Paper ID- A

University of Health Sciences, Lahore.

MDCAT-2026

For F.Sc. and Non-F.Sc. Students

Total MCQs: 180
Maximum Marks: 180

Time Allowed: 3Hrs

Paper ID - A

Candidate Roll No.

Candidate Name

Candidate Signature

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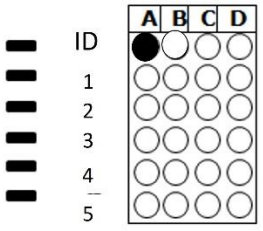
Instructions:

i. Read the instructions on the MCQ Response Form carefully.
ii. Choose the **Single Best Answer** for each question.
iii. Candidates are strictly prohibited from giving any identification mark except Roll. No. & Signature in the specified columns only.
iv. RETURN the first page of your question paper to the invigilator-this is mandatory

COMPULSORY QUESTION FOR IDENTIFICATION

1. **Each paper has a specific ID.**
2. **You have to fill the circle on your response form corresponding to the ID of your paper. This is a compulsory requirement.**

FOR EXAMPLE if the ID of your Question paper is 'A' then fill the circle corresponding to ID as shown in the diagram below:



Q1. HIV stands for:
a) Human Immunodeficiency Virus
b) Human Internal Virus
c) High Impact Virus
d) Human Immunogenic Vaccine

Q2. The part of digestive system which is NOT directly involved in digestion is:
a) Mouth
b) Oesophagus
c) Stomach
d) Small intestine

Q3. Pacinian corpuscles are present in the:
a) Retina
b) Lungs
c) Liver
d) Skin

Q4. The receptors for hearing and equilibrium are the example of:
a) Mechanoreceptors
b) Thermoreceptors
c) Nociceptors
d) Photoreceptors

Q5. Receptors that detect smell of food are:
a) Chemoreceptors
b) Mechanoreceptors
c) Nociceptors
d) Photoreceptors

Q6. The most abundant voluntary muscles in human body are:
a) Cardiac
b) Skeletal
c) Smooth
d) Smooth & Cardiac

Q7. mRNA forms _____ % of the total RNA in the cell
a) 3-4%
b) 4-5%
c) 5-6%
d) 6-7%

Q8. The inner layer of stomach whose glands secrete digestive enzymes, HCl and mucus is known as:
a) submucosa
b) mucosa
c) muscularis
d) serosa

Q9. According to Lamarck, the characteristics which are developed during the lifetime of an individual due to use and disuse of organs are called as:
a) prominent characters
b) biological characters
c) acquired characters
d) physical characters

Q10. The collagen fibers of bone are hardened by deposition of:
a) Calcium and oxalates
b) Calcium and phosphates
c) Magnesium and nitrates
d) Iron and glycogen

Q11. The type of muscles responsible for the movement of food through lumen of intestine are:
a) Smooth muscles
b) Cardiac muscles
c) Skeletal muscles
d) Skeletal & cardiac muscles

Q12. According to Watson and Crick's model, each complete turn of the DNA double helix, consists of:
a) 6 base pairs
b) 8 base pairs
c) 10 base pairs
d) 12 base pairs

Q13. The major purpose of mastication is to:
a) Make morsel soft
b) Make food moist
c) Increase surface area
d) Improve the taste

Q14. Which of the following hormones stimulates the development of primary follicles in the ovary?

a) Estrogen
b) Progesterone
c) Luteinizing hormone
d) Follicle stimulating hormone

Q15. What unique characteristic is typically found in sensory neurons of spinal nerves?

a) A single axon
b) A single dendron
c) Multiple dendrites
d) Multiple nodes of Ranvier

Q16. In which part of the neuron, Nissl's granules are present?

a) Axoplasm
b) Myelin sheath
c) Dendrite
d) Soma (Cell body)

Q17. Functions of cerebellum include:

a) To act as relay station
b) Conversion of short-term memories into long term memories
c) To guide smooth and accurate motions and maintain body position
d) To act as link between nervous and chemical coordination

Q18. What type of blood cells are primarily and specifically responsible for specific immunity?

a) Erythrocytes
b) Thrombocytes
c) Neutrophils
d) Lymphocytes

Q19. Which type of enzyme inhibition can be overcome by increasing substrate concentration?

a) Non-competitive inhibition
b) Competitive inhibition
c) Irreversible inhibition
d) Allosteric inhibition

Q20. What would be the number of chromosomes in an animal cell whose sperm has 8 chromosomes?

a) 4 chromosomes
b) 16 chromosomes
c) 24 chromosomes
d) 32 chromosomes

Q21. Which of the following best describes the Golgi apparatus?

a) Site of energy production
b) Packing and modification center of the cell
c) Storage of genetic material
d) Site of protein synthesis

Q22. The offsprings of better-adapted individuals are expected to make up a larger proportion of the next generation. The most likely explanation is:

a) Mutation
b) Inheritance of Acquired characters
c) Natural selection
d) Genetic drift

Q23. Which body system is directly responsible for initiating shivering?

a) Respiratory system
b) Circulatory system
c) Nervous system
d) Digestive system

Q24. If enterokinase is absent in small intestine, which digestive enzyme remains inactive?

a) Pepsinogen
b) Trypsinogen
c) Amylase
d) Lipase

Q25. Which of the following neurotransmitters works outside the brain?

a) Dopamine
b) Serotonin
c) Acetylcholine
d) Melatonin

Q26. Fate of ammonia released from amino acid during deamination in liver is:

a) Carbon cycle
b) Glycolysis
c) Urea cycle
d) Kreb's cycle

Q27. Villi contains a lymph capillary called:
a) Microvilli
b) Brush border
c) Lacteal
d) Lymph node

Q28. Translation is:
a) nucleus →mRNA → ribosome
b) nucleus →tRNA → ribosome
c) nucleus →mRNA → ER
d) nucleus →tRNA → ER

Q29. Which nitrogenous waste requires the least amount of water per gram of its excretion?
a) Ammonia
b) Urea
c) Uric acid
d) Creatinine

Q30. Kidney stones are mainly formed due to:
a) Lower filtration of blood at Bowman's Capsule
b) Protein breakdown in stomach
c) Excessive glucose levels in blood
d) High level of circulating calcium in blood

Q31. _____ is a repeated protein unit that makes the viral protein coat.
a) Nucleic acid
b) Capsomere
c) Core
d) Envelop

Q32. A hemophilic father can pass the genes of hemophilia to his:
a) Sons only
b) Daughters only
c) Both sons and daughters equally
d) Both sons and daughters in 2:1 ratio respectively

Q33. This enzyme is used to synthesize cDNA from RNA:
a) Restriction Endonuclease
b) Reverse Transcriptase
c) Ligase
d) Helicase

Q34. Which of the following is ABSENT in Prokaryotic cells:
a) Mitochondria
b) Circular DNA
c) Ribosomes
d) Cell membrane

Q35. In unstimulated stage, a neuron has a membrane potential of:
a) -50mV
b) +50mV
c) -70mV
d) +70mV

Q36. Which of the following diseases is associated with reduced synovial fluid in a joint?
a) Gout
b) Arthritis
c) Rickets
d) Sciatica

Q37. Points on the axon where myelin sheath is not present is called:
a) Nodes of Ranvier
b) Schwann cells
c) Neuroglia
d) Dendron

Q38. _____can denature enzymes resulting in slow catalysis.
a) Low temperature
b) High temperature
c) High water content
d) Low water content

Q39. Parietal cells of gastric glands are responsible for the secretion of:
a) HCl
b) Pepsinogen
c) Mucus
d) Gastrin

Q40. Pepsinogen is converted into pepsin due to:
a) Low pH
b) High pH
c) Optimum temperature
d) Freezing temperature

Q41. During active transport across the cell membrane, a cell requires a continuous supply of ATP to move substances against the concentration gradient. The organelle responsible for producing this energy is:
a) Nucleus.
b) Mitochondria.
c) Golgi apparatus.
d) Endoplasmic reticulum.

Q42. Viruses are classified on the basis of:
a) Color and size only
b) Structure and nucleic acid
c) Habitat only
d) Temperature tolerance

Q43. If two genes are said to be linked, what is meant by the term 'linked'?
a) Two genes are both at the same loci on a chromosome
b) Two genes both occupy the same chromosome
c) They are both alleles of the same gene
d) The phenotypes of the genes are both influenced by the gender of their owner

Q44. Which statement correctly compares ribosomes in prokaryotic and eukaryotic cells?
a) Both have 80S ribosomes
b) Prokaryotes have 80S, eukaryotes have 70S
c) Prokaryotes have 70S, eukaryotes have 80S
d) Both lack ribosomes

Q45. Which of the following best describes the correct function of peritubular capillaries?
a) Oxygen uptake from the kidney cells
b) Supply of carbon dioxide to the kidney cells
c) Reabsorption of urea
d) Reabsorption of useful constituents

Q46. Which of the following is responsible for reducing variations in progeny?
a) Meiosis
b) Epistasis
c) Crossing over
d) Gene Linkage

Q47. Nerve impulses are transmitted in reflex action in the following direction:
a) From CNS to Effectors and from CNS to the Receptors.
b) From Effectors to CNS and from CNS to the Receptors.
c) From Receptors to the CNS and from CNS to the Effectors.
d) From CNS to Receptors and from Effectors to CNS.

Q48. Which blood vessel carries filtered blood away from glomerulus?
a) Renal artery
b) Renal vein
c) Afferent arteriole
d) Efferent arteriole

Q49. Structurally ganglia are clusters of:
a) Complete neurons
b) Cell bodies of neurons
c) Axonal fibers
d) Both axon & dendrites

Q50. Upon arrival of nerve impulse, which of the following allows calcium ions to enter the cytosol?
a) Sarcolemma
b) Sarcomere
c) Sarcoplasmic reticulum
d) Myofilaments

Q51. Which of the following hormones is produced by Corpus Luteum?
a) Leutinizing
b) Progesterone
c) Testosterone
d) Secretin

Q52. In a kidney tubule, which substances are filtered out of the blood in the glomerulus?
a) Glucose, protein, salts and water
b) Glucose, protein, urea and water
c) Glucose, salts, urea and water
d) Protein, salts, urea and water

Q53. During an immune response, what type of cells are PRIMARILY involved in the production of antibodies?

a) T lymphocytes
b) B lymphocytes
c) Macrophages
d) Platelets

Q54. A patient develops a swollen area where lymph is actively being screened for pathogens and immune cells are rapidly multiplying. The lymphatic structure that is involved in this process is:

a) spleen.
b) lymph nodes.
c) lymphatic ducts.
d) lymphatic capillaries.

