

Set No. 1

Question Booklet No. *Mrs. Zoology*
C-484

14P/216/4

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

Roll No.

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Roll No. (Write the digits in words)

Serial No. of OMR Answer Sheet

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 10 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 : 24

[उपर्युक्त निर्देश किताब में उचित आवरण पृष्ठ पर दिये गए हैं।]



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ROUGH WORK
रफ़ कार्य

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No. of Questions : 150

प्रश्नों की संख्या : 150

Time : 2 Hours

Full Marks : 450

समय : 2 घण्टे

पूर्णाङ्क : 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.**

अधिकाधिक प्रश्नों को हल करने का प्रयत्न करें। प्रत्येक प्रश्न 3 (तीन) अंकों का है। प्रत्येक गलत उत्तर के लिए एक अंक काटा जायेगा। प्रत्येक अनुत्तरित प्रश्न का प्राप्तांक शून्य होगा।

(2) If more than one alternative answers seem to be approximate to the correct answer, choose the closest one.

यदि एकाधिक वैकल्पिक उत्तर सही उत्तर के निकट प्रतीत हों, तो निकटतम सही उत्तर दें।

01. Protozoa is classified into Rhizopoda, Mycetozoa, Mastigophora, Sporozoa and Ciliophora on the basis of

- | | |
|---------------|--------------------------|
| (1) nutrition | (2) locomotor structures |
| (3) nucleus | (4) reproduction |

02. Which one of the polymorphic form of Trypanosoma lacks a free flagellum

- | | |
|-----------------|-----------------|
| (1) Leishmanial | (2) Leptomonad |
| (3) Crithridial | (4) Trypanosome |

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03. Chagas' disease is caused by

- (1) Trypanosoma gambiense
- (2) Trypanosome cruzi
- (3) Trypanosoma rhodesiense
- (4) Trypanosoma brucei

04. Choanocytes line the spongocoel in

- (1) Asconoid type
- (2) Syconoid type
- (3) Leuconoid
- (4) Rhagon type

05. The polypoid phase in the development of Aurelia is represented by

- (1) Ephyra
- (2) Planula
- (3) Hydratuba
- (4) Gastrula

06. An example of stony coral is

- (1) Tubipora
- (2) Gorgonia
- (3) Astraea
- (4) Alcyonium

07. The lasso cells are present in

- (1) Poriferans
- (2) Cnidarians
- (3) Ctenophores
- (4) Molluscs

08. The infectious stage in the life history of Fasciola hepatica is

- (1) Sporocyst
- (2) Redia
- (3) Cercaria
- (4) Metacercaria

09. The cysticercus stage in the development of *Taenia solium* is generally found in
- (1) Intermediate host gut
 - (2) Intermediate host blood
 - (3) Intermediate host muscle
 - (4) Soil
10. Which Phylum is represented by only marine animals
- | | |
|------------------|-------------------|
| (1) Coelenterata | (2) Arthropoda |
| (3) Mollusca | (4) Echinodermata |
11. Which of the following is a pseudocoelomate
- | | |
|---------------|-----------------|
| (1) Earthworm | (2) Apple snail |
| (3) Starfish | (4) Round worm |
12. Amoebic hepatitis is caused by
- | | |
|----------------------------------|---------------------------------|
| (1) <i>Amoeba proteus</i> | (2) <i>Entamoeba gingivalis</i> |
| (3) <i>Entamoeba histolytica</i> | (4) <i>Entamoeba coli</i> |
13. In *Sycon*, the germ cells are derived from
- | | |
|-----------------|-----------------|
| (1) Archeocytes | (2) Trophocytes |
| (3) Pinacocytes | (4) Phagocytes |
14. The second largest invertebrate phylum is
- | | |
|----------------|-------------------|
| (1) Arthropoda | (2) Annelida |
| (3) Mollusca | (4) Echinodermata |
15. The radular formula of marginal, lateral and rachidian teeth in *Pila* is
- | | |
|---------------|---------------|
| (1) 2.1.1.1.2 | (2) 1.2.1.2.1 |
| (3) 2.1.2.1.2 | (4) 1.2.2.2.1 |

