Used for OMR evaluation 11/7/15 11/7/15 11/7/15

(Total No. of printed pages : 19)

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11177 **(PG–EE–2015)**

Sr. No._____

Subject : LIFE SCIENCE **Code A**

Common for all M. Sc. Course running under Faculty of Life Science Except M. Sc. Forensic Science

Time : 1¼ Hours **Max. Marks : 100** **Total Questions : 100**

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

Name : _____ Father's Name : _____

Mother's Name _____ Date of Examination _____

(Signature of the candidate) (Signature of the Invigilator)

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Question No.	Questions
1.	The enzyme involved in mRNA synthesis during transcription is called : (1) Helicase (2) DNA ligase (3) RNA polymerase (4) DNA polymerase
2.	The coding sequences in eukaryotic DNA are known as : (1) Regulatory sequence (2) Exon (3) Intron (4) Muton
3.	DNA carries : (1) Positive charge (2) Negative charge (3) Neutral (4) None of the above
4.	Which of the following is correct with regard to aneuploidy ? (1) All aneuploid individuals die before birth (2) Inversion (3) 4n (4) 2n + 1
5.	The X-ray diffraction studies conducted by ..... were key to the discovery of the structure of DNA. (1) Franklin (2) Meselson and Stahl (3) Chargaff (4) McClintock
6.	Which of the following is not needed for DNA transcription ? (1) DNA (2) Enzymes (3) Ribosomes (4) Nucleotide

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Question No.	Questions
7.	Which of the following descriptions of chromosomes is not correctly matched ? (1) Telocentric – there is only one chromosome arm. (2) Acrocentric – chromosome arms are identical in size (3) Metacentric – chromosome arms are almost equal in size. (4) Submetacentric – chromosome arms are slightly different in size
8.	The triplet code of CAT in DNA is represented as ..... in mRNA and ..... in tRNA. (1) CAT, CAT (2) GUA, CAU (3) GTA, CAU (4) GAA, CAT
9.	What is the probability that a male will inherit an X-linked recessive gene from his father ? (1) 25% (2) 50% (3) 75% (4) 0%
10.	Who demonstrated that genes are located on chromosomes ? (1) Meselson and Stahl (2) Watson and Crick (3) Morgan (4) Chargaff
11.	'DOTS' strategy is used to treat (1) HIV (2) Malaria (3) Tuberculosis (4) Hepatitis
12.	The most important route of transmission for hepatitis C is (1) Semen (2) Vaginal secretion (3) Saliva (4) Blood transfusion

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13.	Holding method of pasteurization is carried out at (1) 71.7°C for 15 seconds (2) 68.4°C for 30 minutes (3) 64.1°C for 45 minutes (4) 62.8°C for 30 minutes
14.	Serum can be sterilised by (1) Autoclaving (2) Dry-heat sterilisation (3) Membrane-filtration (4) Incineration
15.	Widal test is widely used for the diagnosis of (1) Bacillary dysentery (2) Tuberculosis (3) Typhoid fever (4) Cholera
16.	HAART strategy is used for the treatment of (1) Hepatitis B (2) Syphilis (3) AIDS (4) Hepatitis C
17.	The following bacterium is good example of photolithotrophs (1) Rhodospirillum rubrum (2) Nitrosomonas europaea (3) Pseudomonas pseudoflava (4) Chromatium okenii
18.	Transduction was discovered by (1) Zinder and Lederberg (2) Elie Wollman and Francois Jacob (3) Luria and Delbruck (4) Beadle and Tatum

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19.	Flagellation type where a bacterial cell is having flagella all over its surfac is (1) Amphitrichous (2) Cephalotrichous (3) Lophotrichous (4) Peritrichous
20.	A short stretch of RNA used to initiate replication is termed (1) Promoter (2) Primer (3) Primase (4) Replisome
21.	Enzyme that joins the Okazaki fragments is (1) Laccase (2) Ligase (3) Helicase (4) Topoisomerase
22.	Cytochrome C is a protein with (1) Sulphate (2) Haeme (3) Copper (4) Magnesium
23.	Lipopolysaccharide is the crucial component of (1) Gram-positive bacteria (2) Gram-negative bacteria (3) Virus (4) Plant cell wall
24.	Which type of library would you screen in order to identify the promote the hemoglobin gene (1) Genomic library (2) Expression library (3) cDNA library (4) None of the above

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25.	Which of the following is used to select genes of interest from genomic library ? (1) Restriction enzymes (2) Cloning vectors (3) DNA probes (4) Gene targets
26.	Which technique is used to resolve the different sizes of DNA fragments following a restriction enzyme digest ? (1) DNA sequencing (2) Gel electrophoresis (3) Gene cloning (4) PCR
27.	Which type of restriction endonuclease enzymes are most widely used in recombinant DNA technology ? (1) Type I enzymes (2) Type II enzymes (3) Type III enzymes (4) All of the above
28.	Which technique can be used to investigate the transcripts of a gene ? (1) Southern blotting (2) Northern blotting (3) Western blotting (4) None of the above
29.	Crown gall disease is caused by (1) *Bacillus thuringiensis* (2) *Agrobacterium radiobacter* (3) *Pseudomonas syringae* (4) *Agrobacterium tumefaciens*

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Question No.	Questions
30.	Which one of the following is not a transgenic or genetically modified organism ? (1) Sheep 'Dolly' (2) Bt cotton (3) Bacteria that make human insulin (4) Golden rice
31.	Plasmids can easily hold the DNA of which of the following sizes : (1) 10 kb (2) 50 kb (3) 300 kb (4) 600 kb
32.	LSD (lysergic acid) is obtained from (1) Aspergillus niger (2) Pencillium notatum (3) Claviceps purpurea (4) Fusarium udum
33.	Which of the following algae has "Plakea stage" in its life cycle ? (1) Chlamydomonas (2) Volvox (3) Vaucheria (4) Batrachospermum
34.	Winged pollen grains are present in (1) Cycas (2) Pinus (3) Ephedra (4) Ginkgo
35.	Puccinia spores that are stalked, unicellular, oval and binucleate are called (1) Uredospores (2) Teleutospores (3) Basidiospores (4) Pycniospores

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Question No.	Questions
36.	The seedless vascular plants are (1) Bryophyta (2) Pteridophyta (3) Gymnosperm (4) Angiosperm
37.	Which of the following are the characteristics of Gymnosperms ? (a) Naked ovules (b) Double Fertilization (c) Absence of tracheids (d) Haploid endosperm (1) (a) and (d) (2) (a) and (b) (3) (c) and (d) (4) (b) and (c)
38.	Which of the following is not a stem ? (1) Potato (2) Sweet Potato (3) Ginger (4) Onion
39.	In India, most of herbaria are based on which system of plant classification (1) Engler and Prantl's system (2) Bentham and Hooker's (3) Hutchinson's system (4) Takhtajan's system
40.	Tropical plants such as sugarcane show high efficiency of CO_2 fixation by (1) EMP pathway (2) TCA cycle (3) Hatch Slack cycle (4) Calvin cycle