Q55. Which chamber of the heart has the thickest muscular tissues?

a) Right atrium
b) Right ventricle
c) Left atrium
d) Left ventricle

Q56. A person is diagnosed with colon disease. Absorption of which of the following may be affected?

a) Glucose
b) Water
c) Fats
d) Amino acids

Q57. Testosterone in males is produced by:

a) Interstitial cells of Leydig
b) Sertoli Cells
c) Spermatogonia
d) Primary spermatocytes

Q58. Which of the following is a function of lymphatic system?

a) Absorption of glucose from intestine
b) Blood clotting after an injury
c) Filtering out and destroying germs and toxins
d) Temperature regulation

Q59. In human reproduction, a sudden rise in LH causes:

a) Menstrual flow
b) Ovulation
c) Fertilization to form zygote
d) Implantation of embryo

Q60. Main products of Krebs cycle reactions are:

a) Glucose and Oxygen
b) NADH and $FADH_2$
c) ATP and glyceraldehyde 3-phosphate (G3P)
d) Pyruvate and Acetyl Co-A

Q61. During heart surgery, a surgeon fixes a valve that stops blood from flowing backward into the right ventricle. Based on the given situation, the valve that was repaired is:

a) Mitral valve
b) Aortic semilunar valve
c) Tricuspid valve
d) Pulmonary semilunar valve

Q62. Bile salts are helpful in the digestion of:

a) Amino acids
b) Fatty acids
c) Nucleic acids
d) Carbohydrates

Q63. Exocrine tissue of the pancreas produces an enzyme for carbohydrate digestion known as:

a) Lipase
b) Trypsin
c) Enterokinase
d) Amylase

Q64. Endocrine cells of duodenum are stimulated by _____to release hormone secretin.

a) Acetylcholine
b) Acidic chyme
c) Bile salts
d) Sodium bicarbonate in bile juice

Q65. Chordae tendineae are:

a) Blood vessels
b) Fibrous cords
c) Cardiac muscles
d) Epithelial tissue

Q66. The cross between two heterozygous round-seeded plants having Rr X Rr would result in _____ during segregation of the alleles in next generation.

a) 100 % round seeds
b) 50% round seeds and 50% wrinkled seeds
c) 75% round seeds and 25% wrinkled seeds
d) 100% wrinkled seeds

Q67. Which of the following provides passage of transportation of protein from nucleus to other organelles?

a) Endoplasmic Reticulum
b) Mitochondria
c) Golgi complex
d) Nuclear membrane

Q68. The ability of the immune system to mount a larger and more rapid response to an antigen that has already been encountered before is termed as:

a) Primary Immune response
b) Immunological Memory
c) Short-term Memory
d) Long-term Memory

Q69. Let X, Y and Z be three amino acids which are encoded by UCA=X, ACU=Y and GUC=Z. What will be the sequence of nucleotide in DNA coding/sense strand that comprises information for following polypeptide:

Polypeptide= Y-X-Y-Y-X-Z-Z-X-Z-Y

a) 5′-ACUUCAACUACUUCAGUCGUCUCAGUCACU-3′
b) 5′-ACTTCAACTACTTCAGTCGTCTCAGTCACT-3′
c) 3′-TGAAGTTGATGAAGTCAGCAGAGTCAGTGA-5′
d) 3′-UGAAGUUGAUGAAGUCAGCAGAGUCAGUGA-5′

Q70. All of the following ideas were proposed by Lamarck, EXCEPT:

a) Use and disuse of organs
b) Acquired characters are inherited by the offspring
c) Organs not used will become vestigial
d) Over production leads to evolution

Q71. In an experiment, increasing substrate concentration increases the rate of reaction until it reaches a steady state. At this stage, which of the following changes would most effectively increase the rate of reaction?

a) Increasing substrate concentration
b) Decreasing temperature
c) Increasing enzyme concentration
d) Adding a non-competitive inhibitor

Q72. Which of the following bonding or interaction is responsible for quaternary protein folding?

a) 1,4 Glycosidic Bond
b) Hydrophobic interaction
c) Ester Bond
d) 1, 6 Glycosidic Bond

Q73. Which part of the brain controls heart rate and breathing?

a) Cerebellum
b) Hypothalamus
c) Medulla oblongata
d) Cerebrum

Q74. When the muscle is at rest, _____is disposed in such a way that it covers the sites on the _____chain where the head of ____becomes attached.

a) tropomyosin : actin : myosin
b) myosin : actin : tropomyosin
c) actin : tropomyosin : myosin
d) actin : myosin : tropomyosin

Q75. If green is a dominant and yellow is a recessive trait then what would be the ratio of homozygotes in F2 generation?

a) 0%
b) 25%
c) 50%
d) 75%

Q76. In human respiratory system, bronchioles have:

a) Cartilage rings
b) Cartilage plates
c) Circular smooth muscles
d) Longitudinal smooth muscles

Q77. Which of the following cartilage is most commonly found in the ribs, nose, and trachea?

a) Hyaline Cartilage
b) Elastic Cartilage
c) Fibrocartilage
d) Osteoblast

Q78. If the corpus luteum degenerates prematurely, the most likely outcome is:
a) Enhanced ovulation and fertilization
b) Increased LH secretin and extra egg release
c) Increased estrogen secretion
d) Implantation failure and end of pregnancy

Q79. Which one of the following veins connects the small intestines to the liver?
a) Renal vein
b) Hepatic portal vein
c) Iliac vein
d) Hepatic vein

Q80. The segregation of alleles occurs during the process of _____ in eukaryotic organisms.
a) Mitosis
b) Binary fission
c) Meiosis
d) DNA replication before cell division

Q81. Over time, many dihybrid cross experiments of autosomally-linked genes in sweet pea plants (*Lathyrus odoratus*) have been carried out by reputed scientists. Which of the following best explains the presence of some non-parental phenotypes in the offspring of such crosses?
a) Crossing over has occurred, leading to the production of recombinant plants
b) The scientists made errors such as not cleaning the small paint brush that they used to transfer pollen grains between plants
c) Independent assortment had occurred, so unusual phenotypes are to be expected
d) Only plants of one gender exhibit parental phenotypes due to linkage

Q82. Which type of interaction is primarily responsible for holding molecules together in noble gases?
a) Covalent bond
b) Electrostatic forces of attraction
c) Hydrogen bonding
d) London dispersion forces

Q83. The reaction between ethyl chloride and dry silver oxide on heating yields:
a) dimethyl ether.
b) diethyl ether
c) ethanoic acid.
d) ethanal.

Q84. Phenol gives which colored precipitate with aqueous Br_2?
a) red ppt
b) white ppt
c) blue ppt
d) orange ppt

Q85. Pfund Series of spectral lines are produced forming the spectrum of hydrogen atom when electron jumps down to_____ orbit.
a) 2^{nd}
b) 3^{rd}
c) 4^{th}
d) 5^{th}

Q86. The electronic configuration of H^- is:
a) $1s^0$
b) $1s^1$
c) $1s^2$
d) $1s^2,2s^1$

Q87. Carboxylic acid can be formed by reaction of Grignard reagent with:
a) Carbonate
b) Carbon dioxide
c) Aldehyde
d) Carbon mono oxide

Q88. An electron having following set of values lies in:
n = 4, l= 0, m = 0 & s = -1/2
a) 4s
b) 4p
c) 5s
d) 5p

Q89. At which condition real gases show ideal behavior?
a) 100°C and 10 atm
b) 1000°C and 20 atm
c) 1000°C and 1 atm
d) 10°C and 100 atm

Q90. Which of the following statements describes a crystalline solid?
a) Particles are randomly arranged with no repeating pattern.
b) Particles are arranged in a long-range, repeating 3D pattern.
c) It softens gradually over a range of temperatures.
d) It has no definite shape or melting point.

Q91. The actual amount of CaO obtained on thermal decomposition of 25g of $CaCO_3$ is 12g. What is the approximate percentage yield? (Molar mass of $CaCO_3$ = 100, Molar mass of CaO = 56)
$CaCO_3 \rightarrow CaO + CO_2$
a) 50 %
b) 60 %
c) 86 %
d) 90 %

Q92. If actual yield and theoretical yield are 20g and 25g respectively, what will be the % yield?
a) 60%
b) 70%
c) 80%
d) 85%

Q93. The new volume when pressure is halved while temperature and number of moles are doubled will be:
a) Doubled
b) Quadrupled
c) Sextupled
d) Octupled

Q94. Rate of reaction in E_1 depends on the:
a) R-X only
b) Base only
c) Nucleophile only
d) Both base and R-X

Q95. For 3rd order reaction rate=k[A][B] ² when concentration of both reactant is doubled the new rate becomes:
a) halved
b) doubled
c) quadrupled
d) octupled

Q96. Grignard's reagent is treated with methanal to produce:
a) Phenol
b) Primary alcohol
c) Propanoic acid
d) Ketone

Q97. Probability of finding an electron is maximum in:
a) Orbit
b) Orbital
c) Degenerate orbit
d) Nodes

Q98. All alkynes give ketones on hydration EXCEPT:
a) Acetylene
b) Propyne
c) Butyne
d) Pentyne

Q99. Benzene is stable because of:
a) containing single bond
b) presence of delocalization of π electron
c) containing sp^3 hybridized carbon
d) isolated double bonds

Q100. The value of lattice energy across the period in the periodic table:
a) Increases
b) Decreases
c) Remains same
d) Changes randomly

Q101. Primary alcohol can be converted into carboxylic acid by:
a) CH_3COOH/P_2O_5
b) NH_3
c) CH_3OH
d) $H_2SO_4/K_2Cr_2O_7$

Q102. Select the true statement for a transition element.
a) All are hard and weak metals with low melting point
b) All are hard and strong metals with high melting point
c) All are soft and strong metals with high melting point
d) All are soft and weak metals with low melting point

Q103. Which of the following tests is used for distinguishing methyl ketones from other ketones?
a) Silver mirror test
b) Silver nitrate test
c) Iodoform test
d) Lucas test

Q104. 9.03 x 10^{23} molecules of an ideal gas at STP will have volume of:
a) 11.2 dm^3
b) 22.4 dm^3
c) 33.6 dm^3
d) 44.8dm^3

Q105. Rate = k[A]^0[B]
If we double the concentration of A and B, the rate of reaction becomes:
a) remains the same
b) gets doubled
c) gets tripled
d) gets halved

Q106. The oxidation number of both nitrogen atoms in NH_4NO_3 is/are:
a) +4 and -4
b) -3 and +5
c) -4 and +6
d) -4 and +5

Q107. The maximum number of electrons a subshell with azimuthal quantum number (ℓ) can accommodate is calculated by:
a) ℓ +1
b) 2ℓ +1
c) 2(2ℓ +1)
d) 2ℓ +2

Q108. In galvanic cell oxidation occurs on:
a) Cathode
b) Anode
c) Salt bridge
d) Electrolyte

Q109. The oxidation number of Cl in $HClO_3$ is:
a) 1-
b) 5-
c) 1+
d) 5+

Q110. What will be the mass of 0.5 moles of $CaCO_3$?
a) 50 g
b) 55 g
c) 45 g
d) 60 g

Q111. Sara dissolved 5 g each of crushed and large sized crystal of copper sulphate in two separate test tubes containing 10 mL water. After 5 minutes of stirring, she observed that the test tube containing crushed copper sulphate had dissolved in water while the test tube containing the large sized crystal still showed undissolved form. The reason for FASTER dissolution is that the crushed copper sulphate:
a) are more in density.
b) have greater surface area.
c) are low in density
d) have smaller surface area.

Q112. Which type of isomerism is exhibited by 2-Butene?
a) Tautomerism
b) Geometric isomerism
c) Functional group isomerism
d) Metamerism

Q113. Nylon-6,6 is made from two monomers each of which contains:
a) 6 carbon atoms.
b) 6 amino groups.
c) 6 nitrogen atoms.
d) 6 carboxylic acid groups.