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- 16.** The typical larva of molluscs is
- | | |
|---------------------|--------------|
| (1) Veliger | (2) Nauplius |
| (3) Mullerian larva | (4) Tornaria |
- 17.** The dorsal lobe of the parapodium of *Nereis* is called as
- | | |
|-----------------|----------------|
| (1) Neuropodium | (2) Notopodium |
| (3) Aciculum | (4) Cirrus |
- 18.** From the given alternatives, make out the character that is not true of *Heteronereis*.
- (1) All parapodia are alike
 - (2) Sexually mature
 - (3) Body is differentiated into atoke and epitoke
 - (4) Parapodial setae are oar-shaped
- 19.** In *Palaemon*, the statocyst is located in
- | | |
|-------------------|--------------------|
| (1) Antenna | (2) Antennule |
| (3) First maxilla | (4) Second maxilla |
- 20.** In *Palamnaeus*, the respiratory pigment is
- | | |
|----------------|---------------------|
| (1) Hemoglobin | (2) Lacking pigment |
| (3) Hemocyanin | (4) Hemocruorin |
- 21.** The respiratory organ of scorpion is
- (1) Three pairs of book lungs
 - (2) Five pairs of book lungs
 - (3) Six pairs of book lungs
 - (4) Four pairs of book lungs

- 22.** Given are some character of *Peripatus*. Choose the one which is not arthropodan
- (1) Segmentally arranged nephridia
 - (2) Presence of hemocoel
 - (3) Chitinous cuticle
 - (4) Presence of trachea
- 23.** *Limulus* is more closely related to
- (1) Crustaceans
 - (2) Trilobites
 - (3) Chordates
 - (4) Arachnids
- 24.** Brachiolaria larva is developed from
- (1) Auricularia
 - (2) Bipinnaria
 - (3) Dipleurula
 - (4) Cystidean larva
- 25.** In *Asterias*, the stone canal communicates between
- (1) the exterior and circum oral ring canal
 - (2) the body cavity and circum oral ring canal
 - (3) the exterior and one of the radial canals
 - (4) the body cavity and one of the radial canals
- 26.** *Chiton* belongs to
- (1) Gastropoda
 - (2) Amphineura
 - (3) Cephalopoda
 - (4) Scaphopoda
- 27.** *Sacculina* is parasitic on
- (1) Fish
 - (2) Lobster
 - (3) Prawn
 - (4) Crab
- 28.** The ship worm is
- (1) Ostrea
 - (2) Teredo
 - (3) Pecten
 - (4) Nautilus

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- 29.** Dengue fever is transmitted by
- | | |
|---------------|-----------------|
| (1) Anopheles | (2) Culex |
| (3) Aedes | (4) Tse-tse fly |
- 30.** In bivalve molluscs, the periostracum is formed of
- (1) Calcium carbonate
 - (2) Conchiolin
 - (3) Calcium carbonate and conchiolin
 - (4) Magnesium carbonate.
- 31.** Which of the following bony fish has heterocercal tail
- | | |
|-----------------|--------------|
| (1) Chondrostei | (2) Holostei |
| (3) Teleostei | (4) Dipnoi |
- 32.** Which of the following does not have temporal fenestra in the skull
- | | |
|---------------------|----------------|
| (1) Testudines | (2) Squamata |
| (3) Rhynchocephalia | (4) Crocodilia |
- 33.** Mastoid portion of endochondral origin is a new skull feature of
- | | |
|----------------|--------------|
| (1) Amphibians | (2) Reptiles |
| (3) Aves | (4) Mammals |
- 34.** In which of the following hemichordates, alimentary canal is U shaped
- | | |
|-------------------|--------------------|
| (1) Protoglossus | (2) Ptychodera |
| (3) Cephalodiscus | (4) Planctosphaera |
- 35.** Ductus caroticus is found in
- | | |
|--------------|-------------|
| (1) Amphibia | (2) Reptile |
| (3) Bird | (4) Mammal |

