

SET 2013
PAPER – II

LIFE SCIENCES

Signature of the Invigilator

Question Booklet No.

1.

OMR Sheet No..

Subject Code

ROLL No.

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Time Allowed : 75 Minutes

Max. Marks : 100

No. of pages in this Booklet : 8

No. of Questions : 50

INSTRUCTIONS FOR CANDIDATES

1. Write your Roll No and the OMR Sheet No in the spaces provided on top of this page.
2. Fill in the necessary information in the spaces provided on the OMR response sheet.
3. This booklet consists of fifty (50) compulsory questions each carrying 2 marks.
4. Examine the question booklet carefully and tally the number of pages/questions in the booklet with the information printed above. **Do not accept a damaged or open booklet.** Damaged or faulty booklet may be got replaced within the first 5 minutes. Afterwards, neither the Question Booklet will be replaced nor any extra time given.
5. Each Question has four alternative responses marked (A), (B), (C) and (D) in the OMR sheet. You have to completely darken the circle indicating the most appropriate response against each item as in the illustration.

A B C D
6. All entries in the common OMR response sheet for Papers I and II are to be recorded in the original copy only.
7. Use only Blue/Black Ball point pen.
8. Rough Work is to be done on the blank pages provided at the end of this booklet.
9. If you write your Name, Roll Number, Phone Number or put any mark on any part of the OMR Sheet, except in the spaces allotted for the relevant entries, which may disclose your identity, or use abusive language or employ any other unfair means, you will render yourself liable to disqualification.
10. You have to return the Original OMR Sheet to the invigilators at the end of the examination compulsorily and must not carry it with you outside the Examination Hall. **You are, however, allowed to carry the test booklet and the duplicate copy of OMR Sheet** on conclusion of examination.
11. Use of any calculator, mobile phone or log table etc. is strictly prohibited.
12. **There is no negative marking.**

03-13

LIFE SCIENCES
PAPER-II

Note : This paper contains **fifty (50)** objective type questions, each question carrying **two (2)** marks.
Attempt **all** the questions.

1. Nitrite reductase is synthesized in _____ and acts on nitrite in _____.
(A) Cytoplasm; plastids
(B) Plastids; cytoplasm
(C) Plastids; plastids
(D) Cytoplasm; cytoplasm
2. Which of the following macromolecules associated with plant cell wall is a highly branched polymer of phenylpropanoid alcohols ?
(A) Lignin
(B) Cutin
(C) Waxes
(D) Suberin
3. Which of the following is an alkaloid ?
(A) Reserpine
(B) Tannin
(C) Azadirachtin
(D) Cyanidin
4. In photorespiration, glycolate is converted to CO₂ and serine in :
(A) Mitochondria
(B) Chloroplasts
(C) Peroxisomes
(D) Vacuoles
5. Which of the following compounds can be used as an efficient agent to defoliate broad leaf weeds ?
(A) Isopentyl adenine
(B) 2,4,5 trichloroacetic acid
(C) Indole-3-acetic acid
(D) Ethaphon
6. Which of the following chemicals is not used as an inhibitor of photosynthetic electron transport ?
(A) DCMU
(B) Atrazine
(C) Metyl viologen
(D) EDTA
7. Photosynthetically Active Radiation (PAR) consists of _____ in the electromagnetic spectrum of light.
(A) 300-700 nm
(B) 400-700 nm
(C) 300-800 nm
(D) 400-800 nm
8. A fatty acid with 14 C-atoms will undergo how many cycles of β -oxidation ?
(A) 7
(B) 4
(C) 6
(D) 5
9. Synaptonemal complex is completed during :
(A) Leptotene
(B) Pachytene
(C) Diplotene
(D) Diakinesis
10. A baker forgets to put yeast in his bread dough. Which of the following will happen ?
(A) The bread will not rise
(B) The bread will look normal but will be tough
(C) Bacterial contaminants will not be able to grow on bread
(D) The bread will have a sour taste

11. Example of a typical homopolysaccharide is :
 (A) Sucrose
 (B) Suberin
 (C) Lignin
 (D) Starch
12. 2-amino 6-oxypurine is also known as :
 (A) Adenine
 (B) Xanthine
 (C) Guanine
 (D) Hypoxanthine
13. _____ is a measure of randomness or disorder.
 (A) Metabolism
 (B) Synthesis
 (C) Entropy
 (D) Coupled reaction
14. The two kingdoms of bacteria are :
 (A) Anaerobic and Aerobic
 (B) Eubacteria and Archaeobacteria
 (C) Cyanobacteria and Magnabacteria
 (D) Eucalyptic and Archaeic
15. In SLOSS debate on ecology and conservation biology, the acronym refers to :
 (A) Single large or single small
 (B) Several large or single small
 (C) Single large or several small
 (D) Several large or several small
16. Which one of the following statements is NOT correct about 'Green House Effect'?
 (A) It is essential for sustenance of life on earth
 (B) Increase in CO₂ content on earth is responsible for global warming
 (C) Water vapours contribute to greenhouse effect
 (D) Rice paddy field and death and decay of plants consume methane and nitrous oxide which are the greenhouse gases
17. Functions, such as precipitation, flood control and pollination, supplied free to humanity by natural ecosystems are examples of :
 (A) Ecosystem goods
 (B) Ecosystem services
 (C) Ecosystem produce
 (D) Ecosystem properties
18. Bioassay refers to the use of living cells or organisms :
 (A) To make quantitative or qualitative measurements of substances
 (B) For estimating the environmental change
 (C) For detecting the crime
 (D) For assaying the cellular changes
19. 'Codon usage bias' refers to :
 (A) Difference in the frequency of occurrence of synonymous codon in coding DNA
 (B) Codons encoding same amino acid may differ in any of their three positions
 (C) Addition of non-natural amino acids to the proteins
 (D) A quadruplet codon that gives rise to the triplet codon
20. Chromatin immunoprecipitation is a technique which identifies the :
 (A) DNA sites available for binding of gene regulatory proteins in living cells
 (B) DNA sites available for binding of gene regulatory proteins in dead cells
 (C) DNA sites occupied by gene regulatory proteins in living cells
 (D) DNA sites occupied by gene regulatory proteins in dead cells

