Ascaris takes place in :

- | | |
|---------------|--------------------------------|
| (1) Soil | (2) Lung |
| (3) Intestine | (4) Intestine before migration |

10. How many chambers are found in the crop of Leech?

- | | |
|----------|-----------|
| (1) Six | (2) Eight |
| (3) Nine | (4) Ten |

11. Malpighian tubules of Cockroach are responsible for :

- | | |
|---------------|--------------------|
| (1) Excretion | (2) Osmoregulation |
| (3) Digestion | (4) Respiration |

12. Rostellum is found in all molusca except :

- | | |
|----------------|-----------------|
| (1) Bivalves | (2) Cephalopoda |
| (3) Scaphopoda | (4) Aplacophora |

13. Locomotory organ of starfish is :

- | | |
|-----------------|---------------------|
| (1) Podia | (2) Polian Vesicles |
| (3) Stome canal | (4) Ampullae |

14. Respiratory organ in Holothouria is :

- | | |
|----------------------|----------------------|
| (1) Papulae | (2) Dermal Branchiae |
| (3) Respiratory tree | (4) Bursae |

15. The Excretory structure in Peripatus is :

- | | |
|------------------------|-----------------|
| (1) Malpighian tubules | (2) Coxal Gland |
| (3) Nephridia | (4) Solenocytes |

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16. Brachiolaria larva is the example of class :

- | | |
|----------------|-----------------|
| (1) Crinoidae | (2) Asteroidae |
| (3) Echinoidae | (4) Holothrunda |

17. An example of wood boring mollusca is :

- | | |
|------------|--------------|
| (1) Pholas | (2) Aviculs |
| (3) Teredo | (4) Trigonic |

18. Which of the following is connected with Coral Formation ?

- | | |
|----------------|----------------|
| (1) Halistemma | (2) Millepora |
| (3) Adamsia | (4) Rhizostoma |

19. The scientific name of precious Red Coral is :

- | | |
|---------------|---------------|
| (1) Zubipore | (2) Fungia |
| (3) Heliopora | (4) Corallium |

20. Skeleton of Demospongia is made up with :

- (1) Silicious
- (2) Calacareous
- (3) Spongin fibres
- (4) Both spongin fibre and Silicious fibre

21. The number of Comb Plate is present in Hormiphore :

- (1) 8 (2) 6 (3) 10 (4) 12

22. Obelisc is a :

- (1) Polymorphic (2) Dimorphic
(3) Trimorphic (4) Monomorphic

23. Planaria is included under the order :

- (1) Polycladea (2) Digenea
(3) Monogenea (4) Tricladea

24. The origin of the Nephridium is :

- (1) Germinal (2) Ectodermal
(3) Mesodermal (4) Endodermal

25. Ephyra is the larva of :

- (1) Beroe (2) Aurelia
(3) Ctenophora (4) Coeloplutea

26. Uterus in primates is :

- (1) Simplex type (2) Bipartite type
(3) Bicarnuate type (4) Duplex type

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27. The dentine part of Placoid scale is secreted by :

- | | |
|-----------------------|-------------------------|
| (1) Osteoblast cells | (2) Choanoblast cells |
| (3) Odontoblast cells | (4) Chondrioblast cells |

28. Which of the following are branches of VII and X cranial nerves ?

- (1) Glassopharyngeal and Hyomandibular
- (2) Palatinus and Buccalis
- (3) Abducens and Buccalis
- (4) Ophthalmicus superficialis and Branchialis

29. In Teleost fishes, Ventral Aorta supplies blood to :

- (1) Gills through Afferent branchial arteries and contains deoxygenated blood
- (2) Gills through Afferent branchial arteries and contains oxygenated blood
- (3) Gills through Efferent branchial arteries and contains oxygenated blood
- (4) All parts of body through its branches

30. The type of jaw suspensorium in sharks is :

- | | |
|------------------|-------------------|
| (1) Autodistylic | (2) Amphistylic |
| (3) Hyostylic | (4) Streptostylic |

31. In mammals, the thick roof called Neopallium is part of :
(1) Cerebrum (2) Cerebellum
(3) Pons (4) Medulla Oblongata
32. The type of tail (caudal fin) in sharks is :
(1) Diphyccercal (2) Heterocercal
(3) Homocercal (4) Isocercal
33. A vertebra having Centrum convex at the anterior end and concave at posterior end is known as :
(1) Opisthocoelous (2) Amphicoelous
(3) Procoelous (4) Heterocoelous
34. Which one is a free swimming, pelagic and neotenic Urochordate animal ?
(1) *Doliolum* (2) *Salpa*
(3) *Oikopleura* (4) *Pyrosoma*
35. Third, fourth and sixth aortic arches are present in :
(1) Sharks (2) Dipnoi
(3) Teleosts (4) Lizard
36. Neuromast organs in fishes are useful as :
(1) Current receptors (2) Touch receptors
(3) Thermoreceptors (4) Electroreceptors

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37. Crocodilians posses :

- | | |
|-------------------------|------------------------|
| (1) Archinephric kidney | (2) Pronephric kidney |
| (3) Mesonephric kidney | (4) Metanephric kidney |

38. Which of the following animal species possesses single median nasal opening, pouched gills, absence of paired fins and circular mouth ?