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Question No.	Questions
41.	The cell organelles associated with photorespiration are (1) Chloroplast, peroxisome and mitochondria (2) Chloroplast and peroxisome (3) Chloroplast and mitochondria (4) Peroxisome and mitochondria
42.	The conversion of ammonia into nitrite and nitrate is called (1) Nitrogen fixation (2) Denitrification (3) Nitrification (4) Ammonification
43.	If an organism is respiring in a bel jar filled with radio-labelled oxygen, the radioactivity will be detected in which product of respiration (1) CO_2 (2) H_2O (3) $C_6H_{12}O_6$ (4) CO_2 and H_2O
44.	The carbohydrates are transported from leaves to other parts of the plants in the form of (1) Starch (2) Glucose (3) Sucrose (4) Cellulose
45.	Match correctly between column (A) and column (B) Column (A) Column (B) I. Extreme cold treatment A. Ripening of fruits II. Response to day length B. Vernalization III. Apical dominance C. Photoperiodism IV. Ethylene D. Auxin (1) I-B, II-D, III-C, IV-A (2) I-B, II-C, III-D, IV-A (3) I-D, II-C, III-B, IV-A (4) I-C, II-B, III-A, IV-D

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Question No.	Questions
46.	Monocot seed contains single cotyledon which is known as (1) Aleurone (2) Endosperm (3) Scutellum (4) Perisperm
47.	The Central Potato Research Institute is located at (1) Dehradun (2) Delhi (3) Shimla (4) Coimbatore
48.	The edible part of litchi is morphologically (1) Fleshy thalamus (2) Mesocarp (3) Aril (4) Endosperm
49.	Match list I with list II **List I** **List II** I. Fibre A. Arachis hypogea II. Oil B. *Corchorus capsularis* III. Timber C. *Curcuma longa* IV. Spice D. *Tectona grandis* (1) I-B, II-A, III-D, IV-C (2) I-B, II-C, III-D, IV-A (3) I-C, II-A, III-B, IV-D (4) I-D, II-B, III-C, IV-A
50.	The condition where a bisexual flower does not open is called (1) Allogamy (2) Xenogamy (3) Geitonogamy (4) Cleistogamy

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Question No.	Questions
51.	If an endosperm of an angiosperm has 18 chromosomes what would be the number of chromosome in megaspore mother cell of the same plant ? (1) 6 (2) 12 (3) 18 (4) 24
52.	Fertilization in which male gametes are carried through pollen tube is (1) Syngamy (2) Siphonogamy (3) Chalazogamy (4) Porogamy
53.	Pollination through air is termed as (1) Anemophily (2) Cheiropterophily (3) Entomophily (4) Ornithophily
54.	The female gametophyte of typical dicot plant at the time of fertilization is (1) 6-celled (2) 7-celled (3) 8-celled (4) 4-celled
55.	Development of 'seedless fruits' is called' (1) Parthenogenesis (2) Parthenocarpy (3) Polyembryony (4) Apomixis
56.	What is the general term used to describe the degradation of pollutants using a biological approach ? (1) Biodegradation (2) Bioaugmentation (3) Bioremediation (4) Biostimulation

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Question No.	Questions
57.	Biological magnification of DDT will affect the most at which tropical level (1) First tropical level (2) Second tropical level (3) Third tropical level (4) Fourth tropical level
58.	VAM (vesicular arbuscular mycorrhizae) are important for the plants to supply ..... from soil (1) Phosphate (2) Nitrogen (3) Iron (4) Potassium
59.	CNG is (1) Carbonitrogen (2) Complete nitrogen gas (3) Compressed natural gas (4) Coal nitrogen gas
60.	In coming years, the skin diseases will be more common due to (1) Increase in air pollution (2) Increase in CO_2 (3) Excess use of detergent (4) Depletion of ozone
61.	Red data book provides data on (1) Biota of red sea (2) Effect of red light on photosynthesis (3) Red pigmented plants (4) Threatened species
62.	A species inhabiting different geographical areas is known as (1) Sympatric (2) Sibling (3) Allopatric (4) Allelopathy

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Question No.	Questions
63.	"Theory of spontaneous generation" was proposed by (1) Charles Darwin (2) Louis Pasteur (3) Oparin and Haldane (4) Hugo de Vries
64.	Development of resistance against DDT by mosquito is an example of (1) Natural selection (2) Variation (3) Adaptation (4) Isolation
65.	Who gave the statement that population tends to multiply more rapidly than the food supply (1) Malthus (2) Darwin (3) Lamark (4) Cope
66.	In which one of the following phases of cell cycle, the drug colchicine exert its effect ? (1) G1 (2) G2 (3) S (4) M
67.	The most storage polysaccharide of animal cell is (1) Starch (2) Chitin (3) Glycogen (4) Glycan
68.	Pyrimidines in RNA are (a) Adenine (b) Uracil (c) Cytosine (d) Thymine (e) Guanine (1) (a) and (b) (2) (b) and (c) (3) (a) and (e) (4) (c) and (d)

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69.	An inorganic ion required for the activity of an enzyme is known as (1) Activator (2) Cofactor (3) Coenzyme (4) Holoenzyme
70.	End product of aerobic glycolysis is (1) Acetyl CoA (2) Lactate (3) Pyruvate (4) CO_2 and H_2O
71.	Enzymes of hexose monophosphate shunt are present (1) Mitochondria (2) Cytosol (3) Lysosomes (4) Microsomes
72.	A digestive secretion that does not contain any digestive enzyme is (1) Saliva (2) Gastric juice (3) Pancreatic juice (4) Bile
73.	Primary structure of a protein is formed by (1) Hydrogen bond (2) Peptide bond (3) Disulphide bond (4) All of the above
74.	The Centrioles have (1) RNA (2) DNA (3) Microtubules (4) None of these

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Question No.	Questions
75.	The following is a polyunsaturated fatty acid (1) Palmitic acid (2) Palmitoleic acid (3) Linoleic acid (4) Oleic acid
76.	A hormone used for detection of pregnancy is (1) Estrogen (2) Progesterone (3) Oxytocin (4) Chorionic gonadotropin
77.	Insulin increases (1) Glycogenesis (2) Gluconeogenesis (3) Lipolysis (4) Blood glucose
78.	Mammary glands are the modification of (1) Sebaceous glands (2) Sweat glands (3) Meibomian glands (4) Perineal glands
79.	Sinus venosus is not present in the heart of (1) Fish (2) Amphibian (3) Reptile (4) Mammal
80.	The photosensitive pigment, rhodopsin which is present in rods of eye is synthesised from (1) Vitamin-D (2) Vitamin-A (3) Vitamin-B (4) Vitamin-E

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Question No.	Questions
81.	The amount of air that moves in and out of the lungs with each normal inspiration and expiration (1) Tidal capacity (2) Vital capacity (3) Tidal volume (4) Residual volume
82.	Schizocoel is present in (1) Frog (2) Pila (3) Herdmania (4) Balanoglossus
83.	Uricotelic excretion is mainly an adaptation for (1) Conservation of urea producing enzymes (2) Raising osmotic concentration of blood (3) Conservation of water (4) Storage of waste materials
84.	Match list I correctly with list II **List I** **List II** I. Planaria A. Green gland II. Earthworm B. Malpighian tubes III. Prawn C. Nephridia IV. Scorpion D. Flame Cell (1) I-D, II-C, III-A, IV-B (2) I-B, II-C, III-D, IV-A (3) I-C, II-B, III-D, IV-A (4) I-A, II-D, III-C, IV-B

