

# LIFE SCIENCE

Name & Signature of the Invigilator

**PAPER-II**  
**OCT-14/04**

ICR Answer Sheet No. :

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Roll No. :

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Roll Number in words : .....




**Time : 1.15 Hours**

**No. of Printed Pages : 16**

**[Maximum Marks : 100**

## Instructions for the Candidates

1. Write your Roll Number in the space provided on the top of this page.
2. This paper consists of fifty (50) multiple choice type questions. All questions are compulsory.
3. At the commencement of examination, the question booklet will be given to candidate. In the first 5 minutes, candidate is requested to open the booklet and compulsorily examine it as below :
  - (i) To have access to the question booklet, tear off the paper seal on the edge of this cover page. Do not accept a booklet without sticker-seal and do not accept an open booklet.
  - (ii) Tally the number of pages and number of questions in the booklet with the information printed on the cover page. Faulty booklets due to pages/questions missing or duplicate or not in serial order or any other discrepancy should be got replaced immediately by a correct booklet from the invigilator within the period of five minutes. Afterwards, neither the question booklet will be replaced nor any extra time will be given.
  - (iii) After this verification is over, the test booklet number should be entered in the ICR answer sheet and the ICR Answer Sheet number should be entered on this test booklet.
4. Each item has upto four alternative responses marked (A), (B), (C) and (D). The answer should be a capital letter for the selected option. The answer letter should entirely be contained within the corresponding square.

Correct method  Wrong method  OR 
5. Your responses to the items for this paper are to be indicated on the ICR Answer Sheet under Paper II only.
6. Read instructions given inside carefully.
7. Rough work is to be done in the end of the booklet only.
8. You have to return the original ICR Answer 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 duplicate copy of ICR sheet and test booklet on conclusion of the examination.
9. Use black ball point pen.
10. Use of any Calculators or log tables or any other electronic devices is prohibited.
11. There shall be no negative marking.
12. In case of any discrepancy in Gujarati and English version of questions the English version should be taken as final.

## પરીક્ષાર્થીઓ માટે સૂચનાઓ :

1. આ પાનાની ટોચમાં દર્શાવેલી જગ્યામાં તમારો રોલનંબર લખો.
2. આ પ્રશ્નપત્રમાં બહુવૈકલ્પિક ઉત્તરો ધરાવતા કુલ પચાસ (૫૦) પ્રશ્નો આપેલા છે. બધા જ પ્રશ્નો ફરજિયાત છે.
3. પરીક્ષાની શરૂઆતમાં ઉમેદવારને પ્રશ્નપુસ્તિકા આપવામાં આવશે. પ્રથમ ૫ મિનિટ દરમિયાન, ઉમેદવારે પ્રશ્નપુસ્તિકા ખોલી અને ફરજિયાતપણે નીચે મુજબ પરીક્ષણ કરવું.
  - (i) પ્રશ્નપુસ્તિકાનો વપરાશ કરવા માટે આ કવર પેજની ધાર પર આપેલ સીલ ફાડી નાખો. કોઈપણ સંજોગોમાં સીલ સ્ટીકર વગરની કે ખુલ્લી પ્રશ્નપુસ્તિકા સ્વીકારશો નહીં.
  - (ii) કવર પૃષ્ઠ પર છપાયેલ નિર્દેશાનુસાર પ્રશ્નપુસ્તિકાના પ્રશ્નો પુષ્કો અને સંખ્યાને બરાબર ચકાસી લો. ખામીયુક્ત પ્રશ્નપુસ્તિકા કે જેમાં પૃષ્ઠો/પ્રશ્નો ઓછા હોય, બે વાર છપાયા હોય, અનુક્રમમાં અથવા કોઈ અન્ય ફરક હોય અર્થાત કોઈપણ કારણે ખામીયુક્ત પ્રશ્નપુસ્તિકા સ્વીકારવી નહીં. એને જો ખામીયુક્ત પ્રશ્નપુસ્તિકા મળી હોય તો નિરીક્ષક પાસેથી તુરંત જ બીજી સારી પ્રશ્નપુસ્તિકા મેળવી લેવી. આ માટે ઉમેદવારને પાંચ મિનિટનો સમયગાળો આપવામાં આવશે. પછીથી, પ્રશ્નપુસ્તિકા બદલવામાં આવશે નહીં કે કોઈ વધારાનો સમય પણ આપવામાં આવશે નહીં.
  - (iii) આ ચકાસણી સમાપ્ત થાયપછી, ટેસ્ટ પુસ્તિકા નંબર ICR જવાબ પત્રકમાં લખવો અને ICR જવાબ પત્રક નંબર પ્રશ્નપુસ્તિકા પર લખવો.
4. પ્રત્યેક પ્રશ્ન માટે ચાર ઉત્તર વિકલ્પ (A), (B), (C) અને (D) આપવામાં આવેલ છે. પસંદગીનો જવાબ માત્ર અંગ્રેજી કેપીટલ મૂળાક્ષર દ્વારા જ આપવો. પસંદ કરેલ અંગ્રેજી કેપીટલ અક્ષર આપેલ પાનામાં સંપૂર્ણ રીતે સમાઈ જાય તે રીતે લખવો.