- | | |
|--------------------------------|------------------------------|
| (1) <i>Latimeria chalumnae</i> | (2) <i>Catla catla</i> |
| (3) <i>Petromyzon marinus</i> | (4) <i>Amphipnous cuchia</i> |

39. Ductus caroticus is found in :

- | | |
|--------------|--------------|
| (1) Amphibia | (2) Reptilia |
| (3) Birds | (4) Mammals |

40. A true air circulation in lungs is the feature of :

- | | |
|----------------|--------------|
| (1) Amphibians | (2) Reptiles |
| (3) Birds | (4) Mammals |

41. Power of memory and learning in birds resides in :

- | | |
|---------------------|-----------------------|
| (1) Cerebral cortex | (2) Corpus striatum |
| (3) Hyperstriatum | (4) Lateral ventricle |

42. Projected gill septum is found in :

- | | |
|-----------------|-----------------|
| (1) Cat fish | (2) <i>Amia</i> |
| (3) Paddle fish | (4) Sharks |

43. Which of the following is surviving Chondrichthyes ?
(1) Cladoselachi (2) Holocephali
(3) Paraselachi (4) Pleuracanthodi
44. Accessory respiratory organs in *Clarias batrachus* are in the form of :
(1) Labyrinthiform organs (2) Arborescent organs
(3) Air sacs (4) Vascular Skin
45. In ruminant mammals, the different chambers of stomach fall in the sequence of :
(1) Abomasum, Rumen, Omasum and Reticulum
(2) Rumen, Reticulum, Abomasum and Omasum
(3) Rumen, Reticulum, Omasum and Abomasum
(4) Rumen, Omasum, Reticulum and Abomasum
46. Which type of primary sex determination mechanism is followed in human ?
(1) X:A ratio determines the sex
(2) Presence of one or two X chromosome determines the sex
(3) Y-chromosome determines sex
(4) Haplo-diploidy during early embryonic development determines sex
47. An allele is considered dominant if its phenotype is expressed :
(1) Only in heterozygous condition
(2) In homo as well as heterozygous condition
(3) Only in homozygous condition
(4) Only in hemizygous condition

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48. A maximum frequency of recombination in a given point that can occur is :

- (1) 100% (2) 75% (3) 50% (4) 25%

49. Somatic recombination in immunoglobulin genes account for :

- (1) Class switching
(2) Allelic exclusion
(3) Affinity maturation
(4) Increased expression of IgG gene

50. What organelle processes and packages proteins before sending them out of cell during secretion?

- (1) Outer memberane of nucleus
(2) Endoplasmic reticulum
(3) Golgi complex
(4) Plasma membrane

51. Which of the following cell organelle is associated with a protein skeleton composed of lamins?

- (1) Mitochondrion (2) Chloroplast
(3) NOR (4) Nucleus

52. In which phase of cell cycle DNA becomes 2C from 4C?

- (1) S (2) G1
(3) Metaphase (4) Anaphase

53. In a centrifuge separation of suspended particles is done by :
- | | |
|-------------------------|-----------------------|
| (1) Centrifugal force | (2) Centripetal force |
| (3) Gravitational force | (4) Buoyant density |
54. If you wish to study the region of binding of transcription factor in promoter DNA which of the following technique will be most appropriate?
- | | |
|------------------------|-------------------------|
| (1) Microarray | (2) Immunoprecipitation |
| (3) Chromosome walking | (4) DNA footprinting |
55. Which one of the following cell types does not divide in adult organisms?
- | | |
|---------------------------|------------------------|
| (1) Primary germ cells | (2) Neurons |
| (3) Intestinal epithelium | (4) Corneal epithelium |
56. During meiosis when a cell actually becomes haploid?
- | |
|--|
| (1) At the end of second division |
| (2) During recombination in pachytene |
| (3) During chiasmata terminalization at diakinesis |
| (4) At the end of first division |
57. Most of the membrane lipids are synthesized on
- | |
|----------------------------------|
| (1) Rough endoplasmic reticulum |
| (2) Nucleolus |
| (3) Smooth endoplasmic reticulum |
| (4) None of the above |

