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(Write Roll Number from left side exactly as in the Admit Card)

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*Signature of Invigilator*

Question Booklet Series

**X**

**PAPER-II**

Question Booklet No.

(Identical with OMR Answer Sheet Number)

**Subject Code : 14**

## **LIFE SCIENCES**

*Time : 2 Hours*

*Maximum Marks: 200*

### **Instructions for the Candidates**

1. Write your Roll Number in the space provided on the top of this page as well as on the OMR Sheet provided.
2. At the commencement of the examination, the question booklet will be given to you. In the first 5 minutes, you are requested to open the booklet and verify it:
  - (i) To have access to the Question Booklet, tear off the paper seal on the edge of this cover page.
  - (ii) Faulty booklet, if detected, should be got replaced immediately by a correct booklet from the invigilator within the period of 5 (five) minutes. Afterwards, neither the Question Booklet will be replaced nor any extra time will be given.
  - (iii) Verify whether the Question Booklet No. is identical with OMR Answer Sheet No.; if not, the full set is to be replaced.
  - (iv) After this verification is over, the Question Booklet Series and Question Booklet Number should be entered on the OMR Sheet.
3. This paper consists of One hundred (100) multiple-choice type questions. All the questions are compulsory. Each question carries *two* marks.
4. Each Question has four alternative responses marked: **(A)** **(B)** **(C)** **(D)**. You have to darken the circle as indicated below on the correct response against each question.

*Example:* **(A)** **(B)** **●** **(D)**, where **(C)** is the correct response.
5. Your responses to the questions are to be indicated correctly in the OMR Sheet. If you mark your response at any place other than in the circle in the OMR Sheet, it will not be evaluated.
6. Rough work is to be done at the end of this booklet.
7. If you write your Name, Phone Number or put any mark on any part of the OMR Sheet, except in the space allotted for the relevant entries, which may disclose your identity, or use abusive language or employ any other unfair means, such as change of response by scratching or using white fluid, you will render yourself liable to disqualification.
8. Do not tamper or fold the OMR Sheet in any way. If you do so, your OMR Sheet will not be evaluated.
9. You have to return the 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 question booklet and duplicate copy of OMR Sheet after completion of examination.
10. **Use only Black Ball point pen.**
11. **Use of any calculator, mobile phone, electronic devices/gadgets etc. is strictly prohibited.**
12. **There is no negative marks for incorrect answer.**



1. The biological process in which nitrite and ammonium ions are converted directly into nitrogen gas and water is called

- (A) Nitrification
- (B) Denitrification
- (C) Anaerobic ammonium oxidation
- (D) Ammonification

2. Which one of the following legally binding Climate Agreements has effectively replaced the Kyoto Protocol?

- (A) Paris Climate Accord
- (B) Copenhagen Accord
- (C) Montreal Protocol
- (D) Warsaw Climate Accord

3. The single specimen designated or indicated as 'The type' by the original author at the time of publication of the original description is known as

- (A) Paratype
- (B) Holotype
- (C) Metatype
- (D) Neotype

4. Which one of the following water pollutants is responsible for blue baby syndrome?

- (A) DDE
- (B) Arsenic
- (C) Fluoride
- (D) Nitrate

5. A hypothesis that predicts a constant rate of molecular evolution among species and estimates the evolutionary rates as well as time scales using data from DNA or proteins is called

- (A) Genetic drift
- (B) Founder effect
- (C) Molecular clock
- (D) Molecular phylogeny

6. Which one of the following enzyme systems does **not** perform oxidative decarboxylation?

- (A) Pyruvate dehydrogenase complex
- (B) Isocitrate dehydrogenase
- (C)  $\alpha$ -ketoglutarate dehydrogenase complex
- (D) Succinate dehydrogenase

7. Gal/ Gal/ NAc is a novel multifunctional virulence factor for which one of the following protozoan?

- (A) *Paramoecium caudatum*
- (B) *Entamoeba histolytica*
- (C) *Nyctotherus ovalis*
- (D) *Nyctotherus cordiformis*

8. 'Sleep walking' occurs in which phase of sleep in humans?

