Test Booklet Code & Serial No.
प्रश्नपत्रिका कोड व क्रमांक

B

Paper-II
LIFE SCIENCE

Signature and Name of Invigilator

1. (Signature) .....

   (Name) .....

2. (Signature) .....

   (Name) .....

Seat No. | | | | | | |

(In figures as in Admit Card)

Seat No. .....

(In words)

OMR Sheet No. | | | | | | |

(To be filled by the Candidate)

JUN - 34219

Time Allowed : 2 Hours] **[Maximum Marks : 200**

Number of Pages in this Booklet : **24** Number of Questions in this Booklet : **100**

Instructions for the Candidates

1. Write your Seat No. and OMR Sheet No. in the space provided on the top of this page.
2. This paper consists of **100** objective type questions. Each question will carry *two* marks. *All* questions of Paper II will be compulsory.
3. At the commencement of examination, the question booklet will be given to the student. In the first 5 minutes, you are requested to open the booklet and compulsorily examine it as follows :
   (*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 or 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 missing pages/questions or questions repeated or not in serial order or any other discrepancy should not be accepted and correct booklet should be obtained from the invigilator within the period of 5 minutes. Afterwards, neither the Question Booklet will be replaced nor any extra time will be given. The same may please be noted.
   (*iii*) After this verification is over, the OMR Sheet Number should be entered on this Test Booklet.
4. Each question has four alternative responses marked (A), (B), (C) and (D). You have to darken the circle as indicated below on the correct response against each item.
   Example : where (C) is the correct response.

   (A) (B) ● (D)

5. Your responses to the items are to be indicated in the **OMR Sheet given inside the Booklet only.** If you mark at any place other than in the circle in the OMR Sheet, it will not be evaluated.
6. Read instructions given inside carefully.
7. Rough Work is to be done at the end of this booklet.
8. If you write your Name, Seat Number, Phone Number or put any mark on any part of the OMR Sheet, except for the space 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.
9. You have to return original OMR Sheet to the invigilator 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 duplicate copy of OMR Sheet on conclusion of examination.
10. Use only Blue/Black Ball point pen.
11. Use of any calculator or log table, etc., is prohibited.
12. There is no negative marking for incorrect answers.

विद्यार्थ्यांसाठी महत्त्वाच्या सूचना

1. परिक्षार्थींनी आपला आसन क्रमांक या पृष्ठावरील वरच्या कोपऱ्यात लिहावा. तसेच आपणांस दिलेल्या उत्तरपत्रिकेचा क्रमांक त्याखाली लिहावा.
2. सदर प्रश्नपत्रिकेत 100 बहुपर्यायी प्रश्न आहेत. प्रत्येक प्रश्नास **दोन** गुण आहेत. या प्रश्नपत्रिकेतील **सर्व** प्रश्न सोडविणे अनिवार्य आहे.
3. परीक्षा सुरू झाल्यावर विद्यार्थ्याला प्रश्नपत्रिका दिली जाईल. सुरुवातीच्या 5 मिनीटांमध्ये आपण सदर प्रश्नपत्रिका उघडून खालील बाबी अवश्य तपासून पहाव्यात.
   (*i*) प्रश्नपत्रिका उघडण्यासाठी प्रश्नपत्रिकेवर लावलेले सील उघडावे. सील नसलेली किंवा सील उघडलेली प्रश्नपत्रिका स्विकारू नये.
   (*ii*) पहिल्या पृष्ठावर नमूद केल्याप्रमाणे प्रश्नपत्रिकेची एकूण पृष्ठे तसेच प्रश्नपत्रिकेतील एकूण प्रश्नांची संख्या पडताळून पहावी. पृष्ठे कमी असलेली/कमी प्रश्न असलेली/प्रश्नांचा चुकीचा क्रम असलेली किंवा इतर त्रुटी असलेली सदोष प्रश्नपत्रिका सुरुवातीच्या 5 मिनिटातच पर्यवेक्षकाला परत देऊन दुसरी प्रश्नपत्रिका मागवून घ्यावी. त्यानंतर प्रश्नपत्रिका बदलून मिळणार नाही तसेच वेळही वाढवून मिळणार नाही याची कृपया विद्यार्थ्यांनी नोंद घ्यावी.
   (*iii*) वरीलप्रमाणे सर्व पडताळून पाहिल्यानंतरच प्रश्नपत्रिकेवर ओ.एम.आर. उत्तरपत्रिकेचा नंबर लिहावा.
4. प्रत्येक प्रश्नासाठी (A), (B), (C) आणि (D) अशी चार विकल्प उत्तरे दिली आहेत. त्यातील योग्य उत्तराचा रकाना खाली दर्शविल्याप्रमाणे ठळकपणे काळा/निळा करावा.
   उदा. : जर (C) हे योग्य उत्तर असेल तर.