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58. A nucleosome is made up of :

- (1) Histones (H2A, H2B, H3, H4) and 146 bp of DNA
- (2) Histones (H1, 2 molecules each of H2A, H2B, H3, H4) and 146 bp of DNA
- (3) Histones (H1, 2 molecules each of H2A, H2B, H3, H4) and 200 bp of DNA
- (4) Histones (H2A, H2B, H3, H4) and linker DNA

59. For a given gene, a diploid individual will contain :

- (1) two alleles
- (2) one allele
- (3) multiple alleles
- (4) two genes

60. Which law of Mendel is revealed by a monohybrid cross ?

- (1) Law of dominance
- (2) Law of segregation
- (3) Law of independent assortment
- (4) Law of heterosis

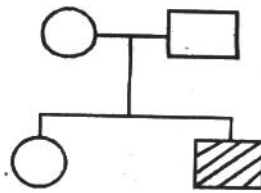
61. Migration of cancerous cells from the place of their origin to another place of the body is termed as :

- (1) Metastasis
- (2) Diapedasis
- (3) Necrosis
- (4) Apoptosis

62. Which of the following enzymes is used for synthesizing cDNA ?

- (1) DNA methylase
- (2) DNA topoisomerase
- (3) Reverse transcriptase
- (4) Restriction endonucleases

63. Which of the following is an example of transformation of chemical energy to light energy?
- (1) Bioluminescence (2) Autoradiography
(3) Muscle contraction (4) Ion transport
64. The treatment of snake-bite by antivenom is an example of :
- (1) artificially acquired passive immunity
(2) naturally acquired passive immunity
(3) innate immunity
(4) adaptive response
65. The most abundant class of antibodies in milk is :
- (1) IgM (2) IgD (3) IgG (4) IgA
66. Which of the following term is not quantitatively assesses ?
- (1) Penetrance (2) Expressivity
(3) Map distance (4) Probability
67. The following pedigree show inheritance of an autosomal trait



- Which of the following conclusion can be drawn from this pedigree?
- (1) The trait is dominant (2) The trait is semi-dominant
(3) The trait is recessive (4) The chart is inconclusive

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68. How the gene flow between two Mendelian populations is prevented ?

- | | |
|----------------------|-----------------------------|
| (1) By mutation | (2) By mimicry |
| (3) By recombination | (4) By isolating mechanisms |

69. Which one of the following is a classical example of protective mimicry ?

- | | |
|-----------------------|-----------------------|
| (1) <i>Drosophila</i> | (2) <i>Kallima</i> |
| (3) <i>Apis</i> | (4) <i>Neurospora</i> |

70. Which factor is important for the maintenance of genetic equilibrium ?

- | | |
|-----------------------|----------------|
| (1) Migration | (2) Adaptation |
| (3) Natural selection | (4) Panmixia |

71. A very good example of living fossil is :

- | | |
|----------------------|----------------------|
| (1) <u>Chameleon</u> | (2) <u>Sphenodon</u> |
| (3) <u>Hcloderma</u> | (4) <u>Mabuia</u> |

72. Which one is called as missing link ?

- | | |
|---------------------|-------------------------|
| (1) <u>Macropus</u> | (2) <u>Manis</u> |
| (3) <u>Pteropus</u> | (4) <u>Archeopteryx</u> |

73. Polyploidy has played important role in evolution in :

- | | |
|--------------|-------------|
| (1) Plants | (2) Animals |
| (3) Bacteria | (4) Virues |

74. Name the evolutionary biologist who integrated evolution with genetics :
- (1) Hardy (2) Dohzhansky
(3) Darwin (4) Lamark
75. Paripatus is a connecting link between :
- (1) Mollusca and Arthropoda
(2) Arthropoda and Annelida
(3) Annelida and Mollusca
(4) Protozoa and Echinodermata
76. Which one of the following is a Non-directional force of evolution ?
- (1) Sewall wright effect (2) Migration
(3) Variation (4) Mimicry
77. Mutations play important role in evolution. This fact was realized for the first time by :
- (1) Wagner (2) Weismann
(3) Haldane (4) Devries
78. Mesychippus was found in :
- (1) Eocene (2) Oligocene
(3) Miocene (4) Pliocene

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79. "Ontogeny recapitulates phylogeny" was formulated by :

- | | |
|--------------|-------------|
| (1) Weinberg | (2) Huxley |
| (3) Spencer | (4) Haeckel |

