

Sr. No.1062

ENTRANCE TEST-2024

Integrated B Sc-M Sc Botany Programme

Total Questions : 60
Time Allowed : 70 Minutes

Roll No.

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1. Write your roll number in the space provided at the top of this page of question booklet and fill up the necessary information in the spaces provided on OMR Answer sheet.
2. OMR Answer sheet has an original copy and a candidate's copy glued beneath it at the top. While making entries in the original copy, candidate should ensure that the two copies are aligned properly so that the entries made in the original copy against each item are exactly copied in the candidate's copy.
3. All entries in the OMR answers sheet including answers to questions are to be recorded in the original/Carbon copy.
4. Use only blue/ black ball point pen to darken the circle of correct / most appropriate response. In no case gel/ ink pen or pencil should be used.
5. **Do not darken more the one circle of option for any question. A question with more than one darkened response shall be considered wrong.**
6. There will be negative marking for wrong answers. Each wrong answer will lead to the deduction of 0.25.
7. Only those candidates who would obtain positive score in entrance test examination shall be eligible for admission.
8. Do not make any stray mark on the OMR sheet.
9. Calculators and mobiles shall not be permitted inside the examination hall.
10. Rough work, if any, should be done on the blank sheets provided with the question booklet.
11. OMR answer sheet must be handled carefully and it should not be folded or mutilated in such case it will not be evaluated.
12. Ensure that your OMR Answer sheet has been signed by the invigilator and the candidate himself/herself.
13. At the end of the examination hand over the OMR answer sheet to the invigilator who will first tear off the original OMR sheet in presence of the candidate and hand over the candidate's copy to the candidate.
14. If any of the information in the response Sheet/Question Paper has been found missing or not mentioned as stated above the candidate is solely responsible for that lapse.

SEAL

Q1. Which of the following is correct:

- A) Species is the basic unit of classification in taxonomy
- B) Genus is the basic unit of classification in taxonomy
- C) Family the basic unit of classification in taxonomy
- D) Kingdom is the basic unit of classification in taxonomy

Q2. Four Kingdom classification was given by:

- A) Carolus Linnaeus
- B) Ernst Haeckel
- C) H.F. Copeland
- D) Whittaker

Q3. Gram +ve bacteria are characterized by:

- A) absence of teichoic acid in their cell walls
- B) presence of more peptidoglycan in their cell walls
- C) presence of nucleus in their cells
- D) absence of DNA in their cells

Q4. Title of the book published by Carolus Linnaeus is:

- A) Historia naturalis
- B) Sytama Naturae
- C) Plant systematics
- D) None of these

Q5. Consider the two statements given below and select which one is correct:

Statement 1: Water is essential for fertilization in mosses

Statement 2: Dominant phase in life cycle of bryophytes is gametophyte

- A) Only statement 1 is correct
- B) Only statement 2 is correct
- C) both statements are correct
- D) both statements are incorrect

Q6. A branch of taxonomy in which organisms are classified based on all observable characters and equal weightage is given to each character is:

- A) Morpho-taxonomy
- B) Numerical taxonomy
- C) Cyto-taxonomy
- D) Chemotaxonomy

Q7. An example of Siphonaceous algae is:

- A) *Vaucheria*
- B) *Volvox*
- C) *Ectocarpus*
- D) None of these

SEAL

Q8. If an animal is characterized by internal fertilization, indirect development, presence of spongocoel with ostia and single osculum and canal system, then it belongs to phylum:

- A) Porifera B) Cnidaria C) Mollusca D) Arthropoda

Q9. The meristem which gives rise to periderm is:

- A) Phellogen B) Phellem C) Phelloderm D) None of these

Q10. An arrangement of Xylem in which metaxylem is towards centre and protoxylem is towards periphery is called:

- A) Exarch B) Endarch C) Mesarch D) None of these

Q11. Which of the following statement is correct:

- A) cartilage is a type of epithelial tissue
B) tendon connects bone to muscle
C) ligament connects bone to muscle
D) none of these

Q12. Crop and Gizzard are present in which part of the alimentary canal of cockroach?