36. Which of the following were first to exhibit heterodont dentition
(1) Salamanders (2) Apodans
(3) Extinct reptiles (4) Mammals
37. In which of the following archinephric duct is not used for sperm conduction
(1) Shark (2) Sturgeon fish
(3) Teleost (4) Urodeles
38. Gill pouches are the characteristic respiratory feature of
(1) Chondrichthyes (2) Actinopterygians
(3) Aganthans (4) Sarcopterygians
39. V-shaped gill septum is found in
(1) Teleosts (2) Lamprey
(3) Hagfish (4) Shark
40. Which of the following lack the pelvic fin
(1) Eels (2) Salmonids
(3) Catfishes (4) Dipnoans
41. Preliminary digestion of food in ruminants stomach by bacterial action takes place in
(1) Rumen (2) Reticulum
(3) Omasum (4) Abomasum
42. Holonephros kidney is found in
(1) Lamprey (2) Fish
(3) Urodeles (4) Gymnophiona

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43. Which of the following gill bar in *Neoceratodus* is hemibranch
(1) First (2) Second
(3) Fourth (4) Fifth
44. Which of the following do not have conchae in nasal chamber
(1) Lizards (2) Snakes
(3) Crocodiles (4) Turtles
45. In which of the following, **tapeta** develops as a sheet of glistening connecting tissue fibres
(1) Elasmobranchs (2) Marine teleosts
(3) Carnivorous mammals (4) Hoofed mammals
46. Sorting of lysosomal proteins in a cell occurs in
a (1) Smooth endoplasmic reticulum
(2) Rough endoplasmic reticulum
 (3) Cis-Golgi network
 (4) Trans Golgi network
47. Which of the following features is not typical of a transformed cell ?
(1) Loss of contact inhibition
 (2) High serum requirement
(3) Heteroploidy
(4) Metastasis
48. Which of the following disease is caused by a mis-sense point mutation ?
(1) Cri-du-Chat syndrome
 (2) Sickle cell anemia
(3) Haemophilia
(4) Down Syndrome

49. Which of the following organelles is not made up of microtubules ?
- (1) Sperm tail (2) Cilia
(3) Basal body (4) Centrosome
50. During meiosis, recombination takes place between ?
- (1) Any two non-sister chromatids of the bivalent
(2) Two sister chromatids of any homologue
(3) All the four chromatids
(4) Two chromatids of one homologue with one chromatid of the other homologue.
51. State which of the following is the correct answer for the lampbrush chromosomes
- (1) They are made up of endomitotically duplicated multiple chromosome threads
(2) They are seen in the somatic cells of salamanders
 (3) They occur at the diplotens stage of meiosis
(4) They occur during meiosis II in amphibian oocytes.
52. Mitochondrial DNA is a good molecular clock for evaluating the rate of evolutionary changes because
- (1) It has a circular genome
(2) It has a poor DNA repair system that accumulates mutations
(3) It is the powerhouse of cell
(4) It occurs in multiple copies
53. Which of the following translocations is associated with chronic myeloid leukemia ?
- (1) Chromosome 8 and 14 (2) Chromosome 13 and 21
 (3) Chromosome 9 and 22 (4) Chromosome 11 and 17

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54. Fibrous corona in the chromosome is a part of
- (1) Kinetochore
 - (2) Nucleosome
 - (3) Nucleolar organizing Region
 - (4) Telomere
55. G-quartate is a common feature of
- | | |
|--------------------|----------------|
| (1) Telomere | (2) Centromere |
| (3) Methylated DNA | (4) Histones |
56. Which of the following is a monogenic disorder ?
- | | |
|-----------------------|--------------------------|
| (1) Diabetes Mellitus | (2) Cystic fibrosis |
| (3) Atherosclerosis | (4) Cleft lip and palate |
57. Structure of lipid rafts is characterised by abundance of
- (1) Hemidesmosomes
 - (2) Highly unsaturated hydrocarbons
 - (3) Peripheral proteins
 - (4) Saturated hydrocarbons
58. Which of the following cancers is caused due to deletion of a tumour suppressor gene ?
- (1) Chronic myeloid Leukemia
 - (2) Retinoblastoma
 - (3) Burkitt's lymphoma
 - (4) Acute lymphocytic leukemia
59. A cross between wild type and double mutant sepia (se), vestigial (vg) flies yielded 40% wild type, 40% se vg, 10% se and 10% vg flies. The two genes show
- | | |
|----------------------------|----------------------|
| (1) Independent assortment | (2) Epistasis |
| (3) Incomplete Linkage | (4) Complete Linkage |