- (A) NREM Phase
- (B) REM Phase
- (C) Initial REM Phase
- (D) Distant REM Phase

9. A zone of transition from one type of community or ecosystem to another is known as

- (A) Ecosphere
- (B) Ecotone
- (C) Hypolimnion
- (D) Epilimnion

10. Which hemisphere of brain is called pictures side of the human brain?

- (A) Left hemisphere
- (B) Right hemisphere
- (C) Temporal hemisphere
- (D) Frontal hemisphere

11. Which one of the following toxins causes paralytic shellfish poisoning in humans?

- (A) Palytoxin
- (B) Ciguatoxin
- (C) Batrachotoxin
- (D) Saxitoxin

12. In the vertebral column of snakes, two additional sets of zygapophyses are present. The anterior additional set is called

- (A) Zygantrum
- (B) Zygosphere
- (C) Synsacrum
- (D) Ischium

13. Movement of tongue is the function of

- (A) Xth Cranial Nerve
- (B) Vth Cranial Nerve
- (C) XIth Cranial Nerve
- (D) XIIth Cranial Nerve

14. Which type of memory is retrieved when a trained driver drives a car?

- (A) Non-declarative memory
- (B) Declarative memory
- (C) Short term memory
- (D) Visual memory

15. 'Abruptio Placentae' is a condition in which the placenta detaches prematurely from wall of the uterus and can result in fetal death. The most likely reason for fetal death in this condition would be

- (A) a lack of placental steroid production
- (B) vaginal blood loss
- (C) inability to get oxygen and nutrients from the mother to the fetus
- (D) hypersecretion of pituitary gonadotropins in response to loss of fetal steroid production

16. When a host serves as temporary but essential environment for the completion of the lifecycle of a parasite, then the host is called

- (A) Definitive host
- (B) Paratenic host
- (C) Intermediate host
- (D) Temporary host

17. Which one of the following brain centres serve as GPS (Global Positioning System) of human brain?

- (A) Thalamus and Limbic cortex
- (B) Hypothalamus and Thalamus
- (C) Amygdala and Basal Ganglia
- (D) Hippocampus and Entorhinal cortex

18. An endospore forming and crystal producing bacterial species used to control mosquito vectors is

- (A) *Bacillus subtilis*
- (B) *Bacillus anthracis*
- (C) *Bacillus thuringiensis*
- (D) *Lactobacillus acidophilus*

19. Hydroxyurea blocks DNA synthesis. If it is applied to mammalian cell culture having properly functioning checkpoint activity, then what is expected to happen?

- (A) Mitosis will occur without any interruption
- (B) Cell division will halt in 'S' phase
- (C) Suicidal mitosis will occur
- (D) Cell division will halt in G2 phase

20. Pollenkit, the tapetally-synthesized adhesive material found around the angiosperm pollen grains is characteristic of

- (A) Entomophilous plants
- (B) Hygrophilous plants
- (C) Anaemophilous plants
- (D) Chiropterophilous plants

21. During the lifting of a heavy object, which one of the following mechanisms is used to recruit additional motor units to increase a muscle's force of contraction?

- (A) Population coding
- (B) Frequency coding
- (C) Feedforward control
- (D) Inverse myotatic reflex

22. Which one of the following scenarios will *not* be found in constitutive mutation of *lac* operon?

- (A) A defective repressor molecule
- (B) A mutant regulator gene
- (C) An operator unable to find repressor molecule
- (D) A promoter unable to find RNA polymerase

23. The process of preservation of fresh forage crops by spontaneous lactic acid fermentation by epiphytic bacteria under anaerobic conditions is called

- (A) Ensiling
- (B) Withering
- (C) Curing
- (D) Pickling

24. Which one of the following is *not* a characteristic feature of stomatal guard cells?

- (A) The inner walls are thick and the outer walls are thin.
- (B) The cellulose microfibrils are arranged radially around the cell called 'radial micellation'.
- (C) They do not contain chloroplasts.
- (D) The two cells are connected end to end.

