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Prof. Dr. P. K. Singh
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6/7/2019

Total No. of Printed Pages : 13

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ARE ASKED TO DO SO)

CPG-EE-2019 (Life Sciences)-(SET-Y)



10357

Sr. No.

Time : 1½ Hours

Total Questions : 100

Max. Marks : 100

Roll No. (in figures) _____ (in words) _____

Candidate's Name _____ Date of Birth _____

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(Signature of the Candidate)

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CPG-EE-2019(Life Sciences)-(SET-Y)/(A)

SEAL

1. Marker enzyme of Golgi apparatus is :
(1) Acetyl-coA synthetase (2) Pyruvate kinase
(3) Galactosyl transferase (4) Cytochrome oxidase
2. In the cAMP pathway, the G-protein stimulates :
(1) Phospholipase C (2) Adenylate
(3) The Endoplasmic reticulum (4) Calmodulin
3. Each ribosome consists of two unequal subunits of composition :
(1) RNA and Protein (2) RNA and carbohydrates
(3) Only RNA (4) Proteins and DNA
4. Which of the following is a cell adhesion molecule ?
(1) Integrin (2) Lysine (3) Myosin (4) Keratin
5. Proto-oncogenes are :
(1) Oncogenes found in transforming retroviruses
(2) Oncogenes present in protozoa
(3) Genes encoding oncogenes related proteins in extinct organisms
(4) Cellular genes encoding proteins related to viral oncogenes
6. Plane of formation of cell plate in plant cell is governed by :
(1) Phragmoplast (2) Microtubules (3) Nucleus (4) Centriole
7. Which of the following is an example of chemolithoautotroph ?
(1) Sulphur-oxidising bacteria (2) Hydrogen bacteria
(3) Nitrifying bacteria (4) All of these
8. Mycoplasma are not inhibited by penicillin because they :
(1) produce penicillinase (2) are gram-positive
(3) are gram-negative (4) do not have a cell wall
9. The protoplast of the cork cells, in the root, secretes a fat like substance, called :
(1) Lignin (2) Cutin (3) Suberin (4) Cellulose

10. Which of the following algae belongs to the tubular series ?
(1) Nostoc (2) Polysiphonia (3) Vaucheria (4) Pandorina
11. The bracketed key for determine subclass, is based on the principle where leads are arranged :
(1) Parallely (2) Diagonally (3) Horizontally (4) Vertically
12. Which of the following best describes a fern gametophyte ?
(1) It cells are haploid (2) It lacks chlorophyll
(3) It is tough and woody (4) It is larger than sporophyte
13. Periderm includes :
(1) Phelloderm, collenchyma and cortex
(2) Phellem, cambium and cortex
(3) All the tissues between epidermis and pith
(4) Phellogen, phellem and phelloderm
14. Apospory is the development of an offspring from the :
(1) Cell of nucleus (2) Synergids or antipodals
(3) Haploid female gamete (4) Haploid microspore
15. Which ion plays an important role in pollen tube growth ?
(1) Calcium (2) Chlorine (3) Magnesium (4) Sulphate
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(1) Lepidodendrales (2) Selaginellales
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17. Which plant is known as 'maiden hair tree' ?
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19. Members of which group are *not* deuterostomes :
(1) Chordates (2) Echinoderms
(3) Arthropods (4) None of these, all are deuterostomes

20. Vertebrates and tunicates share :
- (1) Jaws adopted for feeding
 - (2) High degree of cephalization
 - (3) Formation of structures from the neural crest
 - (4) A notochord and a dorsal hollow nerve cord
21. Dorsal fins are absent in :
- (1) Myxine
 - (2) Petromyzon
 - (3) Lampetra
 - (4) Ichthyomyzon
22. The longest part of the frog alimentary canal is :
- (1) Oesophagus
 - (2) Small intestine
 - (3) Ileum
 - (4) Rectum
23. Down feathers of Columba are also called as :
- (1) Remiges
 - (2) Plumules
 - (3) Pennae
 - (4) Pin feathers
24. Night blindness in rabbit is associated with :
- (1) Very high level of rhodopsin
 - (2) Low level of rhodopsin
 - (3) High level of vitamin A
 - (4) None of the above
25. In which of the following skull is heavier than the rest of the animal body ?
- (1) Dogfish
 - (2) Pigeon
 - (3) Frog
 - (4) Rabbit
26. Following statement about Cyclostomata is false :
- (1) Lack of paired appendages
 - (2) Jaws are absent
 - (3) No stomach in digestive system
 - (4) None of the above
27. In Guinea pig, black coat colour is a dominant trait and white is recessive trait. A black female is test crossed producing six black offspring. The probability that a heterogeneous black would do this by chance alone is approximately :
- (1) 50%
 - (2) 25%
 - (3) 1%
 - (4) Cannot be determined from the information
28. The kind of polyploidy usually arising by crossing between organisms of different ploidy level is known as :
- (1) Autoploid
 - (2) Primary polyploid
 - (3) Secondary polyploid
 - (4) Pentaploid