   (A) (B) ● (D)

5. या प्रश्नपत्रिकेतील प्रश्नांची उत्तरे **ओ.एम.आर. उत्तरपत्रिकेतच दर्शवावीत.** इतर ठिकाणी लिहिलेली उत्तरे तपासली जाणार नाहीत.
6. आत दिलेल्या सूचना काळजीपूर्वक वाचाव्यात.
7. प्रश्नपत्रिकेच्या शेवटी जोडलेल्या कोऱ्या पानावरच कच्चे काम करावे.
8. जर आपण ओ.एम.आर. वर नमूद केलेल्या ठिकाणा व्यतिरीक्त इतर कोठेही नाव, आसन क्रमांक, फोन नंबर किंवा ओळख पटेल अशी कोणतीही खूण केलेली आढळून आल्यास अथवा असभ्य भाषेचा वापर किंवा इतर गैरमार्गाचा अवलंब केल्यास विद्यार्थ्याला परीक्षेस अपात्र ठरविण्यात येईल.
9. परीक्षा संपल्यानंतर विद्यार्थ्याने मूळ ओ.एम.आर. उत्तरपत्रिका पर्यवेक्षकांकडे परत करणे आवश्यक आहे. तथापि, प्रश्नपत्रिका व ओ.एम.आर. उत्तरपत्रिकेची द्वितीय प्रत आपल्याबरोबर नेण्यास विद्यार्थ्यांना परवानगी आहे.
10. फक्त निळ्या किंवा काळ्या बॉल पेनचाच वापर करावा.
11. कॅलक्युलेटर किंवा लॉग टेबल वापरण्यास परवानगी नाही.
12. चुकीच्या उत्तरासाठी गुण कपात केली जाणार नाही.

Life Science

Paper II

Time Allowed : 120 Minutes] **[Maximum Marks : 200**

Note : This Paper contains **Hundred (100)** multiple choice questions. Each question carrying **Two (2)** marks. Attempt *All* questions.

1. Which one of the following is *NOT* a function of kidney ?

   (A) Thermoregulation

   (B) Coordinated muscle movement

   (C) Blood pressure control

   (D) Maintaining ionic balance and pH of the blood

2. Somatostatins and opioids are examples of :

   (A) Purine neurotransmitters

   (B) Peptide neurotransmitters

   (C) Amino acid neurotransmitters

   (D) Mono amine neurotransmitters

3. Nucellar polyembryony is common in species of :

   (A) *Citrus*

   (B) *Citronella*

   (C) *Croton*

   (D) *Crotallaria*

4. The conformation of the polypeptide chain is determined by the torsion or rotation angles around C_α–N and C_α–C bonds of each amino acid participating in it. Which of the following pairs of amino acids is conformationally the most and the least restricted amino acids ?

   (A) Glycine and Proline

   (B) Proline and Alanine

   (C) Alanine and Proline

   (D) Proline and Glycine

5. Prostaglandin H_2 synthase a key enzyme in the synthesis of prostaglandins from linear fatty acid has two types of catalytic activities. They are :