સાચી રીત :



ખોટી રીત :



અથવા



5. આ પ્રશ્નપુસ્તિકાના પ્રશ્નોના જવાબ અલગથી આપવામાં આવેલ ICR જવાબ પત્રકમાં પેપર-૨ લખેલ વિભાગમાં જ લખવા.
6. અંદર આપેલ સૂચનાઓ ધ્યાનપૂર્વક વાંચો.
7. આ પ્રશ્નપુસ્તિકાની અંતે આપેલ પાનું રફ કામ માટે છે.
8. પરીક્ષા સમય પૂરો થઈ ગયા પછી ઓરીજનલ ICR જવાબ પત્રક જે તે નિરીક્ષકને ફરજિયાત સોંપી દેવું અને કોઈપણ સંજોગોમાં પરીક્ષાખંડની બહાર જઈ શકશે નહીં. પરીક્ષા પૂર્ણ થયા બાદ ઉમેદવાર પ્રશ્નપુસ્તિકા તથા ICR જવાબવહીની ડુપ્લિકેટ કોપી પોતાની સાથે લઈ જઈ શકે છે.
9. માત્ર કાળી પેન/કાળી બોલ પેન વાપરવી.
10. કેલ્ક્યુલેટર અને અન્ય ઈલેક્ટ્રોનિક યંત્રોનો ઉપયોગ કરવાની મનાઈ છે.
11. ખોટા જવાબ માટે નેગેટિવ ગુણાંકન પ્રથા નથી.
12. પ્રશ્નપુસ્તિકાના કોઈ પ્રશ્નમાં અનુવાદ અંગે કોઈ વિવાદ/મતભેદ જણાય તો અંગ્રેજી વર્જન યોગ્ય ગણાશે.



## LIFE SCIENCE

### PAPER-II

*Note* : This paper contains **FIFTY (50)** multiple-choice matching questions, each question carrying **TWO (2)** marks. Attempt **All** the questions.

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1. Cell membrane damage causes cell death because the cell :  
(A) Undergoes osmotic lysis                      (B) Contents leak out  
(C) Plasmolyzes                                      (D) Lacks wall
  
2. The natural death of a neuron is due to :  
(A) Reduction in functional ribosomes  
(B) Accumulation of residual bodies  
(C) Failure in organization of microtubules  
(D) Mutation of genes
  
3. Acid fast staining, characteristic of mycobacteria appears to be due to which of the following cell wall constituents ?  
(A) Mycolic acid                                      (B) Lipopolysaccharide  
(C) Lipid-A    (D) N-acetyl muramic acid
  
4. An important sub-unit vaccine is :  
(A) Pertusis vaccine                                      (B) Sabin vaccine  
(C) Salk vaccine    (D) Measles vaccine

5. Which of these statements is *correct* ?

- (A) Endoplasmic reticulum is found only in eucaryotic cells
- (B) Endoplasmic reticulum is found in both pro and eucaryotic cells
- (C) Endoplasmic reticulum never has ribosomes associated with it
- (D) Endoplasmic reticulum is involved in the process of pinocytosis