Q114. A student observes that solid substance "X" does not conduct electricity but conducts when melted, while substance "Y" does not conduct electricity in any state. What is the most appropriate classification of "X" and "Y"?
a) X is a molecular crystal, Y is an ionic crystal
b) X is an ionic crystal; Y is a molecular crystal
c) Both X and Y are ionic crystals
d) Both X and Y are molecular crystals

Q115. The solubility of AgBr is 7.1 X 10^{-7} M. This dissolved AgBr produces equal moles of Ag^+ and Br^-, then the solubility product of this equilibrium reaction would be:
a) 5.041 X 10^{-13}
b) 4.941 X 10^{+13}
c) 7.1 X 10^{-7}
d) 14.082 X 10^{-14}

Q116. What is the solvent in an aqueous solution of methanol?
a) HCl
b) Water
c) Methanol
d) NaOH

Q117. Which one of the following is the best example of an amorphous solid?
a) Diamond
b) Glass
c) Sodium chloride
d) Potassium Bromide

Q118. The starting material for the preparation of PVC is:
a) Ethylene
b) Acetylene
c) Vinyl alcohol
d) Methylene

Q119. Acetic acid is converted into acetyl chloride using which reagent?
a) thionyl chloride
b) chlorine
c) sodium chloride
d) phosphorous trioxide

Q120. Which of the following product will be formed when 2-oxo-pentanal is treated with $NaBH_4$?
a) $CH_3CH(OH)CH_2CH_2OH$
b) $CH_2CH_2CH_2CH_2CH_2OH$
c) $CH_3CH(OH)CHCH(OH)CH_3$
d) $CH_3CH_2CH_2CH(OH)CH_2(OH)$

Q121. At a constant temperature and pressure, a 2.0 L container holds 0.5 moles of Nitrogen gas (N2). If an additional 1.0 mole of Nitrogen is pumped into the container without changing the temperature or pressure, what will be the new volume of the container?
a) 3.0 L
b) 4.0 L
c) 6.0 L
d) 8.0 L

Q122. The value of ideal gas constant in $dm^3.torr.\ K^{-1}.mol^{-1}$ is:
a) 0.0821
b) 1.98722
c) 8.3143
d) 62.364

Q123. How many unpaired electrons are there in Fe^{++}(Z=26)?
a) 6
b) 4
c) 3
d) 2

Q124. An element X having atomic number "Z=27" belongs to which block of periodic table?
a) s-block
b) p-block
c) d-block
d) f-block

Q125. A thermodynamic system goes through a cyclic process which absorbs 1200 J heat and ejects 700 J heat. Which statement correctly describes this?
a) The ΔE of a system increases by 500 J
b) The ΔE of a system decreases by 500 J
c) The system performs network of 500 J
d) The surroundings perform network of 500 J

Q126. Which of the following elements from Period 3 of Periodic table, has the largest ionic radius when forms a stable ion?
a) Sodium
b) Silicon
c) Phosphorous
d) Chlorine

Q127. The distance traveled by a wave in unit time is termed as:
a) Wavelength
b) Amplitude
c) Displacement
d) Wave speed

Q128. The frequency of a wave having wavelength 0.5m while passing a point with speed of 4 m/s is:
a) 2 Hz
b) 4 Hz
c) 6 Hz
d) 8 Hz

Q129. If particles of a slinky spring are moving perpendicularly to the propagation of the waves, then waves in the slinky spring will be:
a) matter waves
b) electromagnetic waves
c) transverse waves
d) longitudinal waves

Q130. The quantity measured in J/mol.K is
a) Specific heat
b) Thermal conductivity
c) Molar specific heat
d) Latent heat

Q131. When a car is moving with constant acceleration, the shape of velocity time graph is:
a) Parabola
b) Incline curve
c) Straight line
d) Decline curve

Q132. Time rate of change of momentum of a body equals the:
a) Impulse
b) Force
c) Torque
d) Velocity

Q133. In a displacement-time graph, the slope of the tangent drawn at a specific point on the curve indicates the object's
a) Average velocity over entire graph
b) Instantaneous velocity at that point
c) Instantaneous velocity at the starting point
d) Instantaneous velocity at the final point

Q134. Which of the following statements explains by Lenz's law of electromagnetic induction?
a) The production of induced e.m.f.
b) The magnitude of induced e.m.f.
c) The direction of induced e.m.f.
d) The strength of induced e.m.f.

Q135. When a particle executes simple harmonic motion, the quantity $4\pi^2f^2$ is equal to :
a) gl
b) g/l
c) l/g
d) $\sqrt{g/l}$

Q136. At a certain time, 50% of a radioactive sample remains undecayed. After 10 seconds, only 12.5% of the sample remains. The half-life of the substance is:
a) 2.5 s
b) 3.3 s
c) 5 s
d) 10 s

Q137. A conducting coil with its plane perpendicular to a uniform magnetic field is moved at constant speed in the field region, the induced emf in the coil is:
a) zero
b) constant
c) increasing
d) decreasing

Q138. The work done between two points per unit positive charge against the electric field due to a source charge is called as:
a) Electric Power
b) Electric Potential difference
c) Electric flux
d) Electric field Intensity

Q139. In the atomic spectrum of neon each line represents:
a) A different atom
b) A different element
c) A photon with specific energy
d) An atom splitting

Q140. In a spray bottle, pressing the nozzle causes fast air flow, which:
a) creates high pressure to lift the liquid
b) creates low pressure to lift the liquid
c) increases pressure at the tube opening
d) reduces liquids surface tension

Q141. A force of 10 N acts on a body of mass 2 kg. The acceleration produced is:
a) 5 m/s^2
b) 10 m/s^2
c) 20 m/s^2
d) 0.2 m/s^2

Q142. Two identical masses are placed at heights h and 2h, the ratio of gravitational potential energies will be:

a) 1:2
b) 2:1
c) equal
d) dependent on mass

Q143. The scalar product of two parallel vectors is equal to:

a) Zero
b) Square of the magnitude
c) Product of their magnitude
d) Sum of their magnitude

Q144. The volume flow rate is equal to:

a) mv
b) Av
c) Aρ
d) vρ

Q145. In which process the work is done on the cost of internal energy?

a) Isochoric process
b) Isobaric process
c) Isothermal process
d) Adiabatic process

Q146. In an isothermal process internal energy of the system:

a) Decreases
b) Increases
c) Remain the same
d) Becomes zero

Q147. A gas expands adiabatically and does 10 J of work then the change in internal energy is:

a) 10J
b) -10J
c) 20J
d) 0J

Q148. The equation of continuity Av = constant. The constant shows:

a) volume of fluid
b) mass the of fluid
c) density the of fluid
d) volume flow rate

Q149. The quantity that remains constant in an ideal transformer is:

a) Voltage
b) Current
c) Power
d) Heat

Q150. First law of thermodynamics states that:

a) $\Delta Q = \Delta U + \Delta W$
b) $\Delta Q = \Delta U - \Delta W$
c) $\Delta U = \Delta Q + \Delta W$
d) $\Delta W = \Delta U + \Delta Q$

Q151. A bullet fired from gun pierces a target due to:

a) Mechanical energy
b) Heat energy
c) Kinetic energy
d) Potential energy

Q152. If 10 waves pass through a denser medium in 1 second with a speed of 10 m/sec, then the wavelength of the wave will be:

a) 0.1 m
b) 1 m
c) 10 m
d) 100 m

Q153. The place where compressions of a sound wave combine with the rarefactions of another sound wave and cancel each other is called a:

a) dead beat.
b) null point.
c) zero point.
d) node point.

Q154. What is the reason for the steady current flow in a circuit?

a) Presence of very large resistance
b) Presence of a constant voltage source in circuit
c) presence of switch in circuit
d) Presence of ammeter in circuit

Q155. Cobalt-60, a radioisotope, is used in hospitals:

a) for X-rays image
b) to damage the cancer cells
c) to damage the healthy cells
d) for surgical equipment sterilization

Q156. What is meant by random nature of radioactive decay of a substance?

a) We cannot control the decay rate.
b) Probability of decay of every unstable nucleus is constant.
c) We can locate every next decaying nuclei.
d) We can speed up the decay process.

Q157. For a projectile, the angle of projection for maximum horizontal range is:

a) 22.5º
b) 30º
c) 45º
d) 60º

Q158. The speed of sound is faster on a rainy day because:

a) mass of moist air is more than the dry air.
b) density of moist air is less than the dry air.
c) temperature of the medium remains the same.
d) medium of propagation of sound remains the same.

Q159. Two opposite point charges, each of magnitude Q are separated by a distance s. The electric potential at a point mid-way between them is:

a) q
b) -kq/s
c) infinity
d) zero

Q160. A fan rotates uniformly at the rate of 2 rev/s. Its angular velocity in SI units will be:

a) 2π rev/s
b) 4π rev/min
c) $\pi/2$ rad/s
d) 4π rad/s

Q161. The process of conversion of alternating current into direct current is known as:

a) modulation.
b) polarisation.
c) rectification.
d) quantisation.

Q162. If the speed of a standing wave in a string is 2 m/s and its wavelength is 0.25 m, then the frequency of the standing wave will be:

a) 0.125 Hz.
b) 2.0 Hz.
c) 4.0 Hz.
d) 8.0 Hz.

Q163. The director _____movie was a blockbuster earned heaps of money.

a) who's
b) whom
c) whose
d) which

Q164. Which of the following sentences is correctly punctuated?

a) I love Pakistan!
b) Wow. That's amazing
c) Lets eat. Grandma.
d) He's not coming, is he

Q165. The captain stood at the head of the table during the meeting. What does "head" most likely mean?

a) A body part
b) A leader or position of authority
c) The front part of something
d) A senior person

Q166. What is the correct direct speech form of the sentence: He claimed that he could speak French fluently.

a) He claimed, "I can speak French fluently."
b) He claimed, "I am speaking French fluently."
c) He claimed, "I speak French fluently."
d) He claimed, "I was speaking French fluently."

Q167. The student said, "I am taking extra classes so that I can improve my grades before the finals." The most appropriate indirect form of the given sentence is:

a) The student said that he was taking extra classes so that he can improve his grades before the finals.
b) The student said that he had taken extra classes so that he can improve his grades before the finals.
c) The student said that he had been taking extra classes so that he could improve his grades before the finals.
d) The student said that he was taking extra classes so that he could improve his grades before the finals.

Q168. What does the sentence "She broke down in front of the audience" imply?

a) She sang a song.
b) She collapsed emotionally.
c) She left the stage.
d) She performed well.

Q169. "Mistakes could have been avoided if the instructions had been followed carefully by the workers". The most appropriate active voice of the given sentence is:

a) The workers could avoid mistakes if they followed the instructions carefully.
b) The workers could have avoided mistakes if they followed the instructions carefully.
c) The workers could have avoided mistakes if they had followed the instructions carefully.
d) The workers avoid mistakes if they follow the instructions carefully.

Q170. Identify which type of an adverb is used in the following sentence?
"The cat chased the rat everywhere".

a) adverb of time
b) adverb of manner
c) adverb of frequency
d) adverb of place

Q171. He was known for resolving <u>contentious</u> matters. The underlined word in the context means:

a) Disputed
b) Secretive
c) Unethical
d) Private

Q172. A belief is regarded as "true and reasonable", when it is:

a) Commonly accepted.
b) Matches your feelings.
c) Based on evidence and logic.
d) Found in old texts.

Q173. During a chemistry practical class, teacher was briefly out of the class, and the lab safety instructions were ignored. During that time, a student mixed unknown chemicals left from a previous experiment. A strong smell fills the room, and one student starts coughing.
To avoid future accidents, from the given options, the most sustainable course of action is to :

a) cancel all chemistry practicals.
b) rusticate the student involved.
c) strengthen lab safety instructions.
d) penalise the teacher for being absent.

Q174. Find the odd one out.

a) 6 : 35
b) 2 : 15
c) 4 : 25
d) 7 : 45

Q175. Find the odd one out.

a) D : G
b) U : W
c) H : J
d) Q : S

Q176. X's son is cousin of Y's son. If Y has no brother what is X to Y?

a) Cousin
b) Nephew
c) Uncle
d) Sister

Q177. What number comes next in the following series:
48 45 40 33 24

a) 11
b) 8
c) 13
d) 1

Q178. Quantity A: The price of a television when it is on sale at 25% off.
Quantity B: The price of that television when its one sale at $25 off.

a) Quantity A is greater.
b) Quantity B is greater.
c) Quantities A and B are equal.
d) It is impossible to determine which quantity is greater.