29. Albinism is a recessive human trait. If a normal couple produces an albino child, what is the probability that their next child will be albino ?
(1) $1/4$ (2) $1/8$ (3) $1/16$ (4) $1/64$
30. If four chromosomes synapse into a cross-shaped configuration during meiotic prophase, the organism is heterozygous for a :
(1) Pericentric inversion (2) Deletion
(3) Translocation (4) Paracentric inversion
31. If the garden pea has 14 chromosomes in its diploid complement, how many double trisomies could theoretically exist :
(1) 6 (2) 9 (3) 16 (4) 21
32. In prokaryotes, the lagging primers are removed by :
(1) 3' to 5' exonuclease (2) DNA ligase
(3) DNA polymerase I (4) DNA polymerase III
33. Satellite DNA consists of :
(1) Extrachromosomal DNA (2) Short repetitive nucleotide sequences
(3) Ribosomal RNA gene (4) Single gene regions
34. Human genomic DNA is digested into fragments approx. 1 kb in size, denatured and then renatured. Which of the following statements is **true** ?
(1) All fragments will renature at the same rate.
(2) Fragments composed largely of repetitive DNA sequence will renature fastest.
(3) Fragments composed largely of non-repetitive DNA sequence will renature fastest.
(4) Fragments with high A : T content will renature fastest.
35. Which of the following enzymes does **not** require a primer ?
(1) RNA dependent DNA polymerase
(2) DNA dependent DNA polymerase
(3) DNA dependent RNA polymerase
(4) Taq. DNA polymerase
36. A method to detect whether two mutations are located on the same gene or different genes is :
(1) Generalized transduction (2) Complementation analysis
(3) hfr mapping (4) Karyotyping

37. Vessels and companion cells are the characteristic features of :
(1) Gymnosperms (2) Angiosperms
(3) Pteridophytes (4) Fungi
38. Ecological equivalent describes :
(1) Group of species with comparable roles.
(2) Species that occupy the same niche in different geographical regions.
(3) Diversity of habitats.
(4) Social behaviour that enhances the fitness of other individuals in the population.
39. The biomass of one trophic level getting incorporated into the biomass of the next trophic level is the :
(1) Relative ratio of energy flow (2) Energy flow efficiency
(3) Ecological efficiency (4) Ecological gradient
40. The objective of signing the 'Montreal protocol' was :
(1) Protection of wild life (2) Protection of ozone layer
(3) Control over the use of pesticides (4) Control of noise pollution
41. Wings of insects and the wings of bats represent a case of :
(1) Divergent evolution (2) Convergent evolution
(3) Parallel evolution (4) Neutral evolution
42. Which prehistoric human had almost same cranial capacity as that of modern man ?
(1) Neanderthal man (2) Peking man
(3) Java ape man (4) Australopithecus man
43. Which of the following organs have no evolutionary significance ?
(1) Analogous organs (2) Atavistic organs
(3) Non-functional organs (4) Functional organs
44. On receiving the required light energy, a chlorophyll molecule gets changed from ground state to excited state. This activated state is called :
(1) Excited singlet state (2) Excited triplet state
(3) Phosphorescence (4) Fluorescence

45. Rhizobium fixes atmospheric nitrogen to ammonia in the presence of pigment called :
(1) Xanthophyll (2) Leghemoglobin (3) Hemoglobin (4) Phycobilin
46. Which of the following are referred to as diageotropic ?
(1) Secondary roots (2) Stems
(3) Leaves (4) Rhizomes
47. The mechanism of ATP formation in chloroplast is explained by :
(1) Relay Pump theory of Godlewski (2) Cholodny Went's model
(3) Chemiosmotic theory (4) Munch's pressure/mass flow model
48. Root pressure is a/an :
(1) Non-osmotic phenomenon (2) Osmotic phenomenon
(3) Positive hydrostatic pressure (4) More than one statement is true
49. Most of the water taken up by the plant is :
(1) Split during photosynthesis as a source of electrons and hydrogen.
(2) Lost by transpiration through stomata.
(3) Absorbed by cells during their elongation.
(4) Incorporated directly into organic material.
50. Carnivorous adaptation of plants mainly compensate for soil that has a relatively low content of :
(1) Potassium (2) Nitrogen (3) Phosphate (4) Calcium
51. The accumulation of one of the following causes seed dormancy :
(1) Cytokinin (2) Auxin (3) Absciscic acid (4) Gibberllins
52. In photomorphogenesis following pigment plays a key role :
(1) Chlorophyll (2) Phytochrome (3) Cytochrome (4) Anthocyanin
53. Which of the following properties of water is most directly related to its ability to rise in the capillary spaces of plants ?
(1) Neutral pH (2) High density
(3) Low compressibility (4) High surface tension

54. When an electric current is passed through the water containing amoeba ?
(1) Amoeba moves faster
(2) Amoeba ceases all activities
(3) Amoeba drifted along flowing water
(4) Amoeba stop moving & become globular by withdrawal of pseudopodia
55. Self conjugation in paramecium is called :
(1) Endomixis (2) Autogamy (3) Cytogamy (4) Rejuvenation
56. Coral island with shallow central lake is :
(1) Coral reef (2) Lagoon (3) Atoll (4) Corallite
57. Respiratory pigment in Nereis is :
(1) Haemoglobin (2) Haemocyanin (3) Erythrocyanin (4) Cyanin
58. Cleavage in Balanoglossus is :
(1) Holoblastic (2) Meroblastic (3) Teloblastic (4) Spiral
59. Mean molecular weight of an amino acid in a typical globular protein is :
(1) 70 (2) 110 (3) 150 (4) 90
60. Thermal denaturation of protein involves :
(1) Conformational change in the protein
(2) Random cleavage of the peptide bonds
(3) Covalent modification of certain amino acids
(4) Increase in its isoelectric point
61. Most of the free fatty acids are transported in the blood :
(1) Inside the RBCs (2) As lipoproteins
(3) Combined with glucose (4) Bound to albumin
62. Enzyme glutathione peroxidase catalyses destruction of H_2O_2 , contains :
(1) Zn (2) Fe (3) Se (4) Mo
63. Which of the following processes does **not** involve cytochrome C in plants ?
(1) Oxidative phosphorylation (2) Electron Transport
(3) TCA cycle (4) Apoptosis