6. *Nanoarchaeum equitans* is a/an :

- (A) Actinobacterium
- (B) Spirochaete
- (C) Archaeobacterium
- (D) Mycoplasma

7. The largest bacterium is :

- (A) Epulopiscium
- (B) Bacillus
- (C) Geobacter
- (D) Thiomargarita

8. Hexokinase cannot phosphorylate :

- (A) Glucose
- (B) Fructose
- (C) Mannose
- (D) Galactose

9. Long chain fatty acids are first catabolized in :

- (A) Mitochondria (B) Peroxisomes  
(C) Lysosome (D) Cytosol

10. Synthesis of thromboxane A<sub>2</sub> is inhibited by :

- (A) Cyanide (B) Aspirin  
(C) Penicillin (D) Fluoride

11. A carbonated drink of pH 3.0, is how many times more acidic than distilled water ?

- (A) 10 (B) 100  
(C) 1000 (D) 10,000

12. The lipid lacking fatty acids is :

- (A) Sphingolipid (B) Cholesterol  
(C) Phosphatidyl serine (D) Phospholipid

13. The cofactor of oxido-reductase responsible for transmitting electrons to photosystem-I during photosynthesis is :
- (A) Plastoquinone                      (B) Plastocyanin
- (C) Ferredoxin                          (D) Cytochrome  $a_3$
14. An enzyme facilitates chemical reaction by :
- (A) Increasing free energy difference between reactants and products
- (B) Decreasing free energy difference between reactants and products
- (C) Lowering the activation energy of the reaction
- (D) Raising the activation energy of the reaction
15. Which of the following is involved at substrate level phosphorylation ?
- (A) Hexokinase
- (B) Pyruvate kinase
- (C) Phosphofructokinase
- (D) Glyceraldehyde-3-phosphodehydrogenase

16. Proteins are separated by SDS PAGE on the basis of :
- (A) charge (B) mass  
(C) charge/mass (D) conformation
17. Vitamin-K is important for blood coagulation because it :
- (A) Activates factor X  
(B) It converts prothrombin-thrombin  
(C) Acts as a co-factor for enzyme co-carboxylase  
(D) It converts fibrinogen to fibrin
18. Auxin increases the :
- (A) Plasticity of cell wall (B) Elasticity of cell wall  
(C) Break-down of cell wall (D) Clumping of cell
19. *Helicobacter pylori* uses urease to counteract a chemical defence in human organ in which it lives. This chemical defence is :
- (A) Lysozyme (B) HCl  
(C) Superoxide radicals (D) Sebum

20. Excitable membranes have an abundance of :

- (A) Facilitator proteins                      (B) Ion-dependent ATPases  
(C) Ion-channels                                (D) G-protein receptors

21. Which of the following tissues converts Pyruvate to Lactate very efficiently ?

- (A) Liver    (B) Muscle  
(C) Adipose tissue                                (D) Brain

22. To attract the symbiotic bacteria in the rhizosphere plants secrete .....

- (A) Lectins    (B) Allomones  
✓ (C) Flavonoids                                      (D) Cytokinin

23. The multiplication of vegetative cells in *Schizosaccharomyces pombe* is by :

- (A) Fission    (B) Budding  
(C) Endospore formation                        (D) Conidiation



24. Post-zygotic meiosis is common in :

(A) Gymnosperms

(B) Ferns

(C) Mosses

(D) Monocots

25. Ovotestes are found in :

(A) Pila

(B) Earthworm

(C) Lobster

(D) Hydra

26. In which one of these animals, asexual reproduction is common ?

(A) Salamander

(B) Scaly-ant eater

(C) Honey bee

(D) Leech

27. Which of the following is cryoprotector ?

(A) Glycerol

(B) Glucose

(C) Sodium chloride

(D) Paraffin

28. DNA in eukaryotic chromosomes is associated with :

- (A) Histone (B) Actin  
(C) Proteins (D) Acidic proteins

29. How many phenotypes can be seen in the progeny of trihybrid cross ?

- (A) 4 (B) 6  
(C) 8 (D) 16

30. Which histone maintains the integrity of nucleosome ?

- (A)  $H_1$  (B)  $H_{2A}$   
(C)  $H_3$  (D)  $H_4$

X 31. In plants the maternal influence in extra-nuclear inheritance owes to :