- 60.** Which of the following organelles is rich in catalase ?
 (1) Ribosome (2) Lysosome
 (3) Peroxisome (4) Zymogen
- 61.** Mutation leading the base Adenine to Guanine is
 (1) Translocation (2) Transversion
 (3) Transduction (4) Transition
- 62.** Which of the following disorders is caused due to monosomy of a chromosome ?
 (1) Down Syndrome (2) Klinefelter Syndrome
 (3) Turner Syndrome (4) Edward Syndrome
- 63.** The Mitosis Promotion Factor is made up of ?
 (1) A phosphatase
 (2) A Phosphokinase
 (3) A cyclin and phosphotase
 (4) A cyclin and a phosphokinase
- 64.** FACS machine is used for
 (1) Separation of cells having different sizes
 (2) Centrifugation for separation of cell particles
 (3) Measuring OD and quantification of bacterial cells
 (4) None of the above
- 65.** Binomial square rule was proposed by
 (1) Eldredge and Gould (2) Jacob and Monod
 (3) Watson and Crick (4) Hardy and Weinberg
- 66.** Industrial melanism was observed in
 (1) *Biston betularia* (2) *Drosophila melanogaster*
 (3) *Musca domestica* (4) *Home sapiens*

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- 67.** To explain the mechanism of evolution, different theories have been proposed. The most widely accepted theory is
- | | |
|----------------|----------------------|
| (1) Darwinism | (2) Synthetic theory |
| (3) Lamarckism | (4) Neutral theory |
- 68.** Which one of the following is most important factor of evolution ?
- | | |
|-------------------|---------------|
| (1) Genetic drift | (2) Migration |
| (3) Mutation | (4) Selection |
- 69.** The fossil of *Archaeopteryx* was found in the rocks deposited in
- | | |
|-----------------------|---------------------|
| (1) Triassic period | (2) Jurassic period |
| (3) Cretaceous period | (4) Silurian period |
- 70.** Which one of the following is an example of serial homology ?
- | | |
|-------------------------|--------------------------|
| (1) Appendages of Prawn | (2) Forelimbs of Mammals |
| (3) Wings of insects | (4) Flippers of seal |
- 71.** During the evolution of horse, *Mesohippus* appeared in
- | | |
|---------------|--------------|
| (1) Eocene | (2) Miocene |
| (3) Oligocene | (4) Pliocene |
- 72.** In *Equus*, the entire weight of body is balanced by
- | | |
|---------------|--------------|
| (1) I digit | (2) II digit |
| (3) III digit | (4) IV digit |
- 73.** Gene flow between Mendelian populations is prevented by
- (1) Reproductive isolation
 - (2) Adaptive colouration
 - (3) Hybridization
 - (4) Sympatry

74. When the two species are living in the same geographical area, they are called as ?
- (1) Parapatric (2) Peripatric
(3) Allopatric (4) Sympatric
75. The term "isolating mechanisms" was coined by
- (1) Mayr (2) Dodson
(3) Stebbins (4) Dobzhansky
76. Ecological barrier plays an important role in
- (1) Allopatric speciation
(2) Sympatric speciation
(3) Stasipatric speciation
(4) Parapatric speciation
77. Inversion polymorphism is very common in
- (1) *E. coli* (2) *Drosophila*
(3) Grasshopper (4) Cockroach
78. When females and males of a species in a population mate randomly, it is know as
- (1) Assortative mating (2) Selective mating
(3) Panmixia (4) Preferential mating
79. In human population, genetic equilibrium is easily demonstrated by taking the example of
- (1) Hemophilia (2) Sickle cell anemia
(3) Colour blindness (4) ABO blood groups

