



SATISH SCIENCE ACADEMY DHANORI PUNE - 411015

Biology ENTRANCE EXAM - NEET-UG

Time Allowed: 1 hour and 30

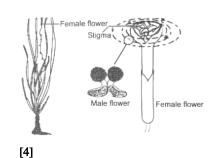
minutes

General Instructions:

- The test is of 1 hours and 30 minutes and it contains 100 questions. Internal choice is given within the sections.
- For each correct response, the candidate will get 4 marks.
- For each incorrect response, one mark will be deducted from the total scores.

ZOOLOGY (Section-A)

- 1) Phylogenetic system of classification is based on [4]
 - a) Floral characters.
 - b) Chemical constituents.
 - c) Morphological features.
 - d) Evolutionary relationships.
- 2) When generic name is repeated in specific name then it is called: [4]
 - a) Differential b) Antonyms d) Tautonems c) Synonyms
- 3) What is true for cyanobacteria? [4]
 - a) Oxygenic with nitrogenase
 - b) Non oxygenic without nitrogenase
 - c) Oxygen without nitrogenase
 - d) Non oxygenic with nitrogenase
- 4) Which of the following is obligate parasite? [4]
 - a) All of these b) Lichens
 - c) Viruses d) Fungus
- 5) Polyembryony in mango is due to development of embryos from [4]
 - a) Fertilised egg
 - b) Polyembrony
 - c) Nucellar cells
 - d) Egg of unreduced embryo sac.
- 6) Select the correct statement: [4]
 - a) Sequoia is one of the tallest trees
 - b) Gymnosperms are both homosporous and heterosporous
 - c) Salvinia, Ginkgo and Pinus all are gymnosperms
 - d) The leaves of gymnosperms are not well adapted to extremes of climate
- 7) Popular dry fruit chilgoza is produced by: [4]
 - a) Pinus sylvestris b) Pinus roxburghii
 - c) Pinus monophylla d) Pinus girardiana
- 8) Mature Polygonum type embryo sac has got: [4]
 - a) Eight cells and eight nuclei
 - b) Seven nuclei and eight cells
 - c) Seven cells and seven nuclei
 - d) Seven cells and eight nuclei
- 9) The figure is given below showing hydrophily in:



Vallisneria d) All of these

b) Zostera

- 10) In which type of inflorescences the main axis continues to grow: [4]
 - a) Cymose

Lotus

a)

c)

- b) Information is not correct
- c) Racemose
- d) Both Racemose and Cymose
- 11) Roots play insignificant role in absorption of water in [4] b) Wheat a) Pea
 - c) Sunflower d) Pistia
- 12) Which of the following are true statements for the monocotyledonous leaf?
 - i. Stomata are present on both the surfaces of the epidermis.
 - ii. The mesophyll is not differentiated into palisade and spongy parenchyma.
 - iii. In grasses, certain abaxial epidermal cells along the veins modify themselves into bulliform cells.
 - iv. When the bulliform cells in the leaves have loss water, the leaf surface is exposed but when they absorbed water make the leaves curl inwards to minimise water loss.
 - v. The size of the vascular bundles are dependent on the size of the veins.

[4]

- a) (i), (ii) and (iii)
- b) (i) and (ii)
- c) (i), (ii), (iii) and (iv)
- d) (i), (ii), (vi) and (v)
- 13) Exact multiple of haploid number is: [4]
 - a) Euploidy b) Heteroploidy
 - c) Hyperploidy d) Aneuploidy
- 14) In sickle cell anaemia, shape of RBCs under oxygen tension becomes [4]
 - b) Biconcave disc like a) Spherical c) Circular
 - d) Elongated and curved
- 15) The DNA molecule is composed of: [4]



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- a) Pentose sugar, Phosphoric acid, Pyrimidines and Purines
- b) Pentose sugar, Pyrimidines and Purines only
- c) Pentose sugar, Phosphoric arid and Pyrimidines only
- d) Pentose sugar, Phosphoric acid and Purines only
- 16) Choose the correct statements.
 - i. DNA replication takes place before mitosis and meiosis.
 - ii. Polarity of DNA template on which leading strand forms is $3' \rightarrow 5'$.
 - iii. Product of the genes may be rRNA, tRNA, and mRNA.
 - iv. Product of hnRNA is mRNA.