80. There are different types of reproductive isolation mechanisms. Which type of reproductive isolation is postmating as well as prezygotic :

- | | |
|--------------------------|------------------------|
| (1) Gametic isolation | (2) Sexual isolation |
| (3) Ecological isolation | (4) Seasonal isolation |

81. The number of toes in Eohippus is :

- | | | | |
|-------|-------|-------|-------|
| (1) 1 | (2) 2 | (3) 3 | (4) 4 |
|-------|-------|-------|-------|

82. The method by which the dating of rocks containing fossils is done is known as :

- | | |
|-------------------|-------------------|
| (1) Herpetology | (2) Geochronology |
| (3) Chronobiology | (4) Zoogeography |

83. Which is the commonest method of fossilization ?

- | | |
|-------------------------|-------------------|
| (1) Compression | (2) Petrification |
| (3) Formation of moulds | (4) Impression |

84. Fossils of birds have been found in the rocks deposited in :
- | | |
|---------------------|--------------------------|
| (1) Cambrian period | (2) Jurassic period |
| (3) Silurian period | (4) Carboniferous period |
85. When two species are morphologically similar and reproductively isolated, they are called as ?
- | | |
|-----------------------|-----------------------|
| (1) Incipient species | (2) Subspecies |
| (3) Sibling species | (4) Polytypic species |
86. The problem of hybrid sterility was discussed for the first time in detail by Aristotle in :
- | | |
|-----------|-----------------|
| (1) Human | (2) Mule |
| (3) Eoat | (4) Sea Urchins |
87. There are different concepts of species. Which one is the most widely accepted concept of species ?
- | | |
|----------------------------------|----------------------------------|
| (1) Biological species concept | (2) Typological species concept |
| (3) Evolutionary species concept | (4) Nominalistic species concept |
88. Due to founder effect in a population, the degree of genetic variability :
- | |
|---------------------------------------|
| (1) Is similar to original population |
| (2) Remains constant |
| (3) Is increased |
| (4) Is reduced |

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89. pK values of α - amino acids are measured in terms of :

- | | |
|-------------------|-------------------|
| (1) pH | (2) K_a |
| (3) Net-ve charge | (4) Net+ve charge |

90. α -helix structure of a protein is mainly stabilized by :

- (1) Disulphide bonds
- (2) Ionic bonds
- (3) Hydrogen bonds involving C=O and NH of different peptide bond
- (4) Hydrogen bonds involving R-groups of different amino acids

91. A protein domain represents a :

- | | |
|------------------------------|--------------------------------|
| (1) Tertiary structured unit | (2) Quaternary structured unit |
| (3) Secondary structure | (4) Random coiled unit |

92. K_{m} of an enzyme is a constant expressed in terms of :

- | | |
|------------------------------------|--------------------------|
| (1) Substrate concentration | (2) Equilibrium constant |
| (3) Rate of the reaction catalyzed | (4) Turnover number |

93. Citrate is not a structural analogue of the substrate for the enzyme phosphofructokinase-1 but it inhibits activity of this enzyme. This could be an example of the enzyme regulation due to :

- (1) Allosterism
- (2) Reversible covalent modification
- (3) Irreversible covalent modification
- (4) Irreversible non-covalent modification

94. Kinases represent a sub-class under which of the major classes of the enzymes :
- | | |
|----------------------|------------------|
| (1) Oxido-reductases | (2) Transferases |
| (3) Lyases | (4) Isomerases |
95. Which of the following best represents a heteropolysaccharide ?
- | | |
|-------------------------------|------------------------------|
| (1) Poly N-acetyl glucosamine | (2) Poly glucuronic acid |
| (3) Poly galactosamine | (4) Poly Glycosamino-glycans |
96. α -D glucose and β -D glucose are :
- | | |
|-----------------|-----------------------|
| (1) Epimers | (2) Anomers |
| (3) Enantiomers | (4) Cis-trans isomers |
97. The glycolytic product enters into TCA cycle in the form of :
- | | |
|------------------|-----------------|
| (1) Citrate | (2) Pyruvate |
| (3) Oxaloacetate | (4) Acetyl-Co-A |
98. Which one is not an intermediate of the TCA cycle ?
- | | |
|-------------------|---------------|
| (1) Thiosuccinate | (2) Succinate |
| (3) Succinyl-Co-A | (4) Aconitate |
99. Which one serves as catalytic sub unit of mitochondrial ATP synthase ?
- | | |
|---------------------------------------|--------------------------------------|
| (1) α sub unit of F_0 domain | (2) β sub unit of F_0 domain |
| (3) α sub unit of F_1 domain | (4) β sub unit of F_1 domain |

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100. In Chemi-Osmotic mechanism of mitochondrial ATP synthesis, which one serves as coupling factor between oxidation and ADP phosphorylation ?