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80. Gametic isolation is an example of
- (1) Postmating and prezygotic isolation
 - (2) Premating isolation
 - (3) Postzygotic isolation
 - (4) Ethological isolation
81. The very good example of allopatric speciation is
- (1) Darwin's finches
 - (2) Races of fruit flies
 - (3) Allochronic races of a species
 - (4) Host races of species
82. If a population is in Hardy-Weinberg equilibrium, the frequency of two alleles of a locus
- (1) will remain constant indefinitely
 - (2) will change in every generation
 - (3) will change randomly
 - (4) will change in such a way that one allele is fixed
83. During repolarization phase of action potential, neurons undergo hyperpolarization due to
- (1) opening of K^+ ion leak channel
 - (2) closure of voltage gated Na^+ channel
 - (3) activity of $Na^+ - K^+$ ATPase
 - (4) opening of voltage gated K^+ channel
84. Electrogenic pump activity is inhibited by
- (1) Saxitoxin
 - (2) 4-amino pyridine
 - (3) Tetrodotoxin
 - (4) Ouabain

85. Rhodopsin, the light sensitive conjugated protein in the rod cell, is located on
- (1) Synaptic terminal membrane
 - (2) Rod cell plasma membrane
 - (3) Disc membrane
 - (4) Nuclear membrane
86. Maltase, responsible for the digestion of maltose is found
- (1) in saliva
 - (2) in gastric juice
 - (3) in pancreatic juice
 - (4) on the luminal cell membrane
87. The major bile salt present in our bile juice is
- (1) Cholate
 - (2) Chenodeoxycholate
 - (3) Deoxycholate
 - (4) Lithocholate
88. Contraction of which of the following respiratory muscles causes inspiration and expiration both during quiet breathing ?
- (1) Abdominal and internal intercostals
 - (2) External and internal intercostals
 - (3) Abdominal and external internal intercostals
 - (4) Diaphragm and external intercostals
89. Intercalated disc is the characteristic feature of
- (1) Cardiac muscle
 - (2) Visceral smooth muscle
 - (3) Skeletal muscle
 - (4) Multi unit smooth muscle



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- 90.** Which one of the following does not decrease the affinity between oxygen and Hb ?
- (1) rise in $p\text{CO}_2$
 - (2) rise in blood pH
 - (3) rise in the 2,3-bisphosphoglycerate level
 - (4) rise in temperature
- 91.** During the ventricular diastole in the cardiac cycle, the longest duration stage is
- (1) Proto diastole
 - (2) Isovolumic relaxation
 - (3) Diastasis
 - (4) First rapid filling
- 92.** Glucose is absorbed in the luminal cell by
- (1) Facilitated diffusion
 - (2) Simple diffusion
 - (3) Secondary active transport
 - (4) Primary active transport
- 93.** When lung is inflated beyond its normal limit, which one of the following sends signals to respiratory center for regulating breathing ?
- (1) J Receptors
 - (2) Herring-Breauer stretch receptors
 - (3) Baroreceptors
 - (4) Glomus cells
- 94.** The percentage of haemoglobin saturated with oxygen will increase if
- (1) The arterial $p\text{CO}_2$ is increased
 - (2) The haemoglobin concentration is increased
 - (3) The temperature is increased
 - (4) The arterial $p\text{O}_2$ is increased