[4]

- a) (ii) and (iii)
- b) (i) and (ii)
- c) (i), (ii), (iii), and (iv)
- d) (iii) and (iv)
- 17) The main function of lysosome is: [4]
 - a) Intracellular digestion
 - b) Extracellular digestion
 - c) Sexual reproduction
 - d) Both Extracellular digestion and Intracellular digestion
- 18) The heterochromatin is generally present in: [4]
 - a) Satellite
 - b) Telomere

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- c) Both Satellite and Telomere
- d) Nucleolus organizer
- 19) The most commonly available host is: [4]

a) Aedes	b)	Anopheles
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- 20) Which of the following is correct regarding AIDS causative agent HIV? [4]
 - a) HIV is unenveloped retrovirus
 - b) HIV is enveloped virus containing one molecule of single - stranded RNA and one molecule of reverse transcriptase
 - c) HIV does not escape but attacks the acquired immune response
 - d) HIV is enveloped virus that contains two identical molecules of single - stranded RNA and two molecules of reverse transcriptase
- 21) Cells of the root tip of onion have 14 chromosomes in each cell, how many chromosomes will the cell have at G1 - phase, after S - phase, and after M - phase respectively? [4] b) 14 28 28 14 14

a)	14, 14, 14	D)	14, 28, 28
c)	7, 28, 14	d)	7, 14, 14

- 22) The declining phase of a population occurs when: [4]
 - a) Mortality = Natality
 - b) Mortality > Natality
 - c) Natality = Mortality = 0
 - d) Natality > Mortality
- 23) The region consisting of long and severe winters and growing season consisting of few months of summers constitutes: [4]
 - a) Savannah ecosystem b) Lentic ecosystem
 - c) Tundra ecosystem
- d) Tiaga ecosystem

- 24) Yogurt is produced by: [4]
 - a) Lactobacillus acidophilus
 - b) Lactobacillus bulgaricus
 - c) Both Lactobacillus bulgaricus and Streptococcus thermophilus
 - d) Streptococcus thermophilus
- 25) Amongst the animal groups given below, which one has the highest percentage of endangered species? [4]
 - a) Insects b) Amphibians
 - d) Reptiles c) Mammals
- 26) Management of biosphere for providing maximum benefit to the present generation and also maintaining its potential for future generations, is the theme of [4]
 - a) Conservation b) Deforestation
 - c) Afforestation d) Population
- 27) Gujarat state is famous for the preservation of: [4] a) Elephant b) Lion
 - c) Deer d) Tiger
- 28) DNA replication in bacteria occurs: [4]
 - a) Just before transcription.
 - b) During S phase
 - c) Prior to fission
 - d) Within nucleolus
- 29) Condensation of chromosomes occurs in [4]
 - a) Anaphase b) Prophase II
 - c) Metaphase d) Prophase I
- 30) Select the stage of Calvin cycle, a part of which is glycolytic reversal [4]
 - a) Carboxylation
 - b) Both reduction and regeneration
 - c) Reduction
 - d) Regeneration
- 31) A scientist placed Cladophora, in a suspension of aerobic bacteria and found that the bacteria accumulated mainly in the region of: [4]
 - a) Blue and red light of the split spectrum
 - b) Green light of the split spectrum
 - c) Red light of the split spectrum
 - d) Blue light of the split spectrum
- 32) The chemiosmotic hypothesis has been put forward to explain the mechanism of: [4]
 - a) ATP synthesis in the mitochondria
 - b) ATP synthesis in the mitochondria only
 - c) ATP synthesis in both chloroplast and mitochondria
 - d) ATP synthesis in the chloroplast
- 33) The plants that keep their stomata open during night and closed during the day are [4]
 - a) C4 plants c) C3 plants
- d) C3 and C4 plants

b) CAM plants

- 34) Which of the following biomolecules is common to respiration mediated breakdown? [4]
 - a) Acetyl CoA
 - b) Glucose 6 phosphate
 - c) Fructose 1,6 biphosphate
 - d) Pyruvic acid
- 35) An excised leaf does not turn yellow if it is induced to root. This is attributed to synthesis in root or leaf aging is retarded by: [4]