- 64.** Organic constituents of protoplasm are :
- (1) Carbohydrates & Proteins
 - (2) Nucleotids & lipids
 - (3) Hormones & Vitamins
 - (4) All of the above
- 65.** Which characteristic is undesirable in cloning vectors ?
- (1) Self replicating
 - (2) High copy number
 - (3) Vulnerable at several sites to a restriction enzyme
 - (4) Small in size
- 66.** A reporter gene is used to :
- (1) Identify regulatory sequences from the upstream regions of other genes
 - (2) Determine if a protein binds to a given sequence element
 - (3) Determine if a gene contains introns
 - (4) Determine the stability of a protein
- 67.** Genomic library is :
- (1) Collection of recombinant molecules with inserts that contain all of the genes of an organism.
 - (2) Collection of recombinant molecules with inserts that contain all of an organism's genome.
 - (3) Collection of recombinant molecules that express all of the genes of the organism.
 - (4) Collection of recombinant molecules that have been sequenced.
- 68.** RFLP analysis is a technique that :
- (1) Uses hybridization to detect specific DNA restriction fragments in genomic DNA.
 - (2) Used to determine whether a gene is transcribed in specific cells.
 - (3) Measure the transfer frequency of genes during conjugation.
 - (4) Used to detect genetic variation at the protein level.
- 69.** Simple tandem repeat polymorphisms in humans are most useful for :
- (1) Solving criminal and paternity cases.
 - (2) Reconstructing the relationships of humans & chimps.
 - (3) Estimating relationships of humans & Neanderthals.
 - (4) Transferring disease resistance factors into bone marrow cells.

70. Transgenic plants are easier to produce than animals :
- (1) Plants can more easily be grown from single cultured cells into which foreign DNA has been introduced.
 - (2) Plant DNA is easier to clone.
 - (3) Plant cells can be transformed by bacterial infection.
 - (4) DNA passes more readily through the plant cell wall than through the animal cell membrane.
71. Advantage of microprojectile method over microinjection method for gene transfer in plants include :
- (1) Intact cells are used
 - (2) Method is universal in its application irrespective of all shape, size, type, presence or absence of cell wall
 - (3) Genes can be transferred to many cells simultaneously
 - (4) All of the above
72. Recombinant live attenuated vaccine against hepatitis B was prepared from :
- (1) Plasma of infected individual
 - (2) Recombinant yeast expressing hepatitis B surface antigens
 - (3) Recombinant vaccinia virus expressing hepatitis B surface antigen
 - (4) Transgenic plants expressing hepatitis B surface antigen
73. Which of the following gene-therapy vectors preferentially infects nerve cells ?
- (1) Adeno-associated virus
 - (2) Retrovirus
 - (3) Herpes-virus
 - (4) Adenovirus
74. During fertilization, polyspermy is prevented by :
- (1) Zona pellucida in the presence of sodium ions
 - (2) Vitelline membrane in the presence of calcium ions
 - (3) Cortical granules in the presence of *Ca* and *Na* ions
 - (4) Influx of *Na*, *Ca* and *Mg* ions
75. The Spemann organiser of the amphibians is :
- (1) Mesodermal in origin
 - (2) Endodermal in origin
 - (3) Ectodermal in origin
 - (4) Epidermal in origin

76. Amphibian metamorphosis is controlled by :
- (1) Thyroid hormone
 - (2) Parathyroid hormone
 - (3) Oxytocin
 - (4) Gastrointestinal hormones
77. In sporophytic self incompatibility , rejection of the male gametophyte occurs at the level of :
- (1) Ovary
 - (2) Stigma surface
 - (3) Stylar canal
 - (4) Transmitting tract of the stigma
78. Primary function of allantois is to serve as :
- (1) Nutritive organ
 - (2) Embryonic excretory organ
 - (3) Embryonic protective layer
 - (4) Embryonic respiratory organ
79. Principal components of xylem tissues include :
- (1) Companion cells & tracheids
 - (2) Fibres & Sieve tubes
 - (3) Companion cells & Vessels
 - (4) Tracheids & Vessels
80. The latex cells differ from the latex vessels in :
- (1) They are formed due to cell fusion
 - (2) They fuse with other latex cells to form a network
 - (3) They usually anastomose and are also known as articulated latisifers
 - (4) They never fuse with other latex cells to form a network
81. The vascular cambium is absent in :
- (1) Dicots
 - (2) Monocots
 - (3) Vascular cryptogams
 - (4) Both (2) & (3)
82. The wall of parenchyma is composed of :
- (1) Suberin
 - (2) Cutin
 - (3) Calcium pectate
 - (4) Calcium phosphate
83. Which group of plants have their root system composed entirely of adventitious roots ?
- (1) Bryophytes
 - (2) Pteridophytes
 - (3) Gymnosperms
 - (4) Angiosperms