- | | |
|----------------|---------------|
| (1) Protons | (2) Electrons |
| (3) Phosphates | (4) NADH |

101. Which one is a constituent of simple lipids ?

- | | |
|--------------------|---------------------|
| (1) Glycerol | (2) Glycerate |
| (3) Glyceraldehyde | (4) Glyceroacetates |

102. The two strands of DNA are held together by :

- | | |
|--------------------------|----------------------------|
| (1) Phosphodiester bonds | (2) Phosphoanhydride bonds |
| (3) Hydrogen bonds | (4) C - C covalent bonds |

103. A 'syn' oriented base can be found in a :

- | | |
|-----------|------------------|
| (1) A-DNA | (2) B-DNA |
| (3) Z-DNA | (4) Triple helix |

104. A double stranded DNA assumes helix conformation but double stranded RNA makes non-helical Stem structure. This is mainly due to presence of :

- | | |
|----------------------------|---------------------------------|
| (1) 2'-OH in ribose of RNA | (2) U in place of T in RNA |
| (3) Modified bases in RNA | (4) 'Syn' oriented bases in RNA |

105. 'SNURPS' (SnRNPs) are involved in making :

- | | |
|-----------------|------------------|
| (1) Nucleosomes | (2) Primosomes |
| (3) Apoptosomes | (4) Spliceosomes |

- 106.** Promoter of a gene is reported to be present at -35 position. That means this sequence is located at :
- (1) Down stream region
 - (2) Up stream region
 - (3) Transcription start site
 - (4) Trans-acting element of the gene
- 107.** The smallest peptide hormone is :
- (1) TSH
 - (2) TRH
 - (3) FSH
 - (4) ACTH
- 108.** Which is not a glycoprotein hormone?
- (1) FSH
 - (2) LH
 - (3) ACTH
 - (4) TSH
- 109.** Presence of which hormone in the urine is used as the most common test for pregnancy ?
- (1) LCG
 - (2) FSH
 - (3) STH
 - (4) Estrogen
- 110.** The three layers of adrenal cortex in correct sequence are :
- (1) Zona granulosa, Zona fasciculata, Zona reticularis
 - (2) Zona fasciculata, Zona glomerulosa, Zona reticularis
 - (3) Zona glomerulosa, Zona granulosa, Zona fasciculata
 - (4) Zona glomerulosa, Zona fasciculata, Zona reticularis
- 111.** Rathke's pouch is associated with development of :
- (1) Pituitary gland
 - (2) Pineal gland
 - (3) Parathyroid gland
 - (4) Pancreatic islets

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112. Melatonin is synthesized from :

- | | |
|--------------|----------------|
| (1) Tyrosine | (2) Tryptophan |
| (3) Melanin | (4) Histamine |

113. According to two-cell theory of estrogen production, androgens are aromatized to estrogen in :

- | | |
|------------------|---------------------|
| (1) Thecal cells | (2) Granulosa cells |
| (3) Chief cells | (4) Leydig cells |

114. Deficiency of which hormone results in diabetes insipidus ?

- | | |
|---------------|-----------------|
| (1) Oxytocin | (2) Vasopressin |
| (3) Prolactin | (4) Insulin |

115. Which one is not a hormone of adenohypophysis ?

- | | |
|----------|---------|
| (1) ACTH | (2) ADH |
| (3) FSH | (4) MSH |

116. Secretion of which hormone from pars distalis is increased during stress ?

- | | |
|----------|---------|
| (1) ACTH | (2) FSH |
| (3) TSH | (4) STH |

117. Somatostatin (SST) is secreted by pancreatic :

- | | |
|-------------|-------------|
| (1) A cells | (2) B cells |
| (3) D cells | (4) F cells |

118. Secretion of which hormone from adenohypophysis is under an inhibitory control by the hypothalamus ?

- | | |
|---------|----------|
| (1) MSH | (2) TSH |
| (3) FSH | (4) ACTH |

119. Which one is not a peptide hormone?

- | | |
|--------------|-----------------|
| (1) Insulin | (2) Epinephrine |
| (3) Oxytocin | (4) Inhibin |

120. Slow block to polyspermy resulting in removal of sperms from vitelline membrane is accomplished by :

- (1) Change in membrane potential
- (2) Cortical reaction
- (3) Acrosomal reaction
- (4) ZPI interaction

121. Xenopus gastrulation is initiated in the region :

- (1) Opposite to the point of sperm entry
- (2) Near the vicinity of sperm entry
- (3) Middle of animal pole
- (4) At the tip of posterior pole

122. Grey crescent of frog embryo represents the future :

- (1) Anterior side of developing embryo
- (2) Posterior side of developing embryo
- (3) Ventral side of developing embryo
- (4) Dorsal side of developing embryo

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123. Which one of the following is not relevant to cleavage divisions?