- Gibberellins a)
- b) Auxins d) Cytokinins
- Ethylene c)

ZOOLOGY (Section-B)

- Attempt any 10 questions
- 36) A person who studies about the origin, evolution and variations in plants and also about the classification of plants, is called as : [4]
 - a) α taxonomist b) Herbal taxonomist
 - c) Classical taxonomist d) β - taxonomist
- 37) Paramecium is: [4]
 - a) Ciliated protozoans
 - b) Sporozoan
 - c) Both Ciliated protozoans and Filter feeder
 - d) Filter feeder
- 38) Archegoniate plants belong to: [4]
 - a) Brycphyta, pteridophyta, gymnosperms, angiosperms
 - b) Algae, bryophyta, pteridophyta
 - c) Bryophyta, pteridophyta, gymnosperm
 - d) Bryophyta, pteridophyta, angiosperm
- 39) In water hyacinth and water lily, pollination takes place by: [4]
 - a) Insects or wind b) Wind and water
 - c) Water currents only d) Insects and water
- 40) Which of the following statement is correct? [4]
 - a) In the Perigynous flower, the gynoecium occupies the highest position
 - b) The actinomorphic flower have radial symmetry
 - c) In Perigynous flower, the margin of thalamus grows upward enclosing the ovary completely and getting fused it
 - d) Zygomorphic occurs in china rose
- 41) Which one in man is a wholly genetic trait? [4]
 - a) Leucoderma b) Tuberculosis
 - c) Diphtheria d) Albinism
- 42) The average weight of 20 amino acids is 128. What is the approximate weight of a protein with 100 amino acids? [4]
 - a) 640 b) 12,800 c) 60,000 d) 1,28,000
- 43) It is a type of specialised peroxisomes which is extracted from endosperm of germinating castor beans. Identify the organelle from the given option. [4]
 - a) Golgi apparatus b) Lysosomes
 - c) Glyoxysomes d) Ribosome
- 44) Which of the following is not used as a biopesticide? [4]
 - a) Nucleopolyhedrovirus
 - b) Xanthomonas campestris
 - c) Trichoderma harzianum
 - d) Bacillus thuringiensis
- 45) Krebs' cycle is termed as the aerobic phase of respiration because: [4]
 - a) Oxygen acts as a catalyst
 - b) It consumes oxygen
 - c) Aerobic conditions are essential for the continued operation of the electron transport system
 - d) All of these

- a) An insect hormone
- b) A bio herbicide
- c) A natural herbicide
- d) A natural insecticide
- 47) When the two ecosystems overlap each other the area is called? [4] a) Niche
 - b) Ecotypes c) Ecotone
 - d) Edge effect
- 48) Formation of meristems interfascicular cambium and cork cambium from fully differentiated parenchyma cells is an example of: [4]
 - a) Redifferentiation

Differentiation

- b) All of these d) Dedifferentiation
- 49) The movement of auxin is largely [4]
 - a) Centripetal

c)

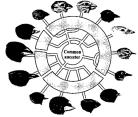
- b) Both (centripetal) and (acropetal)
- c) Acropetal
- d) Basipetal
- 50) LHC (Light Harvesting Complex) consists: [4]
 - a) Light reaction and dark reaction
 - b) All of these
 - c) Cyclic and non cyclic photophosphorylation
 - d) Photosystem I and II

BOTANY (Section-A)

