

DAY THIRTY NINE

Mock Test 2

Based on Complete Syllabus

Instruction

- This question paper contains of 100 Multiple Choice Questions of Biology (Botany & Zoology), divided into two Sections; section A and section B.
- Section-A contains 35 questions and all questions are compulsory.
- Section-B contains 15 questions out of which only 10 questions are to be attempted.
- Each question carries 4 marks.

Botany

Section-A

- 1 The differentiation of root and shoot development in a tissue culture can be regulated by
 - (a) auxin
 - (b) light and temperature
 - (c) auxin to cytokinin ratio in culture medium
 - (d) the site from where tissue is isolated
- 2 Stirred-tank bioreactors have been designed for the
 - (a) addition of preservatives to the product
 - (b) purification of the product
 - (c) ensuring anaerobic conditions in the culture vessel
 - (d) availability of oxygen throughout the process
- 3 Oxygen is not produced during photosynthesis by
 - (a) *Cycas*
 - (b) *Nostoc*
 - (c) Green sulphur bacteria
 - (d) *Chara*
- 4 Double fertilisation is
 - (a) fusion of two male gametes with one egg
 - (b) fusion of one male gamete with two polar nuclei
 - (c) fusion of two male gametes of pollen tube with two different eggs
 - (d) syngamy and triple fusion
- 5 Which one of the following plants shows a very close relationship with a species of moth, where none of the two can complete its life cycle without the other?
 - (a) Banana
 - (b) *Yucca*
 - (c) *Hydrilla*
 - (d) *Viola*
- 6 Pollen grains can be stored for several years in liquid nitrogen having temperature of
 - (a) -196°C
 - (b) -80°C
 - (c) -120°C
 - (d) -160°C
- 7 Which one of the following elements is responsible for maintaining turgor in cells?
 - (a) Potassium
 - (b) Sodium
 - (c) Magnesium
 - (d) Calcium
- 8 What is the role of NAD^{+} in cellular respiration?
 - (a) It is a nucleotide source of ATP synthesis
 - (b) It functions as an electron carrier
 - (c) It functions as an enzyme
 - (d) It is the final electron acceptor for anaerobic respiration
- 9 In which of the following forms is iron absorbed by plants?
 - (a) Free element
 - (b) Ferrous
 - (c) Ferric
 - (d) Both (c) and (b)
- 10 Which of the following is commonly used as a vector for introducing a DNA fragment in human lymphocytes?
 - (a) λ phage
 - (b) Ti-plasmid
 - (c) Retrovirus
 - (d) pBR 322
- 11 In a taxonomic hierarchy, going from species to kingdom, the number of common traits
 - (a) decreases
 - (b) increases
 - (c) remains constant
 - (d) depending on chance may increase or decrease

- 12** For the production of biogas, which of the following aquatic weeds can be utilised?
 (a) *Eichhornia crassipes*
 (b) *Hydrilla*
 (c) *Pistia stratiotes*
 (d) *Spirulina*
- 13** Meiosis is called as reductional division as seen in phase-I, however meiosis-II is regarded as an equational division. This is because of
 (a) crossing over
 (b) separation of chromatids
 (c) pairing of homologous chromosomes
 (d) disjunction of homologous chromosomes
- 14** Which type of enzyme will be involved in the following reaction?

