



BIOLOGY
ENTRANCE EXAM - MHT - CET

Time Allowed: 1 hour and 30 minutes

Maximum Marks : 100

Section A

- 1) Blood concentration of glucose in a normal healthy individual is: [1]
 - a) 4.5 - 5.0 mM
 - b) 2 - 4.0 mM
 - c) 3 - 5.0 mM
 - d) 1 - 4.5 mM
- 2) Proteins are made up of _____. [1]
 - a) Nucleosides
 - b) Monomers
 - c) Heteropolymers
 - d) Homopolymers
- 3) Proteins carry out many functions in living organisms such as: [1]
 - a) Genetic material
 - b) Role in catalytic activity of the enzyme
 - c) Storehouse of energy
 - d) Fight against infectious organisms
- 4) Various ions and water from soil can be transported up to a small height in stems by: [1]
 - a) Osmotic pressure
 - b) Suction pressure
 - c) Root pressure
 - d) Turgor pressure
- 5) Which group of three elements is required in photosynthesis and mitochondrial electrons transport? [1]
 - a) Cu, Mn, Fe
 - b) Ca, K, Na
 - c) Co, Ni, Mo
 - d) Mn, Co, Ca
- 6) The main role of minor elements is to act as: [1]
 - a) Constituent of hormones
 - b) Cofactor of enzyme
 - c) Constituent of amino acids
 - d) Binder for cell structure
- 7) The process by which small electrolytes are absorbed: [1]
 - a) Facilitated transport
 - b) Active transport
 - c) Simple diffusion
 - d) Passive transport
- 8) In Reema's body, substances in bile harden forming stone in the gall bladder. What can be the possible treatment? [1]
 - a) Removal of gall bladder
 - b) Dissolving the stone with medicinal treatment
 - c) Removing only stone from gall bladder by surgery
 - d) Dissolving the stone with Surgery
- 9) The phenotypic ratio in the F₂ generation of a dihybrid cross is: [1]
 - a) 7 : 1 : 1 : 7
 - b) 9 : 3 : 3 : 1
 - c) 1 : 2 : 2 : 4 : 1 : 2 : 1 : 2 : 1
 - d) 12 : 3 : 4
- 10) Among the following characters, which one was not considered by Mendel in his experiment on pea? [1]
 - a) Pod - inflated or constricted
 - b) Trichomes - glandular or non - glandular
 - c) Stem - tall or dwarf
 - d) Seed - green or yellow
- 11) Segregation of homologous chromosomes occurs during: [1]
 - a) Gametes formation
 - b) During gene expression
 - c) During mitosis division
 - d) During equational division
- 12) Discontinuous synthesis of DNA occurs in one strand, because: [1]
 - a) DNA molecule being synthesised is very long.
 - b) DNA ligase joins the short stretches of DNA.
 - c) It is a more efficient process.
 - d) DNA dependent DNA polymerase catalyses polymerisation only in one direction (5' → 3').
- 13) The process of copying genetic information from one strand of the DNA into RNA is termed as: [1]
 - a) Replication
 - b) Translation
 - c) Transamination
 - d) Transcription
- 14) Methyl guanosine triphosphate is associated with: [1]
 - a) Point mutation
 - b) Tailing
 - c) Okazaki fragments
 - d) Tautomerism
- 15) Semiconservative mode of replication of DNA was proved by: [1]
 - a) Griffith
 - b) Hershey and Chase
 - c) Watson and Crick
 - d) Meselson and Stahl
- 16) In Hershey and Chase experiments, radioactive ³²P was used to culture bacteriophages which resulted in radioactive: [1]
 - a) Plasma membrane of bacteria
 - b) Bacterial capsule
 - c) Viral proteins
 - d) Viral DNA
- 17) A ladder is used in Gel electrophoresis as it helps in: [1]
 - a) It prevents the movement of DNA out of the gel.
 - b) Comparing the size of the DNA fragment.
 - c) It helps in denaturation of DNA.
 - d) It helps in EtBr binding.
- 18) Cloning does not provide: [1]
 - a) Same genetic character
 - b) Variation
 - c) Same morphological character
 - d) Golden rice
- 19) What is the source of Ti (tumour inducing) plasmid, which is modified and used as a cloning vector to deliver the desirable genes into plant cells? [1]
 - a) Thermophilus aquaticus
 - b) Aedes aegypti
 - c) Polycoccus furiosus.
 - d) Agrobacterium tumefaciens