- 51) Organ of Jacobson in amphibians is for: [4]
 - a) Sound b) Pressure
 - c) Smell d) Temperature
- 52) What is the function of cnidoblasts cells? [4]
 - a) All of these b) Anchorage
 - c) Capture of prey d) Defence
- 53) What is common between parrot, platypus and kangaroo? [4]
 - Homoeothermy b) Ovoparity a)
 - c) Monocytes d) Toothless jaws
- 54) The muscular tissue, which functions throughout the life continuously without fatigue, is [4]
 - b) Skeletal muscle a) Cardiac muscle
 - Voluntary muscle d) Smooth muscle c)
- 55) Plantulae are found in cockroach upon: [4]
 - a) Tartus b) Trochanter
 - d) Femur c) Coxa
- 56) Basic respiratory rhythm is generated by: [4]
 - a) Pneumotaxic center of medulla oblongata
 - b) Pneumotaxic center of pons varolli
 - c) Dorsal respiratory group of neurons
 - d) Ventral respiratory group of neurons
- 57) Residual air is present in: [4]
 - a) Trachea and Bronchi and bronchioles
 - b) Lungs
 - c) Bronchi and bronchioles
 - d) Trachea
- 58) Which respiratory disease is characterised as inflammation of the bronchi and the bronchial tubes due to infections, smoking or pollutants? [4]
 - a) Chronic bronchitis b) Emphysema
 - d) COPD c) Asthma
- 59) Given below are few respiratory disorders. Identify occupational respiratory disorders amongst these.

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- i. Coryza
- ii. SARS
- iii. Silicosis
- iv. Asbestosis
- v. Emphysema
- [4]
- (i) and (ii) b) (i) and (v) a)
- (iii) and (iv) d) (i), (ii), and (v) c)
- 60) The covering of the lung is called: [4]
 - a) Pericardium b) Peritoneum
 - c) Pleural membrane d) Capsule
- 61) The menstrual cycle in normal adult woman is of: [4] a) 34 days b) 28 days
 - c) 14 days d) 18 days
- 62) Which of the following statements is false for uterus?
 - i. It opens into oviducts through cervix whose cavity is called cervical canal.
 - ii. Its wall has three layers, outer perimetriwn, middle myometriwn, and inner endometriwn.
 - iii. It is also called womb and its shape is like an inverted pear.
 - iv. It is supported by ligaments attached to the pelvic wall.
 - [4]
 - a) Statement (b) is false.
 - b) Statement (c) is false.
 - c) Statement (d) is false.
 - d) Statement (a) is false.
- 63) What happens during fertilisation in humans after many sperms reach close to the ovum? [4]
 - a) Only two sperms nearest the ovum penetrate zona pellucida
 - b) Cells of corona radiata trap all the sperms except one
 - c) All sperms except the one nearest to the ovum lose their tails
 - d) Secretions of acrosome helps one sperm enter cytoplasm of ovum through zona pellucida
- 64) The diaphragm, cervical cap, and vaults are: [4]
 - a) Implants
 - b) Reusable contraceptives
 - c) IUDs
 - d) Disposable contraceptive device
- 65) An ideal contraceptive should not be [4]
 - a) Effective with least side effects.
 - b) User friendly
 - c) Irreversible
 - d) Easily available
- 66) Identify what is indicated in the given diagram?



- i. Natural selection
- ii. Adaptive radiation
- iii. Ecological succession
- iv. Different species of finches by mutation