84. In which of the dicot, there is no heart wood ?
(1) Populus (2) Morus (3) Tamarix (4) Fraxinus
85. Scientific study of true, bony fishes is :
(1) Ornithology (2) Ichthyology (3) Pisciculture (4) Aquaculture
86. The uredospore stage of Puccinia is called the :
(1) Black rust stage (2) Red rust stage
(3) Brown rust stage (4) Leaf rust stage
87. In necrosis, the dead tissue of the leaf spot may fall out leaving circular or irregular perforations called :
(1) Loop holes (2) Shunt holes (3) Shot holes (4) Sclerotic holes
88. Which of the following drugs is obtained from flowers ?
(1) Digitalin (2) Chamomile (3) Curave (4) Aconite
89. Compared with systematic arterial blood, pulmonary arterial blood has a higher :
(1) O_2 content (2) pH (3) HCO_3 ions (4) Hb concentration
90. In an electrocardiogram, the QRS complex represents the :
(1) Depolarisation of atria (2) Repolarisation of atria
(3) Depolarisation of ventricles (4) Repolarisation of ventricles
91. At which site the partial pressure of CO_2 is highest ?
(1) Exhaled gas (2) Alveolar gas
(3) Systemic arterial blood (4) Systemic venous blood
92. High doses of antibiotics can destroy the bacterial flora of the large intestine. This can result in impaired :
(1) Absorption of protein (2) Blood coagulation
(3) Bone resorption (4) Respiratory control
93. Cerebellum of brain is concerned with :
(1) Static balance
(2) Initiation of muscular contraction
(3) Regulation of body posture & equilibrium
(4) Coordination of muscular movements

94. Cutting the posterior root of a spinal nerve would :
- (1) Impair motor control of skeletal muscle
 - (2) Interfere with the flow of sensory impulses
 - (3) Interfere with the ability of brain to transmit impulse
 - (4) Interfere with the circulation of CSF
95. Kupffer's cells in liver are :
- (1) Adipose cells (2) Phagocytic cells (3) Blood cells (4) Regenerative cells
96. Highest concentration of urea is found in :
- (1) Renal vein (2) Hepatic portal vein
 - (3) Dorsal aorta (4) Hepatic vein
97. Magnitude of current just sufficient to excite a nerve or muscle is called :
- (1) Chronaxie (2) Rheobase (3) Subliminal (4) None of the above
98. In bees, pollen basket is present in :
- (1) Prothoracic legs (2) Mesothoracic legs
 - (3) Metathoracic legs (4) Both meso and metathoracic legs
99. Kala-azar is caused by :
- (1) Leishmania (2) Leptomonas (3) Trypanosoma (4) Plasmodium
100. Which of the following does **not** have a pupa in its life cycle ?
- (1) Butterfly (2) Bedbug (3) Mosquito (4) Silk moth

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(3) Cortical granules in the presence of *Ca* and *Na* ions
(4) Influx of *Na*, *Ca* and *Mg* ions

25. The Spemann organiser of the amphibians is :

- | | |
|--------------------------|--------------------------|
| (1) Mesodermal in origin | (2) Endodermal in origin |
| (3) Ectodermal in origin | (4) Epidermal in origin |

26. Amphibian metamorphosis is controlled by :

- | | |
|---------------------|-------------------------------|
| (1) Thyroid hormone | (2) Parathyroid hormone |
| (3) Oxytocin | (4) Gastrointestinal hormones |

27. In sporophytic self incompatibility , rejection of the male gametophyte occurs at the level of :

- | | |
|------------------|--------------------------------------|
| (1) Ovary | (2) Stigma surface |
| (3) Stylar canal | (4) Transmitting tract of the stigma |

28. Primary function of allantois is to serve as :

- | | |
|--------------------------------|---------------------------------|
| (1) Nutritive organ | (2) Embryonic excretory organ |
| (3) Embryonic protective layer | (4) Embryonic respiratory organ |

29. Principal components of xylem tissues include :

- | | |
|---------------------------------|--------------------------|
| (1) Companion cells & tracheids | (2) Fibres & Sieve tubes |
| (3) Companion cells & Vessels | (4) Tracheids & Vessels |

30. The latex cells differ from the latex vessels in :

- (1) They are formed due to cell fusion
- (2) They fuse with other latex cells to form a network
- (3) They usually anastomose and are also known as articulated latisifers
- (4) They never fuse with other latex cells to form a network

31. The accumulation of one of the following causes seed dormancy :

- | | |
|--------------------|-----------------|
| (1) Cytokinin | (2) Auxin |
| (3) Absciscic acid | (4) Gibberllins |

32. In photomorphogenesis following pigment plays a key role :

- | | |
|-----------------|-----------------|
| (1) Chlorophyll | (2) Phytochrome |
| (3) Cytochrome | (4) Anthocyanin |