Q179. Five boxes - Red, Green, Blue, Yellow, and Black- are stacked one over another with 1 at the bottom and 5 at the top. These boxes are arranged using the following rules:

1. **Red is above Green**
2. **Yellow is immediately above Black**
3. **Black is not at the bottom**

If Blue Box is at 4 position, which box is at the position 2?

a) Red
b) Green
c) Yellow
d) Black

Q180. What percentage of 90 minutes is 54 seconds?

a) One percent
b) Six Percent
c) Three percent
d) Ten percent

ROUGH WORK

University of Health Sciences, Lahore.

MDCAT-2026

For F.Sc. and Non-F.Sc. Students

Total MCQs: 180
Maximum Marks: 180

Time Allowed: 3Hrs

Paper ID - B

Candidate Roll No.

_____
Candidate Name

_____
Candidate Signature

_____
Dy Superintendent Sign

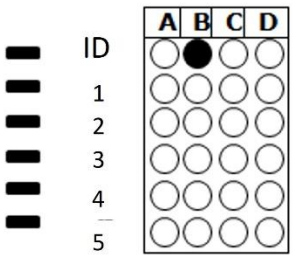
Instructions:

i. Read the instructions on the MCQ Response Form carefully.
ii. Choose the **Single Best Answer** for each question.
iii. Candidates are strictly prohibited from giving any identification mark except Roll. No. & Signature in the specified columns only.
iv. RETURN the first page of your question paper to the invigilator-this is mandatory

COMPULSORY QUESTION FOR IDENTIFICATION

1. **Each paper has a specific ID.**
2. **You have to fill the circle on your response form corresponding to the ID of your paper. This is a compulsory requirement.**

FOR EXAMPLE if the ID of your Question paper is 'B' then fill the circle corresponding to ID as shown in the diagram below:



Q1. The type of muscles responsible for the movement of food through lumen of intestine are:
a) Smooth muscles
b) Cardiac muscles
c) Skeletal muscles
d) Skeletal & cardiac muscles

Q2. According to Watson and Crick's model, each complete turn of the DNA double helix, consists of:
a) 6 base pairs
b) 8 base pairs
c) 10 base pairs
d) 12 base pairs

Q3. The major purpose of mastication is to:
a) Make morsel soft
b) Make food moist
c) Increase surface area
d) Improve the taste

Q4. Which of the following hormones stimulates the development of primary follicles in the ovary?
a) Estrogen
b) Progesterone
c) Luteinizing hormone
d) Follicle stimulating hormone

Q5. What unique characteristic is typically found in sensory neurons of spinal nerves?
a) A single axon
b) A single dendron
c) Multiple dendrites
d) Multiple nodes of Ranvier

Q6. In which part of the neuron, Nissl's granules are present?
a) Axoplasm
b) Myelin sheath
c) Dendrite
d) Soma (Cell body)

Q7. Functions of cerebellum include:
a) To act as relay station
b) Conversion of short-term memories into long term memories
c) To guide smooth and accurate motions and maintain body position
d) To act as link between nervous and chemical coordination

Q8. What type of blood cells are primarily and specifically responsible for specific immunity?
a) Erythrocytes
b) Thrombocytes
c) Neutrophils
d) Lymphocytes

Q9. Which type of enzyme inhibition can be overcome by increasing substrate concentration?
a) Non-competitive inhibition
b) Competitive inhibition
c) Irreversible inhibition
d) Allosteric inhibition

Q10. What would be the number of chromosomes in an animal cell whose sperm has 8 chromosomes?
a) 4 chromosomes
b) 16 chromosomes
c) 24 chromosomes
d) 32 chromosomes

Q11. Which of the following best describes the Golgi apparatus?
a) Site of energy production
b) Packing and modification center of the cell
c) Storage of genetic material
d) Site of protein synthesis

Q12. The offsprings of better-adapted individuals are expected to make up a larger proportion of the next generation. The most likely explanation is:
a) Mutation
b) Inheritance of Acquired characters
c) Natural selection
d) Genetic drift

Q13. Which body system is directly responsible for initiating shivering?
a) Respiratory system
b) Circulatory system
c) Nervous system
d) Digestive system

Q14. If enterokinase is absent in small intestine, which digestive enzyme remains inactive?
a) Pepsinogen
b) Trypsinogen
c) Amylase
d) Lipase

Q15. Which of the following neurotransmitters works outside the brain?
a) Dopamine
b) Serotonin
c) Acetylcholine
d) Melatonin

Q16. Fate of ammonia released from amino acid during deamination in liver is:
a) Carbon cycle
b) Glycolysis
c) Urea cycle
d) Kreb's cycle

Q17. Villi contains a lymph capillary called:
a) Microvilli
b) Brush border
c) Lacteal
d) Lymph node

Q18. Translation is:
a) nucleus →mRNA → ribosome
b) nucleus →tRNA → ribosome
c) nucleus →mRNA → ER
d) nucleus →tRNA → ER

Q19. Which nitrogenous waste requires the least amount of water per gram of its excretion?
a) Ammonia
b) Urea
c) Uric acid
d) Creatinine

Q20. Kidney stones are mainly formed due to:
a) Lower filtration of blood at Bowman's Capsule
b) Protein breakdown in stomach
c) Excessive glucose levels in blood
d) High level of circulating calcium in blood

Q21. _____ is a repeated protein unit that makes the viral protein coat.
a) Nucleic acid
b) Capsomere
c) Core
d) Envelop

Q22. A hemophilic father can pass the genes of hemophilia to his:
a) Sons only
b) Daughters only
c) Both sons and daughters equally
d) Both sons and daughters in 2:1 ratio respectively

Q23. This enzyme is used to synthesize cDNA from RNA:
a) Restriction Endonuclease
b) Reverse Transcriptase
c) Ligase
d) Helicase

Q24. Which of the following is ABSENT in Prokaryotic cells:
a) Mitochondria
b) Circular DNA
c) Ribosomes
d) Cell membrane

Q25. In unstimulated stage, a neuron has a membrane potential of:
a) -50mV
b) +50mV
c) -70mV
d) +70mV

Q26. Which of the following diseases is associated with reduced synovial fluid in a joint?
a) Gout
b) Arthritis
c) Rickets
d) Sciatica

Q27. Points on the axon where myelin sheath is not present is called:
a) Nodes of Ranvier
b) Schwann cells
c) Neuroglia
d) Dendron

Q28. _____can denature enzymes resulting in slow catalysis.
a) Low temperature
b) High temperature
c) High water content
d) Low water content

Q29. Parietal cells of gastric glands are responsible for the secretion of:
a) HCl
b) Pepsinogen
c) Mucus
d) Gastrin

Q30. Pepsinogen is converted into pepsin due to:
a) Low pH
b) High pH
c) Optimum temperature
d) Freezing temperature

Q31. During active transport across the cell membrane, a cell requires a continuous supply of ATP to move substances against the concentration gradient. The organelle responsible for producing this energy is:
a) Nucleus.
b) Mitochondria.
c) Golgi apparatus.
d) Endoplasmic reticulum.

Q32. Viruses are classified on the basis of:
a) Color and size only
b) Structure and nucleic acid
c) Habitat only
d) Temperature tolerance

Q33. If two genes are said to be linked, what is meant by the term 'linked'?
a) Two genes are both at the same loci on a chromosome
b) Two genes both occupy the same chromosome
c) They are both alleles of the same gene
d) The phenotypes of the genes are both influenced by the gender of their owner

Q34. Which statement correctly compares ribosomes in prokaryotic and eukaryotic cells?
a) Both have 80S ribosomes
b) Prokaryotes have 80S, eukaryotes have 70S
c) Prokaryotes have 70S, eukaryotes have 80S
d) Both lack ribosomes

Q35. Which of the following best describes the correct function of peritubular capillaries?
a) Oxygen uptake from the kidney cells
b) Supply of carbon dioxide to the kidney cells
c) Reabsorption of urea
d) Reabsorption of useful constituents

Q36. Which of the following is responsible for reducing variations in progeny?
a) Meiosis
b) Epistasis
c) Crossing over
d) Gene Linkage

Q37. Nerve impulses are transmitted in reflex action in the following direction:
a) From CNS to Effectors and from CNS to the Receptors.
b) From Effectors to CNS and from CNS to the Receptors.
c) From Receptors to the CNS and from CNS to the Effectors.
d) From CNS to Receptors and from Effectors to CNS.

Q38. Which blood vessel carries filtered blood away from glomerulus?
a) Renal artery
b) Renal vein
c) Afferent arteriole
d) Efferent arteriole

Q39. Structurally ganglia are clusters of:
a) Complete neurons
b) Cell bodies of neurons
c) Axonal fibers
d) Both axon & dendrites

Q40. Upon arrival of nerve impulse, which of the following allows calcium ions to enter the cytosol?
a) Sarcolemma
b) Sarcomere
c) Sarcoplasmic reticulum
d) Myofilaments

Q41. Which of the following hormones is produced by Corpus Luteum?
a) Leutinizing
b) Progesterone
c) Testosterone
d) Secretin

Q42. In a kidney tubule, which substances are filtered out of the blood in the glomerulus?
a) Glucose, protein, salts and water
b) Glucose, protein, urea and water
c) Glucose, salts, urea and water
d) Protein, salts, urea and water

Q43. During an immune response, what type of cells are PRIMARILY involved in the production of antibodies?
a) T lymphocytes
b) B lymphocytes
c) Macrophages
d) Platelets

Q44. A patient develops a swollen area where lymph is actively being screened for pathogens and immune cells are rapidly multiplying. The lymphatic structure that is involved in this process is:
a) spleen.
b) lymph nodes.
c) lymphatic ducts.
d) lymphatic capillaries.

Q45. Which chamber of the heart has the thickest muscular tissues?
a) Right atrium
b) Right ventricle
c) Left atrium
d) Left ventricle

Q46. A person is diagnosed with colon disease. Absorption of which of the following may be affected?
a) Glucose
b) Water
c) Fats
d) Amino acids

Q47. Testosterone in males is produced by:
a) Interstitial cells of Leydig
b) Sertoli Cells
c) Spermatogonia
d) Primary spermatocytes

Q48. Which of the following is a function of lymphatic system?
a) Absorption of glucose from intestine
b) Blood clotting after an injury
c) Filtering out and destroying germs and toxins
d) Temperature regulation

Q49. In human reproduction, a sudden rise in LH causes:
a) Menstrual flow
b) Ovulation
c) Fertilization to form zygote
d) Implantation of embryo

Q50. Main products of Krebs cycle reactions are:
a) Glucose and Oxygen
b) NADH and $FADH_2$
c) ATP and glyceraldehyde 3-phosphate (G3P)
d) Pyruvate and Acetyl Co-A

Q51. During heart surgery, a surgeon fixes a valve that stops blood from flowing backward into the right ventricle. Based on the given situation, the valve that was repaired is:
a) Mitral valve
b) Aortic semilunar valve
c) Tricuspid valve
d) Pulmonary semilunar valve

Q52. Bile salts are helpful in the digestion of:
a) Amino acids
b) Fatty acids
c) Nucleic acids
d) Carbohydrates

Q53. Exocrine tissue of the pancreas produces an enzyme for carbohydrate digestion known as:
a) Lipase
b) Trypsin
c) Enterokinase
d) Amylase

Q54. Endocrine cells of duodenum are stimulated by _____to release hormone secretin.
a) Acetylcholine
b) Acidic chyme
c) Bile salts
d) Sodium bicarbonate in bile juice

Q55. Chordae tendineae are:
a) Blood vessels
b) Fibrous cords
c) Cardiac muscles
d) Epithelial tissue

Q56. The cross between two heterozygous round-seeded plants having Rr X Rr would result in _____ during segregation of the alleles in next generation.
a) 100 % round seeds
b) 50% round seeds and 50% wrinkled seeds
c) 75% round seeds and 25% wrinkled seeds
d) 100% wrinkled seeds