- (1) The daughter cells are smaller in size than the mother cell
- (2) There is no growth in the volume of the embryo
- (3) The embryo rapidly grows in size as the cell increase in number
- (4) The divisions are rapid compared to mitotic division

124. Hensen's node is formed during gastrulation of :

- (1) Amphibians
- (2) Mammals
- (3) Sea urchin
- (4) Birds

125. If due to mutation of a gene hind limb gets transformed into fore limb, such transformations are named as :

- (1) Polarity defect mutation
- (2) Transversion
- (3) Transition
- (4) Homeotic transformation

126. A fluid filled cavity formed during cleavage divisions in amphibian embryos is known as :

- (1) Blastula
- (2) Blastocoel
- (3) Blastodisc
- (4) Blastopore

127. The ability of a cell or tissue to respond to a specific induction signal is known as :

- (1) Determination
- (2) Specification
- (3) Competence
- (4) Differentiation

128. The ability of cells to achieve their respective fates by themselves without the influence of neighbouring cells is called as :

- (1) Autonomous specification
- (2) Conditional specification
- (3) Syncytial specification
- (4) Non conditional specification

129. Insect embryos undergo :

- (1) Rotational cleavage forming syncytium
- (2) Spiral cleavage forming cells of unequal sizes
- (3) Superficial cleavage forming syncytium
- (4) Gastrulation without cleavage divisions

130. The dorsal most vegetal cells of blastula which are capable of inducing the organizer is called as :

- (1) Hensen's node
- (2) Primitive groove
- (3) Inducer
- (4) Nieuwkoop centre

131. If the dorsal blastopore lip tissue of *Xenopus* embryo is transplanted into the ventral side of another embryo then :

- (1) A secondary axis is formed in the transplanted embryo and develops in to twins
- (2) The transplanted tissue becomes part of the ventral tissue and a normal embryo develops
- (3) Such transplants are rejected
- (4) Such embryos die

132. Embryonic stem cells of mammals are derived from :

- (1) Trophectoderm
- (2) Inner cell mass
- (3) The gametes
- (4) Blastocoels

133. The most abundant greenhouse gas is :

- (1) methane
- (2) carbon dioxide
- (3) water vapour
- (4) nitrous oxide

134. Which one of the following animals has become extinct in India?

- (1) cheetah
- (2) snow leopard
- (3) one horned rhinoceros
- (4) great Indian bustard

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135. Which one of the following does not show cooperative hunting?

- (1) hyenas
- (2) lions
- (3) wild dogs
- (4) tigers

136. An interaction involving 2-species populations when species A benefits and species B is not affected is known as :

- (1) neutralism
- (2) amensalism
- (3) commensalism
- (4) proto-cooperation

137. Communication involving stridulation is found in :

- (1) moths
- (2) butterflies
- (3) crickets
- (4) flies

138. Locusts exhibit both solitary and gregarious phases. Young locusts reared in isolation exhibit moderate activity levels while hoppers reared under crowded conditions engage in long flights. Adult locusts that develop from solitary locusts retain prothoracic glands but these are absent from adults that develop from gregarious hoppers. Which one of the following techniques can be used to reduce the general activity of the gregarious hoppers?

- (1) autoradiography and cytoimmunochemistry
- (2) radioimmunoassay
- (3) transplantation
- (4) administration of antibodies against the specific hormone

139. Which of the following does not involve agonistic interactions?

- (1) territorial behaviour
- (2) dominance behaviour
- (3) disciplinary action by parents during weaning
- (4) predatory behaviour

140. Which of the following method is not used in the field of behavioural genetics?
- (1) cross-fostering experiments
 - (2) quantitative trait locus analysis
 - (3) artificial selection technique
 - (4) blood transfusion
141. A chemical used for intraspecific communication is known as :
- (1) an allomone
 - (2) a pheromone
 - (3) a kairomone
 - (4) a synomone
142. Which one of the following is the earliest type of communication channel, from an evolutionary viewpoint?
- (1) tactile
 - (2) olfactory
 - (3) visual
 - (4) auditory
143. Which one of the following is not a society?
- (1) a group of flies on a ripe banana
 - (2) an ant colony
 - (3) a herd of elephants
 - (4) a vampire bat colony
144. When an unpalatable species mimics another unpalatable species it is known as ?
- (1) Batesian mimicry
 - (2) Wasmannian mimicry.
 - (3) Aggressive mimicry
 - (4) Mullerian mimicry
145. Study of learning phenomenon involving stimulus-stimulus pairing is a characteristic feature of :
- (1) operant conditioning
 - (2) classical conditioning
 - (3) learning sets
 - (4) habituation