33. Which of the following properties of water is most directly related to its ability to rise in the capillary spaces of plants ?
(1) Neutral pH (2) High density
(3) Low compressibility (4) High surface tension
34. When a electric current is passed through the water containing amoeba ?
(1) Amoeba moves faster
(2) Amoeba ceases all activities
(3) Amoeba drifted along flowing water
(4) Amoeba stop moving & become globular by withdrawl of pseudopodia
35. Self conjugation in paramecium is called :
(1) Endomixis (2) Autogamy (3) Cytogamy (4) Rejuvenation
36. Coral island with shallow central lake is :
(1) Coral reef (2) Lagoon (3) Atoll (4) Corallite
37. Respiratory pigment in Nereis is :
(1) Haemoglobin (2) Haemocyanin (3) Erythrocyanin (4) Cyanin
38. Cleavage in Balanoglossus is :
(1) Holoblastic (2) Meroblastic (3) Teloblastic (4) Spiral
39. Mean molecular weight of an amino acid in a typical globular protein is :
(1) 70 (2) 110 (3) 150 (4) 90
40. Thermal denaturation of protein involves :
(1) Conformational change in the protein
(2) Random cleavage of the peptide bonds
(3) Covalent modification of certain amino acids
(4) Increase in its isoelectric point
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(3) Diversity of habitats.
(4) Social behaviour that enhances the fitness of other individuals in the population.
49. The biomass of one trophic level getting incorporating into the biomass of the next trophic level is the :
(1) Relative ratio of energy flow (2) Energy flow efficiency
(3) Ecological efficiency (4) Ecological gradient

50. The objective of signing the 'Montreal protocol' was :
(1) Protection of wild life (2) Protection of ozone layer
(3) Control over the use of pesticides (4) Control of noise pollution
51. Dorsal fins are absent in :
(1) Myxine (2) Petromyzon (3) Lampetra (4) Ichthyomyzon
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|-------------------------------|----------------|
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| (3) The Endoplasmic reticulum | (4) Calmodulin |

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| (3) Only RNA | (4) Proteins and DNA |

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|------------------|------------------|-------------|---------------|

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- | | |
|--------------------------------|-----------------------|
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- | | |
|---------------------------|-----------------------------|
| (1) produce penicillinase | (2) are gram-positive |
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89. The protoplast of the cork cells, in the root, secretes a fat like substance, called :

- | | | | |
|------------|-----------|-------------|---------------|
| (1) Lignin | (2) Cutin | (3) Suberin | (4) Cellulose |
|------------|-----------|-------------|---------------|

90. Which of the following algae belongs to the tubular series ?
(1) Nostoc (2) Polysiphonia (3) Vaucheria (4) Pandorina
91. The vascular cambium is absent in :
(1) Dicots (2) Monocots
(3) Vascular cryptogams (4) Both (2) & (3)
92. The wall of parenchyma is composed of :
(1) Suberin (2) Cutin
(3) Calcium pectate (4) Calcium phosphate
93. Which group of plants have their root system composed entirely of adventitious roots ?
(1) Bryophytes (2) Pteridophytes
(3) Gymnosperms (4) Angiosperms
94. In which of the dicot, there is no heart wood ?
(1) Populus (2) Morus (3) Tamarix (4) Fraxinus
95. Scientific study of true, bony fishes is :
(1) Ornithology (2) Ichthyology (3) Pisciculture (4) Aquaculture
96. The uredospore stage of Puccinia is called the :
(1) Black rust stage (2) Red rust stage
(3) Brown rust stage (4) Leaf rust stage
97. In necrosis, the dead tissue of the leaf spot may fall out leaving circular or irregular perforations called :
(1) Loop holes (2) Shunt holes (3) Shot holes (4) Sclerotic holes
98. Which of the following drugs is obtained from flowers ?
(1) Digitalin (2) Chamomile (3) Curave (4) Aconite
99. Compared with systematic arterial blood, pulmonary arterial blood has a higher :
(1) O_2 content (2) pH (3) HCO_3^- ions (4) Hb concentration
100. In an electrocardiogram, the QRS complex represents the :
(1) Depolarisation of atria (2) Repolarisation of atria
(3) Depolarisation of ventricles (4) Repolarisation of ventricles

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CPG-EE-2019 (Life Sciences)-(SET-Y)



10359

Sr. No.

Time : 1½ Hours

Total Questions : 100

Max. Marks : 100

Roll No. (in figures) _____ (in words) _____

Candidate's Name _____ Date of Birth _____

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(Signature of the Candidate)

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CANDIDATES MUST READ THE FOLLOWING INFORMATION/INSTRUCTIONS BEFORE STARTING THE QUESTION PAPER.

1. All questions are **compulsory** and carry equal marks. The candidates are required to attempt all questions.
2. The candidate **must return** this question booklet and the OMR Answer-Sheet to the Invigilator concerned before leaving the Examination Hall, failing which a case of use of unfair-means / misbehaviour will be registered against him / her, in addition to lodging of an FIR with the police. Further the answer-sheet of such a candidate will not be evaluated.
3. Keeping in view the transparency of the examination system, carbonless OMR Sheet is provided to the candidate so that a copy of OMR Sheet may be kept by the candidate.
4. Question Booklet along-with answer key of all the A, B, C and D code shall be got uploaded on the University Website immediately after the conduct of Entrance Examination. Candidates may raise valid objection/complaint if any, with regard to discrepancy in the question booklet/answer key within 24 hours of uploading the same on the University website. The complaint be sent by the students to the Controller of Examinations by hand or through email. Thereafter, no complaint in any case will be considered.
5. The candidate **must not** do any rough work or writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question booklet itself. Answers **must not** be ticked in the question booklet.
6. **Use only black or blue ball point pen of good quality in the OMR Answer-Sheet.**
7. There will be **negative** marking. Each correct answer will be awarded **one** full mark and each incorrect answer will be negatively marked for which the candidate will get ¼ Mark (0.25 Mark) discredit. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.
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SEAL