- A) Hindgut B) Foregut C) Midgut D) None of these

Q13. Which of the following statement is correct:

- A) Plasma membrane consists of lipids only
B) Plasma membrane consists of proteins only
C) Fluid mosaic model explains both structural and functional aspects of plasma membrane
D) Fluid mosaic model explains only structure of plasma membrane

Q14. Cytochrome P450 is predominantly located in:

- A) Cell wall B) Plastids C) Peroxisome D) Endoplasmic reticulum

Q15. An organelle which is important in spindle formation during cell division is:

- A) Centriole
- B) Endoplasmic reticulum
- C) Chloroplast
- D) Mitochondria

Q16. Which of the following statements is true:

- A) Nucleosome is a small nucleus present in prokaryotic cell
- B) Nucleosome term was proposed by P. Oudet
- C) Nucleosome does not include Histone proteins
- D) Nucleosomes are not present in eukaryotic chromosomes

Q17. Which of the following is/are correct:

- i) C3 plants fix carbon dioxide by Calvin Cycle only
- ii) Rubisco is not affected by presence of O_2
- iii) C4 plants fix carbon dioxide by Calvin Cycle only
- iv) C4 plants fix carbon dioxide by Calvin Cycle and Hatch & Slack Pathway

- A) i and ii
- B) i and iv
- C) i, ii, and iii
- D) None of these

Q18. During photosynthesis:

- A) water combines directly with Carbon dioxide to form glucose
- B) water splits to produce O_3
- C) water acts as electron donor
- D) water has no role

Q19. Respiratory Quotient of Organic acids, Carbohydrates and Proteins is:

- A) >1 , 1 , <1 respectively
- B) 0 , 1 , >1 respectively
- C) 1 , 1 , 0
- D) <1 , 1 , >1

Q20. Metal ion present in chlorophyll is:

- A) Ca
- B) Fe
- C) Mo
- D) Mg

Q21. Lungs are enclosed in:

- A) perichondrium
- B) pericardium
- C) pleural membrane
- D) peritoneum

Q22. An enzyme that increases the reaction rate between CO_2 and H_2O in red blood cells is:

- A) carbonic anhydrase
- B) adenylate cyclase
- C) carbonic synthetase
- D) alkaline phosphatase

Q23. The sequence of wall layers of digestive tract from inner to outer is:

- A) muscular layer, submucosa, serosa, mucosa
- B) serosa, submucosa, mucosa, muscular layer
- C) mucosa, submucosa, muscular layer, serosa
- D) mucosa, muscular layer, submucosa, serosa

Q24. Colitis is:

- A) swelling in stomach
- B) swelling in chest
- C) swelling in legs
- D) swelling in colon

Q25. The ability of producing concentrated (hypertonic) urine in vertebrates generally depends on:

- A) area of Bowman's capsule epithelium
- B) length of the proximal convoluted tubule
- C) capillary network forming glomerulus
- D) length of Henle's loop

Q26. Diuresis is the condition in which:

- A) the excretory volume of urine increases
- B) the excretory volume of urine decreases
- C) the kidneys fail to excrete urine
- D) the water balance of the body is disturbed

Q27. Actin binding sites are located on:

- A) troponin of actin
- B) tropomyosin of actin
- C) globular head of myosin
- D) short arm of myosin

Q28. Which of the following statements is correct:

- A) Cranium of a human being contains 08 bones

- B) Stapes is the longest bone in human body
- C) Bones are part of exoskeleton
- D) Femur bone is present in arm

Q29. Dichogamy is:

- A) Maturation of male and female sex organs at same time
- B) Maturation of male and female sex organs at different times
- C) a condition in which male sex organ is longer than female sex organ
- D) None of these

Q30. Pollinia are characteristic feature of:

- A) Malvaceae
- B) Fabaceae
- C) Poaceae
- D) Asclepiadaceae

Q31. Perisperm refers to:

- A) Stalk of ovule
- B) Persistent nucellus
- C) Embryo sac
- D) Persistent integuments

Q32. When a diploid female plant and a tetraploid male plant are crossed, the ploidy level of endosperm will be:

- A) tetraploid
- B) triploid
- C) diploid
- D) pentaploid.

Q33. 1st polar body is formed after which stage of oogenesis:

- A) 1st meiosis
- B) 2nd mitosis
- C) 1st mitosis
- D) Differentiation

Q34. The shared terminal duct of the reproductive and urinary system in human male is:

- A) Urethra
- B) Ureter
- C) Vas deferens
- D) Vasa efferentia

Q35. Element present in Multiload 375 (an intrauterine device) is:

- A) Iron
- B) Manganese
- C) Calcium
- D) Copper

Q36. Which of the following sexually transmitted disease does not affect the sex organs directly:

- A) Gonorrhea
- B) Syphilis
- C) AIDS
- D) Genital warts

Q37. If a plant with genotype AaBb is self-fertilized, the probability of getting AABB genotype will be (A and B are not linked):