95. Mitral valve is located between
- (1) Left atrium and left ventricle
 - (2) Right atrium and right ventricle
 - (3) Right ventricle and pulmonary aorta
 - (4) Left ventricle and systemic aorta
96. Blood test of a patient admitted in hospital ward reveal a serum glucose level of 325 mg/dl and serum creatinine content of 0.8 mg/dl, and results of 24 hour urine analysis revealed the total urine volume of 5 L, total glucose content of 375 g and total creatinine content of 2.4 g. The approximate glomerular filtration rate will be
- | | |
|----------------|----------------|
| (1) 75 mL/min | (2) 100 mL/min |
| (3) 125 mL/min | (4) 200 mL/min |
97. When a person is dehydrated, hypotonic fluid will be found in
- (1) Bowman's capsule
 - (2) Proximal convoluted tubule
 - (3) Loop of Henle
 - (4) Collecting duct
98. Which of the following is the correct pI value for an acidic amino acid showing $pK_1=3.0$, $pK_2=9.0$ and $pK_R=7.0$.
- | | | | |
|---------|---------|---------|---------|
| (1) 5.0 | (2) 6.0 | (3) 8.0 | (4) 6.3 |
|---------|---------|---------|---------|
99. Which of the multimeric proteins listed below represents a heteromeric composition
- | | |
|--------------------------------|----------------|
| (1) $\alpha_2\beta_2$ | (2) H4 |
| (3) $\alpha_2\beta\beta\omega$ | (4) Both 1 & 3 |

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100. The enzymes catalyze a chemical reaction by

- (1) Increasing activation energy barrier of the substrate
- (2) Decreasing activation energy barrier of the substrate
- (3) Bringing all the substrate molecules at ground state level
- (4) Bringing all the substrate molecules below the ground state level

101. Which of the following is a non-reducing sugar ?

- | | |
|-------------|--------------|
| (1) Lactose | (2) Sucrose |
| (3) Maltose | (4) Fructose |

102. Starch is a polymer of

- (1) D-glucose $\alpha(1-4)$ D-glucose
- (2) D-glucose $\beta(1-4)$ D-glucose
- (3) D-glucose $\alpha(1-2)$ D-glucose
- (4) D-glucose $\beta(1-2)$ D-glucose

103. GTP is produced during

- (1) Glycolysis
- (2) TCA cycle
- (3) HMP pathway
- (4) Gluconeogenesis

104. Identify mobile electron carrier protein of the electron transport system

- | | |
|---------------------|------------------|
| (1) Q10 | (2) Cytochrome-c |
| (3) Cytochrome-c1-b | (4) Both 1 & 2 |

105. Chemi-osmotic concept of ATP synthesis was proposed by

- | | |
|------------------------|-------------------|
| (1) T. Sumner | (2) N. Jacob |
| (3) Beac. le and 'atum | (4) Peter Mitchel |

106. Out of the given fatty acids, named on the numbering pattern, which one represents a conjugated type unsaturated fatty acid

- | | |
|------------------|-------------------|
| (1) 18 : 1(9) | (2) 18 : 2(9,12) |
| (3) 18 : 2(9,11) | (4) 18 : 2(9,12t) |

107. When a purified nucleosomal fraction is digested with DNase I, after electrophoretic separation, it is likely to show

- | | |
|---------------------------|---------------------------|
| (1) A ladder of 10-200 bp | (2) A single band of 10bp |
| (3) 2 bands of 10 & 80 bp | (4) DNA smear in the gel |

108. Proof reading functions of DNA polymerases are associated with their

- (1) 3'---5' exonuclease activity
- (2) 5'---3' exonuclease activity
- (3) Both 1 & 2
- (4) Ligase activity

109. Which one is the correct representation of 'cap' structure of the Eukaryotic mRNA ?

- | | |
|------------------------------------|------------------------------------|
| (1) 3'G ^{7m} -5' - 5'-RNA | (2) 5'G ^{7m} -3' - 5'-RNA |
| (3) 3'G ^{7m} -5' - 3'-RNA | (4) 3'G ^{7m} -3' - 3'-RNA |

110. Peptidyl transferase that catalyzes peptide bond formation during protein synthesis is a

- (1) Cytosolic free enzyme
- (2) Bound to nuclear membrane
- (3) Component of small ribosomal sub unit
- (4) Component of large ribosomal sub unit