25. Which greenhouse gas has the highest warming potential?

- (A) CO<sub>2</sub>
- (B) N<sub>2</sub>O
- (C) HFCs
- (D) SF<sub>6</sub>

26. In tropical leguminous plant *Sesbania rostrata* stem-nodules are formed by the bacterium

- (A) *Azorhizobium caulinodans*
- (B) *Sinorhizobium meliloti*
- (C) *Frankia alni*
- (D) *Bradyrhizobium japonicum*

27. During photorespiration, glycolate is converted to amino acid glycine in the

- (A) Chloroplasts
- (B) Mitochondria
- (C) Peroxisomes
- (D) Both chloroplasts and mitochondria

28. In which of the following immunity most of the individuals of a human population is protected indirectly due to non-availability of adequate susceptible population?

- (A) Active immunity
- (B) Herd immunity
- (C) Hard immunity
- (D) Passive immunity

29. The steroid hormone that targets the epidermal cells which secretes the cuticle and controls the moulting process in arthropods is known as

- (A) Octopamine
- (B) Ecdysone
- (C) Serotonin
- (D) Juvenile hormone

30. An organ responsible for the sense of smell in reptiles that contains a region of chemically sensitive nerve endings is known as

- (A) Johnston's organ
- (B) Jacobson's organ
- (C) Amphid
- (D) Chromatophore

31. For the conservation purpose which one is habitat oriented?

- (A) Biosphere Reserve
- (B) Sanctuary
- (C) National Park
- (D) Reserve Forest

32. A connecting vessel between the bases of the left and right arches in crocodilians is called

- (A) Foramen Ovale
- (B) Foramen of Panizza
- (C) Fossa Ovalis
- (D) Foramen of Arches

33. Which of the following statements is *not* correct for plastoquinone A involved in photosynthetic electron transport?

- (A) It rapidly receives electron from  $P_{680}$
- (B) It is located in the lamellar membranes of chloroplasts
- (C) It donates electrons to Cytbf complex
- (D) It accepts electrons from Cytbf complex and donates them to photosystem I

34. A particular type of heterochrony, wherein sexually mature adults possess features characteristically found in early developmental stages is known as

- (A) Metagenesis
- (B) Metamorphosis
- (C) Polyembryoni
- (D) Paedomorphosis

35. The 'petroleum nut' tree native to Phillippines is a candidate for petroleum plantation and belongs to the family

- (A) Asclepiadaceae
- (B) Euphorbiaceae
- (C) Asteraceae
- (D) Pittosporaceae

36. In the tail region of some nematodes, a pair of unicellular glands serve as chemosensory, secretory or excretory organs. They are known as

- (A) Phasmids
- (B) Neuromast organ
- (C) Retinular cell
- (D) Tapetum

37. Which one of the following statements is *not* correct for the SARS-COV-2 spike proteins?

- (A) A large number of glycosylated spike protein(s) cover the virus surface.
- (B) Spike proteins are comprised of two ( $S_1$  and  $S_2$ ) functional subunits.
- (C) The  $S_1$  subunit is responsible for binding with the host cell receptor and the  $S_2$  for fusion of the viral and cellular membranes.
- (D) The S proteins are inactivated by the target cell proteases during viral infection.

38. Haemoglobin S, G6PD deficiency, and thalassemias confer resistance to

- (A) Dengue
- (B) Malaria
- (C) Kala-azar
- (D) Sleeping sickness

39. Hexokinase-II is present predominantly in myocytes whereas hexokinase-IV is primarily present in liver. Muscles consume glucose and utilize it for energy production. Liver maintains blood glucose homeostasis by either consuming glucose or producing glucose by gluconeogenesis. Considering these facts, choose the most appropriate statement.