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146. If two organisms are in the same phylum, they must also be in the same :

- | | |
|-------------|------------|
| (1) Species | (2) Class |
| (3) Kingdom | (4) Family |

147. Which one of the following is known to give Biological species concept ?

- | | |
|--------------|--------------|
| (1) Mayr | (2) Darwin |
| (3) Linnaeus | (4) Candolle |

148. Origin of species due to geographical isolation is referred as :

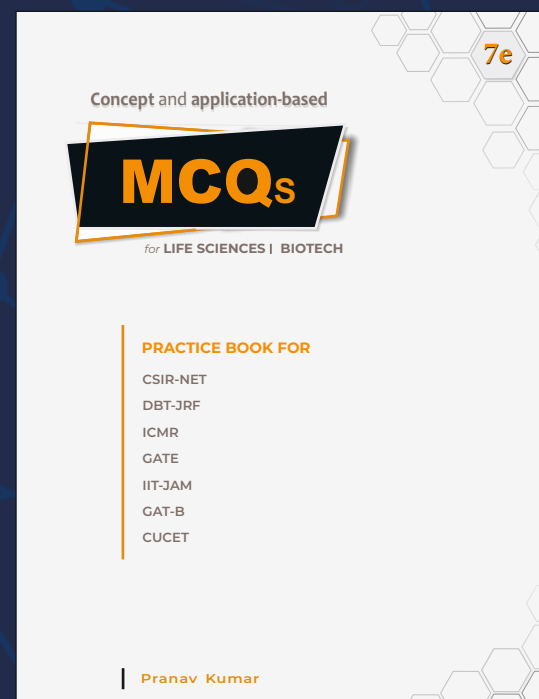
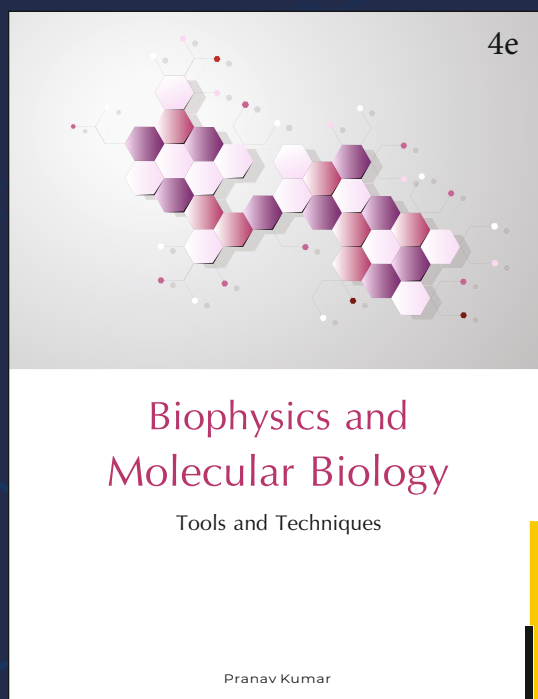
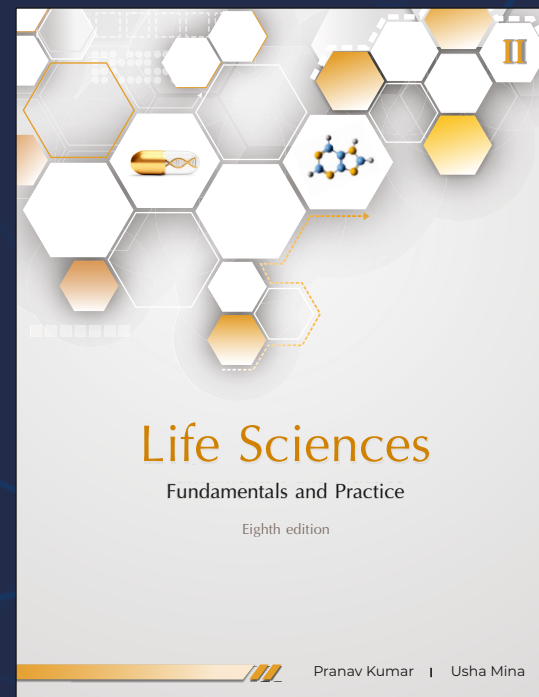
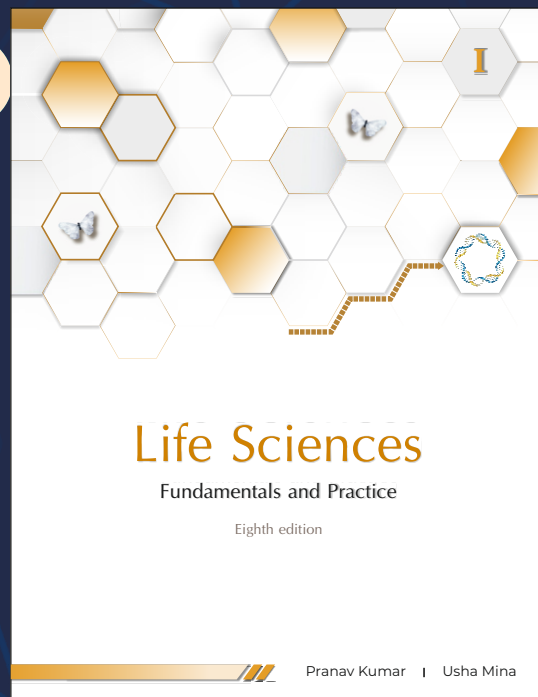
- | | |
|---------------------------|---------------------------|
| (1) Sympatric speciation | (2) Allopatric speciation |
| (3) Parapatric speciation | (4) Peripatric speciation |