- 20) **R** in EcoRI restriction endonuclease denotes: [1]
- Sequence of isolation of the enzyme
 - Strain RY13
 - Species
 - Genus
- 21) Restriction endonucleases [1]
- Are synthesised by bacteria as part of their defense mechanism.
 - Are used in genetic engineering for ligation of two DNA molecules.
 - Are used for in vitro DNA synthesis.
 - Are present in mammalian cells for degradation of DNA when the cell dies.
- 22) Lysine and tryptophan are: [1]
- Proteins
 - Aromatic amino acids
 - Non - essential amino acids
 - Essential amino acids
- 23) The part of the plant used in culturing is called: [1]
- Callus
 - Explant
 - Meristem
 - Protoplast
- 24) The explant is required to be disinfected before placing it in a culture medium. This is done by: [1]
- Ultraviolet rays
 - Autoclaving
 - X - rays
 - Clorox or hypochlorite
- 25) Evaluation of newly evolved varieties is carried out by: [1]
- ICAR
 - National bureau of plant genetic resources
 - IARI
 - All agricultural universities
- 26) To isolate protoplast, one needs: [1]
- Chitinase
 - Cellulase
 - Pectinase
 - Both pectinase and cellulase
- 27) Bt - gene occurs in: [1]
- Escherichia coli
 - Rhizobium leguminosarum
 - Bacillus thuringiensis
 - Agrobacterium tumefaciens
- 28) The technology of biogas production was developed in India mainly due to the efforts of: [1]
- Pusa Agriculture
 - ICRI and KVIC
 - IARI and KVIC
 - ISRO
- 29) Which of the following organisms not fix atmospheric nitrogen? [1]
- Oscillatoria
 - Nostoc
 - Spirogyra
 - Anabaena
- 30) Which one of the following helps in absorption of phosphorus from soil by plants ? [1]
- Rhizobium
 - Glomus
 - Frankia
 - Anabaena
- 31) Most potential organism for the production of insecticide is: [1]
- Erannis tiliaria
 - Xanthomonas oryzae
 - Helianthis zea
 - Bacillus thuringiensis
- 32) Rennin used in the cheese industry is: [1]
- Alkaloid
 - Enzyme
 - Inhibitor
 - Antibiotic
- 33) Penicillin was discovered by: [1]
- Fleming
 - Robert Hooke
 - B. McClintock
 - Robert Brown
- 34) Which one is not an internal factor that influences the rate of photosynthesis? [1]
- Carbon dioxide
 - Chlorophyll
 - Hormones
 - Leaf anatomy
- 35) Which pigment is primarily responsible for photosynthesis? [1]
- Chlorophyll a and Xanthophyll
 - Both Chlorophyll a and Chlorophyll b are equally responsible
 - Chlorophyll b
 - Chlorophyll a
- 36) Krebs's cycle occurs inside _____. [1]
- Lysosomes
 - Mitochondria
 - Ribosome
 - Food vacuoles
- 37) Energy releasing enzymatically controlled catabolic process which involves step - wise oxidative breakdown of organic substance inside living cells is called: [1]
- Anaerobic respiration
 - Decarboxylation
 - Fermentation
 - Cellular respiration
- 38) Which one of the following is the correct sequence in the formation of microspore? [1]
- Sporogenous tissue, microsporangium, microspore tetrad, microspore
 - Microsporangium, sporogenous tissue, microspore tetrad, microspore
 - Microspore tetrad, microsporangium, sporogenous tissue, microspore
 - Sporogenous tissue, microspore tetrad, microsporangium, microspore
- 39) Sporopollenin is present in: [1]
- Carpel
 - Both Exine and Intine
 - Intine
 - Exine
- 40) In which of the following plants are both male and female flowers born on the same plant and the mode of pollination can be geitonogamy or xenogamy? [1]
- Papaya
 - Spinach
 - Date Palm
 - Maize
- 41) In an embryo sac, the cells that degenerate after fertilization are: [1]
- Synergids and antipodals
 - Antipodals and primary endosperm cell
 - Egg and antipodals
 - Synergids and primary endosperm cell