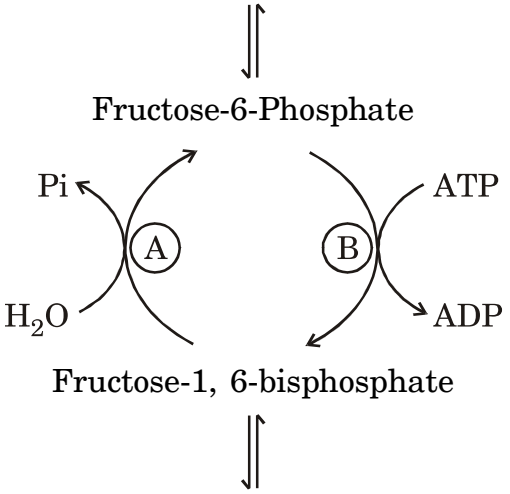
(A) Cyclooxygenase and Reductase

(B) Monooxygenase and Reductase

(C) Monooxygenase and Peroxidase

(D) Cyclooxygenase and Peroxidase

6. Glucose-6-Phosphate



Glyceraldehyde-3-Phosphate +
Dihydroxyacetone Phosphate

Such a set of opposing reaction shown as (A) and (B) in above figure is an example of :

(A) Reversible reaction

(B) Substrate cycle

(C) Product cycle

(D) Enzyme cycle

7. In a normal kidney Bowman's capsule, the blood is filtered and the filtrate contains :

(A) RBC, haemoglobin, water, glucose and small molecular weight proteins

(B) Water and glucose

(C) Water, glucose and large molecular weight proteins

(D) Only water

8. In tender coconut, initially the endosperm is :

(A) Free nuclear

(B) Cellular

(C) Helobial

(D) Both cellular and helobial

9. The lymphatic system has the following functions *except* :

(A) It maintains the balance of fluid between the blood and tissues, known as fluid homeostasis.

(B) It forms part of the immine system and helps defend against bacteria and other pathogens.

(C) It facilitates absorption of fats and fat-soluble nutrients in the digestive system.

(D) It facilitates exchange of gases in tissues.

10. Which is the source of foodstuff 'Nori' ?

(A) *Porphyra*

(B) *Polytrichum*

(C) *Potamogeton*

(D) *Pteridium*

11. Liver is the principal site of synthesis of :

(A) Plasma albumin

(B) Plasma globulin

(C) Vitamin B_{12}

(D) Vitamin C

12. Which one of the following mutagens can add alkyl group to guanine resulting in direct mispairing with thymine ?

(A) 5-bromo uracil

(B) UV-rays

(C) Acridine orange

(D) EMS

13. Hox genes are critical for the proper placement of segment structures of animals during early embryonic development *except* :

(A) Different vertebrae of humans

(B) Caecum in humans

(C) Antennae in fruit flies

(D) Wings in fruit flies

14. Mutation in which one of the following proteins will inhibit recognition of mismatched base pairs during DNA repair ?

(A) Mut H

(B) Mut S

(C) Uvr D

(D) Mut L

15. ..... is involved in the specification of germ cells in all animals studied.

(A) Sry

(B) Sox 9

(C) Wnt 4

(D) Vasa

16. The lagging strand of DNA is replicated in short pieces because :

(A) Of limitation of space

(B) Otherwise the helix will become distorted

(C) DNA polymerase can synthesize in one direction only

(D) To make proof-reading of code easier

17. In the ATP synthase of mitochondria ..... subunit has the ATP/ADP binding site.

(A) Alpha

(B) Beta

(C) Gamma

(D) Delta

18. In electron microscopy the fixative used for plant materials is :

(A) Alcohol

(B) Acetic alcohol

(C) Glutaraldehyde

(D) Formaldehyde

19. Continuous activity of cambium in the stem leads to :

(A) Diffuse porous wood

(B) Ring porous wood

(C) Fibrous wood

(D) Semi ring porous wood

20. In *Leishmania* it was shown that the minicircles :

(A) Encode guide RNA (*g*RNA) molecules involved in the RNA editing of maxicircle cryptogene

(B) Encode guide RNA (*g*RNA) molecules involved in the RNA editing of minicircle cryptogene

(C) Encode micro RNA

(D) Encode noncoding RNA

21. With reference to plants, micro-propagation *in vitro* means :

(A) Propagation of tiny plants

(B) Production of a large number of progeny plants

(C) Production of plants at microlevel

(D) Production of plants from microspores

22. If red and white seed colour shows a ratio of 1 : 4 : 6 : 4 : 1 in F_2 generation, it is due to :

(A) Duplicate genes

(B) Polygenic trait controlled by three genes

(C) Epistatic genes

(D) Polygenic trait controlled by two genes

23. The process of neoplastic cells moving through the circulatory system and becoming lodged in a vessel causing obstruction is referred to as :