$$S - G + S' \rightarrow S + S' - G$$

 (a) Transferase (b) Isomerase
 (c) Hydrolase (d) Oxygenase
- 15** Bacterial blight of rice is caused due to the
 (a) *Xanthomonas oryzae*
 (b) *Helminthosporium oryzae*
 (c) *Pseudomonas falcatum*
 (d) *Xanthomonas falcatum*
- 16** Which type of cell division takes place in the functional megaspore initially in angiosperms?
 (a) Homeotype without cytokinesis
 (b) Reductional without cytokinesis
 (c) Somatic followed by cytokinesis
 (d) Meiotic followed by cytokinesis
- 17** The correct sequence of plants in a hydrosere is
 (a) Oak → *Lantana* → *Scirpus* → *Pistia* → *Hydrilla* → *Volvox*
 (b) *Volvox* → *Hydrilla* → *Pistia* → *Scirpus* → *Lantana* → Oak
 (c) *Pistia* → *Volvox* → *Scirpus* → *Hydrilla* → Oak → *Lantana*
 (d) Oak → *Lantana* → *Volvox* → *Hydrilla* → *Pistia* → *Scirpus*
- 18** In root nodules of legumes, leghaemoglobin is important because it
 (a) transport oxygen to the root nodule
 (b) acts as an oxygen scavenger
 (c) provides energy to the nitrogen-fixing bacterium
 (d) acts as a catalyst in transamination
- 19** The movement of water molecules from one cell of the cortex to the next in roots is a result of
 (a) chemical potential gradient
 (b) water potential gradient
 (c) accumulation of organic compounds in the cells
 (d) accumulation of inorganic salts in the cells
- 20** Which of the following species is restricted to a specific area?
 (a) Sibling species (b) Allopatric species
 (c) Sympatric species (d) Endemic species
- 21** Use of bioresources by multinational companies and organisations without authorisation from the concerned country and its people is called
 (a) biodegradation (b) biopiracy
 (c) bio-infringement (d) bioexploitation
- 22** In India, the organisation responsible for assessing the safety of introducing genetically modified organisms for public use is
 (a) Research Committee on Genetic Manipulation (RCGM)
 (b) Council for Scientific and Industrial Research (CSIR)
 (c) Indian Council of Medical Research (ICMR)
 (d) Genetic Engineering Appraisal Committee (GEAC)
- 23** The correct order of steps in Polymerase Chain Reaction (PCR) is
 (a) Denaturation, Extension, Annealing
 (b) Annealing, Extension, Denaturation
 (c) Extension, Denaturation, Annealing
 (d) Denaturation, Annealing, Extension
- 24** Select the correct match.
 (a) TH Morgan – Transduction
 (b) $F_2 \times$ Recessive parent – Dihybrid cross
 (c) Ribozyme – Nucleic acid
 (d) G Mendel – Transformation
- 25** A 'new' variety of rice was patented by a foreign company, though such varieties have been present in India for a long time. This is related to
 (a) Lerma Rojo
 (b) Sharbati Sonora
 (c) Co-667
 (d) Basmati
- 26** Which one of the following pair is incorrectly matched?
 (a) XO type sex-determination – Grasshopper
 (b) ABO blood grouping – Codominance
 (c) Starch synthesis in pea – Multiple alleles
 (d) TH Morgan – Linkage
- 27** Select the correct statement.
 (a) Spliceosomes take part in translation
 (b) Punnett square was developed by a British scientist
 (c) Franklin Stahl coined the term 'linkage'
 (d) Transduction was discovered by S. Altman
- 28** The experimental proof for semiconservative replication of DNA was first shown in a
 (a) plant (b) bacterium
 (c) fungus (d) virus
- 29** Which one of the following flowers only once in its lifetime?
 (a) Mango (b) Jackfruit
 (c) Bamboo species (d) Papaya
- 30** Offsets are produced by
 (a) parthenocarpy (b) mitotic division
 (c) meiotic division (d) parthenogenesis