- 42) The abundant occurrence of the fossilized pollen grain is due to resistant: [1]
 a) Pectocellulose b) Pectolignin
 c) Lignocellulose d) Sporopollenin
- 43) A mass of parenchymatous tissue forming the bulk of ovule is called: [1]
 a) Endosperm b) Obturator
 c) Female gametophyte d) Nucellus
- 44) In most of the angiosperms, pollen grains are shed at _____. [1]
 a) 8 - celled stage b) 2 - celled stage
 c) 3 - celled stage d) 4 - celled stage
- 45) In double fertilization: [1]
 a) One male gamete fuses with the egg and the other fuses with the antipodal.
 b) One male gamete fuses with the egg and the other fuses with the secondary nucleus.
 c) Two male gametes fuse with two eggs.
 d) One male gamete fuses with the antipodal and the other fuses with the diploid nucleus.
- 46) Transfer of pollen grains from one flower to the stigma of another flower of the same plant is: [1]
 a) Allogamy b) Xenogamy
 c) Autogamy d) Geitonogamy
- 47) The part of the ovule that develops into protective coats of a seed after fertilization in a typical flowering plant is: [1]
 a) Megaspore b) Embryo sac
 c) Integuments d) Nucellus
- 48) The **10 Per cent law** is related to: [1]
 a) Energy consumption during photosynthesis in C_4 plants.
 b) Energy transfer from lower trophic level to higher trophic level.
 c) Mendelian genetics
 d) Non - Mendelian genetics
- 49) Which one of the following pairs is mismatched?
 • Savannah—Acacia trees
 • Prairie - Epiphytes
 • Tundra - Permafrost
 • Coniferous forest - Evergreen trees
 [1]
 a) Savannah - Acacia trees
 b) Prairie - Epiphytes
 c) Coniferous forest - Evergreen trees
 d) Tundra - Permafrost
- 50) Primary constituents of photochemical smog are [1]
 a) SO_2 and Water b) NO_2 and PAN
 c) NH_3 and DDT
- 51) Catalytic converters are fitted into automobiles to reduce emission of harmful gases. Catalytic converters change unburnt hydrocarbons into: [1]
 a) Carbon dioxide and water
 b) Methane
 c) Carbon monoxide
 d) Carbon dioxide and methane
- 52) The rate of storage of organic matter in producers in excess of their metabolic consumption is: [1]
 a) Community productivity
 b) Biomass
 c) Gross primary productivity
 d) Net primary productivity
- 53) Non - biodegradable pollutants are created by: [1]
 a) Humans
 b) Nature
 c) Excessive use of resources
 d) Natural disasters
- 54) Oparin and Haldane proposed: [1]
 a) Mutation - caused speciation.
 b) Theory of Natural selection.
 c) That migration affects genetic equilibrium.
 d) First form of life could have come from pre - existing non - living organic molecules.
- 55) At which stage during evolution did human use hides to protect their bodies and buried their dead? [1]
 a) Neanderthal man b) Homo habilis
 c) Homo erectus d) Java man
- 56) A potential danger to a population that has been greatly reduced in number is the: [1]
 a) Tendency towards assortative mating
 b) Hardy - Weinberg disequilibrium
 c) Reduced gene flow
 d) Loss of genetic variability
- 57) The first experiment on chemical evolution and origin of life was carried out by: [1]
 a) Urey and Miller b) Watson and Crick
 c) Darwin and Wallace d) Beadle and Tatum
- 58) The gas mixture used by Miller in his experiment comprised: [1]
 a) NH_3 , CO_2 , H_2O , N_2 b) CH_4 , CO_2 , N_2 , H_2O
 c) CH_4 , NH_3 , H_2O , H_2 d) CH_2 , NH_3 , N_2 , H_2O
- 59) Which one of the following is a living fossil? [1]
 a) Abies b) Taxus
 c) Ephedra d) Ginkgo biloba
- 60) Which of the following is not a Mendelian disorder? [1]
 a) Hemophilia b) Down's syndrome
 c) Thalassaemia d) Colour blindness
- 61) Single step large mutation leading to speciation is also called : [1]
 a) Saltation b) Natural selection
 c) Founder effect d) Branching descent
- 62) ZZ/ZW type of sex determination is seen in: [1]
 a) Cockroach b) Platypus
 c) Peacock d) Snails
- 63) Turner syndrome is: [1]
 a) XYY b) XO
 c) XXX d) XXY
- 64) XY chromosome that determines the sex in human beings are: [1]
 a) Heterologous b) Heteromorphic
 c) Homomorphic d) Genologous
- 65) Which one of the following is related with genetic engineering? [1]
 a) Lysosomes b) Mitochondria
 c) Plastids d) Plasmids
- 66) In the human genome project, which chromosome was sequenced at last? [1]