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Question No.	Questions
85.	The flow of blood in the veins is at (1) Atmospheric pressure (2) Low pressure (3) High pressure (4) Initially high and then low pressure
86.	Flagellated larvae of sponges is (1) Glochidium (2) Amphiblastula (3) Trochophore (4) Miracidium
87.	Homocercal tail is present in (1) Electric ray (2) Shark (3) Lung fish (4) Teleosts
88.	Which one of the following is not a fish ? (1) Silver fish (2) Lung fish (3) Gold fish (4) Flying fish
89.	Notochord like structure in buccal region of hemichordates is (1) Protochord (2) Stomochord (3) Pallium (4) Mantle
90.	'Crop' in birds is (1) Rectum (2) Modified stomach (3) Modified oesophagus (4) Early part of small intestine

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Question No.	Questions
91.	Sperm capacitation takes place in (1) Epididymis (2) Seminal vesicles (3) Female genital tract (4) Testis
92.	Graafian follicles are found in (1) Thyroid (2) Spleen (3) Ovary (4) Kidney
93.	Extra-embryonic membranes are absent in embryo of (1) Fish (2) Reptile (3) Bird (4) Mammal
94.	The presence of gray crescent is a characteristic of (1) Fertilized egg of frog (2) Unfertilized egg of frog (3) Fertilized egg of reptile (4) Fertilized egg of mammal
95.	Sexual reproduction in larval stage is called (1) Parthenogenesis (2) Abiogenesis (3) Neoteny (4) Paedogenesis
96.	Rearing of earthworm is called (1) Apiculture (2) Silviculture (3) Vermiculture (4) Pisciculture

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Question No.	Questions
97.	Sting is a modified ovipositor in (1) Centipede (2) Millipede (3) Honey bee (4) Scorpion
98.	DNA finger printing is based on the presence in DNA of (1) Constant number of tandem repeats (2) Variable number of tandem repeats (3) Non-repetitive sequences in each DNA (4) Introns in eukaryotic DNA
99.	PCR was discovered by (1) Kary Mullis (2) Francis Crick (3) Hershey and Chase (4) Rosalind Franklin
100.	The pH of a plant tissue culture medium is usually maintained at (1) 7.0 (2) 5.8 (3) 4.0 (4) Any between 4-14

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(PG–EE–2015)

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44.	Winged pollen grains are present in (1) Cycas (2) Pinus (3) Ephedra (4) Ginkgo
45.	Puccinia spores that are stalked, unicellular, oval and binucleate are called (1) Uredospores (2) Teleutospores (3) Basidiospores (4) Pycniospores
46.	The seedless vascular plants are (1) Bryophyta (2) Pteridophyta (3) Gymnosperm (4) Angiosperm
47.	Which of the following are the characteristics of Gymnosperms ? (a) Naked ovules (b) Double Fertilization (c) Absence of tracheids (d) Haploid endosperm (1) (a) and (d) (2) (a) and (b) (3) (c) and (d) (4) (b) and (c)
48.	Which of the following is not a stem ? (1) Potato (2) Sweet Potato (3) Ginger (4) Onion
49.	In India, most of herbaria are based on which system of plant classification (1) Engler and Prantl's system (2) Bentham and Hooker's (3) Hutchinson's system (4) Takhtajan's system

M.D. University, Rohtak

Question No.	Questions
50.	Tropical plants such as sugarcane show high efficiency of CO_2 fixation by (1) EMP pathway (2) TCA cycle (3) Hatch Slack cycle (4) Calvin cycle
51.	Enzyme that joins the Okazaki fragments is (1) Laccase (2) Ligase (3) Helicase (4) Topoisomerase
52.	Cytochrome C is a protein with (1) Sulphate (2) Haeme (3) Copper (4) Magnesium
53.	Lipopolysaccharide is the crucial component of (1) Gram-positive bacteria (2) Gram-negative bacteria (3) Virus (4) Plant cell wall
54.	Which type of library would you screen in order to identify the promoter of the hemoglobin gene (1) Genomic library (2) Expression library (3) cDNA library (4) None of the above
55.	Which of the following is used to select genes of interest from genomic library ? (1) Restriction enzymes (2) Cloning vectors (3) DNA probes (4) Gene targets

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Question No.	Questions
56.	Which technique is used to resolve the different sizes of DNA fragments following a restriction enzyme digest ? (1) DNA sequencing (2) Gel electrophoresis (3) Gene cloning (4) PCR
57.	Which type of restriction endonuclease enzymes are most widely used in recombinant DNA technology ? (1) Type I enzymes (2) Type II enzymes (3) Type III enzymes (4) All of the above
58.	Which technique can be used to investigate the transcripts of a gene ? (1) Southern blotting (2) Northern blotting (3) Western blotting (4) None of the above
59.	Crown gall disease is caused by (1) *Bacillus thuringiensis* (2) *Agrobacterium radiobacter* (3) *Pseudomonas syringae* (4) *Agrobacterium tumefaciens*
60.	Which one of the following is not a transgenic or genetically modified organism ? (1) Sheep 'Dolly' (2) Bt cotton (3) Bacteria that make human insulin (4) Golden rice

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Question No.	Questions
61.	The cell organelles associated with photorespiration are (1) Chloroplast, peroxisome and mitochondria (2) Chloroplast and peroxisome (3) Chloroplast and mitochondria (4) Peroxisome and mitochondria
62.	The conversion of ammonia into nitrite and nitrate is called (1) Nitrogen fixation (2) Denitrification (3) Nitrification (4) Ammonification
63.	If an organism is respiring in a bel jar filled with radio-labelled oxygen, the radioactivity will be detected in which product of respiration (1) CO_2 (2) H_2O (3) $C_6H_{12}O_6$ (4) CO_2 and H_2O
64.	The carbohydrates are transported from leaves to other parts of the plants in the form of (1) Starch (2) Glucose (3) Sucrose (4) Cellulose
65.	Match correctly between column (A) and column (B) Column (A) Column (B) I. Extreme cold treatment A. Ripening of fruits II. Response to day length B. Vernalization III. Apical dominance C. Photoperiodism IV. Ethylene D. Auxin (1) I-B, II-D, III-C, IV-A (2) I-B, II-C, III-D, IV-A (3) I-D, II-C, III-B, IV-A (4) I-C, II-B, III-A, IV-D

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Question No.	Questions
66.	Monocot seed contains single cotyledon which is known as (1) Aleurone (2) Endosperm (3) Scutellum (4) Perisperm
67.	The Central Potato Research Institute is located at (1) Dehradun (2) Delhi (3) Shimla (4) Coimbatore
68.	The edible part of litchi is morphologically (1) Fleshy thalamus (2) Mesocarp (3) Aril (4) Endosperm
69.	Match list I with list II **List I** **List II** I. Fibre A. Arachis hypogea II. Oil B. *Corchorus capsularis* III. Timber C. *Curcuma longa* IV. Spice D. *Tectona grandis* (1) I-B, II-A, III-D, IV-C (2) I-B, II-C, III-D, IV-A (3) I-C, II-A, III-B, IV-D (4) I-D, II-B, III-C, IV-A
70.	The condition where a bisexual flower does not open is called (1) Allogamy (2) Xenogamy (3) Geitonogamy (4) Cleistogamy