- 31** Select the correct match.
- (a) Matthew Meselson and F. Stahl : *Pisum sativum*
 (b) Alfred Hershey and Martha Chase : TMV
 (c) Alec Jeffreys : *Streptococcus pneumoniae*
 (d) Francois Jacob and Jacques Monod : *Lac operon*
- 32** Which of the following has proved helpful in preserving pollen as fossils?
- (a) Oil content (b) Cellulosic intine
 (c) Pollenkitt (d) Sporopollenin
- 33** Which one of the following statement is correct?
- (a) Horsetails are gymnosperms
 (b) *Selaginella* is heterosporous, while *Salvinia* is homosporous
 (c) Ovules are not enclosed by ovary wall in gymnosperms
 (d) Stems are usually unbranched in both *Cycas* and *Cedrus*.
- 34** Select the incorrect statement.
- (a) Pseudopodia are locomotory and feeding structures in sporozoans
 (b) Mushrooms belong to Basidiomycetes
 (c) Cell wall is present in members of Fungi and Plantae
 (d) Mitochondria are the powerhouse of the cell in all kingdoms except Monera
- 35** After karyogamy followed by meiosis, spores are produced exogenously in
- (a) *Agaricus* (b) *Alternaria*
 (c) *Neurospora* (d) *Saccharomyces*

Section-B

- 36** In an experiment, demonstrating the evolution of oxygen in *Hydrilla*, sodium bicarbonate is added to water in the experimental set up. What would happen if all other conditions are favourable?
- (a) Amount of oxygen evolved decreases as carbon dioxide in water is absorbed by sodium bicarbonate
 (b) Amount of oxygen evolved increases as the availability of carbon dioxide increases
 (c) Amount of oxygen evolved decreases as the availability of carbon dioxide increases
 (d) Amount of oxygen evolved increases, as carbon dioxide in water is absorbed by sodium bicarbonate
- 37** In Mendel's experiments with garden pea, round seed shape (RR) was dominant over wrinkled seeds (rr), yellow cotyledon (YY) was dominant over green cotyledon (yy). What are the expected phenotypes in the F₁-generation of the cross RRYy × rryy?
- (a) Only round seeds with yellow cotyledons
 (b) Only wrinkled seeds with yellow cotyledons
 (c) Only wrinkled seeds with green cotyledons
 (d) Round seeds with yellow cotyledons and wrinkled seeds with yellow cotyledons

38 Assertion The quiescent centre acts as a reservoir of relatively resistant cells which constitute a permanent source of active initials.

Reason The cells of the inactive region of quiescent centre become active when the previous active initials get damaged.

- (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion
 (b) Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion
 (c) Assertion is true, but Reason is false
 (d) Both Assertion and Reason are false
- 39** Consider the following statements and choose the correct one.
- (a) Plant cells have centrioles, which are absent in almost all animal cells
 (b) Ribosomes are the site of protein synthesis
 (c) The middle lamella is mainly composed of calcium carbonate, which holds the different neighbouring cells together
 (d) In animal cells, steroidal hormones are synthesised by smooth endoplasmic reticulum
- 40** Which one of the following statement is not true?
- (a) Pollen grains are released from anthers at 2-celled state
 (b) Sporogenous cell directly behaves as the megaspore mother cell
 (c) Megaspore divides twice to form an eight nucleate embryo sac
 (d) Egg and synergids always lie near the micropylar end of ovule

41 Assertion Inhabitants close to very busy airports are likely to experience health hazards.

Reason Sound level of jet aeroplanes usually exceeds 160 dB.

- (a) Both Assertion and Reason are true and Reason is the correct explanation of Assertion
 (b) Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion
 (c) Assertion is true, but Reason is false
 (d) Both Assertion and Reason are false
- 42** Match the following columns.

Column I	Column II
A. β -galactosidase	1. Joining of DNA fragments
B. Permease	2. Peptide bond formation
C. Ligase	3. Hydrolysis of lactose
D. Ribozyme	4. Increases permeability to β -galactosidase

Codes

- | | | | | | | | | | |
|-----|---|---|---|---|-----|---|---|---|---|
| A | B | C | D | A | B | C | D | | |
| (a) | 2 | 1 | 4 | 3 | (b) | 3 | 2 | 1 | 4 |
| (c) | 3 | 4 | 1 | 2 | (d) | 1 | 2 | 4 | 3 |