- a) Chromosome 3 b) Chromosome 2
c) Chromosome 21 d) Chromosome 1
- 67) Magic bullets are: [1]
a) Anabolic steroids
b) Recombinant vaccines
c) Monoclonal antibodies
d) Chemotherapy drugs for cancer
- 68) The vector for dengue fever is: [1]
a) Female Anopheles mosquito
b) Female Culex mosquito
c) Male Aedes mosquito
d) Female Aedes mosquito
- 69) Term **Vaccine** was introduced by: [1]
a) Jenner
b) Pasteur
c) Koch
d) Jointly by Koch and Pasteur
- 70) In anaphylactic shock, a substance is released which causes dilation of blood vessel and capillary leaking. What is the substance called? [1]
a) Histamine b) Adrenaline
c) Albumin d) Benedryl
- 71) Which one is matched with LSD? [1]
a) Virus b) Protozoan
c) Bacteria d) Fungi
- 72) Tetanus antitoxin (Tetanus toxoid) when injected into the human body it immediately provides: [1]
a) Auto immunity b) Passive immunity
c) Active immunity d) Innate immunity
- 73) Which one of the following is correct statement regarding the particular psychotropic drug specified? [1]
a) Morphine leads to delusions and disturbed emotions.
b) Hashish causes after thought perceptions and hallucinations.
c) Opium stimulates nervous system and causes hallucinations.
d) Barbiturates cause relaxation and temporary euphoria.
- 74) A person is injected with globulins against hepatitis. It is [1]
a) Artificially acquired active immunity
b) Naturally acquired passive immunity
c) Naturally acquired active immunity
d) Artificially acquired passive immunity
- 75) Which one of the following is not correctly matched? [1]
a) Aedes aegypti - Yellow fever
b) Anopheles culicifacies - Leishmaniasis
c) Glossina palpalis - Sleeping sickness
d) Culex - Filariasis
- 76) Use of antihistamines and steroids give quick relief from: [1]
a) Cough b) Nausea
c) Allergy d) Headache
- 77) The disease due to which maximum death in children occur is: [1]
a) Diphtheria b) Whooping cough
c) Tuberculosis d) Measles
- 78) "Blue revolution" is related to: [1]
a) Clean water b) Fish
c) Milk d) Oil
- 79) Pisciculture and aquaculture differ in: [1]
a) Pisciculture is form of aquaculture
b) Both are not related
c) Both are same
d) Aquaculture is a form of Pisciculture
- 80) The cells involved in inflammatory reactions are: [1]
a) Eosinophils b) Basophils
c) Lymphocytes d) Neutrophils
- 81) Correct order for increasing number of corpuscles in our blood is: [1]
a) Erythrocytes < Platelets < Leucocytes
b) Lymphocytes < RBCs < Platelets
c) Thrombocytes < Leucocytes < RBCs
d) WBCs < Platelets < Erythrocytes
- 82) Your friend has gone for a blood test and his haemoglobin count is 17 gm per 100 ml. What should he do? [1]
a) Take rest and prescribed medicines
b) Take rest, and lots of leafy vegetables
c) Take rest
d) No need to worry
- 83) Which of the following is not controlled by medulla oblongata? [1]
a) Reflex action
b) Breathing
c) Cardiovascular reflexes
d) Gastric Reflexes
- 84) Resting membrane potential is maintained by: [1]
a) Ion pumps b) Hormones
c) Neurotransmitters d) Neuron signs
- 85) Shared terminal duct of the reproductive and urinary system in the human male is: [1]
a) Ureter b) Vas deferens
c) Urethra d) Vasa efferentia
- 86) Progesterone is called pregnancy hormone as it helps in: [1]
a) Release of the ovum from the ovary.
b) Maintaining pregnancy and bring about labour pain.
c) Help in causing contraction of the uterus for delivery.
d) Lactation.
- 87) Which of the following hormones is not a secretion product of human placenta? [1]
a) Human chorionic gonadotropin
b) Prolactin
c) Progesterone
d) Oestrogen
- 88) An enzyme produced by mammalian sperm for entry into ovum is _____. [1]
a) Endonuclease b) Hyaluronidase
c) Reductase d) Kinase
- 89) A fluid - filled cavity present within blastula is called: [1]
a) Archenteron b) Blastoderm
c) Blastocoel d) Blastopore