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Question No.	Questions
71.	Red data book provides data on (1) Biota of red sea (2) Effect of red light on photosynthesis (3) Red pigmented plants (4) Threatened species
72.	A species inhabiting different geographical areas is known as (1) Sympatric (2) Sibling (3) Allopatric (4) Allelopathy
73.	"Theory of spontaneous generation" was proposed by (1) Charles Darwin (2) Louis Pasteur (3) Oparin and Haldane (4) Hugo de Vries
74.	Development of resistance against DDT by mosquito is an example of (1) Natural selection (2) Variation (3) Adaptation (4) Isolation
75.	Who gave the statement that population tends to multiply more rapidly than the food supply (1) Malthus (2) Darwin (3) Lamark (4) Cope
76.	In which one of the following phases of cell cycle, the drug colchicine exert its effect ? (1) G1 (2) G2 (3) S (4) M

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Question No.	Questions
77.	The most storage polysaccharide of animal cell is (1) Starch (2) Chitin (3) Glycogen (4) Glycan
78.	Pyrimidines in RNA are (a) Adenine (b) Uracil (c) Cytosine (d) Thymine (e) Guanine (1) (a) and (b) (2) (b) and (c) (3) (a) and (e) (4) (c) and (d)
79.	An inorganic ion required for the activity of an enzyme is known as (1) Activator (2) Cofactor (3) Coenzyme (4) Holoenzyme
80.	End product of aerobic glycolysis is (1) Acetyl CoA (2) Lactate (3) Pyruvate (4) CO_2 and H_2O
81.	The enzyme involved in mRNA synthesis during transcription is called : (1) Helicase (2) DNA ligase (3) RNA polymerase (4) DNA polymerase
82.	The coding sequences in eukaryotic DNA are known as : (1) Regulatory sequence (2) Exon (3) Intron (4) Muton

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Question No.	Questions
83.	DNA carries : (1) Positive charge (2) Negative charge (3) Neutral (4) None of the above
84.	Which of the following is correct with regard to aneuploidy ? (1) All aneuploid individuals die before birth (2) Inversion (3) 4n (4) 2n + 1
85.	The X-ray diffraction studies conducted by ..... were key to the discovery of the structure of DNA. (1) Franklin (2) Meselson and Stahl (3) Chargaff (4) McClintock
86.	Which of the following is not needed for DNA transcription ? (1) DNA (2) Enzymes (3) Ribosomes (4) Nucleotide
87.	Which of the following descriptions of chromosomes is not correctly matched ? (1) Telocentric – there is only one chromosome arm. (2) Acrocentric – chromosome arms are identical in size (3) Metacentric – chromosome arms are almost equal in size. (4) Submetacentric – chromosome arms are slightly different in size

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Question No.	Questions
88.	The triplet code of CAT in DNA is represented as ..... in mRNA and ..... in tRNA. (1) CAT, CAT (2) GUA, CAU (3) GTA, CAU (4) GAA, CAT
89.	What is the probability that a male will inherit an X-linked recessive gene from his father ? (1) 25% (2) 50% (3) 75% (4) 0%
90.	Who demonstrated that genes are located on chromosomes ? (1) Meselson and Stahl (2) Watson and Crick (3) Morgan (4) Chargaff
91.	The amount of air that moves in and out of the lungs with each normal inspiration and expiration (1) Tidal capacity (2) Vital capacity (3) Tidal volume (4) Residual volume
92.	Schizocoel is present in (1) Frog (2) Pila (3) Herdmania (4) Balanoglossus
93.	Uricotelic excretion is mainly an adaptation for (1) Conservation of urea producing enzymes (2) Raising osmotic concentration of blood (3) Conservation of water (4) Storage of waste materials

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Question No.	Questions
94.	Match list I correctly with list II **List I** — **List II** I. Planaria — A. Green gland II. Earthworm — B. Malpighian tubes III. Prawn — C. Nephridia IV. Scorpion — D. Flame Cell (1) I-D, II-C, III-A, IV-B (2) I-B, II-C, III-D, IV-A (3) I-C, II-B, III-D, IV-A (4) I-A, II-D, III-C, IV-B
95.	The flow of blood in the veins is at (1) Atmospheric pressure (2) Low pressure (3) High pressure (4) Initially high and then low pressure
96.	Flagellated larvae of sponges is (1) Glochidium (2) Amphiblastula (3) Trochophore (4) Miracidium
97.	Homocercal tail is present in (1) Electric ray (2) Shark (3) Lung fish (4) Teleosts
98.	Which one of the following is not a fish ? (1) Silver fish (2) Lung fish (3) Gold fish (4) Flying fish

M.D. University, Rohtak

Question No.	Questions
99.	Notochord like structure in buccal region of hemichordates is (1) Protochord (2) Stomochord (3) Pallium (4) Mantle
100.	'Crop' in birds is (1) Rectum (2) Modified stomach (3) Modified oesophagus (4) Early part of small intestine

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11435

(PG–EE–2015)

Subject : LIFE SCIENCE Code C

Sr. No._____

Common for all M. Sc. Course running under Faculty of Life Science Except M. Sc. Forensic Science

Time : 1¼ Hours | Max. Marks : 100 | Total Questions : 100

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

Name : _____ Father's Name : _____

Mother's Name _____ Date of Examination_____

(Signature of the candidate) (Signature of the Invigilator)

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

1. All questions are compulsory.
2. The candidates must return the Question book-let as well as 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 candidate will not be evaluated.
3. In case there is any discrepancy in any question(s) in the Question Booklet, the same may be brought to the notice of the Controller of Examinations in writing **within two hours** after the test is over. No such complaint(s) will be entertained thereafter.
4. 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 book-let itself. Answers **MUST NOT** be ticked in the Question book-let.
5. **There will be no negative marking. Each correct answer will be awarded one full mark. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.**
6. Use only Black or Blue **BALL POINT PEN** of good quality in the OMR Answer-Sheet.
7. BEFORE ANSWERING THE QUESTIONS, THE CANDIDATES SHOULD ENSURE THAT THEY HAVE BEEN SUPPLIED CORRECT AND COMPLETE BOOK-LET. COMPLAINTS, IF ANY, REGARDING MISPRINTING ETC. WILL NOT BE ENTERTAINED 30 MINUTES AFTER STARTING OF THE EXAMINATION.

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Question No.	Questions
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M.D. University, Rohtak

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M.D. University, Rohtak

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M.D. University, Rohtak

Question No.	Questions
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19.	Crown gall disease is caused by (1) *Bacillus thuringiensis* (2) *Agrobacterium radiobacter* (3) *Pseudomonas syringae* (4) *Agrobacterium tumefaciens*
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M.D. University, Rohtak

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M.D. University, Rohtak

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30.	Who demonstrated that genes are located on chromosomes ? (1) Meselson and Stahl (2) Watson and Crick (3) Morgan (4) Chargaff
31.	Sperm capacitation takes place in (1) Epididymis (2) Seminal vesicles (3) Female genital tract (4) Testis
32.	Graafian follicles are found in (1) Thyroid (2) Spleen (3) Ovary (4) Kidney
33.	Extra-embryonic membranes are absent in embryo of (1) Fish (2) Reptile (3) Bird (4) Mammal