- 43** *Thermococcus*, *Methanococcus* and *Methanobacterium* exemplify
- archaeobacteria that contain protein homologous to eukaryotic core histones
 - archaeobacteria that lack any histones resembling those found in eukaryotes, but whose DNA is negatively supercoiled
 - bacteria whose DNA is relaxed or positively supercoiled, but which have a cytoskeleton as well as mitochondria
 - bacteria that contain a cytoskeleton and ribosomes
- 44** Genetic engineering has been successfully used for producing
- transgenic mice for testing safety of polio vaccine before its use in humans
 - transgenic models for studying new treatments for certain cardiac diseases
 - transgenic cow-Rosie, which produces high fat milk for making ghee
 - animals like bulls for farm work as they have super power
- 45** Bryophytes resemble algae in the following aspect.
- Filamentous body, presence of vascular tissues and autotrophic nutrition
 - Differentiation of plant body into root, stem and leaves and autotrophic nutrition
 - Thallus-like plant body, presence of roots and autotrophic nutrition
 - Thallus-like plant body, lack of vascular tissues and autotrophic nutrition
- 46** Match the items given in Column I with those in Column II and select the correct option given below

Column I	Column II
A. Herbarium	1. It is a place having a collection of preserved plants and animals.
B. Key	2. A list that enumerates methodically all the species found in an area with brief description aiding identification.

Column I	Column II
C. Museum	3. It is a place where dried and pressed plant specimens mounted on sheets are kept.
D. Catalogue	4. A booklet containing a list of characters and their alternates which are helpful in identification of various taxa.

Codes

	A	B	C	D
(a)	2	4	3	1
(b)	3	2	1	4
(c)	1	4	3	2
(d)	3	4	1	2

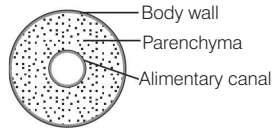
- 47** Niche is
- the range of temperature that the organism needs to live
 - the physical space where an organism lives
 - all the biological factors in the organism's environment
 - the functional role played by an organism where it lives
- 48** What type of ecological pyramid would be obtained with the following data?
- Secondary consumer : 120 g
 Primary consumer : 60 g
 Primary producer : 10 g
- Upright pyramid of numbers
 - Pyramid of energy
 - Inverted pyramid of biomass
 - Upright pyramid of biomass
- 49** Which one is incorrectly matched?
- Gemma cups – *Marchantia*
 - Biflagellate zoospores – Brown algae
 - Uniflagellate gametes – *Polysiphonia*
 - Unicellular organism – *Chlorella*
- 50** Which of the following is true for nucleolus?
- It takes part in spindle formation
 - It is a membrane-bound structure
 - Larger nucleoli are present in dividing cells
 - It is a site for active ribosomal RNA synthesis

Zoology

Section-A

- 51** Keel is characteristic of the flowers of
- gulmohur
 - Cassia*
 - Calotropis*
 - bean
- 52** Human dental formula is
- $I_{\frac{2}{2}}, C_{\frac{1}{1}}, Pm_{\frac{2}{2}}, M_{\frac{3}{3}}$
 - $I_{\frac{2}{1}}, C_{\frac{1}{2}}, Pm_{\frac{2}{2}}, M_{\frac{3}{3}}$
 - $I_{\frac{1}{2}}, C_{\frac{2}{1}}, Pm_{\frac{2}{2}}, M_{\frac{3}{3}}$
 - $I_{\frac{1}{1}}, C_{\frac{2}{2}}, Pm_{\frac{2}{2}}, M_{\frac{3}{3}}$
- 53** Oestrogen and testosterone are steroid hormones and are most likely bind to
- membrane ions channels
 - enzyme-linked membrane receptors
 - G-protein linked membrane receptors
 - cytoplasmic receptors
- 54** In the egg is first fertilised external to the body followed by its insertion into the Fallopian tube. Choose the correct option to fill in the blank.
- GIFT
 - ZIFT
 - ICSI
 - IVF
- 55** An orchid shares resemblance with the female of an insect in order to get pollinated. This explains the phenomenon of
- mimicry
 - predation
 - pseudocopulation
 - mutualism

- 56 The cross-section of the body of an invertebrate is given below. Identify the animal, which has this body plan.