Q57. Which of the following provides passage of transportation of protein from nucleus to other organelles?
a) Endoplasmic Reticulum
b) Mitochondria
c) Golgi complex
d) Nuclear membrane

Q58. The ability of the immune system to mount a larger and more rapid response to an antigen that has already been encountered before is termed as:
a) Primary Immune response
b) Immunological Memory
c) Short-term Memory
d) Long-term Memory

Q59. Let X, Y and Z be three amino acids which are encoded by UCA=X, ACU=Y and GUC=Z. What will be the sequence of nucleotide in DNA coding/sense strand that comprises information for following polypeptide:

Polypeptide= Y-X-Y-Y-X-Z-Z-X-Z-Y
a) 5′-ACUUCAACUACUUCAGUCGUCUCAGUCACU-3′
b) 5′-ACTTCAACTACTTCAGTCGTCTCAGTCACT-3′
c) 3′-TGAAGTTGATGAAGTCAGCAGAGTCAGTGA-5′
d) 3′-UGAAGUUGAUGAAGUCAGCAGAGUCAGUGA-5′

Q60. All of the following ideas were proposed by Lamarck, EXCEPT:
a) Use and disuse of organs
b) Acquired characters are inherited by the offspring
c) Organs not used will become vestigial
d) Over production leads to evolution

Q61. In an experiment, increasing substrate concentration increases the rate of reaction until it reaches a steady state. At this stage, which of the following changes would most effectively increase the rate of reaction?
a) Increasing substrate concentration
b) Decreasing temperature
c) Increasing enzyme concentration
d) Adding a non-competitive inhibitor

Q62. Which of the following bonding or interaction is responsible for quaternary protein folding?
a) 1,4 Glycosidic Bond
b) Hydrophobic interaction
c) Ester Bond
d) 1, 6 Glycosidic Bond

Q63. Which part of the brain controls heart rate and breathing?
a) Cerebellum
b) Hypothalamus
c) Medulla oblongata
d) Cerebrum

Q64. When the muscle is at rest, _____is disposed in such a way that it covers the sites on the _____chain where the head of ____becomes attached.
a) tropomyosin : actin : myosin
b) myosin : actin : tropomyosin
c) actin : tropomyosin : myosin
d) actin : myosin : tropomyosin

Q65. If green is a dominant and yellow is a recessive trait then what would be the ratio of homozygotes in F2 generation?
a) 0%
b) 25%
c) 50%
d) 75%

Q66. In human respiratory system, bronchioles have:
a) Cartilage rings
b) Cartilage plates
c) Circular smooth muscles
d) Longitudinal smooth muscles

Q67. Which of the following cartilage is most commonly found in the ribs, nose, and trachea?
a) Hyaline Cartilage
b) Elastic Cartilage
c) Fibrocartilage
d) Osteoblast

Q68. If the corpus luteum degenerates prematurely, the most likely outcome is:
a) Enhanced ovulation and fertilization
b) Increased LH secretin and extra egg release
c) Increased estrogen secretion
d) Implantation failure and end of pregnancy

Q69. Which one of the following veins connects the small intestines to the liver?
a) Renal vein
b) Hepatic portal vein
c) Iliac vein
d) Hepatic vein

Q70. The segregation of alleles occurs during the process of _____ in eukaryotic organisms.
a) Mitosis
b) Binary fission
c) Meiosis
d) DNA replication before cell division

Q71. Over time, many dihybrid cross experiments of autosomally-linked genes in sweet pea plants (*Lathyrus odoratus*) have been carried out by reputed scientists. Which of the following best explains the presence of some non-parental phenotypes in the offspring of such crosses?
a) Crossing over has occurred, leading to the production of recombinant plants
b) The scientists made errors such as not cleaning the small paint brush that they used to transfer pollen grains between plants
c) Independent assortment had occurred, so unusual phenotypes are to be expected
d) Only plants of one gender exhibit parental phenotypes due to linkage

Q72. HIV stands for:
a) Human Immunodeficiency Virus
b) Human Internal Virus
c) High Impact Virus
d) Human Immunogenic Vaccine

Q73. The part of digestive system which is NOT directly involved in digestion is:
a) Mouth
b) Oesophagus
c) Stomach
d) Small intestine

Q74. Pacinian corpuscles are present in the:
a) Retina
b) Lungs
c) Liver
d) Skin

Q75. The receptors for hearing and equilibrium are the example of:
a) Mechanoreceptors
b) Thermoreceptors
c) Nociceptors
d) Photoreceptors

Q76. Receptors that detect smell of food are:
a) Chemoreceptors
b) Mechanoreceptors
c) Nociceptors
d) Photoreceptors

Q77. The most abundant voluntary muscles in human body are:
a) Cardiac
b) Skeletal
c) Smooth
d) Smooth & Cardiac

Q78. mRNA forms _____ % of the total RNA in the cell
a) 3-4%
b) 4-5%
c) 5-6%
d) 6-7%

Q79. The inner layer of stomach whose glands secrete digestive enzymes, HCl and mucus is known as:

a) submucosa
b) mucosa
c) muscularis
d) serosa

Q80. According to Lamarck, the characteristics which are developed during the lifetime of an individual due to use and disuse of organs are called as:

a) prominent characters
b) biological characters
c) acquired characters
d) physical characters

Q81. The collagen fibers of bone are hardened by deposition of:

a) Calcium and oxalates
b) Calcium and phosphates
c) Magnesium and nitrates
d) Iron and glycogen

Q82. If actual yield and theoretical yield are 20g and 25g respectively, what will be the % yield?

a) 60%
b) 70%
c) 80%
d) 85%

Q83. The new volume when pressure is halved while temperature and number of moles are doubled will be:

a) Doubled
b) Quadrupled
c) Sextupled
d) Octupled

Q84. Rate of reaction in E_1 depends on the:

a) R-X only
b) Base only
c) Nucleophile only
d) Both base and R-X

Q85. For 3rd order reaction rate=k[A][B] ^{2} when concentration of both reactant is doubled the new rate becomes:

a) halved
b) doubled
c) quadrupled
d) octupled

Q86. Grignard's reagent is treated with methanal to produce:

a) Phenol
b) Primary alcohol
c) Propanoic acid
d) Ketone

Q87. Probability of finding an electron is maximum in:

a) Orbit
b) Orbital
c) Degenerate orbit
d) Nodes

Q88. All alkynes give ketones on hydration EXCEPT:

a) Acetylene
b) Propyne
c) Butyne
d) Pentyne

Q89. Benzene is stable because of:

a) containing single bond
b) presence of delocalization of π electron
c) containing sp^3 hybridized carbon
d) isolated double bonds

Q90. The value of lattice energy across the period in the periodic table:

a) Increases
b) Decreases
c) Remains same
d) Changes randomly

Q91. Primary alcohol can be converted into carboxylic acid by:

a) CH_3COOH/P_2O_5
b) NH_3
c) CH_3OH
d) $H_2SO_4/K_2Cr_2O_7$

Q92. Select the true statement for a transition element.

a) All are hard and weak metals with low melting point
b) All are hard and strong metals with high melting point
c) All are soft and strong metals with high melting point
d) All are soft and weak metals with low melting point

Q93. Which of the following tests is used for distinguishing methyl ketones from other ketones?

a) Silver mirror test
b) Silver nitrate test
c) Iodoform test
d) Lucas test

Q94. 9.03×10^{23} molecules of an ideal gas at STP will have volume of:

a) 11.2 dm^3
b) 22.4 dm^3
c) 33.6 dm^3
d) 44.8dm^3

Q95. Rate = $k[A]^0[B]$
If we double the concentration of A and B, the rate of reaction becomes:

a) remains the same
b) gets doubled
c) gets tripled
d) gets halved

Q96. The oxidation number of both nitrogen atoms in NH_4NO_3 is/are:

a) +4 and -4
b) -3 and +5
c) -4 and +6
d) -4 and +5

Q97. The maximum number of electrons a subshell with azimuthal quantum number (ℓ) can accommodate is calculated by:

a) ℓ +1
b) 2ℓ +1
c) 2(2ℓ +1)
d) 2ℓ +2

Q98. In galvanic cell oxidation occurs on:

a) Cathode
b) Anode
c) Salt bridge
d) Electrolyte

Q99. The oxidation number of Cl in $HClO_3$ is:

a) 1-
b) 5-
c) 1+
d) 5+

Q100. What will be the mass of 0.5 moles of $CaCO_3$?

a) 50 g
b) 55 g
c) 45 g
d) 60 g

Q101. Sara dissolved 5 g each of crushed and large sized crystal of copper sulphate in two separate test tubes containing 10 mL water. After 5 minutes of stirring, she observed that the test tube containing crushed copper sulphate had dissolved in water while the test tube containing the large sized crystal still showed undissolved form. The reason for FASTER dissolution is that the crushed copper sulphate:

a) are more in density.
b) have greater surface area.
c) are low in density
d) have smaller surface area.

Q102. Which type of isomerism is exhibited by 2-Butene?

a) Tautomerism
b) Geometric isomerism
c) Functional group isomerism
d) Metamerism

Q103. Nylon-6,6 is made from two monomers each of which contains:

a) 6 carbon atoms.
b) 6 amino groups.
c) 6 nitrogen atoms.
d) 6 carboxylic acid groups.

Q104. A student observes that solid substance "X" does not conduct electricity but conducts when melted, while substance "Y" does not conduct electricity in any state. What is the most appropriate classification of "X" and "Y"?

a) X is a molecular crystal, Y is an ionic crystal
b) X is an ionic crystal; Y is a molecular crystal
c) Both X and Y are ionic crystals
d) Both X and Y are molecular crystals

Q105. The solubility of AgBr is 7.1 X 10^{-7} M. This dissolved AgBr produces equal moles of Ag^{+} and Br^{-}, then the solubility product of this equilibrium reaction would be:

a) 5.041 X 10^{-13}
b) 4.941 X 10^{+13}
c) 7.1 X 10^{-7}
d) 14.082 X 10^{-14}

Q106. What is the solvent in an aqueous solution of methanol?

a) HCl
b) Water
c) Methanol
d) NaOH

Q107. Which one of the following is the best example of an amorphous solid?

a) Diamond
b) Glass
c) Sodium chloride
d) Potassium Bromide

Q108. The starting material for the preparation of PVC is:

a) Ethylene
b) Acetylene
c) Vinyl alcohol
d) Methylene

Q109. Acetic acid is converted into acetyl chloride using which reagent?

a) thionyl chloride
b) chlorine
c) sodium chloride
d) phosphorous trioxide

Q110. Which of the following product will be formed when 2-oxo-pentanal is treated with $NaBH_4$?

a) $CH_3CH(OH)CH_2CH_2OH$
b) $CH_2CH_2CH_2CH_2CH_2OH$
c) $CH_3CH(OH)CHCH(OH)CH_3$
d) $CH_3CH_2CH_2CH(OH)CH_2(OH)$

Q111. At a constant temperature and pressure, a 2.0 L container holds 0.5 moles of Nitrogen gas (N2). If an additional 1.0 mole of Nitrogen is pumped into the container without changing the temperature or pressure, what will be the new volume of the container?

a) 3.0 L
b) 4.0 L
c) 6.0 L
d) 8.0 L

Q112. The value of ideal gas constant in dm^3.torr. K^{-1}.mol^{-1} is:

a) 0.0821
b) 1.98722
c) 8.3143
d) 62.364

Q113. How many unpaired electrons are there in Fe^{++}(Z=26)?

a) 6
b) 4
c) 3
d) 2

Q114. An element X having atomic number "Z=27" belongs to which block of periodic table?

a) s-block
b) p-block
c) d-block
d) f-block

Q115. A thermodynamic system goes through a cyclic process which absorbs 1200 J heat and ejects 700 J heat. Which statement correctly describes this?

a) The ΔE of a system increases by 500 J
b) The ΔE of a system decreases by 500 J
c) The system performs network of 500 J
d) The surroundings perform network of 500 J

Q116. Which of the following elements from Period 3 of Periodic table, has the largest ionic radius when forms a stable ion?

a) Sodium
b) Silicon
c) Phosphorous
d) Chlorine

Q117. Which type of interaction is primarily responsible for holding molecules together in noble gases?

a) Covalent bond
b) Electrostatic forces of attraction
c) Hydrogen bonding
d) London dispersion forces

Q118. The reaction between ethyl chloride and dry silver oxide on heating yields:

a) dimethyl ether.
b) diethyl ether
c) ethanoic acid.
d) ethanal.