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111. Degeneracy of genetic code is explained by

- (1) Khorana hypothesis
- (2) Wobble hypothesis
- (3) Blobel hypothesis
- (4) Monod hypothesis

112. Restriction enzymes -

- (1) Act as exo-nucleases
- (2) Act as endo-nucleases
- (3) Create single strand DNA breaks
- (4) Both 2 & 3

113. Superior hypophysial artery forms primary plexus in the region of

- (1) Infundibulum
- (2) Median eminence
- (3) Mid-brain
- (4) Lateral hypothalamus

114. Effects of growth hormone on protein metabolism are mediated by

- (1) Somatomedins
- (2) Somatocrinin
- (3) Somatostatatin
- (4) Secretin

115. The enzyme adenylate cyclase converts

- (1) ATP to cAMP
- (2) ATP to cGMP
- (3) AMP to GMP
- (4) ATP to GTP

116. Which hormone helps in parturition

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

117. Which one is **not** a steroid hormone

- (1) Corticosterone
- (2) Testosterone
- (3) Relaxin
- (4) Progesterone

118. Which one is a correct statement

- (1) Parathormone increases plasma level of Ca^{2+}
- (2) Parathormone decreases circulating level of PO_4^{3-}
- (3) Parathormone decreases plasma level of Ca^{2+}
- (4) Parathormone increases circulating level of PO_4^{3-}

119. Excess secretion of growth hormone in adults leads to

- (1) Gigantism
- (2) Myxedema
- (3) Acromegaly
- (4) Dwarfism

120. Secretion of which hormone from pars distalis is under an inhibitory control by the hypothalamus ?

- (1) TSH
- (2) Prolactin
- (3) FSH
- (4) ACTH

121. Cells involved in bone formation are

- (1) Osteoblasts
- (2) Osteoclasts
- (3) Trophoblasts
- (4) Chondroblasts

122. In islets of Langerhans, alloxan treatment specifically

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

123. Inhibin exerts negative feedback actions on

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

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124. 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

125. Embryonic stem cells of mammals are derived from

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

126. Polysyndactyly (many fingers joined together) syndrome appears due to mutation in

- (1) Polarity determining genes
- (2) Segmentation genes
- (3) HOX genes
- (4) Zone of polarizing activity

127. Mammalian genome has

- (1) Two HOX complexes, ANT-C and BX-C
- (2) Four HOX complexes, HOXA, HOXB, HOXC and HOXD
- (3) One complex namely HOM-C
- (4) Variable number of complexes in different species

128. In mammals the primary sex is not determined by

- (1) X-autosome ratio
- (2) SRY gene
- (3) Presence of Y-chromosome
- (4) SOX9

129. During male development

- (1) The Mullerian duct differentiates into epididymis and vas deferens
- (2) The Wolffian duct differentiates into epididymis and vas deferens
- (3) The Wolffian duct degenerates
- (4) The oviduct and female accessory reproductive structures degenerate

130. Teratogens are

- (1) Endogenous metabolites that cause birth defects
- (2) Exogenous agents that cause birth defects
- (3) Exogenous agents causing cancer
- (4) Used to cure birth defects

131. The term 'epimorphosis' is used for

- (1) regenerations where dedifferentiation of adult structures followed by redifferentiation occurs
- (2) regenerations where only re-patterning of the existing tissue occurs
- (3) the differentiation of epithelial tissue
- (4) mid blastula transition