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32. High doses of antibiotics can destroy the bacterial flora of the large intestine. This can result in impaired :
(1) Absorption of protein (2) Blood coagulation
(3) Bone resorption (4) Respiratory control
33. Cerebellum of brain is concerned with :
(1) Static balance
(2) Initiation of muscular contraction
(3) Regulation of body posture & equilibrium
(4) Coordination of muscular movements
34. Cutting the posterior root of a spinal nerve would :
(1) Impair motor control of skeletal muscle
(2) Interfere with the flow of sensory impulses
(3) Interfere with the ability of brain to transmit impulse
(4) Interfere with the circulation of CSF

35. Kupffer's cells in liver are :
(1) Adipose cells (2) Phagocytic cells
(3) Blood cells (4) Regenerative cells
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(1) Renal vein (2) Hepatic portal vein
(3) Dorsal aorta (4) Hepatic vein
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6/7/2019

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CPG-EE-2019 (Life Sciences)-(SET-Y)



10360

Sr. No.

Time : 1½ Hours

Total Questions : 100

Max. Marks : 100

Roll No. (in figures) _____ (in words) _____

Candidate's Name _____ Date of Birth _____

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(Signature of the Candidate)

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CANDIDATES MUST READ THE FOLLOWING INFORMATION/INSTRUCTIONS BEFORE STARTING THE QUESTION PAPER.

1. All questions are **compulsory** and carry equal marks. The candidates are required to attempt all questions.
2. The candidate **must return** this question booklet and the OMR Answer-Sheet to the Invigilator concerned before leaving the Examination Hall, failing which a case of use of unfair-means / misbehaviour will be registered against him / her, in addition to lodging of an FIR with the police. Further the answer-sheet of such a candidate will not be evaluated.
3. Keeping in view the transparency of the examination system, carbonless OMR Sheet is provided to the candidate so that a copy of OMR Sheet may be kept by the candidate.
4. Question Booklet along-with answer key of all the A, B, C and D code shall be got uploaded on the University Website immediately after the conduct of Entrance Examination. Candidates may raise valid objection/complaint if any, with regard to discrepancy in the question booklet/answer key within 24 hours of uploading the same on the University website. The complaint be sent by the students to the Controller of Examinations by hand or through email. Thereafter, no complaint in any case will be considered.
5. The candidate **must not** do any rough work or writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question booklet itself. Answers **must not** be ticked in the question booklet.
6. **Use only black or blue ball point pen of good quality in the OMR Answer-Sheet.**
7. There will be **negative** marking. Each correct answer will be awarded **one** full mark and each incorrect answer will be negatively marked for which the candidate will get ¼ Mark (0.25 Mark) discredit. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.
8. *Before answering the questions, the candidates should ensure that they have been supplied correct & complete question booklet. Complaints, if any, regarding misprinting etc. will not be entertained 30 minutes after starting of the examination.*

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SEAL

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21. If the garden pea has 14 chromosomes in its diploid complement, how many double trisomics could theoretically exist :
(1) 6 (2) 9 (3) 16 (4) 21
22. In prokaryotes, the lagging primers are removed by :
(1) 3' to 5' exonuclease (2) DNA ligase
(3) DNA polymerase I (4) DNA polymerase III
23. Satellite DNA consists of :
(1) Extrachromosomal DNA (2) Short repetitive nucleotide sequences
(3) Ribosomal RNA gene (4) Single gene regions
24. Human genomic DNA is digested into fragments approx. 1 kb in size, denatured and then renatured. Which of the following statements is **true** ?
(1) All fragments will renature at the same rate.
(2) Fragments composed largely of repetitive DNA sequence will renature fastest.
(3) Fragments composed largely of non-repetitive DNA sequence will renature fastest.
(4) Fragments with high A : T content will renature fastest.

25. Which of the following enzymes does **not** require a primer ?
(1) RNA dependent DNA polymerase
(2) DNA dependent DNA polymerase
(3) DNA dependent RNA polymerase
(4) Taq. DNA polymerase
26. A method to detect whether two mutations are located on the same gene or different genes is :
(1) Generalized transduction (2) Complementation analysis
(3) hfr mapping (4) Karyotyping
27. Vessels and companion cells are the characteristic features of :
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- (1) Exhaled gas
 - (2) Alveolar gas
 - (3) Systemic arterial blood
 - (4) Systemic venous blood

42. High doses of antibiotics can destroy the bacterial flora of the large intestine. This can result in impaired :
- (1) Absorption of protein
 - (2) Blood coagulation
 - (3) Bone resorption
 - (4) Respiratory control
43. Cerebellum of brain is concerned with :
- (1) Static balance
 - (2) Initiation of muscular contraction
 - (3) Regulation of body posture & equilibrium
 - (4) Coordination of muscular movements
44. Cutting the posterior root of a spinal nerve would :
- (1) Impair motor control of skeletal muscle
 - (2) Interfere with the flow of sensory impulses
 - (3) Interfere with the ability of brain to transmit impulse
 - (4) Interfere with the circulation of CSF
45. Kupffer's cells in liver are :
- (1) Adipose cells
 - (2) Phagocytic cells
 - (3) Blood cells
 - (4) Regenerative cells
46. Highest concentration of urea is found in :
- (1) Renal vein
 - (2) Hepatic portal vein
 - (3) Dorsal aorta
 - (4) Hepatic vein
47. Magnitude of current just sufficient to excite a nerve or muscle is called :
- (1) Chronaxie
 - (2) Rheobase
 - (3) Subliminal
 - (4) None of the above
48. In bees, pollen basket is present in :
- (1) Prothoracic legs
 - (2) Mesothoracic legs
 - (3) Metathoracic legs
 - (4) Both meso and metathoracic legs
49. Kala-azar is caused by :
- (1) Leishmania
 - (2) Leptomonas
 - (3) Trypanosoma
 - (4) Plasmodium
50. Which of the following does **not** have a pupa in its life cycle ?
- (1) Butterfly
 - (2) Bedbug
 - (3) Mosquito
 - (4) Silk moth