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Question No.	Questions
34.	The presence of gray crescent is a characteristic of (1) Fertilized egg of frog (2) Unfertilized egg of frog (3) Fertilized egg of reptile (4) Fertilized egg of mammal
35.	Sexual reproduction in larval stage is called (1) Parthenogenesis (2) Abiogenesis (3) Neoteny (4) Paedogenesis
36.	Rearing of earthworm is called (1) Apiculture (2) Silviculture (3) Vermiculture (4) Pisciculture
37.	Sting is a modified ovipositor in (1) Centipede (2) Millipede (3) Honey bee (4) Scorpion
38.	DNA finger printing is based on the presence in DNA of (1) Constant number of tandem repeats (2) Variable number of tandem repeats (3) Non-repetitive sequences in each DNA (4) Introns in eukaryotic DNA
39.	PCR was discovered by (1) Kary Mullis (2) Francis Crick (3) Hershey and Chase (4) Rosalind Franklin

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Question No.	Questions
40.	The pH of a plant tissue culture medium is usually maintained at (1) 7.0 (2) 5.8 (3) 4.0 (4) Any between 4-14
41.	Red data book provides data on (1) Biota of red sea (2) Effect of red light on photosynthesis (3) Red pigmented plants (4) Threatened species
42.	A species inhabiting different geographical areas is known as (1) Sympatric (2) Sibling (3) Allopatric (4) Allelopathy
43.	"Theory of spontaneous generation" was proposed by (1) Charles Darwin (2) Louis Pasteur (3) Oparin and Haldane (4) Hugo de Vries
44.	Development of resistance against DDT by mosquito is an example of (1) Natural selection (2) Variation (3) Adaptation (4) Isolation
45.	Who gave the statement that population tends to multiply more rapidly than the food supply (1) Malthus (2) Darwin (3) Lamark (4) Cope

M.D. University, Rohtak

Question No.	Questions
46.	In which one of the following phases of cell cycle, the drug colchicine exert its effect ? (1) G1 (2) G2 (3) S (4) M
47.	The most storage polysaccharide of animal cell is (1) Starch (2) Chitin (3) Glycogen (4) Glycan
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49.	An inorganic ion required for the activity of an enzyme is known as . (1) Activator (2) Cofactor (3) Coenzyme (4) Holoenzyme
50.	End product of aerobic glycolysis is (1) Acetyl CoA (2) Lactate (3) Pyruvate (4) CO_2 and H_2O
51.	Plasmids can easily hold the DNA of which of the following sizes : (1) 10 kb (2) 50 kb (3) 300 kb (4) 600 kb

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Question No.	Questions
52.	LSD (lysergic acid) is obtained from (1) Aspergillus niger (2) Pencillium notatum (3) Claviceps purpurea (4) Fusarium udum
53.	Which of the following algae has "Plakea stage" in its life cycle ? (1) Chlamydomonas (2) Volvox (3) Vaucheria (4) Batrachospermum
54.	Winged pollen grains are present in (1) Cycas (2) Pinus (3) Ephedra (4) Ginkgo
55.	Puccinia spores that are stalked, unicellular, oval and binucleate are called (1) Uredospores (2) Teleutospores (3) Basidiospores (4) Pycniospores
56.	The seedless vascular plants are (1) Bryophyta (2) Pteridophyta (3) Gymnosperm (4) Angiosperm
57.	Which of the following are the characteristics of Gymnosperms ? (a) Naked ovules (b) Double Fertilization (c) Absence of tracheids (d) Haploid endosperm (1) (a) and (d) (2) (a) and (b) (3) (c) and (d) (4) (b) and (c)

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58.	Which of the following is not a stem ? (1) Potato (2) Sweet Potato (3) Ginger (4) Onion
59.	In India, most of herbaria are based on which system of plant classification (1) Engler and Prantl's system (2) Bentham and Hooker's (3) Hutchinson's system (4) Takhtajan's system
60.	Tropical plants such as sugarcane show high efficiency of CO_2 fixation by (1) EMP pathway (2) TCA cycle (3) Hatch Slack cycle (4) Calvin cycle
61.	Enzymes of hexose monophosphate shunt are present (1) Mitochondria (2) Cytosol (3) Lysosomes (4) Microsomes
62.	A digestive secretion that does not contain any digestive enzyme is (1) Saliva (2) Gastric juice (3) Pancreatic juice (4) Bile
63.	Primary structure of a protein is formed by (1) Hydrogen bond (2) Peptide bond (3) Disulphide bond (4) All of the above

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Question No.	Questions
64.	The Centriols have (1) RNA (2) DNA (3) Microtubules (4) None of these
65.	The following is a polyunsaturated fatty acid (1) Palmitic acid (2) Palmitoleic acid (3) Linoleic acid (4) Oleic acid
66.	A hormone used for detection of pregnancy is (1) Estrogen (2) Progesterone (3) Oxytocin (4) Chorionic gonadotropin
67.	Insulin increases (1) Glycogenesis (2) Gluconeogenesis (3) Lipolysis (4) Blood glucose
68.	Mammary glands are the modification of (1) Sebaceous glands (2) Sweat glands (3) Meibomian glands (4) Perineal glands
69.	Sinus venosus is not present in the heart of (1) Fish (2) Amphibian (3) Reptile (4) Mammal

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Question No.	Questions
70.	The photosensitive pigment, rhodopsin which is present in rods of eye is synthesised from (1) Vitamin-D (2) Vitamin-A (3) Vitamin-B (4) Vitamin-E
71.	The amount of air that moves in and out of the lungs with each normal inspiration and expiration (1) Tidal capacity (2) Vital capacity (3) Tidal volume (4) Residual volume
72.	Schizocoel is present in (1) Frog (2) Pila (3) Herdmania (4) Balanoglossus
73.	Uricotelic excretion is mainly an adaptation for (1) Conservation of urea producing enzymes (2) Raising osmotic concentration of blood (3) Conservation of water (4) Storage of waste materials

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75.	The flow of blood in the veins is at (1) Atmospheric pressure (2) Low pressure (3) High pressure (4) Initially high and then low pressure
76.	Flagellated larvae of sponges is (1) Glochidium (2) Amphiblastula (3) Trochophore (4) Miracidium
77.	Homocercal tail is present in (1) Electric ray (2) Shark (3) Lung fish (4) Teleosts
78.	Which one of the following is not a fish ? (1) Silver fish (2) Lung fish (3) Gold fish (4) Flying fish

M.D. University, Rohtak

Question No.	Questions
79.	Notochord like structure in buccal region of hemichordates is (1) Protochord (2) Stomochord (3) Pallium (4) Mantle
80.	'Crop' in birds is (1) Rectum (2) Modified stomach (3) Modified oesophagus (4) Early part of small intestine
81.	'DOTS' strategy is used to treat (1) HIV (2) Malaria (3) Tuberculosis (4) Hepatitis
82.	The most important route of transmission for hepatitis C is (1) Semen (2) Vaginal secretion (3) Saliva (4) Blood transfusion
83.	Holding method of pasteurization is carried out at (1) 71.7°C for 15 seconds (2) 68.4°C for 30 minutes (3) 64.1°C for 45 minutes (4) 62.8°C for 30 minutes
84.	Serum can be sterilised by (1) Autoclaving (2) Dry-heat sterilisation (3) Membrane-filtration (4) Incineration