- [4]
 - (i) and (iii) b) (i) and (ii) a) c) (iii) and (iv) d) (ii) and (iv)
- 67) What is common between Parrot, Platypus and Kangaroo? [4]
 - a) Toothless jaws
 - b) Homoeothermic
 - c) Functional postanal tail
 - d) Oviparity
- 68) Nitrogenous wastes which excreted in the form of pellet or paste with a minimum loss of water: [4]
 - a) All of these b) Urea
 - d) Uric acid c) Ammonia
- 69) The end product of Ornithine cycle is [4]
 - a) Urea b) Uric acid
 - c) Carbon dioxide d) Ammonia
- 70) Read the statements given below.
 - i. Reabsorption in this region is minimum.
 - ii. This region plays a significant role in the maintenance of high osmolarity of intestinal fluid.
 - iii. Its descending limb is permeable to water, but almost impermeable to electrolytes.
 - iv. Its ascending limb is impermeable to water but allows transport of electrolyte actively or passively.
 - v. In descending limb filtrate is hypertonic, while in ascending limb filtrate is hypotonic.
 - The above characteristics are associated with: [4]
 - DCT b) Loop of Henle's a)
 - Bowman's capsule d) PCT c)
- 71) The membranous areas between the cranial bones of the foetal skull are called [4]
 - a) Fontanelle b) Areolas
 - c) Foramina d) Sutures
- 72) The contractile protein of skeletal muscle involving ATP ase activity is [4]
 - a) Tropomyosin b) Myosin
 - Troponin d) A - actinin c)
- 73) An acromion process is characteristically found in the [4]
 - a) Pelvic girdle of mammals.
 - b) Skull of frog
 - c) Pectoral girdle of mammals.
 - d) Sperm of mammals
- 74) Synaptic knob is bulb like structure which is present [4]
 - a) In the cell body.
 - b) At the end of axon terminal.
 - c) At the end of dendrites.
 - d) At the node of Ranvier.
- 75) Which one of the following is sensory nerve? [4]
 - a) Trigeminal nerve b) Pathetic nerve
 - c) Vagus nerve d) Auditory nerve
- 76) The shape of eye lens is changed by [4] a) Iris b) Optic nerve
 - c) Ciliary muscle d) Pupil
- 77) Which hormone acts on the exocrine part of pancreas and stimulates secretion of water and bicarbonate ions? [4]
 - a) Secretin b) GIF c) CCK
 - d) Gastrin

- 78) In fish culture, which pair of hormones are most important? [4]
 - a) Vasopressin and oxytocin
 - b) FSH and LH
 - c) Oestrogen and progesterone
 - d) TSH and ACTH
- 79) Which of the following sequences is truly a systemic circulation pathway? [4]
 - a) Left auricle \rightarrow Left ventricle \rightarrow Pulmonary aorta \rightarrow Tissues \rightarrow Right auricle
 - b) Left auricle \rightarrow Left ventricle \rightarrow Aorta \rightarrow Arteries \rightarrow Tissues \rightarrow Veins \rightarrow Right atrium
 - c) Right ventricle \rightarrow Pulmonary aorta \rightarrow Tissues \rightarrow Pulmonary veins \rightarrow Left auricle
 - d) Right auricle \rightarrow Left ventricle \rightarrow Aorta \rightarrow Tissues \rightarrow Veins \rightarrow Right auricle
- 80) The coagulation of blood occurs due to : [4]
 - a) Formation of serum
 - b) Change of fibrinogen in the network of fibrin
 - c) Destruction of leucocytes
 - d) Destruction of erythrocytes
- 81) The second heart sound (dubb) is associated with the closure of: [4]
 - a) Tricuspid and bicuspid valves
 - b) Semilunar valves
 - c) Tricuspid valve
 - d) Bicuspid valve
- 82) Restriction endonucleases: [4]
 - a) Are used for in vitro DNA synthesis
 - b) Are synthesized by bacteria as part of their defense mechanism
 - c) Are present in mammalian cells for the degradation of DNA when the cell dies
 - d) Are used in genetic engineering for ligating two DNA molecules
- 83) Southern blotting technique is: [4]

a) ELISA test	b)	DNA	profiling
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- c) Blood test d) Widal test
- 84) In India, the organisation responsible for assessing the safety of introducing genetically modified organism for public use is : [4]
 - a) Genetic Engineering Approval Committee (GEAC)
 - b) Indian Council of Medical Research (ICMR)
 - c) Council for Scientific and Industrial Research (CSIR)
 - d) Research Committee on Genetic Manipulation (RCGM)
- 85) Which is a direct gene transfer method? [4]
 - a) Using Cosmid b) Electroporation

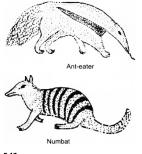
c) Using BAC d) Using Agrobacterium

BOTANY (Section-B)

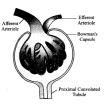
Attempt any 10 questions

- 86) Choose the wrong statement/s for the symmetry of animals.
 - i. Sponges are mostly asymmetrical
 - ii. When any plane passing through the central axis of the body divides the organism into two identical halves, it is called radial symmetry.