51. Most of the free fatty acids are transported in the blood :
- (1) Inside the RBCs
 - (2) As lipoproteins
 - (3) Combined with glucose
 - (4) Bound to albumin
52. Enzyme glutathione peroxidase catalyses destruction of H_2O_2 , contains :
- (1) *Zn*
 - (2) *Fe*
 - (3) *Se*
 - (4) *Mo*
53. Which of the following processes does **not** involve cytochrome C in plants ?
- (1) Oxidative phosphorylation
 - (2) Electron Transport
 - (3) TCA cycle
 - (4) Apoptosis
54. Organic constituents of protoplasm are :
- (1) Carbohydrates & Proteins
 - (2) Nucleotids & lipids
 - (3) Hormones & Vitamins
 - (4) All of the above
55. Which characteristic is undesirable in cloning vectors ?
- (1) Self replicating
 - (2) High copy number
 - (3) Vulnerable at several sites to a restriction enzyme
 - (4) Small in size
56. A reporter gene is used to :
- (1) Identify regulatory sequences from the upstream regions of other genes
 - (2) Determine if a protein binds to a given sequence element
 - (3) Determine if a gene contains introns
 - (4) Determine the stability of a protein
57. Genomic library is :
- (1) Collection of recombinant molecules with inserts that contain all of the genes of an organism.
 - (2) Collection of recombinant molecules with inserts that contain all of an organism's genome.
 - (3) Collection of recombinant molecules that express all of the genes of the organism.
 - (4) Collection of recombinant molecules that have been sequenced.

58. RFLP analysis is a technique that :

- (1) Uses hybridization to detect specific DNA restriction fragments in genomic DNA.
- (2) Used to determine whether a gene is transcribed in specific cells.
- (3) Measure the transfer frequency of genes during conjugation.
- (4) Used to detect genetic variation at the protein level.

59. Simple tandem repeat polymorphisms in humans are most useful for :

- (1) Solving criminal and paternity cases.
- (2) Reconstructing the relationships of humans & chimps.
- (3) Estimating relationships of humans & Neanderthals.
- (4) Transferring disease resistance factors into bone marrow cells.

60. Transgenic plants are easier to produce than animals :

- (1) Plants can more easily be grown from single cultured cells into which foreign DNA has been introduced.
- (2) Plant DNA is easier to clone.
- (3) Plant cells can be transformed by bacterial infection.
- (4) DNA passes more readily through the plant cell wall than through the animal cell membrane.

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71. Wings of insects and the wings of bats represent a case of :
(1) Divergent evolution (2) Convergent evolution
(3) Parallel evolution (4) Neutral evolution
72. Which prehistoric human had almost same cranial capacity as that of modern man ?
(1) Neanderthal man (2) Peking man
(3) Java ape man (4) Australopithecus man
73. Which of the following organs have no evolutionary significance ?
(1) Analogous organs (2) Atavistic organs
(3) Non-functional organs (4) Functional organs
74. On receiving the required light energy, a chlorophyll molecule gets changed from ground state to excited state. This activated state is called :
(1) Excited singlet state (2) Excited triplet state
(3) Phosphorescence (4) Fluorescence

75. Rhizobium fixes atmospheric nitrogen to ammonia in the presence of pigment called :
(1) Xanthophyll (2) Leghemoglobin (3) Hemoglobin (4) Phycobilin
76. Which of the following are referred to as diageotropic ?
(1) Secondary roots (2) Stems
(3) Leaves (4) Rhizomes
77. The mechanism of ATP formation in chloroplast is explained by :
(1) Relay Pump theory of Godlewski (2) Cholodny Went's model
(3) Chemiosmotic theory (4) Munch's pressure/mass flow model
78. Root pressure is a/an :
(1) Non-osmotic phenomenon (2) Osmotic phenomenon
(3) Positive hydrostatic pressure (4) More than one statement is true
79. Most of the water taken up by the plant is :
(1) Split during photosynthesis as a source of electrons and hydrogen.
(2) Lost by transpiration through stomata.
(3) Absorbed by cells during their elongation.
(4) Incorporated directly into organic material.
80. Carnivorous adaptation of plants mainly compensate for soil that has a relatively low content of :
(1) Potassium (2) Nitrogen (3) Phosphate (4) Calcium
81. Dorsal fins are absent in :
(1) Myxine (2) Petromyzon
(3) Lampetra (4) Ichthyomyzon
82. The longest part of the frog alimentary canal is :
(1) Oesophagous (2) Small intestine
(3) Ileum (4) Rectum
83. Down feathers of Columba are also called as :
(1) Remiges (2) Plumules (3) Pennae (4) Pin feathers