(A) Anaplasia

(B) Neoplasia

(C) Thrombosis

(D) Embolism

24. Double lines in pedigree analysis shows :

(A) Sex unspecific

(B) Unaffected offspring

(C) Marriages between related individuals

(D) Marriages between unrelated individuals

25. Down's syndrome is caused due to aberration in :

(A) Chromosome 2

(B) Chromosome 20

(C) Chromosome 21

(D) X-Chromosome

26. The enzyme useful in conversion of penicillin G to 6-aminopenicillonic acid is :

(A) Penicillin acylase

(B) Penicillinase

(C) Carboxypeptidase

(D) Aminopeptidase

27. A small organic non-protein molecule that carries chemical groups between enzymes is :

(A) Cofactor

(B) Coenzyme

(C) Catalyst

(D) Substrate

28. The key element in the magnetic sensor system of pigeons and migrating birds is :

(A) Columella

(B) Cochlea

(C) Lagena

(D) Extracolumella

29. X-rays induce mutagenic changes by :

(A) Transitions

(B) Frame shifting

(C) Transversions

(D) Chromosomal breakage

30. Which of the following sn RNAs pair to form the catalytic active site during pre-*m*RNA splicing ?

(A) U6-U2

(B) U1-U2

(C) U6-U4

(D) U5-U4

31. The progeny of a single homozygous self-pollinated plant is called as ..... .

(A) Inbred line

(B) Isogenic line

(C) Pureline

(D) Near-isogenic line

32. Female gametophyte in *Gnetum* at later stage is :

(A) Uninucleate

(B) Binucleate

(C) Eight nucleate

(D) Multinucleate

33. The ..... of the influenza-enveloped virus appear to be involved in attachment to the host cell receptor site.

(A) Pili

(B) Fimbriae

(C) Haemagglutinin

(D) Neuraminidase

34. Eating meat from cattle with bovine spongiform encephalitis can cause a variant of ..... in humans.

(A) Kuru

(B) Fatal familiar insomnia

(C) Creutzfeldt-Jakob disease

(D) Geistmann-Straussler-Scheinker syndrome

35. Saffron is produced from the flowers of ..... .

(A) *Mesua ferrea*

(B) *Crocus sativus*

(C) *Nelumbo nucifera*

(D) *Mammea suriga*

36. Lyme disease is spread by :

(A) Bed bugs

(B) Leech

(C) Mosquito

(D) Ticks

37. Which of the following pairs is *NOT* correct ?

(A) C_3 plants - Maize

(B) C_4 plants - Kranz anatomy

(C) Calvin cycle - PGA

(D) Hatch and slack cycle - Oxaloacetic acid

38. Delay in senescence in the plants is caused by :

(A) IBA

(B) IAA

(C) Cytokinin

(D) Gibberellin

39. Chromosomal elimination is one of the strategy to develop ..... .

(A) Polyploids

(B) Amphidiploid

(C) Haploid

(D) Autopolyploid

40. Which component of prokaryotic RNA polymerase facilitates the recognition of promoter sequences ?

(A) α subunit

(B) β subunit

(C) σ subunit

(D) λ subunit

41. An appropriate term for human resident flora is :

(A) Commensals

(B) Parasites

(C) Pathogens

(D) Mutualists

42. Transplantation of stem cell populations from genetically identical donor to the recipient is said to be :

(A) Autologus

(B) Syngeneic

(C) Allogeneic

(D) Xenogeneic

43. For thorough mixing of medium and inoculum the part of the fermentor useful is :

(A) Shaft

(B) Headspace

(C) Impeller

(D) Sparger

44. Peptide antigen assemble with class 1 MHC aided by :

(A) Chaperone molecules

(B) Immunoglobulins

(C) T-cell receptor

(D) Cytokines

45. Methyl transferases of restriction modification systems seem to have evolved by :

(A) Convergent evolution

(B) Divergent evolution

(C) Mix of convergent and divergent evolution

(D) Natural evolution

46. Which of the following is *NOT* a premating mechanism of isolation ?

(A) Temporal isolation

(B) Zygotic mortality

(C) Behavioural isolation

(D) Mechanical isolation

47. A clade is a set of species :

(A) Derived from a common ancestor

(B) Derived from two ancestors

(C) Derived from multiple ancestors

(D) Inhabiting a particular environment

48. Center of origin of coffee is :

(A) Brazil

(B) Peru

(C) Moluccas

(D) Ethiopia

49. Difference between Allopatric and Sympatric speciation is with respect to :

(*i*) Attainment of reproductive isolation

(*ii*) Geographical separation

(*iii*) Overlap in their distribution

(A) Only (*i*)