- (A)  $K_m$  of hexokinase-II is higher than  $K_m$  of hexokinase-IV.
- (B)  $K_m$  of hexokinase-II is lower than  $K_m$  of hexokinase-IV.
- (C)  $K_m$  of hexokinase-II is equal to the  $K_m$  of hexokinase-IV.
- (D) Affinity of hexokinase-II for glucose is lower than affinity of hexokinase-IV for glucose.

40. The vector of lymphatic filariasis in India is

- (A) *Aedes aegypti*
- (B) *Aedes albopictus*
- (C) *Culex quinquefasciatus*
- (D) *Culex vishnui*

41. Which one of the following compounds blocks electron transfer from cytochrome *b* to cytochrome  $C_1$ ?

- (A) Rotenone
- (B) Antimycin A
- (C) Oligomycin
- (D) Valinomycin

42. The DOTS is the WHO-recommended strategy for controlling

- (A) Kala-azar
- (B) Tuberculosis
- (C) Malaria
- (D) Dengue

43. The internalization of a prokaryote by an ancestral eukaryotic cell for giving rise to the formation of an organelle is termed as

- (A) Phagocytosis
- (B) Endocytosis
- (C) Primary endosymbiosis
- (D) Secondary endosymbiosis

44. The tumor suppressor protein, Rb, normally influences the cell cycle at G1 phase by inhibiting which of the following?

- (A) p21
- (B) Cdk 2
- (C) Chromatin remodelling acetylases
- (D) E2F transcription factor

45. Perisperm is the remnant of

- (A) Endosperm
- (B) Nucellus
- (C) Integument
- (D) Female gametophyte

46. Synthetic seeds are efficiently generated through encapsulating somatic embryos in

- (A) Agar agar
- (B) Gelrite
- (C) Pectin
- (D) Sodium alginate

47. Effect of gibberellins in tissue culture system is to

- (A) release seeds, somatic embryos, apical buds and bulbs from dormancy.
- (B) induce callus.
- (C) inhibit senescence.
- (D) induce somatic embryos.

48. Which of the following statements is **not** correct for prions?

- (A) The word 'prion' was coined by Stanley B. Prusiner.
- (B) Prions are responsible for neurodegenerative diseases in animals and humans.
- (C) Prion protein denoted as PrP<sup>sc</sup> is responsible for disease production.
- (D) The PrP<sup>sc</sup> protein is highly sensitive to protease.

49. The flavanoides, which are water soluble pigments present in the vacuoles of plants, represent

- (A) Phenolic compounds
- (B) Glycosides
- (C) Proteolytic enzymes
- (D) Terpenoids

50. Which of the following reactions is required for proofreading during DNA replication by DNA polymerase-III?

- (A) 5' to 3' exonuclease activity
- (B) 3' to 5' endonuclease activity
- (C) 5' to 3' endonuclease activity
- (D) 3' to 5' exonuclease activity

51. Brassinolide, the most bioactive form of brassinosteroid was first isolated from the

- (A) pollens of *Brassica napus*
- (B) fungus *Gibberella fujikuroi*
- (C) shoot apical meristem of *Brassica oleracea*
- (D) root tips of *Brassica campestris*

52. Which of the following features is **not** characteristic of bacterial exotoxins?

- (A) Exotoxins are chemically proteinaceous in nature
- (B) They are produced by both Gram-positive and Gram-negative bacteria
- (C) Toxoids are not formed from exotoxins for using as vaccines
- (D) They are heat labile and inactivated at 60-80 °C

53. Which of the following is **not** a typical characteristic of r-selected species?

- (A) Large size
- (B) Many small offspring
- (C) A large allocation of resources to reproduction
- (D) Early reproductive maturity rate



54. Following table gives a list of International Environmental Agreements and Areas covered:

<i>Agreement</i>	<i>Area covered</i>
1. Stockholm Conference	(i) Greenhouse gas emission reduction
2. Rio Summit	(ii) Biosafety
3. Kyoto Protocol	(iii) Wetland conservation
4. Ramsar Convention	(iv) Agenda 21

Which one of the following is the correct combination?