- A) $\frac{1}{2}$
- B) $\frac{1}{4}$
- C) $\frac{1}{8}$
- D) $\frac{1}{16}$

Q38. Which of the following enzyme seals the gap in DNA:

- A) Helicase
- B) Ligase
- C) Reverse transcriptase
- D) None of these

Q39. Trisomy condition is denoted by:

- A) $2n+1$
- B) $2n+2$
- C) $2n+3$
- D) None of these

Q40. Which statement is incorrect regarding DNA replication:

- A) continuous synthesis occurs in $5' \dots 3'$ direction
- B) discontinuous synthesis occurs in $5' \dots 3'$ direction
- C) DNA polymerase catalyses polymerisation in $5' \dots 3'$ direction
- D) DNA polymerase catalyses polymerisation in $3' \dots 5'$ direction

Q41. *Gambusia* is a fish which is being introduced into the ponds in order to prevent the spread of vector borne diseases such as:

- A) Malaria
- B) Dengue
- C) Chikunguniya
- D) All of these

Q42. During the life cycle of Plasmodium, sexual reproduction occurs in:

- A) Human
- B) Female Anopheles Mosquito
- C) Male Anopheles Mosquito
- D) Both A) and B)

Q43. Methanogens do not produce:

- A) Oxygen
- B) Hydrogen sulphide
- C) Methane
- D) Carbon dioxide

Q44. Which of the following can be used as biofertilizer in paddy fields:

- A) *Azolla-Anabaena*
- B) *Streptococcus*
- C) *Lactobacillus*
- D) None of these

Q45. Which of the following is/are incorrect about enzyme *Taq* polymerase:

- i) it does not require primers for carrying out the process of polymerisation
- ii) it remains active during the high temperature induced for denaturation of dsDNA
- iii) it is used in PCR

- A) i
- B) ii, and iii
- C) i, ii, and iii
- D) None of these

Q46. Bt toxin genes have been incorporated into plants to provide resistance against:

- A) Bacteria
- B) Birds
- C) Fungi
- D) None of these

Q47. Which of the following is/are used as vectors for cloning:

- A) Cosmids
- B) Plasmids
- C) Yeast Artificial Chromosomes
- D) All of these

Q48. Which of the following is/are transgenic animals:

- A) Rosie cow
- B) Dolly sheep
- C) both A and B
- D) None of these

Q49. Which rule states that mammals from cooler climates generally have shorter ears and limbs to minimise heat loss:

- A) Bergman's
- B) Allen's
- C) Jorden's
- D) Newman's

Q50. An urn shaped population age pyramid represents:

- A) static population
- B) declining population
- C) growing population
- D) none of these

Q51. The rate of production of organic matter by consumers is:

- A) Net productivity
- B) Net Primary productivity

- C) Secondary productivity D) Gross productivity

Q52. The zone at the edge of the lake or ocean which is alternatively exposed to air and immersed in water is called:

- A) Benthic Zone B) Pelagic Zone
C) Littoral Zone D) Lentic Zone

Q53. The concept that communities with more species tend to be more stable than species poor communities was confirmed by:

- A) Edward Wilson B) Webber
C) Alexander von Humboldt D) David Tilman

Q54. Four principal causes for biodiversity loss proposed by Jarod Diamond are referred to as:

- A) Four wheels B) Four checks
C) Evil quadrant D) Evil quartet

Q55. The thickness of Ozone in a column of air in the atmosphere is measured in terms of:

- A) Decibels B) Decameter C) Kilobase D) Dobson Units

Q56. First Earth Summit for Convention on Biological Diversity was held in:

- A) Johannesburg (2002), South Africa
B) Rio de Janeiro (1992), Brazil
C) New Delhi (1992), India
D) New York (1992), USA

Q57. Identify the mismatched pair:

- A) Vestigial organ- Coccyx
B) Apomorphic characters- advanced characters
C) Alfred Wallace- Ontogeny repeats phylogeny
D) Synapomorphic characters- primitive characters

Q58. From evolutionary point of view, the preserved fossil remains of *Archaeopteryx* reveals that:

- A) reptiles are more advanced than mammals
- B) reptiles gave rise to birds
- C) amphibians gave rise to birds
- D) None of these

Q59. Single step large mutation leading to speciation is also known as:

- A) Bottle neck effect
- B) Founder's effect
- C) Natural selection
- D) Saltation

Q60. Change in frequency of genes due to chance is:

- A) Genetic drift
- B) Founder's effect
- C) Gene flow
- D) Mutation