Q119. Phenol gives which colored precipitate with aqueous Br_2?

a) red ppt
b) white ppt
c) blue ppt
d) orange ppt

Q120. Pfund Series of spectral lines are produced forming the spectrum of hydrogen atom when electron jumps down to_____ orbit.

a) 2^{nd}
b) 3^{rd}
c) 4^{th}
d) 5^{th}

Q121. The electronic configuration of H^- is:

a) $1s^0$
b) $1s^1$
c) $1s^2$
d) $1s^2,2s^1$

Q122. Carboxylic acid can be formed by reaction of Grignard reagent with:

a) Carbonate
b) Carbon dioxide
c) Aldehyde
d) Carbon mono oxide

Q123. An electron having following set of values lies in:
n = 4, l= 0, m = 0 & s = -1/2

a) 4s
b) 4p
c) 5s
d) 5p

Q124. At which condition real gases show ideal behavior?

a) 100°C and 10 atm
b) 1000°C and 20 atm
c) 1000°C and 1 atm
d) 10°C and 100 atm

Q125. Which of the following statements describes a crystalline solid?

a) Particles are randomly arranged with no repeating pattern.
b) Particles are arranged in a long-range, repeating 3D pattern.
c) It softens gradually over a range of temperatures.
d) It has no definite shape or melting point.

Q126. The actual amount of CaO obtained on thermal decomposition of 25g of $CaCO_3$ is 12g. What is the approximate percentage yield? (Molar mass of $CaCO_3$ = 100, Molar mass of CaO = 56)

$CaCO_3 \rightarrow CaO + CO_2$

a) 50 %
b) 60 %
c) 86 %
d) 90 %

Q127. A conducting coil with its plane perpendicular to a uniform magnetic field is moved at constant speed in the field region, the induced emf in the coil is:

a) zero
b) constant
c) increasing
d) decreasing

Q128. The work done between two points per unit positive charge against the electric field due to a source charge is called as:

a) Electric Power
b) Electric Potential difference
c) Electric flux
d) Electric field Intensity

Q129. In the atomic spectrum of neon each line represents:

a) A different atom
b) A different element
c) A photon with specific energy
d) An atom splitting

Q130. In a spray bottle, pressing the nozzle causes fast air flow, which:

a) creates high pressure to lift the liquid
b) creates low pressure to lift the liquid
c) increases pressure at the tube opening
d) reduces liquids surface tension

Q131. A force of 10 N acts on a body of mass 2 kg. The acceleration produced is:

a) 5 m/s^2
b) 10 m/s^2
c) 20 m/s^2
d) 0.2 m/s^2

Q132. Two identical masses are placed at heights h and 2h, the ratio of gravitational potential energies will be:

a) 1:2
b) 2:1
c) equal
d) dependent on mass

Q133. The scalar product of two parallel vectors is equal to:

a) Zero
b) Square of the magnitude
c) Product of their magnitude
d) Sum of their magnitude

Q134. The volume flow rate is equal to:

a) mv
b) Av
c) Aρ
d) vρ

Q135. In which process the work is done on the cost of internal energy?

a) Isochoric process
b) Isobaric process
c) Isothermal process
d) Adiabatic process

Q136. In an isothermal process internal energy of the system:

a) Decreases
b) Increases
c) Remain the same
d) Becomes zero

Q137. A gas expands adiabatically and does 10 J of work then the change in internal energy is:

a) 10J
b) -10J
c) 20J
d) 0J

Q138. The equation of continuity Av = constant. The constant shows:

a) volume of fluid
b) mass the of fluid
c) density the of fluid
d) volume flow rate

Q139. The quantity that remains constant in an ideal transformer is:

a) Voltage
b) Current
c) Power
d) Heat

Q140. First law of thermodynamics states that:

a) $\Delta Q = \Delta U + \Delta W$
b) $\Delta Q = \Delta U - \Delta W$
c) $\Delta U = \Delta Q + \Delta W$
d) $\Delta W = \Delta U + \Delta Q$

Q141. A bullet fired from gun pierces a target due to:

a) Mechanical energy
b) Heat energy
c) Kinetic energy
d) Potential energy

Q142. If 10 waves pass through a denser medium in 1 second with a speed of 10 m/sec, then the wavelength of the wave will be:

a) 0.1 m
b) 1 m
c) 10 m
d) 100 m

Q143. The place where compressions of a sound wave combine with the rarefactions of another sound wave and cancel each other is called a:

a) dead beat.
b) null point.
c) zero point.
d) node point.

Q144. What is the reason for the steady current flow in a circuit?

a) Presence of very large resistance
b) Presence of a constant voltage source in circuit
c) presence of switch in circuit
d) Presence of ammeter in circuit

Q145. Cobalt-60, a radioisotope, is used in hospitals:

a) for X-rays image
b) to damage the cancer cells
c) to damage the healthy cells
d) for surgical equipment sterilization

Q146. What is meant by random nature of radioactive decay of a substance?

a) We cannot control the decay rate.
b) Probability of decay of every unstable nucleus is constant.
c) We can locate every next decaying nuclei.
d) We can speed up the decay process.

Q147. For a projectile, the angle of projection for maximum horizontal range is:

a) 22.5º
b) 30º
c) 45º
d) 60º

Q148. The speed of sound is faster on a rainy day because:

a) mass of moist air is more than the dry air.
b) density of moist air is less than the dry air.
c) temperature of the medium remains the same.
d) medium of propagation of sound remains the same.

Q149. Two opposite point charges, each of magnitude Q are separated by a distance s. The electric potential at a point mid-way between them is:

a) q
b) -kq/s
c) infinity
d) zero

Q150. A fan rotates uniformly at the rate of 2 rev/s. Its angular velocity in SI units will be:

a) 2π rev/s
b) 4π rev/min
c) $\pi/2$ rad/s
d) 4π rad/s

Q151. The process of conversion of alternating current into direct current is known as:

a) modulation.
b) polarisation.
c) rectification.
d) quantisation.

Q152. If the speed of a standing wave in a string is 2 m/s and its wavelength is 0.25 m, then the frequency of the standing wave will be:

a) 0.125 Hz.
b) 2.0 Hz.
c) 4.0 Hz.
d) 8.0 Hz.

Q153. The distance traveled by a wave in unit time is termed as:

a) Wavelength
b) Amplitude
c) Displacement
d) Wave speed

Q154. The frequency of a wave having wavelength 0.5m while passing a point with speed of 4 m/s is:

a) 2 Hz
b) 4 Hz
c) 6 Hz
d) 8 Hz

Q155. If particles of a slinky spring are moving perpendicularly to the propagation of the waves, then waves in the slinky spring will be:

a) matter waves
b) electromagnetic waves
c) transverse waves
d) longitudinal waves

Q156. The quantity measured in J/mol.K is

a) Specific heat
b) Thermal conductivity
c) Molar specific heat
d) Latent heat

Q157. When a car is moving with constant acceleration, the shape of velocity time graph is:

a) Parabola
b) Incline curve
c) Straight line
d) Decline curve

Q158. Time rate of change of momentum of a body equals the:

a) Impulse
b) Force
c) Torque
d) Velocity

Q159. In a displacement-time graph, the slope of the tangent drawn at a specific point on the curve indicates the object's

a) Average velocity over entire graph
b) Instantaneous velocity at that point
c) Instantaneous velocity at the starting point
d) Instantaneous velocity at the final point

Q160. Which of the following statements explains by Lenz's law of electromagnetic induction?

a) The production of induced e.m.f.
b) The magnitude of induced e.m.f.
c) The direction of induced e.m.f.
d) The strength of induced e.m.f.

Q161. When a particle executes simple harmonic motion, the quantity $4\pi^2f^2$ is equal to :

a) gl
b) g/l
c) l/g
d) $\sqrt{g/l}$

Q162. At a certain time, 50% of a radioactive sample remains undecayed. After 10 seconds, only 12.5% of the sample remains. The half-life of the substance is:

a) 2.5 s
b) 3.3 s
c) 5 s
d) 10 s

Q163. The student said, "I am taking extra classes so that I can improve my grades before the finals." The most appropriate indirect form of the given sentence is:

a) The student said that he was taking extra classes so that he can improve his grades before the finals.
b) The student said that he had taken extra classes so that he can improve his grades before the finals.
c) The student said that he had been taking extra classes so that he could improve his grades before the finals.
d) The student said that he was taking extra classes so that he could improve his grades before the finals.

Q164. What does the sentence "She broke down in front of the audience" imply?

a) She sang a song.
b) She collapsed emotionally.
c) She left the stage.
d) She performed well.

Q165. "Mistakes could have been avoided if the instructions had been followed carefully by the workers". The most appropriate active voice of the given sentence is:

a) The workers could avoid mistakes if they followed the instructions carefully.
b) The workers could have avoided mistakes if they followed the instructions carefully.
c) The workers could have avoided mistakes if they had followed the instructions carefully.
d) The workers avoid mistakes if they follow the instructions carefully.

Q166. Identify which type of an adverb is used in the following sentence?
"The cat chased the rat everywhere".

a) adverb of time
b) adverb of manner
c) adverb of frequency
d) adverb of place

Q167. He was known for resolving <u>contentious</u> matters. The underlined word in the context means:

a) Disputed
b) Secretive
c) Unethical
d) Private

Q168. The director _____movie was a blockbuster earned heaps of money.

a) who's
b) whom
c) whose
d) which

Q169. Which of the following sentences is correctly punctuated?

a) I love Pakistan!
b) Wow. That's amazing
c) Lets eat. Grandma.
d) He's not coming, is he

Q170. The captain stood at the head of the table during the meeting. What does "head" most likely mean?

a) A body part
b) A leader or position of authority
c) The front part of something
d) A senior person

Q171. What is the correct direct speech form of the sentence: He claimed that he could speak French fluently.

a) He claimed, "I can speak French fluently."
b) He claimed, "I am speaking French fluently."
c) He claimed, "I speak French fluently."
d) He claimed, "I was speaking French fluently."

Q172. X's son is cousin of Y's son. If Y has no brother what is X to Y?

a) Cousin
b) Nephew
c) Uncle
d) Sister

Q173. What number comes next in the following series:
48 45 40 33 24

a) 11
b) 8
c) 13
d) 1

Q174. Quantity A: The price of a television when it is on sale at 25% off.
Quantity B: The price of that television when its one sale at $25 off.

a) Quantity A is greater.
b) Quantity B is greater.
c) Quantities A and B are equal.
d) It is impossible to determine which quantity is greater.