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- 132.** Bones and cartilages of our body develops from
- (1) embryonic ectoderm
 - (2) embryonic mesoderm
 - (3) embryonic endoderm
 - (4) ecto-endodermal transition
- 133.** The thickened ectodermal tissue in limb bud which stimulates and guides the mesenchymal cells to form limb is known as
- (1) primary organizer
 - (2) limb mesenchyme
 - (3) zone of polarizing activity
 - (4) apical ectodermal ridge
- 134.** Programmed cell death is the regular feature in shaping or patterning specific tissues and organs during development. Which of the following occurred due to programmed cell death ?
- (1) Development of embryonic carcinoma
 - (2) Angiogenesis
 - (3) Formation of digits in limb
 - (4) Formation of Hensen's node in chick embryo
- 135.** For metamorphosis in insects the important hormone is secreted from
- (1) Corpora cardiaca
 - (2) Corpora allata
 - (3) Neurosecretary cells of brain
 - (4) Prothoracic gland
- 136.** Which one of the following strategies is economically unsuitable at present for mineral conservation ?
- (1) recycling
 - (2) reusing
 - (3) finding cheaper substitutes
 - (4) ocean floor mining

137. Maximum water consumption occurs in

- (1) irrigation (2) industrial use
(3) domestic use (4) in sewage treatment

138. The main criteria for a country to qualify as a megadiverse country is

- (1) species abundance (2) endemism
(3) habitat diversity (4) climatic features

139. World Environment day is celebrated every year on

- (1) 5 May (2) 5 June
(3) 5 July (4) 5 August

140. Assemblages of hoofed mammals are found in the

- (1) taiga (2) tropical rainforests
(3) temperate grasslands (4) tropical grasslands

141. New neurons are formed seasonally in specific brain areas of

- (1) canaries (2) eagles
(3) owls (4) peacocks

142. Male silk moths detect female sex pheromone with the help of specialized receptors located on their

- (1) antennae (2) tarsi
(3) thorax (4) abdomen

143. Which of the following is a FAP?

- (1) a rat presses a lever in a Skinner box.
(2) the monarch butterfly starts its migratory flight.
(3) a herring gull chick pecks at the red spot on its parent's beak.
(4) a lion chases a deer.



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144. Mobbing behaviour shown by birds is a type of

- (1) play behaviour
- (2) predatory behaviour
- (3) anti-predatory behaviour
- (4) care-soliciting behaviour

145. Cross-fostering experiments are most useful to understand the

- (1) neural basis of behaviour.
- (2) genetic basis of behaviour
- (3) hormonal basis of behaviour
- (4) evolution of behaviour

146. The level of taxonomy concerned with the arrangement of species into a natural system of lower and higher taxa is known as-

- | | |
|--------------------|-------------------|
| (1) Alpha taxonomy | (2) Beta taxonomy |
| (3) Gamma taxonomy | (4) Systematics |

147. Biosystematics aims at-

- (1) The classification of organisms based on their evolutionary history and establishing their phylogeny or the totality of various parameters from all fields of studies
- (2) Identification and arrangement of organisms on the basis of their physiological characteristics
- (3) The classification of organisms based on morphological features
- (4) The classification of organisms based on the ecological significance

148. The taxonomic category "Cohort" comes in between-

- | | |
|----------------------|----------------------|
| (1) Family and Genus | (2) Class and Order |
| (3) Order and Family | (4) Phylum and Class |

149. 'Pebrine' is a disease caused by protozoan parasite affecting

- (1) Apiculture
- (2) Sericulture
- (3) Lac culture
- (4) None of the above

150. Bombycol is secreted by

- (1) Male silk moth
- (2) Male gypsy moth
- (3) Female silk moth
- (4) Female gypsy moth

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अभ्यर्थियों के लिए निर्देश

(इस पुस्तिका के प्रथम आवरण पृष्ठ पर तथा उत्तर-पत्र के दोनों पृष्ठों पर केवल नीली-काली बॉल-पॉइंट पेन से ही लिखें)

1. प्रश्न पुस्तिका मिलने के 10 मिनट के अन्दर ही देख लें कि प्रश्नपत्र में सभी पृष्ठ मौजूद हैं और कोई प्रश्न छूटा नहीं है। पुस्तिका खोबसूरत पाये जाने पर इसकी सूचना तत्काल कक्ष-निरीक्षक को देकर सम्पूर्ण प्रश्नपत्र की दूसरी पुस्तिका प्राप्त कर लें।
2. परीक्षा भवन में लिखाया उचित 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 उभरिलेखन 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।