- (A) 1. (ii) 2. (iv) 3. (i) 4. (iii)  
 (B) 1. (i) 2. (iii) 3. (ii) 4. (iv)  
 (C) 1. (ii) 2. (i) 3. (iv) 4. (iii)  
 (D) 1. (iv) 2. (ii) 3. (i) 4. (iii)

55. The amino acid that shows buffering capacity near physiological pH range is

- (A) Aspartic acid  
 (B) Histidine  
 (C) Lysine  
 (D) Proline

56. Which of the following would **not** be possible to address using Northern blot?

- (A) mRNA size  
 (B) Location of restriction sites in a particular gene  
 (C) Temporal expression of a particular gene  
 (D) Spatial expression of a gene

57. Let us consider, in analysis of variance (ANOVA) two way model with one observation per cell, the degree of freedom for treatments and blocks are 4 and 5, respectively. The degrees of freedom of total sum of square will be

- (A) 9  
 (B) 20  
 (C) 29  
 (D) 30

58. A protein conjugated with Mannose-6-phosphate unit is destined to be delivered at

- (A) Lysosome  
 (B) Nucleus  
 (C) Mitochondria  
 (D) Endoplasmic reticulum

59. Which of the following statements is **not** correct for the tapetum, the innermost layer of the anther wall?

- (A) It is composed of single layer of cells characterized by dense cytoplasm and prominent nucleus.  
 (B) It draws nutrients from the developing microspores.  
 (C) It synthesizes enzyme that degrades the callose wall for the release of microspores.  
 (D) It plays an important role in the pollen wall formation.

60. Wilt disease of Sugarcane is caused by which of the following?

- (A) *Cephalosporium sacchari*  
 (B) *Leptosphaeria sacchari*  
 (C) *Colletotrichum falcatum*  
 (D) *Fusarium oxysporum*

61. Identify the incorrect option regarding steroid hormone synthesis.

- (A) Cholesterol → Pregnenolone → Progesterone  
 (B) Progesterone → Testosterone → Estradiol  
 (C) Progesterone → Corticosterone → Aldosterone  
 (D) Pregnenolone → Estradiol → Testosterone

[ Please Turn Over ]

62. Which one of the following statements is incorrect about the peptide hormone Ghrelin?

- (A) Ghrelin is a powerful appetite stimulant.
- (B) Ghrelin receptors are present in the hypothalamus and pituitary gland.
- (C) Concentration of ghrelin peaks just before a meal and sharply drops just after a meal.
- (D) Individuals affected by Prader-Willi syndrome show extreme obesity due to presence of an exceptionally low level of ghrelin in their blood.

63. Three proteins, X, Y and Z had pI values 6.8, 4.5 and 1.0, respectively. They were loaded onto a cation exchange column under increasing salt gradient. In which of the following order these proteins will be eluted?

- (A) X, Y, Z
- (B) Y, Z, X
- (C) Z, Y, X
- (D) Z, X, Y

64. The two monolayers of a lipid membrane bilayer can be effectively separated by

- (A) Freeze-fracture electron microscopy
- (B) Scanning electron microscopy
- (C) Transmission electron microscopy
- (D) Phase-contrast microscopy

65. A man with hemophilia has a daughter of normal phenotype. She marries a man who is normal for the trait. What is the probability that a daughter of this mating will be a hemophiliac?

- (A) 0%
- (B) 25%
- (C) 50%
- (D) 75%

66. The amino acid that lacks  $pK_R$  value is

- (A) Glutamic acid
- (B) Lysine
- (C) Glycine
- (D) Arginine

67. Dideoxy DNA-sequencing exclusively depends on which of the following?

- (A) Plasmid vector
- (B) ATP
- (C) Vector primer
- (D) Termination

68. Retrotransposon would best be described as

- (A) A mobile DNA element that can reproduce like a virus.
- (B) A transposable element that always passes through an RNA intermediate stage.
- (C) A transposon that cuts and moves the DNA from one site to another.
- (D) A transposable element that is universally present in all organisms.