21. Marker-assisted plant breeding increases efficiency and precision, particularly for traits which show :
- High heritability
 - Low heritability
 - No heritability
 - All of the above
22. Enzymes with two binding sites are called :
- Apoenzymes
 - Holoenzymes
 - Allosteric enzymes
 - Conjugated enzymes
23. Myoglobin binds with _____ molecule of O_2 .
- One
 - Two
 - Three
 - Four
24. Insulin promotes entry of glucose into :
- Renal tubules
 - Neurons
 - Skeletal muscle cells
 - The mucosa of the small intestine
25. Conversion of amino acids into fatty acids is called :
- Glycolysis
 - Ketogenesis
 - Glycogenolysis
 - Gluconeogenesis
26. Which of the following is NOT found in blood ?
- Fibrinogen
 - Glucose
 - Urea
 - Glycogen
27. Colour of the eye like blue or black is due to :
- Sclera
 - Retina
 - Iris
 - Choroid
28. Which of the following is used for suspension feeding by fish ?
- Gill filaments
 - Gill rakers
 - Gill arches
 - Gill lamellae
29. Which of the following statements is the most appropriate for sickle cell anaemia ?
- It cannot be treated with iron supplements
 - It is a molecular disease
 - It confers resistance to acquiring malaria
 - All of the above
30. Which was the last human chromosome to be completely sequenced ?
- Chromosome 1
 - Chromosome 11
 - Chromosome 21
 - Chromosome X
31. Person having genotype $I^A I^B$ would show the blood group as AB. This is because of :
- Pleiotropy
 - Co-dominance
 - Segregation
 - Incomplete dominance
32. The inheritance pattern of a gene over generations among humans is studied by the pedigree analysis. Character studied in the pedigree analysis is equivalent to :
- Quantitative trait
 - Mendelian trait
 - Polygenic trait
 - Maternal trait

33. The common intermediate of carbohydrate, protein and lipid metabolism is :
- Ammonia
 - Pyruvic Acid
 - Acetyl coA
 - Phosphoglyceraldehyde
34. A lack of blood glucose would have the greatest effects on :
- Heart
 - Liver
 - Brain
 - Kidney
35. The linear sequence of amino acids in a protein is called the _____ structure.
- Primary
 - Secondary
 - Tertiary
 - Quaternary
36. Lipids are transported into the sieve tube elements by the process of :
- Osmosis
 - Diffusion
 - Transpiration
 - Active transportation
37. Activation of which of the following genes is involved during transition from vegetative to reproductive shoot ?
- WUSCHEL*
 - CLAVATA*
 - AGAMOUS*
 - APETALA1*
38. Out of the 25 Ramsar Sites in India, maximum are located in :
- Rajasthan
 - Orissa
 - Jammu and Kashmir
 - Kerala
39. High species diversity and nutrient poor soil are characteristic features of ____ biome.
- Taiga
 - Tropical evergreen
 - Tundra
 - Tropical deciduous
40. Pollen tube attraction near the ovule is facilitated by the :
- Antipodals
 - Egg cell
 - Synergids
 - Polar nuclei
41. Which one of the following statements about ELISA test is NOT correct ?
- The results of ELISA test can be read visibly
 - The test is based on one enzyme and one immunosorbent
 - It is also called Liquid Phase Immunosorbent Assay
 - The intensity of the colour developed indicates the amount of antigen or antibody
42. Confidence of interval computed at 99 per cent confidence in comparison to 95 per cent :
- Will be narrower
 - Will not differ
 - Will imply increase in sample size
 - Will be wider
43. Which of the following is NOT a constituent of nucleotides ?
- Nitrogenous base
 - Five carbon sugar
 - Amino acid
 - Phosphate group
44. Which of the following brings amino acids to ribosomes during protein synthesis ?
- Messenger RNA
 - Transfer RNA
 - Ribosomal RNA
 - Micro RNA

45. Which of the following is NOT a pyrimidine ?
(A) Cytosine
(B) Adenine
(C) Thymine
(D) Uracil
46. Which of the following is NOT true about *Drosophila melanogaster* ?
(A) They can be grown very easily in the laboratory conditions
(B) They are prokaryotes
(C) There is clear differentiation of male and female individuals
(D) Single mating can produce a large number of offsprings
47. Genes of a species showing homology due to their origin by duplication are termed as :
(A) Orthologous
(B) Paralogous
(C) Pseudogenes
(D) Analogous
48. Which of the following fractions of the genome is represented in cDNA library ?
(A) Protein coding
(B) Noncoding
(C) Intronic sequences
(D) Retrotransposons
49. The strategy used by Craig Venter for sequencing the whole genome involves :
(A) Linkage mapping
(B) Physical mapping
(C) Direct sequencing of DNA fragments
(D) Sequencing of cDNA fragments
50. The rhizobia synthesizes species-specific nodulation factors (*Nod* factors) for the recognition of the host root hair. Chemically, *Nod* factors are the :
(A) Kinases
(B) Flavanoids
(C) Lipochito-oligosaccharides
(D) Neutral lipids

ROUGH WORK

ROUGH WORK