- (a) Cockroach (b) Roundworm
(c) *Planaria* (d) Earthworm
- 57 Which part of poppy plant is used to obtain the drug Smack?
(a) Roots (b) Latex
(c) Flowers (d) Leaves
- 58 All of the following are parts of an operon except
(a) an enhancer (b) structural genes
(c) an operator (d) a promoter
59. A woman has an X-linked condition on one of her X chromosome. This chromosome can be inherited by
(a) only grand children (b) only sons
(c) only daughters (d) Both (b) and (c)
- 60 According to Hugo de Vries, the mechanism of evolution is
(a) phenotypic variations
(b) saltation
(c) multiple step mutations
(d) minor mutations
- 61 AGGTATCGCAT is a sequence from the coding strand of a gene. What will be the corresponding sequence of the transcribed mRNA?
(a) ACCUAUGCGAU (b) UGGTUTCGCAT
(c) AGGUAUCGCAU (d) UCCAUAGCGUA
- 62 Identify the vertebrate group of animals characterised by crop and gizzard in its digestive system.
(a) Aves (b) Reptilia
(c) Amphibia (d) Osteichthyes
- 63 Which of the following feature is used to identify a male cockroach from a female cockroach?
(a) Forewings with darker tegmina
(b) Presence of caudal styles
(c) Presence of a boat-shaped sternum on the 9th abdominal segment
(d) Presence of anal cerci
- 64 Which one of these animals is not a homeotherm?
(a) *Camelus* (b) *Chelone*
(c) *Macropus* (d) *Psittacula*
- 65 Which one of the following animals does not undergo metamorphosis?
(a) Moth (b) Tunicate
(c) Earthworm (d) Starfish
- 66 Which of the following organisms are known as chief producers in the oceans?
(a) Cyanobacteria (b) Diatoms
(c) Dinoflagellates (d) Euglenoids

- 67 Which one of the following population interaction is widely used in medical science for the production of antibiotics?

(a) Parasitism (b) Mutualism
(c) Commensalism (d) Amensalism

- 68 All of the following are included in *ex-situ* conservation except

(a) botanical gardens (b) sacred groves
(c) wildlife safari parks (d) seed banks

- 69 Which one of the following options correctly represents the lung conditions in asthma and emphysema, respectively?

(a) Increased respiratory surface; Inflammation of bronchioles
(b) Increased number of bronchioles; Increased respiratory surface
(c) Inflammation of bronchioles; Decreased respiratory surface
(d) Decreased respiratory surface; Inflammation of bronchioles

- 70 Match the items given in Column I with those in Column II and select the correct option given below.

Column I	Column II
A. Tricuspid valve	1. Between left atrium and left ventricle
B. Bicuspid valve	2. Between right ventricle and pulmonary artery
C. Semilunar valve	3. Between right atrium and right ventricle

Codes

	A	B	C		A	B	C
(a)	1	2	3	(b)	1	3	2
(c)	3	1	2	(d)	2	1	3

- 71 Ciliates differ from all other protozoans in

(a) using pseudopodia for capturing prey
(b) having a contractile vacuole for removing excess water
(c) using flagella for locomotion
(d) having two types of nuclei

- 72 Swelling around eyes, enlargement and popping eye balls are observed in an individual, who has

(a) less secretion of thyroxine in adult
(b) excessive secretion of thyroxine
(c) excessive secretion of calcitonin
(d) less secretion of thyroxine right from birth

- 73 Choose the correct pathway on the transmission of impulse in the heartbeat.