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Question No.	Questions
85.	Widal test is widely used for the diagnosis of (1) Bacillary dysentery (2) Tuberculosis (3) Typhoid fever (4) Cholera
86.	HAART strategy is used for the treatment of (1) Hepatitis B (2) Syphilis (3) AIDS (4) Hepatitis C
87.	The following bacterium is good example of photolithotrophs (1) Rhodospirillum rubrum (2) Nitrosomonas europaea (3) Pseudomonas pseudoflava (4) Chromatium okenii
88.	Transduction was discovered by (1) Zinder and Lederberg (2) Elie Wollman and Francois Jacob (3) Luria and Delbruck (4) Beadle and Tatum
89.	Flagellation type where a bacterial cell is having flagella all over its surface is (1) Amphitrichous (2) Cephalotrichous (3) Lophotrichous (4) Peritrichous
90.	A short stretch of RNA used to initiate replication is termed (1) Promoter (2) Primer (3) Primase (4) Replisome

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Question No.	Questions
91.	If an endosperm of an angiosperm has 18 chromosomes what would be the number of chromosome in megaspore mother cell of the same plant ? (1) 6 (2) 12 (3) 18 (4) 24
92.	Fertilization in which male gametes are carried through pollen tube is (1) Syngamy (2) Siphonogamy (3) Chalazogamy (4) Porogamy
93.	Pollination through air is termed as (1) Anemophily (2) Cheiropterophily (3) Entomophily (4) Ornithophily
94.	The female gametophyte of typical dicot plant at the time of fertilization is (1) 6-celled (2) 7-celled (3) 8-celled (4) 4-celled
95.	Development of 'seedless fruits' is called' (1) Parthenogenesis (2) Parthenocarpy (3) Polyembryony (4) Apomixis
96.	What is the general term used to describe the degradation of pollutants using a biological approach ? (1) Biodegradation (2) Bioaugmentation (3) Bioremediation (4) Biostimulation

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Question No.	Questions
97.	Biological magnification of DDT will affect the most at which tropical level (1) First tropical level (2) Second tropical level (3) Third tropical level (4) Fourth tropical level
98.	VAM (vesicular arbuscular mycorrhizae) are important for the plants to supply ..... from soil (1) Phosphate (2) Nitrogen (3) Iron (4) Potassium
99.	CNG is (1) Carbonitrogen (2) Complete nitrogen gas (3) Compressed natural gas (4) Coal nitrogen gas
100.	In coming years, the skin diseases will be more common due to (1) Increase in air pollution (2) Increase in CO_2 (3) Excess use of detergent (4) Depletion of ozone

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11/07/15

11/7/15

(Total No. of printed pages : 19)

(DO NOT OPEN THIS QUESTION BOOKLET BEFORE TIME OR UNTIL YOU ARE ASKED TO DO SO)

11432

(PG–EE–2015)

Subject : LIFE SCIENCE

Code **D**

Sr. No._____

Common for all M. Sc. Course running under Faculty of Life Science Except M. Sc. Forensic Science

Time : 1¼ Hours **Max. Marks : 100** **Total Questions : 100**

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

Name : _____ Father's Name : _____

Mother's Name _____ Date of Examination_____

(Signature of the candidate) (Signature of the Invigilator)

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

1. All questions are compulsory.
2. The candidates must return the Question book-let as well as 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 candidate will not be evaluated.
3. In case there is any discrepancy in any question(s) in the Question Booklet, the same may be brought to the notice of the Controller of Examinations in writing **within two hours** after the test is over. No such complaint(s) will be entertained thereafter.
4. 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 book-let itself. Answers **MUST NOT** be ticked in the Question book-let.
5. **There will be no negative marking. Each correct answer will be awarded one full mark. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.**
6. Use only Black or Blue **BALL POINT PEN** of good quality in the OMR Answer-Sheet.
7. BEFORE ANSWERING THE QUESTIONS, THE CANDIDATES SHOULD ENSURE THAT THEY HAVE BEEN SUPPLIED CORRECT AND COMPLETE BOOK-LET. COMPLAINTS, IF ANY, REGARDING MISPRINTING ETC. WILL NOT BE ENTERTAINED 30 MINUTES AFTER STARTING OF THE EXAMINATION.

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Question No.	Questions
1.	Enzymes of hexose monophosphate shunt are present (1) Mitochondria (2) Cytosol (3) Lysosomes (4) Microsomes
2.	A digestive secretion that does not contain any digestive enzyme is (1) Saliva (2) Gastric juice (3) Pancreatic juice (4) Bile
3.	Primary structure of a protein is formed by (1) Hydrogen bond (2) Peptide bond (3) Disulphide bond (4) All of the above
4.	The Centriols have (1) RNA (2) DNA (3) Microtubules (4) None of these
5.	The following is a polyunsaturated fatty acid (1) Palmitic acid (2) Palmitoleic acid (3) Linoleic acid (4) Oleic acid
6.	A hormone used for detection of pregnancy is (1) Estrogen (2) Progesterone (3) Oxytocin (4) Chorionic gonadotropin

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Question No.	Questions
7.	Insulin increases (1) Glycogenesis (2) Gluconeogenesis (3) Lipolysis (4) Blood glucose
8.	Mammary glands are the modification of (1) Sebaceous glands (2) Sweat glands (3) Meibomian glands (4) Perineal glands
9.	Sinus venosus is not present in the heart of (1) Fish (2) Amphibian (3) Reptile (4) Mammal
10.	The photosensitive pigment, rhodopsin which is present in rods of eye is synthesised from (1) Vitamin-D (2) Vitamin-A (3) Vitamin-B (4) Vitamin-E
11.	If an endosperm of an angiosperm has 18 chromosomes what would be the number of chromosome in megaspore mother cell of the same plant ? (1) 6 (2) 12 (3) 18 (4) 24
12.	Fertilization in which male gametes are carried through pollen tube is (1) Syngamy (2) Siphonogamy (3) Chalazogamy (4) Porogamy

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Question No.	Questions
13.	Pollination through air is termed as (1) Anemophily (2) Cheiropterophily (3) Entomophily (4) Ornithophily
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15.	Development of 'seedless fruits' is called' (1) Parthenogenesis (2) Parthenocarpy (3) Polyembryony (4) Apomixis
16.	What is the general term used to describe the degradation of pollutants using a biological approach ? (1) Biodegradation (2) Bioaugmentation (3) Bioremediation (4) Biostimulation
17.	Biological magnification of DDT will affect the most at which tropical level (1) First tropical level (2) Second tropical level (3) Third tropical level (4) Fourth tropical level
18.	VAM (vesicular arbuscular mycorrhizae) are important for the plants to supply ..... from soil (1) Phosphate (2) Nitrogen (3) Iron (4) Potassium

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Question No.	Questions
19.	CNG is (1) Carbonitrogen (2) Complete nitrogen gas (3) Compressed natural gas (4) Coal nitrogen gas
20.	In coming years, the skin diseases will be more common due to (1) Increase in air pollution (2) Increase in CO_2 (3) Excess use of detergent (4) Depletion of ozone
21.	Plasmids can easily hold the DNA of which of the following sizes : (1) 10 kb (2) 50 kb (3) 300 kb (4) 600 kb
22.	LSD (lysergic acid) is obtained from (1) Aspergillus niger (2) Pencillium notatum (3) Claviceps purpurea (4) Fusarium udum
23.	Which of the following algae has "Plakea stage" in its life cycle ? (1) Chlamydomonas (2) Volvox (3) Vaucheria (4) Batrachospermum
24.	Winged pollen grains are present in (1) Cycas (2) Pinus (3) Ephedra (4) Ginkgo
25.	Puccinia spores that are stalked, unicellular, oval and binucleate are called (1) Uredospores (2) Teleutospores (3) Basidiospores (4) Pycniospores