- 90) Animals which give birth to young ones are called: [1]
 a) Triploblastic b) Amphibians
 c) Viviparous d) Oviparous
- 91) A human ovum completes its second meiosis: [1]
 a) When the acrosome of the sperm releases its enzymes on corona radiata
 b) When the sperm touches the zona pellucida
 c) At the time of fertilisation
 d) When the sperm gains entry into the cytoplasm of the ovum
- 92) Two hormones that regulate the menstrual cycle are: [1]
 a) FSH and estrogen
 b) Estrogens and estrogen
 c) Estrogens and progesterone
 d) FSH and ostrogen
- 93) Among the following stem cells, which are found in the umbilical cord? [1]
 a) Embryonic stem cells
 b) Both Embryonic stem cells and Adult stem cells
 c) Cord blood stem cells
 d) Adult stem cells
- 94) Ovum receives the sperm in the region of: [1]
 a) Vegetal pole b) Equator
 c) Pigmented area d) Animal pole
- 95) Gene flow i.e. movement of genes will: [1]
 a) Increase impact of natural selection
 b) Homogenized population
 c) Disturbs and decreases genetic variation
 d) Population degradation
- 96) The part of earth and atmosphere supporting life is: [1]
 a) Biota b) Ecotone
 c) Biome d) Biosphere
- 97) The adult human kidney is metanephric. So, first embryonic tubules formed in vertebrates during embryonic development are: [1]
 a) Pronephric b) Amphinephric
 c) Metanephric d) Mesonephric
- 98) Vasa recta is absent or reduced in: [1]
 a) PCT
 b) Bowman's capsule
 c) Cortical nephrons
 d) Juxtamedullary nephrons
- 99) Which of the following is also called a growth hormone? [1]
 a) Auxins b) Gibberellins
 c) Cytokinins d) Abscisic acid
- 100) In horticulture, certain plants are trimmed periodically to get denser foliage. This practice utilizes the knowledge of which facet of plant growth? [1]
 a) Abscission b) Dedifferentiation
 c) Senescence d) Apical Dominance