(a) AV-node → SA-node → Bundle of His → Purkinje fibres
(b) SA-node → AV-node → Bundle of His → Purkinje fibres
(c) SA-node → Bundle of His → AV-node → Purkinje fibres
(d) AV-node → Bundle of His → SA-node → Purkinje fibres

- 74 The amnion of mammalian embryo is derived from

(a) mesoderm and trophoblast
(b) endoderm and mesoderm
(c) ectoderm and mesoderm
(d) ectoderm and endoderm

- 75** Hormones secreted by the placenta to maintain pregnancy are
 (a) hCG, hPL, progesterone, oestrogen
 (b) hCG, hPL, oestrogen, relaxin, oxytocin
 (c) hCG, hPL, progesterone, prolactin
 (d) hCG, progesterone, oestrogen, glucocorticoids
- 76** What happens, when the pacemaker is non-functional?
 (a) Only the auricles will contract rhythmically
 (b) The cardiac muscles do not contract in a coordinated manner rhythmically
 (c) Only ventricles will contract rhythmically
 (d) Cardiac muscle will contract in a coordinated manner
- 77** Match the items given in Column I with those in Column II and select the correct option given below.
- | Column I | Column II |
|-------------------------------|-----------------|
| A. Tidal volume | 1. 2500–3000 mL |
| B. Inspiratory reserve volume | 2. 1100–1200 mL |
| C. Expiratory reserve volume | 3. 500–550 mL |
| D. Residual volume | 4. 1000–1100 mL |
- | | | | | | | | | | |
|-----|---|---|---|---|-----|---|---|---|---|
| | A | B | C | D | | A | B | C | D |
| (a) | 1 | 4 | 2 | 3 | (b) | 3 | 1 | 4 | 2 |
| (c) | 3 | 2 | 1 | 4 | (d) | 4 | 3 | 2 | 1 |

- 78** The transparent lens in the human eye is held in its place by
 (a) smooth muscles attached to the iris
 (b) ligaments attached to the iris
 (c) ligaments attached to the ciliary body
 (d) smooth muscles attached to the ciliary body

- 79** Which of the following is an amino acid derived hormone?
 (a) Estradiol (b) Ecdysone
 (c) Epinephrine (d) Estriol

- 80** Which of the following hormones can play a significant role in osteoporosis?
 (a) Oestrogen and parathyroid hormone
 (b) Progesterone and aldosterone
 (c) Aldosterone and prolactin
 (d) Parathyroid hormone and prolactin

- 81** Which of the following gastric cells indirectly help in erythropoiesis?
 (a) Goblet cells (b) Mucous cells
 (c) Chief cells (d) Parietal cells

- 82** In which disease does mosquito transmitted pathogen cause chronic inflammation of lymphatic vessels?
 (a) Ringworm disease (b) Ascariasis
 (c) Elephantiasis (d) Amoebiasis

- 83** Which of the following is not an autoimmune disease?
 (a) Alzheimer's disease (b) Rheumatoid arthritis
 (c) Psoriasis (d) Vitiligo

- 84** Which of the following is an occupational respiratory disorder?

- (a) Botulism (b) Silicosis
 (c) Anthracis (d) Emphysema

- 85** The similarity of bone structure in the forelimbs of many vertebrates is an example of

- (a) convergent evolution (b) analogy
 (c) homology (d) adaptive radiation

Section-B

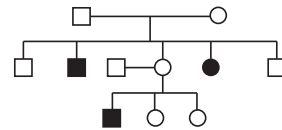
- 86** When does glomerular filtration occur in Bowman's capsule?

- (a) When hydrostatic pressure of blood in the glomerulus is 70 mm Hg and net filtrate pressure is –25 mm Hg
 (b) When hydrostatic pressure of blood in the glomerulus is 70 mm Hg and net filtrate pressure is –35 mm Hg
 (c) When hydrostatic pressure of blood in the glomerulus is 70 mm Hg and net filtrate pressure is 10 mm Hg
 (d) When hydrostatic pressure of blood in the glomerulus is 70 mm Hg and net filtrate pressure is –70 mm Hg

- 87** Which one of the following event is correctly matched with the time period in a normal menstrual cycle?