Q175. Five boxes - Red, Green, Blue, Yellow, and Black- are stacked one over another with 1 at the bottom and 5 at the top. These boxes are arranged using the following rules:

1. **Red is above Green**
2. **Yellow is immediately above Black**
3. **Black is not at the bottom**

If Blue Box is at 4 position, which box is at the position 2?

a) Red
b) Green
c) Yellow
d) Black

Q176. What percentage of 90 minutes is 54 seconds?

a) One percent
b) Six Percent
c) Three percent
d) Ten percent

Q177. A belief is regarded as "true and reasonable", when it is:

a) Commonly accepted.
b) Matches your feelings.
c) Based on evidence and logic.
d) Found in old texts.

Q178. During a chemistry practical class, teacher was briefly out of the class, and the lab safety instructions were ignored. During that time, a student mixed unknown chemicals left from a previous experiment. A strong smell fills the room, and one student starts coughing.
To avoid future accidents, from the given options, the most sustainable course of action is to :

a) cancel all chemistry practicals.
b) rusticate the student involved.
c) strengthen lab safety instructions.
d) penalise the teacher for being absent.

Q179. Find the odd one out.

a) 6 : 35
b) 2 : 15
c) 4 : 25
d) 7 : 45

Q180. Find the odd one out.

a) D : G
b) U : W
c) H : J
d) Q : S

ROUGH WORK

University of Health Sciences, Lahore.

MDCAT-2026

For F.Sc. and Non-F.Sc. Students

Total MCQs: 180
Maximum Marks: 180

Time Allowed: 3Hrs

Paper ID - C

Candidate Roll No.

_____
Candidate Name

_____
Candidate Signature

_____
Dy Superintendent Sign

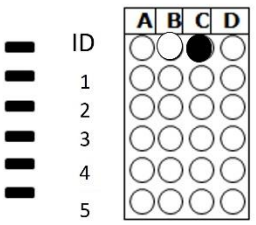
Instructions:

i. Read the instructions on the MCQ Response Form carefully.
ii. Choose the **Single Best Answer** for each question.
iii. Candidates are strictly prohibited from giving any identification mark except Roll. No. & Signature in the specified columns only.
iv. RETURN the first page of your question paper to the invigilator-this is mandatory

COMPULSORY QUESTION FOR IDENTIFICATION

1. **Each paper has a specific ID.**
2. **You have to fill the circle on your response form corresponding to the ID of your paper. This is a compulsory requirement.**

FOR EXAMPLE if the ID of your Question paper is 'C' then fill the circle corresponding to ID as shown in the diagram below:



Q1. The offsprings of better-adapted individuals are expected to make up a larger proportion of the next generation. The most likely explanation is:
a) Mutation
b) Inheritance of Acquired characters
c) Natural selection
d) Genetic drift

Q2. Which body system is directly responsible for initiating shivering?
a) Respiratory system
b) Circulatory system
c) Nervous system
d) Digestive system

Q3. If enterokinase is absent in small intestine, which digestive enzyme remains inactive?
a) Pepsinogen
b) Trypsinogen
c) Amylase
d) Lipase

Q4. Which of the following neurotransmitters works outside the brain?
a) Dopamine
b) Serotonin
c) Acetylcholine
d) Melatonin

Q5. Fate of ammonia released from amino acid during deamination in liver is:
a) Carbon cycle
b) Glycolysis
c) Urea cycle
d) Kreb's cycle

Q6. Villi contains a lymph capillary called:
a) Microvilli
b) Brush border
c) Lacteal
d) Lymph node

Q7. Translation is:
a) nucleus →mRNA → ribosome
b) nucleus →tRNA → ribosome
c) nucleus →mRNA → ER
d) nucleus →tRNA → ER

Q8. Which nitrogenous waste requires the least amount of water per gram of its excretion?
a) Ammonia
b) Urea
c) Uric acid
d) Creatinine

Q9. Kidney stones are mainly formed due to:
a) Lower filtration of blood at Bowman's Capsule
b) Protein breakdown in stomach
c) Excessive glucose levels in blood
d) High level of circulating calcium in blood

Q10. _____ is a repeated protein unit that makes the viral protein coat.
a) Nucleic acid
b) Capsomere
c) Core
d) Envelop

Q11. A hemophilic father can pass the genes of hemophilia to his:
a) Sons only
b) Daughters only
c) Both sons and daughters equally
d) Both sons and daughters in 2:1 ratio respectively

Q12. This enzyme is used to synthesize cDNA from RNA:
a) Restriction Endonuclease
b) Reverse Transcriptase
c) Ligase
d) Helicase

Q13. Which of the following is ABSENT in Prokaryotic cells:
a) Mitochondria
b) Circular DNA
c) Ribosomes
d) Cell membrane

Q14. In unstimulated stage, a neuron has a membrane potential of:
a) -50mV
b) +50mV
c) -70mV
d) +70mV

Q15. Which of the following diseases is associated with reduced synovial fluid in a joint?
a) Gout
b) Arthritis
c) Rickets
d) Sciatica

Q16. Points on the axon where myelin sheath is not present is called:
a) Nodes of Ranvier
b) Schwann cells
c) Neuroglia
d) Dendron

Q17. _____can denature enzymes resulting in slow catalysis.
a) Low temperature
b) High temperature
c) High water content
d) Low water content

Q18. Parietal cells of gastric glands are responsible for the secretion of:
a) HCl
b) Pepsinogen
c) Mucus
d) Gastrin

Q19. Pepsinogen is converted into pepsin due to:
a) Low pH
b) High pH
c) Optimum temperature
d) Freezing temperature

Q20. During active transport across the cell membrane, a cell requires a continuous supply of ATP to move substances against the concentration gradient. The organelle responsible for producing this energy is:
a) Nucleus.
b) Mitochondria.
c) Golgi apparatus.
d) Endoplasmic reticulum.

Q21. Viruses are classified on the basis of:
a) Color and size only
b) Structure and nucleic acid
c) Habitat only
d) Temperature tolerance

Q22. If two genes are said to be linked, what is meant by the term 'linked'?
a) Two genes are both at the same loci on a chromosome
b) Two genes both occupy the same chromosome
c) They are both alleles of the same gene
d) The phenotypes of the genes are both influenced by the gender of their owner

Q23. Which statement correctly compares ribosomes in prokaryotic and eukaryotic cells?
a) Both have 80S ribosomes
b) Prokaryotes have 80S, eukaryotes have 70S
c) Prokaryotes have 70S, eukaryotes have 80S
d) Both lack ribosomes

Q24. Which of the following best describes the correct function of peritubular capillaries?
a) Oxygen uptake from the kidney cells
b) Supply of carbon dioxide to the kidney cells
c) Reabsorption of urea
d) Reabsorption of useful constituents

Q25. Which of the following is responsible for reducing variations in progeny?
a) Meiosis
b) Epistasis
c) Crossing over
d) Gene Linkage

Q26. Nerve impulses are transmitted in reflex action in the following direction:
a) From CNS to Effectors and from CNS to the Receptors.
b) From Effectors to CNS and from CNS to the Receptors.
c) From Receptors to the CNS and from CNS to the Effectors.
d) From CNS to Receptors and from Effectors to CNS.

Q27. Which blood vessel carries filtered blood away from glomerulus?
a) Renal artery
b) Renal vein
c) Afferent arteriole
d) Efferent arteriole

Q28. Structurally ganglia are clusters of:
a) Complete neurons
b) Cell bodies of neurons
c) Axonal fibers
d) Both axon & dendrites

Q29. Upon arrival of nerve impulse, which of the following allows calcium ions to enter the cytosol?
a) Sarcolemma
b) Sarcomere
c) Sarcoplasmic reticulum
d) Myofilaments

Q30. Which of the following hormones is produced by Corpus Luteum?
a) Leutinizing
b) Progesterone
c) Testosterone
d) Secretin

Q31. In a kidney tubule, which substances are filtered out of the blood in the glomerulus?
a) Glucose, protein, salts and water
b) Glucose, protein, urea and water
c) Glucose, salts, urea and water
d) Protein, salts, urea and water

Q32. During an immune response, what type of cells are PRIMARILY involved in the production of antibodies?
a) T lymphocytes
b) B lymphocytes
c) Macrophages
d) Platelets

Q33. A patient develops a swollen area where lymph is actively being screened for pathogens and immune cells are rapidly multiplying. The lymphatic structure that is involved in this process is:
a) spleen.
b) lymph nodes.
c) lymphatic ducts.
d) lymphatic capillaries.

Q34. Which chamber of the heart has the thickest muscular tissues?
a) Right atrium
b) Right ventricle
c) Left atrium
d) Left ventricle

Q35. A person is diagnosed with colon disease. Absorption of which of the following may be affected?
a) Glucose
b) Water
c) Fats
d) Amino acids

Q36. Testosterone in males is produced by:
a) Interstitial cells of Leydig
b) Sertoli Cells
c) Spermatogonia
d) Primary spermatocytes

Q37. Which of the following is a function of lymphatic system?
a) Absorption of glucose from intestine
b) Blood clotting after an injury
c) Filtering out and destroying germs and toxins
d) Temperature regulation

Q38. In human reproduction, a sudden rise in LH causes:
a) Menstrual flow
b) Ovulation
c) Fertilization to form zygote
d) Implantation of embryo

Q39. Main products of Krebs cycle reactions are:
a) Glucose and Oxygen
b) NADH and $FADH_2$
c) ATP and glyceraldehyde 3-phosphate (G3P)
d) Pyruvate and Acetyl Co-A

Q40. During heart surgery, a surgeon fixes a valve that stops blood from flowing backward into the right ventricle. Based on the given situation, the valve that was repaired is:
a) Mitral valve
b) Aortic semilunar valve
c) Tricuspid valve
d) Pulmonary semilunar valve

Q41. Bile salts are helpful in the digestion of:
a) Amino acids
b) Fatty acids
c) Nucleic acids
d) Carbohydrates

Q42. Exocrine tissue of the pancreas produces an enzyme for carbohydrate digestion known as:
a) Lipase
b) Trypsin
c) Enterokinase
d) Amylase

Q43. Endocrine cells of duodenum are stimulated by _____to release hormone secretin.
a) Acetylcholine
b) Acidic chyme
c) Bile salts
d) Sodium bicarbonate in bile juice

Q44. Chordae tendineae are:
a) Blood vessels
b) Fibrous cords
c) Cardiac muscles
d) Epithelial tissue

Q45. The cross between two heterozygous round-seeded plants having Rr X Rr would result in _____ during segregation of the alleles in next generation.
a) 100 % round seeds
b) 50% round seeds and 50% wrinkled seeds
c) 75% round seeds and 25% wrinkled seeds
d) 100% wrinkled seeds

Q46. Which of the following provides passage of transportation of protein from nucleus to other organelles?
a) Endoplasmic Reticulum
b) Mitochondria
c) Golgi complex
d) Nuclear membrane

Q47. The ability of the immune system to mount a larger and more rapid response to an antigen that has already been encountered before is termed as:
a) Primary Immune response
b) Immunological Memory
c) Short-term Memory
d) Long-term Memory

Q48. Let X, Y and Z be three amino acids which are encoded by UCA=X, ACU=Y and GUC=Z. What will be the sequence of nucleotide in DNA coding/sense strand that comprises information for following polypeptide:

Polypeptide= Y-X-Y-Y-X-Z-Z-X-Z-Y
a) 5′-ACUUCAACUACUUCAGUCGUCUCAGUCACU-3′
b) 5′-ACTTCAACTACTTCAGTCGTCTCAGTCACT-3′
c) 3′-TGAAGTTGATGAAGTCAGCAGAGTCAGTGA-5′
d) 3′-UGAAGUUGAUGAAGUCAGCAGAGUCAGUGA-5′

Q49. All of the following ideas were proposed by Lamarck, EXCEPT:
a) Use and disuse of organs
b) Acquired characters are inherited by the offspring
c) Organs not used will become vestigial
d) Over production leads to evolution