149. In case of **Bombyx mori**, silk thread is made from :

- | | |
|---------------------------------|---------------------------------|
| (1) Subcutaneous layer of larva | (2) Subcutaneous layer of adult |
| (3) Salivary glands of larva | (4) Salivary glands of adult |

150. Pebrine is a disease caused by protozoan parasite affecting :

- | | |
|-----------------|------------------|
| (1) Apiculture | (2) Sericulture |
| (3) Lac culture | (4) Pisciculture |



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ROUGH WORK
रफ़ कार्य

अभ्यर्थियों के लिए निर्देश

(इस पुस्तिका के प्रथम आवरण पृष्ठ पर तथा 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 प्रश्न 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 लिफाफा रहित प्रवेश-पत्र के अतिरिक्त, लिखा या सादा कोई भी खुला कागज साथ में न लायें।
3. उत्तर-पत्र अलग से दिया गया है। इसे न तो मोड़ें और न ही विकृत करें। दूसरा उत्तर-पत्र नहीं दिया जायेगा। केवल उत्तर-पत्र का ही मूल्यांकन किया जायेगा।
4. अपना अनुक्रमांक तथा उत्तर-पत्र का क्रमांक प्रथम आवरण-पृष्ठ पर पेन से निर्धारित स्थान पर लिखें।
5. उत्तर-पत्र के प्रथम पृष्ठ पर पेन से अपना अनुक्रमांक निर्धारित स्थान पर लिखें तथा नीचे दिये वृत्तों को गाढ़ा कर दें। जहाँ-जहाँ आवश्यक हो वहाँ प्रश्न-पुस्तिका का क्रमांक तथा सेट का नम्बर उचित स्थानों पर लिखें।
6. ओ० एम० आर० पत्र पर अनुक्रमांक संख्या, प्रश्नपुस्तिका संख्या व सेट संख्या (यदि कोई हो) तथा प्रश्नपुस्तिका पर अनुक्रमांक और ओ० एम० आर० पत्र संख्या 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 लिए आपको उत्तर-पत्र की सम्बन्धित पंक्ति के सामने दिये गये वृत्त को उत्तर-पत्र के प्रथम पृष्ठ पर दिये गये निर्देशों के अनुसार पेन से गाढ़ा करना है।
9. प्रत्येक प्रश्न के उत्तर के लिए केवल एक ही वृत्त को गाढ़ा करें। एक से अधिक वृत्तों को गाढ़ा करने पर अथवा एक वृत्त को अपूर्ण भरने 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 संबंधित पंक्ति के सामने दिये गये सभी वृत्तों को खाली छोड़ दें। ऐसे प्रश्नों पर शून्य अंक दिये जायेंगे।
11. रफ कार्य के लिए प्रश्न-पुस्तिका के मुखपृष्ठ के अंदर वाला पृष्ठ तथा उत्तर-पुस्तिका के अंतिम पृष्ठ का प्रयोग करें।
12. परीक्षा के उपरान्त केवल ओ एम आर उत्तर-पत्र परीक्षा भवन में जमा कर दें।
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, भागी होगा/होगी।