(B) Only (*ii*)

(C) Only (*iii*)

(D) (*i*), (*ii*) and (*iii*)

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

(A) Pelagic zone

(B) Benthic zone

(C) Lentic zone

(D) Littoral zone

51. What is the ultimate function of any ecosystem ?

(A) Survival of species

(B) Balance of natural system

(C) Flow of energy

(D) Biological control

52. The appearance of lichens and moss where there were previously no living things is an indication of the start of :

(A) Intraspecific competition

(B) Environmental resistance

(C) Primary succession

(D) Resource partitioning

53. If one wishes to compare the means of two independent samples, the appropriate test statistics would be :

(A) F-test

(B) Student *t*-test

(C) Chi-square

(D) Correlation coefficient analysis

54. On an average, which ecosystem has the lowest net primary productivity per unit area ?

(A) An open ocean

(B) An estuary

(C) A freshwater lake

(D) A coral reef

55. The population of asiatic lion is small. Therefore, there is greater chance of :

(A) Gene flow

(B) Genetic drift

(C) Mutation

(D) Selection

56. Which of the statements regarding DNA replication is *correct* ?

(A) The leading strand is synthesized discontinuously from multiple primers.

(B) The polymerase enzyme caps the 5′ end of the nascent DNA strand

(C) Lagging strand helicases are composed of 5 identical sub-units

(D) Synthesis of the leading strand requires one RNA primer

57. The transposase gene encodes an enzyme that :

(A) Facilitates general recombination

(B) Facilitates viral replication within a genome

(C) Facilitates site-specific integration of transposable elements

(D) Facilitates transport of solutes

58. The expression of the following genes is essential for the lysogenic path of lambda phage when it infects *E.coli* :

(A) N, Cro

(B) CI, CII, CIII

(C) P, O

(D) att, xis, inf

59. The phosphorus cycle is unusual in that it is entirely :

(A) Within the aquatic ecosystem

(B) Within the terrestrial ecosystem

(C) Sedimentary

(D) Gaseous

60. Which one of the following is a distance based method of tree construction ?

(A) UPGMA

(B) Maximum parsimony

(C) Maximum likelihood

(D) Bayesian

61. The term anthesis refers to :

(A) Formation of an anther

(B) Opening of a flower

(C) Development of flower

(D) Dehiscence of anther

62. If cells of *Escherichia coli* are grown in a medium containing radioactive ^{32}P, the ^{32}P would be found in all, *except* :

(A) DNA

(B) RNA

(C) ATP

(D) Carbohydrates

63. The DNA profiling technique which demonstrates the similarity between different animal species with reference to some specific proteins coding sequences is known as :

(A) Zoo blot

(B) Garden blot

(C) Phylogenetic blot

(D) Animal profiling

64. The most important region in the atmosphere for microbial dispersal is :

(A) Stratosphere

(B) Troposphere

(C) Ionosphere

(D) Strato-ionosphere

65. In mammals, mature functional spermatozoa are produced in :

(A) Testis

(B) Vas deferens

(C) Epididymis

(D) Seminal vesicle

66. Isoenzymes are ..... .

(A) Oligomeric proteins which have different physico-chemical properties and catalyse the same reaction.

(B) Monomeric proteins which have different physico-chemical properties and catalyse the same reaction.

(C) Oligomeric proteins which have same physico-chemical properties and catalyse different reactions

(D) Monomeric proteins which have same physico-chemical properties and catalyse different reactions.