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Question No.	Questions
26.	The seedless vascular plants are (1) Bryophyta (2) Pteridophyta (3) Gymnosperm (4) Angiosperm
27.	Which of the following are the characteristics of Gymnosperms ? (a) Naked ovules (b) Double Fertilization (c) Absence of tracheids (d) Haploid endosperm (1) (a) and (d) (2) (a) and (b) (3) (c) and (d) (4) (b) and (c)
28.	Which of the following is not a stem ? (1) Potato (2) Sweet Potato (3) Ginger (4) Onion
29.	In India, most of herbaria are based on which system of plant classification (1) Engler and Prantl's system (2) Bentham and Hooker's (3) Hutchinson's system (4) Takhtajan's system
30.	Tropical plants such as sugarcane show high efficiency of CO_2 fixation by (1) EMP pathway (2) TCA cycle (3) Hatch Slack cycle (4) Calvin cycle

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Question No.	Questions
31.	'DOTS' strategy is used to treat (1) HIV (2) Malaria (3) Tuberculosis (4) Hepatitis
32.	The most important route of transmission for hepatitis C is (1) Semen (2) Vaginal secretion (3) Saliva (4) Blood transfusion
33.	Holding method of pasteurization is carried out at (1) 71.7°C for 15 seconds (2) 68.4°C for 30 minutes (3) 64.1°C for 45 minutes (4) 62.8°C for 30 minutes
34.	Serum can be sterilised by (1) Autoclaving (2) Dry-heat sterilisation (3) Membrane-filtration (4) Incineration
35.	Widal test is widely used for the diagnosis of (1) Bacillary dysentery (2) Tuberculosis (3) Typhoid fever (4) Cholera
36.	HAART strategy is used for the treatment of (1) Hepatitis B (2) Syphilis (3) AIDS (4) Hepatitis C
37.	The following bacterium is good example of photolithotrophs (1) Rhodospirillum rubrum (2) Nitrosomonas europaea (3) Pseudomonas pseudoflava (4) Chromatium okenii

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Question No.	Questions
38.	Transduction was discovered by (1) Zinder and Lederberg (2) Elie Wollman and Francois Jacob (3) Luria and Delbruck (4) Beadle and Tatum
39.	Flagellation type where a bacterial cell is having flagella all over its surface is (1) Amphitrichous (2) Cephalotrichous (3) Lophotrichous (4) Peritrichous
40.	A short stretch of RNA used to initiate replication is termed (1) Promoter (2) Primer (3) Primase (4) Replisome
41.	Sperm capacitation takes place in (1) Epididymis (2) Seminal vesicles (3) Female genital tract (4) Testis
42.	Graafian follicles are found in (1) Thyroid (2) Spleen (3) Ovary (4) Kidney
43.	Extra-embryonic membranes are absent in embryo of (1) Fish (2) Reptile (3) Bird (4) Mammal

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Question No.	Questions
44.	The presence of gray crescent is a characteristic of (1) Fertilized egg of frog (2) Unfertilized egg of frog (3) Fertilized egg of reptile (4) Fertilized egg of mammal
45.	Sexual reproduction in larval stage is called (1) Parthenogenesis (2) Abiogenesis (3) Neoteny (4) Paedogenesis
46.	Rearing of earthworm is called (1) Apiculture (2) Silviculture (3) Vermiculture (4) Pisciculture
47.	Sting is a modified ovipositor in (1) Centipede (2) Millipede (3) Honey bee (4) Scorpion
48.	DNA finger printing is based on the presence in DNA of (1) Constant number of tandem repeats (2) Variable number of tandem repeats (3) Non-repetitive sequences in each DNA (4) Introns in eukaryotic DNA
49.	PCR was discovered by (1) Kary Mullis (2) Francis Crick (3) Hershey and Chase (4) Rosalind Franklin

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Question No.	Questions
50.	The pH of a plant tissue culture medium is usually maintained at (1) 7.0 (2) 5.8 (3) 4.0 (4) Any between 4-14
51.	Red data book provides data on (1) Biota of red sea (2) Effect of red light on photosynthesis (3) Red pigmented plants (4) Threatened species
52.	A species inhabiting different geographical areas is known as (1) Sympatric (2) Sibling (3) Allopatric (4) Allelopathy
53.	"Theory of spontaneous generation" was proposed by (1) Charles Darwin (2) Louis Pasteur (3) Oparin and Haldane (4) Hugo de Vries
54.	Development of resistance against DDT by mosquito is an example of (1) Natural selection (2) Variation (3) Adaptation (4) Isolation
55.	Who gave the statement that population tends to multiply more rapidly than the food supply (1) Malthus (2) Darwin (3) Lamark (4) Cope

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Question No.	Questions
56.	In which one of the following phases of cell cycle, the drug colchicine exert its effect ? (1) G1 (2) G2 (3) S (4) M
57.	The most storage polysaccharide of animal cell is (1) Starch (2) Chitin (3) Glycogen (4) Glycan
58.	Pyrimidines in RNA are (a) Adenine (b) Uracil (c) Cytosine (d) Thymine (e) Guanine (1) (a) and (b) (2) (b) and (c) (3) (a) and (e) (4) (c) and (d)
59.	An inorganic ion required for the activity of an enzyme is known as (1) Activator (2) Cofactor (3) Coenzyme (4) Holoenzyme
60.	End product of aerobic glycolysis is (1) Acetyl CoA (2) Lactate (3) Pyruvate (4) CO_2 and H_2O
61.	The amount of air that moves in and out of the lungs with each normal inspiration and expiration (1) Tidal capacity (2) Vital capacity (3) Tidal volume (4) Residual volume

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Question No.	Questions
62.	Schizocoel is present in (1) Frog (2) Pila (3) Herdmania (4) Balanoglossus
63.	Uricotelic excretion is mainly an adaptation for (1) Conservation of urea producing enzymes (2) Raising osmotic concentration of blood (3) Conservation of water (4) Storage of waste materials
64.	Match list I correctly with list II **List I** **List II** I. Planaria A. Green gland II. Earthworm B. Malpighian tubes III. Prawn C. Nephridia IV. Scorpion D. Flame Cell (1) I-D, II-C, III-A, IV-B (2) I-B, II-C, III-D, IV-A (3) I-C, II-B, III-D, IV-A (4) I-A, II-D, III-C, IV-B
65.	The flow of blood in the veins is at (1) Atmospheric pressure (2) Low pressure (3) High pressure (4) Initially high and then low pressure

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Question No.	Questions
66.	Flagellated larvae of sponges is (1) Glochidium (2) Amphiblastula (3) Trochophore (4) Miracidium
67.	Homocercal tail is present in (1) Electric ray (2) Shark (3) Lung fish (4) Teleosts
68.	Which one of the following is not a fish ? (1) Silver fish (2) Lung fish (3) Gold fish (4) Flying fish
69.	Notochord like structure in buccal region of hemichordates is (1) Protochord (2) Stomochord (3) Pallium (4) Mantle
70.	'Crop' in birds is (1) Rectum (2) Modified stomach (3) Modified oesophagus (4) Early part of small intestine
71.	The cell organelles associated with photorespiration are (1) Chloroplast, peroxisome and mitochondria (2) Chloroplast and peroxisome (3) Chloroplast and mitochondria (4) Peroxisome and mitochondria