- (a) Release of egg — 5th day
 (b) Endometrium regenerates — 5-14 days
 (c) Endometrium secretes nutrients for implantation — 11-18 days
 (d) Rise in progesterone level — 1-15 days

- 88** Study the pedigree chart given below



What does it show?

- (a) Inheritance of a sex-linked inborn error of metabolism like phenylketonuria
 (b) Inheritance of a condition like phenylketonuria as an autosomal recessive trait
 (c) The pedigree chart is wrong as this is not possible
 (d) Inheritance of a recessive sex-linked disease like haemophilia

- 89** Which of the following statement is incorrect for reproduction in various organisms?

- (a) More often the capacity for vegetative propagation resides in roots or stems
 (b) In asexually reproducing organisms, multiplication occurs rapidly by mitosis
 (c) In potato, banana, *Asparagus*, the plantlets develop from the internodes present in the modified stem
 (d) Reproductive phase is of variable duration in different organisms

90 Identify the correct match.

- | | |
|--------------------------------|-------------|
| (a) Manas Sanctuary | – Elephant |
| (b) Gir Forest | – Tiger |
| (c) Kanchenjunga National Park | – Lion |
| (d) Kaziranga National Park | – Musk deer |

91 Match the following columns.

Column I	Column II
A. Ball and socket joint	1. Carpal and metacarpal of thumb joint
B. Hinge joint	2. Atlas and axis
C. Pivot joint	3. Frontal and parietal
D. Saddle joint	4. Knee
	5. Humerus and pectoral girdle

Codes

- | | | | | |
|-----|---|---|---|---|
| | A | B | C | D |
| (a) | 5 | 4 | 2 | 1 |
| (b) | 1 | 3 | 4 | 5 |
| (c) | 5 | 4 | 3 | 1 |
| (d) | 1 | 2 | 5 | 4 |

92 Match the following columns.

Column I	Column II
A. Amoebiasis	1. <i>Treponema pallidum</i>
B. Diphtheria	2. Use only sterilised food and water
C. Cholera	3. DPT vaccine
D. Syphilis	4. Use of oral rehydration therapy

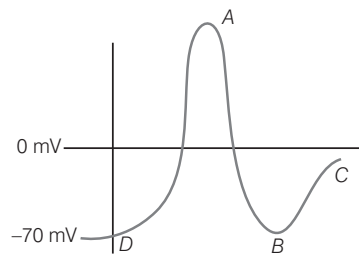
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- | | | | | | | | | | | |
|-----|---|---|---|---|--|-----|---|---|---|---|
| | A | B | C | D | | A | B | C | D | |
| (a) | 1 | 2 | 3 | 4 | | (b) | 2 | 4 | 1 | 3 |
| (c) | 2 | 1 | 3 | 4 | | (d) | 2 | 3 | 4 | 1 |

93 The nitrogenous metabolic waste in *Hydra* is mostly

- ammonia and is removed from the whole surface of the body
- urea and is removed mainly by tentacles
- urea and is removed from the whole surface of the body
- uric acid and is removed from the whole surface of the body

94 Refer the following figure to answer the question.



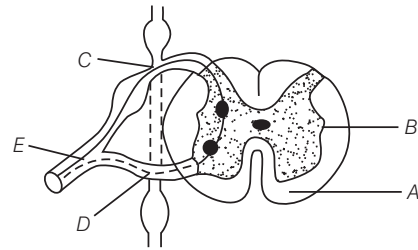
Identify the region, where all Na^+ channels are reactivated but closed and all K^+ channels are closed.

- (a) D (b) C (c) B (d) A

95 With regard to the transmission of the Human Immunodeficiency Virus (HIV), which among the following statement is incorrect?