- iii. Coelenterates, ctenophores and echinoderms have bilateral symmetry.
- iv. Animals like annelids, arthropods, etc., have radial symmetry.
- v. The body can be divided into identical left and right halves in only one plane, exhibit bilateral symmetry.
- [4]
 - a) (iii) and (iv)
 - b) (iii), (iv) and (v)
 - c) (ii), (iv) and (v)d) (i), (ii), (iii) and (iv)
- 87) Intestine absorb the digested food materials. What type of epithelial cells are responsible for that? [4]
 - a) Spindle fibres
 - b) Stratified squamous epithelium
 - c) Columnar epithelium
 - d) Cuboidal epithelium
- 88) Red and white pulp is related with: [4]
 - a) Spleen b) Teeth
 - c) Skeletal muscles d) Bone
- Earthworm does not have special respiratory structures because: [4]
 - a) Haemocoel is present
 - b) A cylindrical shape gives high surface area to volume ratio
 - c) Arteries and veins are not differentiated
 - d) Respiratory pigment is dissolved plasma
- 90) Then most important significance of fertilizin & antifertilizin reaction is to: [4]
 - a) Ensure that least few spermatozoa encounter the egg
 - b) Mutually attract the gametes of opposite sexes
 - c) Preserve the sperm
 - d) Ensure fusion of gamete of same species
- 91) The test tube baby programme employs which one of the following techniques? [4]
 - a) Intra Cytoplasmic Spenn Injection (ICSI)
 - b) Intra Uterine Insemination (IUI)
 - c) Zygote Intra Fallopian Transfer (ZIFT)
 - d) Gamete Intra Fallopian Transfer (GIFT)
- 92) The given picture shows:

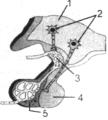


- [4]
 - a) Convergent evolution
 - b) Evolution of placental mammals
 - c) Divergent evolution
- d) Divergent evolution of Australian marsupials
- 93) Refer the given figure of Malpighian body and answer the question.



Which part is considered to be the site where majority (65%) of ions and water in the urinary space is reabsorbed back into the body? [4]

- a) Efferent arteriole
- b) Bowman's capsule
- c) Afferent arteriole
- d) Proximal convoluted tubule
- 94) Z lines divides the myofibrils into _____. [4]
 - a) Sarcoplasm b) Sarcosome
 - c) Sarcomere d) Sarcolemma
- 95) Cell bodies of motor and interneurons are present in: [4]
 - a) White matter of brain
 - b) White matter of brain and spinal cord
 - c) Gray matter of brain
 - d) White matter of spinal cord
- 96) Prolonged hyperglycemia leads to a complex disorder called: [4]
 - a) Diabetes keto aciaosis
 - b) Diabetes mellitus
 - c) Diabetes insipidus
 - d) Glycosuria
- 97) In the given diagram of endocrine gland 3 and 1 represents:



- [4]
 - a) 1 Hypothalamus, 3 Portal circulation
 - b) All are correct
 - c) 1 Portal circulation, 3 Hypothalamic neurons
 - d) 1 Hypothalamus, 3 Hypothalamic neurons
- 98) Which of the following occur in person living at the mountain? [4]
 - a) Increase in number of antigen
 - b) Large amount of RBC
 - c) Large amount of WBC
 - d) High heart beat
- 99) Which of the following is used as a best genetic vector for animals? [4]
 - a) Pox virus
 - b) All of these
 - c) Agrobacterium tumifaciens
 - d) Retrovirus
- 100) Genetic modification has
 - i. Reduced reliance on chemical pesticides.
 - ii. Reduced pos harvest losses.
 - iii. Increased efficiency of minerals used by the plants. iv. Enhanced nutritional value of the food.
 - Which of the statements given above are correct?
 - [4]
 - a) (ii), (iii) and (iv)
 - b) (i), (ii) and (iii)
 - c) (iii) and (iv)
 - d) (i), (ii), (iii) and (iv)