69. Which of the following agents inhibits the initiation of RNA synthesis in prokaryotes by binding to the beta subunit of RNA polymerase?

- (A)  $\alpha$  amanitin
- (B) Actinomycin D
- (C) Rifamycin SV
- (D) Puromycin

70. A list of plant products (in column A) and their source organisms (in column B) is given below:

Column A

Column B

- |                   |                     |
|-------------------|---------------------|
| 1. Vanilla        | (i) Lichen          |
| 2. Anatoxin       | (ii) Willow         |
| 3. Litmus dye     | (iii) Cyanobacteria |
| 4. Salicylic acid | (iv) Orchid         |

Which one of the following options represent a correct match between product and source organism?

- (A) 1. (iv) 2. (ii) 3. (i) 4. (iii)  
 (B) 1. (iv) 2. (iii) 3. (i) 4. (ii)  
 (C) 1. (iv) 2. (i) 3. (iii) 4. (ii)  
 (D) 1. (ii) 2. (iii) 3. (i) 4. (iv)

71. The immunoglobulin isotype/subclass that characteristically shows activation of complement cascade and transmembrane transport is

- (A) IgG1  
 (B) IgA1  
 (C) IgE  
 (D) IgM

72. Deamination of 5-methyl cytosine leads to the formation of

- (A) Hydroxymethyl cytosine  
 (B) Cytosine  
 (C) Uracil  
 (D) Thymine

73. Chemicals released from mast cells during an allergic reaction include all the following, except

- (A) Histamines  
 (B) Interferons  
 (C) Prostaglandins  
 (D) Leukotrienes

74. Toxin produced by which of the following pathogenic bacterium exerts its cytotoxic effect by selectively inhibiting the protein synthesis in mammalian cells?

- (A) *Vibrio cholerae*  
 (B) *Clostridium titani*  
 (C) *Corynebacterium diphtheriae*  
 (D) *Clostridium botulinum*

75. In biological system of classification, cladistics refers to which one of the following?

- (A) Numerical analysis  
 (B) Phylogenetic analysis  
 (C) Statistical analysis  
 (D) Molecular systematics

76. Standard Deviation (SD) of 81 observations is 9, the Standard Error (SE) would be

- (A) 0.5  
 (B) 1.0  
 (C) 9.0  
 (D) 0.1

77. Two most common antifungal antibiotics belonging to the polyene family are

- (A) Amphotericin B and nystatin  
 (B) Nystatin and neomycin  
 (C) Amphotericin B and amoxycillin  
 (D) Griseofulvin and gentamycin

78. Which of the following options is appropriate for a symmetric and unimodal distribution?

- (A) Mean > Mode > Median  
 (B) Median > Mode > Mean  
 (C) Mean = Median = Mode  
 (D) Mode > Median > Mean

79. Main function of lenticels present in the periderm is

- (A) Transpiration
- (B) Guttation
- (C) Bleeding
- (D) Gaseous exchange

80. Which of the following compounds is used as the inhibitor of the enzyme  $\beta$ -lactamase?

- (A) Dipicolinic acid
- (B) Crotonic acid
- (C) Clavulanic acid
- (D) Hydroxybutyric acid

81. Which one of the following is a correct match?

- (A) Portuguese man of war — *Physalia* — Hydrozoa
- (B) African giant snail — *Achatina* — Pulmonata
- (C) Sea lion — *Otaria* — Cetacea
- (D) Silverfish — *Lepisma* — Chondrichthyes

82. Presence of periplasmic flagella or axial filament is one of the important distinguishing feature of

- (A) Chlamydiae
- (B) Spirochetes
- (C) Mycoplasmas
- (D) Actinomycetes

83. A female is heterozygous for colour blindness. Which of the following family members can not contribute to this trait?