- The chances of transmission from female to male are twice as likely as from male to female
- The chances of transmission are more if a person suffers from other sexually transmitted infections
- An infected mother can transmit the infection to her baby during pregnancy at childbirth and by breast feeding
- The risk of contracting infection from transfusion of infected blood is much higher than an exposure to contaminate needle

96 In a cross-section of the spinal cord A, B, C, D and E represents



- A–White matter, B–Grey matter, C–Dorsal root, D–Ventral root, E–Spinal nerve
- A–White matter, B–Grey matter, C–Ventral root, D–Dorsal root, E–Spinal nerve
- A–Grey matter, B–White matter, C–Ventral root, D–Dorsal root, E–Spinal nerve
- A–Grey matter, B–White matter, C–Dorsal root, D–Ventral root, E–Spinal nerve

97 Respiratory quotient for certain substrates used during respiration came out to be 1, 0.9 and 0.7. These substrates can be identified as

- malic acid, palmitic acid and carbohydrate
- protein, carbohydrate and tripalmitin
- carbohydrate, protein and tripalmitin
- tripalmitin, oxalic acid and carbohydrate

98 People living at sea level have around 5 million RBCs per cubic millimetre of their blood, whereas those living at an altitude of 5400 metres have around 8 million RBCs per cubic millimetre of blood. This is because at high altitude

- people get pollution-free air to breathe and more oxygen is available
- atmospheric oxygen level is less and hence more RBCs are needed to absorb the required amount of oxygen to survive

- (c) there is more UV radiation, which enhances RBCs production
- (d) people eat more nutritive food, therefore, more RBCs are formed

99 The difference between spermiogenesis and spermiation is

- (a) In spermiogenesis, spermatozoa from Sertoli cells are released into the cavity of seminiferous tubules, while in spermiation spermatozoa are formed
- (b) In spermiogenesis, spermatozoa are formed, while in spermiation spermatids are formed
- (c) In spermiogenesis, spermatids are formed, while in spermiation spermatozoa are formed

- (d) In spermiogenesis, spermatozoa are formed, while in spermiation spermatozoa are released from Sertoli cells into the cavity of seminiferous tubules

100 The contraceptive 'SAHELI'

- (a) is an IUD
- (b) increases the concentration of oestrogen and prevents ovulation in females
- (c) blocks oestrogen receptors in the uterus, preventing eggs from getting implanted
- (d) is a post-coital contraceptive

Answers

Botany

1	(c)	2	(d)	3	(c)	4	(d)	5	(b)	6	(a)	7	(a)	8	(b)	9	(c)	10	(c)
11	(a)	12	(d)	13	(b)	14	(a)	15	(a)	16	(a)	17	(b)	18	(b)	19	(b)	20	(d)
21	(b)	22	(d)	23	(a)	24	(a)	25	(d)	26	(c)	27	(b)	28	(b)	29	(c)	30	(b)
31	(d)	32	(d)	33	(c)	34	(a)	35	(a)	36	(b)	37	(a)	38	(b)	39	(b)	40	(c)
41	(a)	42	(b)	43	(a)	44	(a)	45	(d)	46	(d)	47	(d)	48	(c)	49	(c)	50	(d)

Zoology

51	(d)	52	(a)	53	(d)	54	(b)	55	(c)	56	(c)	57	(b)	58	(a)	59	(d)	60	(b)
61	(c)	62	(a)	63	(b)	64	(b)	65	(c)	66	(b)	67	(d)	68	(b)	69	(c)	70	(c)
71	(d)	72	(a)	73	(b)	74	(c)	75	(a)	76	(b)	77	(b)	78	(c)	79	(c)	80	(a)
81	(d)	82	(c)	83	(a)	84	(b)	85	(c)	86	(c)	87	(b)	88	(d)	89	(c)	90	(a)
91	(a)	92	(d)	93	(a)	94	(b)	95	(a)	96	(a)	97	(c)	98	(b)	99	(d)	100	(c)