67. Molecular clocks located throughout the body in peripheral tissues are organized into a coherent, hierarchical system by a "master" clock is located :

(A) In the pineal gland

(B) In the adenohypophysis

(C) In the hypophysis

(D) In the supra chiasmatic nucleus (SCN) of the hypothalamus

68. Microtubule depolymerizing drug, such as colchicine, is expected to :

(A) Inhibit mitosis but allow cytokinesis

(B) Inhibit cytokinesis

(C) Allow mitosis beyond metaphase

(D) Induce formation of multiple contractile rings

69. For the reaction A $\rightarrow$ B at 298 K, the change in enthalpy is – 7 $kJ.mol^{-1}$ and the change in entropy is – 25 $J.K^{-1}.mol^{-1}$. How much is the free energy change and whether the reaction is spontaneous or non-spontaneous ?

(A) ΔG = 450 $J.mol^{-1}$ and reaction is not spontaneous

(B) ΔG = 450 $J.mol^{-1}$ and reaction is spontaneous

(C) ΔG = 900 J mol^{-1} and reaction is spontaneous

(D) ΔG = 900 J mol^{-1} and reaction is not spontaneous

70. The southern blotting technique depends on :

(A) Similarities between the sequences of probe DNA and experimental DNA

(B) The molecular mass of proteins

(C) The amino acid sequence of a protein

(D) Dissimilarities between the RNA and DNA

71. A solution is made by mixing 50 ml of 2 M K_2HPO_4 and 25 ml of 2.0 M KH_2PO_4. The solution is diluted to a final volume of 250 ml. What is the pH of the final solution ? (P^K = 6.82)

(A) 6.82

(B) 7.12

(C) 6.52

(D) 7.51

72. Inducible genes are transcribed because ..... .

(A) The inducer inactivates the repressor protein

(B) Repressor binds to the promoter

(C) Repressor binds to the operator

(D) Repressor-inducer bind to the operator

73. Two micron plasmid can be obtained from the following yeast :

(A) *Candida shehatae*

(B) *Pichia pastoris*

(C) *Schizosaccharomyces pombe*

(D) *Saccharomyces cerevisiae*

74. Which of the following is a phagemid vector ?

(A) pUC19

(B) pBR322

(C) λEMBL3

(D) p Bluescript

75. Colocalization of two fluorescently labelled proteins in a cell is usually visualized by :

(A) Phase contrast microscopy

(B) Scanning electron microscopy

(C) Confocal microscopy

(D) Atomic force microscopy

76. What is the applied centrifugal field at a point equivalent to 5 cm from the centre of rotation and an angular velocity of 3000 rad s^{-1} ?

(A) 4.5×10^{-7} cms^{-2}

(B) 5.4×10^{-7} cms^{-2}

(C) 3.4×10^{-7} cms^{-2}

(D) 6.5×10^{-7} cms^{-2}

77. Mutation in gene *rel A* in bacteria results in ..... .

(A) Relaxed mutants

(B) Silent mutants

(C) Constitutive mutants

(D) Dominant mutants

78. Glycogen, starch and cellulose are polymers of glucose. Which of the following statements are *true* about these polymers ?

(*i*) Glycogen and starch are having α 1-4 and α 1-6 glycosidic bonds.

(*ii*) Cellulose is having β 1-4 glycosidic linkage.

(*iii*) All these polymers are giving energy for the cells.

(*iv*) Glycogen is present in animals and starch in plants.

(*v*) Amylase enzyme is useful in digestion of these polymers.

(A) (*i*), (*ii*) and (*v*)

(B) (*i*), (*ii*) and (*iv*)

(C) (*ii*), (*iii*) and (*iv*)

(D) (*ii*), (*iii*) and (*v*)

79. The amino acid that interrupts α-helix conformation in protein by developing kinks in the structure :

(A) Serine

(B) Valine

(C) Proline

(D) Leucine

80. Which one-electron carrier protein transfers electron from photosystem I to photosystem II and is functionally similar to cytochrome C of mitochondria ?

(A) Plastoquinone

(B) Phycobillin

(C) Phycoerythrin

(D) Plastocyanin

81. Archegonia are absent in the ovule of ..... .

(A) *Cycas*

(B) *Taxus*

(C) *Pinus*

(D) *Gnetum*

82. Membranes of which one of the following pairs are contiguous ?

(A) ER and Golgi bodies

(B) Nucleus and ER

(C) Golgi bodies and plasma membrane

(D) Golgi bodies and lysosomes

83. Which of the following is *NOT* caused by deficiency of mineral nutrition ?

(A) Etiolation

(B) Shortening of internode

(C) Necrosis

(D) Chlorosis

84. Rous sarcoma virus, which induces the formation of sarcomas in chickens. Which of the following is the product of oncogene V-src ?