84. Night blindness in rabbit is associated with :
(1) Very high level of rhodopsin (2) Low level of rhodopsin
(3) High level of vitamin A (4) None of the above
85. In which of the following skull is heavier than the rest of the animal body ?
(1) Dogfish (2) Pigeon (3) Frog (4) Rabbit
86. Following statement about Cyclostomata is false :
(1) Lack of paired appendages (2) Jaws are absent
(3) No stomach in digestive system (4) None of the above
87. In Guinea pig, black coat colour is a dominant trait and white is recessive trait. A black female is test crossed producing six black offspring. The probability that a heterogamous black would do this by chance alone is approximately :
(1) 50%
(2) 25%
(3) 1%
(4) Cannot be determined from the information
88. The kind of polyploidy usually arising by crossing between organisms of different ploidy level is known as :
(1) Autoploid (2) Primary polyploid
(3) Secondary polyploid (4) Pentaploid
89. Albinism is a recessive human trait. If a normal couple produces an albino child, what is the probability that their next child will be albino ?
(1) $1/4$ (2) $1/8$ (3) $1/16$ (4) $1/64$
90. If four chromosomes synapse into a cross-shaped configuration during meiotic prophase, the organism is heterozygous for a :
(1) Pericentric inversion (2) Deletion
(3) Translocation (4) Paracentric inversion
91. Marker enzyme of Golgi apparatus is :
(1) Acetyl-coA synthetase (2) Pyruvate kinase
(3) Galactosyl transferase (4) Cytochrome oxidase

- 92.** In the cAMP pathway, the G-protein stimulates :
- (1) Phospholipase C (2) Adenylate
(3) The Endoplasmic reticulum (4) Calmodulin
- 93.** Each ribosome consists of two unequal subunits of composition :
- (1) RNA and Protein (2) RNA and carbohydrates
(3) Only RNA (4) Proteins and DNA
- 94.** Which of the following is a cell adhesion molecule ?
- (1) Integrin (2) Lysine (3) Myosin (4) Keratin
- 95.** Proto-oncogenes are :
- (1) Oncogenes found in transforming retroviruses
(2) Oncogenes present in protozoa
(3) Genes encoding oncogenes related proteins in extinct organisms
(4) Cellular genes encoding proteins related to viral oncogenes
- 96.** Plane of formation of cell plate in plant cell is governed by :
- (1) Phragmoplast (2) Microtubules (3) Nucleus (4) Centriole
- 97.** Which of the following is an example of chemolithoautotroph ?
- (1) Sulphur-oxidising bacteria (2) Hydrogen bacteria
(3) Nitrifying bacteria (4) All of these
- 98.** Mycoplasma are not inhibited by penicillin because they :
- (1) produce penicillinase (2) are gram-positive
(3) are gram-negative (4) do not have a cell wall
- 99.** The protoplast of the cork cells, in the root, secretes a fat like substance, called :
- (1) Lignin (2) Cutin (3) Suberin (4) Cellulose
- 100.** Which of the following algae belongs to the tubular series ?
- (1) Nostoc (2) Polysiphonia (3) Vaucheria (4) Pandorina

Answer key of LIFE SCIENCE (Centralized Entrance Exam 2019)				
Question No.	A	B	C	D
1	3	1	2	4
2	2	1	1	2
3	1	4	1	3
4	1	1	1	3
5	4	1	2	1
6	2	1	4	1
7	4	4	3	2
8	4	2	4	4
9	3	3	2	4
10	3	4	2	4
11	1	1	1	3
12	1	2	3	2
13	4	4	2	4
14	1	2	2	4
15	1	2	1	2
16	1	4	4	3
17	4	2	1	1
18	2	3	3	1
19	3	1	1	2
20	4	2	3	1
21	1	4	3	4
22	3	2	2	3
23	2	3	1	2
24	2	3	1	2
25	1	1	4	3
26	4	1	2	2
27	1	2	4	2
28	3	4	4	2
29	1	4	3	3
30	3	4	3	2
31	4	3	1	1
32	3	2	2	1
33	2	4	4	4
34	2	4	2	1
35	3	2	2	1
36	2	3	4	1
37	2	1	2	4
38	2	1	3	2
39	3	2	1	3
40	2	1	2	4
41	2	4	4	1
42	1	3	3	2
43	1	2	3	4
44	1	2	4	2
45	2	3	3	2
46	4	2	1	4
47	3	2	2	2
48	4	2	1	3
49	2	3	1	1
50	2	2	1	2
51	3	1	4	4

Handwritten signatures and marks:
 - A large signature on the left.
 - "Slydew" in the center.
 - "Prn" and "Ory" in the middle.
 - "All" on the right.
 - "unig" and "Hafid" on the far right.

Answer key of LIFE SCIENCE (Centralized Entrance Exam 2019)				
Question No.	A	B	C	D
52	2	3	3	3
53	4	2	2	3
54	4	2	2	4
55	2	1	3	3
56	3	4	2	1
57	1	1	2	2
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60	1	3	2	1
61	4	2	4	4
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63	3	1	3	2
64	4	1	3	1
65	3	2	1	2
66	1	4	1	2
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87	3	4	4	1
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94	2	1	4	1
95	2	2	2	4
96	4	2	3	2
97	2	3	1	4
98	3	2	1	4
99	1	2	2	3
100	2	3	1	3


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