- (A) Father
- (B) Maternal grandfather
- (C) Paternal grandfather
- (D) Paternal grandmother

84. Which of the following pteridophytes is called 'Resurrection Moss'?

- (A) *Lycopodium clavatum*
- (B) *Selaginella rupestris*
- (C) *Equisetum arvensis*
- (D) *Psilotum nudum*

85. The probability of maximum number of hydrogen bond formation is observed in

- (A)  $\alpha$ -helix
- (B)  $\beta$ -Sheet
- (C)  $\beta$ -Turn
- (D) Random coil

86. Proteins are separated in SDS electrophoresis on the basis of their

- (A) molecular size
- (B) net electric charge
- (C) amino acid composition
- (D) amino acid sequence

87. Which of the following analytical techniques is suited for estimation of nuclear DNA content of cells?

- (A) ELISA
- (B) Microarray
- (C) Flow cytometry
- (D) Differential scanning calorimetry

88. The first successful interspecific somatic hybridization has been accomplished by Carlson in the genus

- (A) *Petunia*
- (B) *Solanum*
- (C) *Nicotiana*
- (D) *Datura*

89. In eukaryotes, the rRNA genes are transcribed by

- (A) Reverse transcriptase
- (B) RNA dependent RNA polymerase
- (C) RNA polymerase I
- (D) RNA polymerase II

90. Which of the following plant hormones is similar in structure to adenine?

- (A) Auxin
- (B) Cytokinin
- (C) Gibberellin
- (D) Ethylene

91. RFLP analysis is a technique that

- (A) uses hybridization to detect specific DNA restriction fragments in genomic DNA.
- (B) determines whether a gene is transcribed in a specific cell.
- (C) measures the transfer frequency of genes during conjugation.
- (D) is used to detect genetic variation at the protein level.

92. In brown adipose tissue, Thermogenin causes

- (A) inhibition of electron transfer.
- (B) inhibition of the function of ATP synthase.
- (C) uncoupling of phosphorylation from electron transfer.
- (D) inhibition of ATP-ADP exchange.

93. Spliceosome, a complex of snRNA, protein and pre-mRNA, is found in

- (A) Prokaryotic cell
- (B) Eukaryotic cell
- (C) Both eukaryotic and prokaryotic cells
- (D) Only in plant cell

94. Linen, a textile, is made from fibers of which of the following plants?

- (A) *Corchorus capsularis*
- (B) *Linum usitatissimum*
- (C) *Gossypium barbadense*
- (D) *Agave americana*

95. During neuronal signal transmission,  $\text{Ca}^{2+}$  enters into nerve terminals and causes fusion of neurotransmitter filled vesicles with presynaptic membrane. Elevated  $\text{Ca}^{2+}$  level is sensed by

- (A) Synapsin
- (B) SNAP 25
- (C) Synaptotagmin
- (D) Synaptobrevin

96. Valinomycin is an ionophore that is responsible for the downhill transmembrane transport of

- (A)  $\text{Na}^+$
- (B)  $\text{K}^+$
- (C)  $\text{Ca}^{2+}$
- (D)  $\text{Mg}^{2+}$

**97.** Sterols are essential components in the plasma membrane of

- (A) *Mycobacterium*
- (B) *Mycoplasma*
- (C) *Myxogastria*
- (D) *Myxococcus*

**98.** Irreversible degeneration of myelin sheath occurs in

- (A) Scrapie
- (B) Multiple sclerosis
- (C) Cystic fibrosis
- (D) Parkinson's disease

**99.** A number of membrane phospholipids are made up of glycerol backbone. Identify the membrane phospholipid component that lacks the glycerol backbone.

- (A) Lecithin
- (B) Cephalin
- (C) Cardiolipin
- (D) Sphingomyelin

**100.** Phosphatidyl serine is not involved in the signalling for

- (A) destruction of aging cells by macrophage.
  - (B) blood coagulation on the platelet membrane.
  - (C) apoptosis.
  - (D) hypersensitivity reaction.
-

Space for Rough Work

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