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Question No.	Questions
72.	The conversion of ammonia into nitrite and nitrate is called (1) Nitrogen fixation (2) Denitrification (3) Nitrification (4) Ammonification
73.	If an organism is respiring in a bel jar filled with radio-labelled oxygen, the radioactivity will be detected in which product of respiration (1) CO_2 (2) H_2O (3) $C_6H_{12}O_6$ (4) CO_2 and H_2O
74.	The carbohydrates are transported from leaves to other parts of the plants in the form of (1) Starch (2) Glucose (3) Sucrose (4) Cellulose
75.	Match correctly between column (A) and column (B) Column (A) Column (B) I. Extreme cold treatment A. Ripening of fruits II. Response to day length B. Vernalization III. Apical dominance C. Photoperiodism IV. Ethylene D. Auxin (1) I-B, II-D, III-C, IV-A (2) I-B, II-C, III-D, IV-A (3) I-D, II-C, III-B, IV-A (4) I-C, II-B, III-A, IV-D
76.	Monocot seed contains single cotyledon which is known as (1) Aleurone (2) Endosperm (3) Scutellum (4) Perisperm
77.	The Central Potato Research Institute is located at (1) Dehradun (2) Delhi (3) Shimla (4) Coimbatore

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Question No.	Questions
78.	The edible part of litchi is morphologically (1) Fleshy thalamus (2) Mesocarp (3) Aril (4) Endosperm
79.	Match list 1 with list 2 **List I** **List II** I. Fibre A. Arachis hypogea II. Oil B. *Corchorus capsularis* III. Timber C. *Curcuma longa* IV. Spice D. *Tectona grandis* (1) I-B, II-A, III-D, IV-C (2) I-B, II-C, III-D, IV-A (3) I-C, II-A, III-B, IV-D (4) I-D, II-B, III-C, IV-A
80.	The condition where a bisexual flower does not open is called (1) Allogamy (2) Xenogamy (3) Geitonogamy (4) Cleistogamy
81.	Enzyme that joins the Okazaki fragments is (1) Laccase (2) Ligase (3) Helicase (4) Topoisomerase
82.	Cytochrome C is a protein with (1) Sulphate (2) Haeme (3) Copper (4) Magnesium

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Question No.	Questions
83.	Lipopolysaccharide is the crucial component of (1) Gram-positive bacteria (2) Gram-negative bacteria (3) Virus (4) Plant cell wall
84.	Which type of library would you screen in order to identify the promoter of the hemoglobin gene (1) Genomic library (2) Expression library (3) cDNA library (4) None of the above
85.	Which of the following is used to select genes of interest from genomic library ? (1) Restriction enzymes (2) Cloning vectors (3) DNA probes (4) Gene targets
86.	Which technique is used to resolve the different sizes of DNA fragments following a restriction enzyme digest ? (1) DNA sequencing (2) Gel electrophoresis (3) Gene cloning (4) PCR
87.	Which type of restriction endonuclease enzymes are most widely used in recombinant DNA technology ? (1) Type I enzymes (2) Type II enzymes (3) Type III enzymes (4) All of the above

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Question No.	Questions
88.	Which technique can be used to investigate the transcripts of a gene ? (1) Southern blotting (2) Northern blotting (3) Western blotting (4) None of the above
89.	Crown gall disease is caused by (1) *Bacillus thuringiensis* (2) *Agrobacterium radiobacter* (3) *Pseudomonas syringae* (4) *Agrobacterium tumefaciens*
90.	Which one of the following is not a transgenic or genetically modified organism ? (1) Sheep 'Dolly' (2) Bt cotton (3) Bacteria that make human insulin (4) Golden rice
91.	The enzyme involved in mRNA synthesis during transcription is called : (1) Helicase (2) DNA ligase (3) RNA polymerase (4) DNA polymerase
92.	The coding sequences in eukaryotic DNA are known as : (1) Regulatory sequence (2) Exon (3) Intron (4) Muton

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Question No.	Questions
93.	DNA carries : (1) Positive charge (2) Negative charge (3) Neutral (4) None of the above
94.	Which of the following is correct with regard to aneuploidy ? (1) All aneuploid individuals die before birth (2) Inversion (3) 4n (4) 2n + 1
95.	The X-ray diffraction studies conducted by ..... were key to the discovery of the structure of DNA. (1) Franklin (2) Meselson and Stahl (3) Chargaff (4) McClintock
96.	Which of the following is not needed for DNA transcription ? (1) DNA (2) Enzymes (3) Ribosomes (4) Nucleotide
97.	Which of the following descriptions of chromosomes is not correctly matched ? (1) Telocentric – there is only one chromosome arm. (2) Acrocentric – chromosome arms are identical in size (3) Metacentric – chromosome arms are almost equal in size. (4) Submetacentric – chromosome arms are slightly different in size

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Question No.	Questions
98.	The triplet code of CAT in DNA is represented as ..... in mRNA and ..... in tRNA. (1) CAT, CAT (2) GUA, CAU (3) GTA, CAU (4) GAA, CAT
99.	What is the probability that a male will inherit an X-linked recessive gene from his father ? (1) 25% (2) 50% (3) 75% (4) 0%
100.	Who demonstrated that genes are located on chromosomes ? (1) Meselson and Stahl (2) Watson and Crick (3) Morgan (4) Chargaff

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S.No.	A	B	C	D
1	3	3	1	2
2	2	4	3	4
3	2	4	2	2
4	4	3	3	3
5	1	3	2	3
6	3	3	3	4
7	2	4	3	1
8	2	1	3	2
9	4	4	1	4
10	3	2	4	2
11	3	3	2	2
12	4	3	2	2
13	4	1	2	1
14	3	1	1	2
15	3	3	3	2
16	3	3	2	3
17	4	3	2	4
18	1	2	2	1
19	4	1	4	3
20	2	2	1	4
21	2	2	3	1
22	2	4	2	3
23	2	2	2	2
24	1	3	4	2
25	3	3	1	1
26	2	4	3	2
27	2	1	2	1
28	2	2	2	2
29	4	4	4	2
30	1	2	3	3
31	1	2	3	3
32	3	2	3	4
33	2	1	1	4
34	2	2	1	3
35	1	2	3	3
36	2	3	3	3

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37	1	4	3	4
38	2	1	2	1
39	2	3	1	4
40	3	4	2	2
41	1	1	4	3
42	3	3	3	3
43	2	2	2	1
44	3	2	1	1
45	2	1	1	3
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65	1	2	3	2
66	4	3	4	2
67	3	3	1	4
68	2	3	2	1
69	2	1	4	2
70	3	4	2	3
71	2	4	3	1
72	4	3	2	3
73	2	2	3	2

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74	3	1	1	3
75	3	1	2	2
76	4	4	2	3
77	1	3	4	3
78	2	2	1	3
79	4	2	2	1
80	2	3	3	4
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91	3	3	2	3
92	3	2	2	2
93	1	3	1	2
94	1	1	2	4
95	3	2	2	1
96	3	2	3	3
97	3	4	4	2
98	2	1	1	2
99	1	2	3	4
100	2	3	4	3

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