- (A) Kappa particles (B) Ergastic substances  
(C) Centrosomere (D) Chloroplast

32. If the frequency of double cross over is more for two genes, then they are .....

- (A) Very close to one another
- (B) Very far from one another
- (C) Very close to centromere
- (D) Very far from centromere

33. Restriction enzymes were first discovered with the observation :

- (A) DNA restricted to nucleus
- (B) Phage DNA is destroyed in a host cell
- (C) Foreign DNA is restricted to the cytoplasm
- (D) None of the above

34. Who discovered jumping genes in maize ?

- (A) Barbara McClintock
- (B) S. Waksman
- (C) Stanley Prusiner
- (D) Hargovind Khorana

35. First life originated on Earth :

(A) 3.5 billion years ago (B) 4.5 billion years ago

(C) 2.5 billion years ago (D) 1.5 billion years ago

36. Gases in the atmosphere of Earth at the time when life began :

(A) Rich in O<sub>2</sub> (B) Rich in CO<sub>2</sub>

(C) Were highly reducing (D) Were highly oxidizing

37. Teleomorph of *Fusarium moniliforme* is :

(A) *Gibberella* (B) *Morchella deliciosa*

(C) *Chaetomium thermophile* (D) *Achaetomium macrosporum*

38. Who had provided strong evidences against the theory of spontaneous generation of life ?

(A) Joseph Lister (B) Robert Koch

(C) Francisco Redi (D) Louis Pasteur

39. BOD is an index of :

- (A) Number of microorganisms
- (B) Amount of organic matter
- (C) Amount of inorganic matter
- (D) Amount of detergent

40. Minamata disease is due to pollution of water by :

- (A) Zinc
- (B) Mercury
- (C) Copper
- (D) Nickel

41. Ozone layer of Earth's atmosphere is damaged by :

- (A) Sulphur dioxide
- (B) Chlorofluorocarbon
- (C) Carbon monoxide
- (D) Ultraviolet rays

42. Which of the following reactions is an oxidation carried out by *Acidithiobacillus ferrooxidans* ?

- (A)  $\text{Fe}^{2+} \rightarrow \text{Fe}^{3+}$
- (B)  $\text{Fe}^{3+} \rightarrow \text{Fe}^{2+}$
- (C)  $\text{CuS} \rightarrow \text{CuSO}_4$
- (D) None of these

43. Binomial nomenclature was first proposed by :

(A) Bauhin

(B) Linnaeus

(C) Hutchinson

(D) De-Candolle

44. *Vinca rosea* weed is a source for a drug for treatment of :

✓ (A) All types of cancer

(B) Cancer of lung

(C) Leukemia

(D) None of these

45. The most common technique used for preserving microbial culture is :

(A) Drying

(B) Dehydration

✓ (C) Lyophilisation

(D) None of these

46. Smooth endoplasmic reticulum in retinal cells is called :

(A) Sarcoplasmic reticulum

✓ (B) Retinal reticulum

(C) Myeloid bodies

(D) Amyloid bodies

47. Which is often added to wine, to inhibit the growth of microbial populations of grape ?

- (A) Benzoic acid (B) Lactic acid  
(C) Oxygen (D) Sulphur dioxide

48. A fibre of commercial importance is derived from epidermis ?

- (A) Flax (B) Coir  
(C) Hemp (D) Cotton

49. Conversion of ammonia into nitrate is called :

- (A) Ammonification (B) Nitrification  
(C) Deamination (D) Nitrate reduction

50. Colchicine is obtained from which part of the plant *Colchicum autumnale* :

- (A) Rhizome (B) Corm *Corm, bulbous tuber*  
(C) Bulbs (D) Root tuber

**ROUGH WORK**

SEAL