(A) Epidermal Growth Factor (EGF)

(B) Tyrosine Kinase

(C) Tyrosinase

(D) Serine Kinase

85. Hemophilia and colour blindness are :

(A) Autosomal dominant inheritance patterns

(B) Y-linked recessive inheritance

(C) X-linked recessive inheritance

(D) Y- and X-linked dominant inheritance respectively

86. Which one of the following statements is *correct* ?

(A) Chromosomes separate in meiosis I and chromatids separate in meiosis II

(B) Chromosomes separate in meiosis II and chromatids separate in meiosis I

(C) Chromosomes separate in both meiosis I and meiosis II

(D) Chromatids separate in both, meiosis I and meiosis II

87. Maple syrup urine disease, one of the inherited metabolic disorder is caused because of blockage of oxidative decarboxylation of α-keto acids derived from valine, leucine and isoleucine. Which of the following enzyme is missing or defective in the patient ?

(A) Homogentisate reductase

(B) Branched chain dehydrogenase

(C) Oxaloacetate decarboxylase

(D) Acetoacetate carboxylase

88. Which one of the following sequences functions as a signal for N-linked glycosylation in rough endoplasmic reticulum ?

(A) Asn-X-Ser and Asn-X-Thr

(B) Asn-X-Ser and Asn-X-Pro

(C) Asn-X-Thr and Asn-X-Gly

(D) Asn-X-Gly and Asn-X-Pro

89. Oxysomes for F_0-F_1 particles are present on :

(A) Thylakoids

(B) Outer mitochondrial membrane

(C) Outer chloroplast membrane

(D) Inner mitochondrial membrane

90. What is the sequence of cell organelles getting separated during cell fractionation by differential centrifugation ?

(A) Nucleus, mitochondria, microsomes, cytosol

(B) Cytosol, nucleus, microsomes, mitochondria

(C) Microsomes, mitochondria, cytosol, nucleus

(D) Cytosol, microsomes, mitochondria, nucleus

91. By what process does Thorium-230 decay to radium-226 ?

(A) Gamma emission

(B) Alpha emission

(C) Beta emission

(D) Electron capture

92. Which of the following is the most suitable mode to study protein conformational changes and to probe the location of active sites and coenzymes in fluorescence spectroscopy ?

(A) Quenching

(B) Quantum yield

(C) Intrinsic fluorescence

(D) Extrinsic fluorescence

93. Which of the following is NOT a method used in mass spectroscopy for introducing the sample without thermal decomposition ?

(A) MALDI

(B) Electrospray

(C) Plasma desorption

(D) Pyrolysis

94. In polyacrylamide gel electrophoresis, the breakdown of disulfide linkages in protein is carried out by using :

(A) TEMED

(B) Bisacrylamide

(C) β-mercaptoethanol

(D) SDS

95. *Helianthus annuus* flowers track the sun. This phenomenon is known as :

(A) Phototropism

(B) Photoperiodism

(C) Positive heliotropism

(D) Negative heliotropism

96. Which one of the following is produced during water stress and that brings stomatal closure ?

(A) Ethylene

(B) Abscisic acid

(C) Ferulic acid

(D) Coumarin

97. Which of the following enzymes is *not* a part of fatty acid synthetase complex ?

(A) Enoyl reductase

(B) β-hydroxy acyl CoA dehydrogenase

(C) β-keto acyl reductase

(D) Acetyl transacylase

98. Reducing power required for biosynthesis of fatty acids in liver is provided by :

(A) TCA cycle

(B) β-oxidation of fatty acid

(C) Hexose monophosphate shunt

(D) Glycogenolysis

99. Starting with a fertilized egg (zygote), a series of sequential five cell divisions would produce an early embryo with how many cells ?

(A) 8

(B) 16

(C) 32

(D) 64

100. If the Golgi apparatus is associated with secretion, we would expect it most abundantly in :

(A) Muscle

(B) Blood

(C) Gland

(D) Bone

ROUGH WORK