Q50. In an experiment, increasing substrate concentration increases the rate of reaction until it reaches a steady state. At this stage, which of the following changes would most effectively increase the rate of reaction?
a) Increasing substrate concentration
b) Decreasing temperature
c) Increasing enzyme concentration
d) Adding a non-competitive inhibitor

Q51. Which of the following bonding or interaction is responsible for quaternary protein folding?
a) 1,4 Glycosidic Bond
b) Hydrophobic interaction
c) Ester Bond
d) 1, 6 Glycosidic Bond

Q52. Which part of the brain controls heart rate and breathing?
a) Cerebellum
b) Hypothalamus
c) Medulla oblongata
d) Cerebrum

Q53. When the muscle is at rest, _____is disposed in such a way that it covers the sites on the _____chain where the head of ____becomes attached.

a) tropomyosin : actin : myosin
b) myosin : actin : tropomyosin
c) actin : tropomyosin : myosin
d) actin : myosin : tropomyosin

Q54. If green is a dominant and yellow is a recessive trait then what would be the ratio of homozygotes in F2 generation?

a) 0%
b) 25%
c) 50%
d) 75%

Q55. In human respiratory system, bronchioles have:

a) Cartilage rings
b) Cartilage plates
c) Circular smooth muscles
d) Longitudinal smooth muscles

Q56. Which of the following cartilage is most commonly found in the ribs, nose, and trachea?

a) Hyaline Cartilage
b) Elastic Cartilage
c) Fibrocartilage
d) Osteoblast

Q57. If the corpus luteum degenerates prematurely, the most likely outcome is:

a) Enhanced ovulation and fertilization
b) Increased LH secretin and extra egg release
c) Increased estrogen secretion
d) Implantation failure and end of pregnancy

Q58. Which one of the following veins connects the small intestines to the liver?

a) Renal vein
b) Hepatic portal vein
c) Iliac vein
d) Hepatic vein

Q59. The segregation of alleles occurs during the process of _____ in eukaryotic organisms.

a) Mitosis
b) Binary fission
c) Meiosis
d) DNA replication before cell division

Q60. Over time, many dihybrid cross experiments of autosomally-linked genes in sweet pea plants (*Lathyrus odoratus*) have been carried out by reputed scientists. Which of the following best explains the presence of some non-parental phenotypes in the offspring of such crosses?

a) Crossing over has occurred, leading to the production of recombinant plants
b) The scientists made errors such as not cleaning the small paint brush that they used to transfer pollen grains between plants
c) Independent assortment had occurred, so unusual phenotypes are to be expected
d) Only plants of one gender exhibit parental phenotypes due to linkage

Q61. HIV stands for:

a) Human Immunodeficiency Virus
b) Human Internal Virus
c) High Impact Virus
d) Human Immunogenic Vaccine

Q62. The part of digestive system which is NOT directly involved in digestion is:

a) Mouth
b) Oesophagus
c) Stomach
d) Small intestine

Q63. Pacinian corpuscles are present in the:

a) Retina
b) Lungs
c) Liver
d) Skin

Q64. The receptors for hearing and equilibrium are the example of:

a) Mechanoreceptors
b) Thermoreceptors
c) Nociceptors
d) Photoreceptors

Q65. Receptors that detect smell of food are:

a) Chemoreceptors
b) Mechanoreceptors
c) Nociceptors
d) Photoreceptors

Q66. The most abundant voluntary muscles in human body are:
a) Cardiac
b) Skeletal
c) Smooth
d) Smooth & Cardiac

Q67. mRNA forms _____ % of the total RNA in the cell
a) 3-4%
b) 4-5%
c) 5-6%
d) 6-7%

Q68. The inner layer of stomach whose glands secrete digestive enzymes, HCl and mucus is known as:
a) submucosa
b) mucosa
c) muscularis
d) serosa

Q69. According to Lamarck, the characteristics which are developed during the lifetime of an individual due to use and disuse of organs are called as:
a) prominent characters
b) biological characters
c) acquired characters
d) physical characters

Q70. The collagen fibers of bone are hardened by deposition of:
a) Calcium and oxalates
b) Calcium and phosphates
c) Magnesium and nitrates
d) Iron and glycogen

Q71. The type of muscles responsible for the movement of food through lumen of intestine are:
a) Smooth muscles
b) Cardiac muscles
c) Skeletal muscles
d) Skeletal & cardiac muscles

Q72. According to Watson and Crick's model, each complete turn of the DNA double helix, consists of:
a) 6 base pairs
b) 8 base pairs
c) 10 base pairs
d) 12 base pairs

Q73. The major purpose of mastication is to:
a) Make morsel soft
b) Make food moist
c) Increase surface area
d) Improve the taste

Q74. Which of the following hormones stimulates the development of primary follicles in the ovary?
a) Estrogen
b) Progesterone
c) Luteinizing hormone
d) Follicle stimulating hormone

Q75. What unique characteristic is typically found in sensory neurons of spinal nerves?
a) A single axon
b) A single dendron
c) Multiple dendrites
d) Multiple nodes of Ranvier

Q76. In which part of the neuron, Nissl's granules are present?
a) Axoplasm
b) Myelin sheath
c) Dendrite
d) Soma (Cell body)

Q77. Functions of cerebellum include:
a) To act as relay station
b) Conversion of short-term memories into long term memories
c) To guide smooth and accurate motions and maintain body position
d) To act as link between nervous and chemical coordination

Q78. What type of blood cells are primarily and specifically responsible for specific immunity?
a) Erythrocytes
b) Thrombocytes
c) Neutrophils
d) Lymphocytes

Q79. Which type of enzyme inhibition can be overcome by increasing substrate concentration?
a) Non-competitive inhibition
b) Competitive inhibition
c) Irreversible inhibition
d) Allosteric inhibition

Q80. What would be the number of chromosomes in an animal cell whose sperm has 8 chromosomes?
a) 4 chromosomes
b) 16 chromosomes
c) 24 chromosomes
d) 32 chromosomes

Q81. Which of the following best describes the Golgi apparatus?
a) Site of energy production
b) Packing and modification center of the cell
c) Storage of genetic material
d) Site of protein synthesis

Q82. Select the true statement for a transition element.
a) All are hard and weak metals with low melting point
b) All are hard and strong metals with high melting point
c) All are soft and strong metals with high melting point
d) All are soft and weak metals with low melting point

Q83. Which of the following tests is used for distinguishing methyl ketones from other ketones?
a) Silver mirror test
b) Silver nitrate test
c) Iodoform test
d) Lucas test

Q84. 9.03 x 10^{23} molecules of an ideal gas at STP will have volume of:
a) 11.2 dm^3
b) 22.4 dm^3
c) 33.6 dm^3
d) 44.8dm^3

Q85. Rate = $k[A]^0[B]$
If we double the concentration of A and B, the rate of reaction becomes:
a) remains the same
b) gets doubled
c) gets tripled
d) gets halved

Q86. The oxidation number of both nitrogen atoms in NH_4NO_3 is/are:
a) +4 and -4
b) -3 and +5
c) -4 and +6
d) -4 and +5

Q87. The maximum number of electrons a subshell with azimuthal quantum number (ℓ) can accommodate is calculated by:
a) ℓ +1
b) 2ℓ +1
c) 2(2ℓ +1)
d) 2ℓ +2

Q88. In galvanic cell oxidation occurs on:
a) Cathode
b) Anode
c) Salt bridge
d) Electrolyte

Q89. The oxidation number of Cl in $HClO_3$ is:
a) 1-
b) 5-
c) 1+
d) 5+

Q90. What will be the mass of 0.5 moles of $CaCO_3$?
a) 50 g
b) 55 g
c) 45 g
d) 60 g

Q91. Sara dissolved 5 g each of crushed and large sized crystal of copper sulphate in two separate test tubes containing 10 mL water. After 5 minutes of stirring, she observed that the test tube containing crushed copper sulphate had dissolved in water while the test tube containing the large sized crystal still showed undissolved form. The reason for FASTER dissolution is that the crushed copper sulphate:
a) are more in density.
b) have greater surface area.
c) are low in density
d) have smaller surface area.

Q92. Which type of isomerism is exhibited by 2-Butene?

a) Tautomerism
b) Geometric isomerism
c) Functional group isomerism
d) Metamerism

Q93. Nylon-6,6 is made from two monomers each of which contains:

a) 6 carbon atoms.
b) 6 amino groups.
c) 6 nitrogen atoms.
d) 6 carboxylic acid groups.

Q94. A student observes that solid substance "X" does not conduct electricity but conducts when melted, while substance "Y" does not conduct electricity in any state. What is the most appropriate classification of "X" and "Y"?

a) X is a molecular crystal, Y is an ionic crystal
b) X is an ionic crystal; Y is a molecular crystal
c) Both X and Y are ionic crystals
d) Both X and Y are molecular crystals

Q95. The solubility of AgBr is 7.1 X 10^{-7} M. This dissolved AgBr produces equal moles of Ag^{+} and Br^{-}, then the solubility product of this equilibrium reaction would be:

a) 5.041 X 10^{-13}
b) 4.941 X 10^{+13}
c) 7.1 X 10^{-7}
d) 14.082 X 10^{-14}

Q96. What is the solvent in an aqueous solution of methanol?

a) HCl
b) Water
c) Methanol
d) NaOH

Q97. Which one of the following is the best example of an amorphous solid?

a) Diamond
b) Glass
c) Sodium chloride
d) Potassium Bromide

Q98. The starting material for the preparation of PVC is:

a) Ethylene
b) Acetylene
c) Vinyl alcohol
d) Methylene

Q99. Acetic acid is converted into acetyl chloride using which reagent?

a) thionyl chloride
b) chlorine
c) sodium chloride
d) phosphorous trioxide

Q100. Which of the following product will be formed when 2-oxo-pentanal is treated with $NaBH_4$?

a) $CH_3CH(OH)CH_2CH_2OH$
b) $CH_2CH_2CH_2CH_2CH_2OH$
c) $CH_3CH(OH)CHCH(OH)CH_3$
d) $CH_3CH_2CH_2CH(OH)CH_2(OH)$

Q101. At a constant temperature and pressure, a 2.0 L container holds 0.5 moles of Nitrogen gas (N2). If an additional 1.0 mole of Nitrogen is pumped into the container without changing the temperature or pressure, what will be the new volume of the container?

a) 3.0 L
b) 4.0 L
c) 6.0 L
d) 8.0 L

Q102. The value of ideal gas constant in dm^3.torr. K^{-1}.mol^{-1} is:

a) 0.0821
b) 1.98722
c) 8.3143
d) 62.364

Q103. How many unpaired electrons are there in Fe^{++}(Z=26)?

a) 6
b) 4
c) 3
d) 2

Q104. An element X having atomic number "Z=27" belongs to which block of periodic table?

a) s-block
b) p-block
c) d-block
d) f-block

Q105. A thermodynamic system goes through a cyclic process which absorbs 1200 J heat and ejects 700 J heat. Which statement correctly describes this?

a) The ΔE of a system increases by 500 J
b) The ΔE of a system decreases by 500 J
c) The system performs network of 500 J
d) The surroundings perform network of 500 J

Q106. Which of the following elements from Period 3 of Periodic table, has the largest ionic radius when forms a stable ion?

a) Sodium
b) Silicon
c) Phosphorous
d) Chlorine

Q107. Which type of interaction is primarily responsible for holding molecules together in noble gases?

a) Covalent bond
b) Electrostatic forces of attraction
c) Hydrogen bonding
d) London dispersion forces

Q108. The reaction between ethyl chloride and dry silver oxide on heating yields:

a) dimethyl ether.
b) diethyl ether
c) ethanoic acid.
d) ethanal.

Q109. Phenol gives which colored precipitate with aqueous Br_2?

a) red ppt
b) white ppt
c) blue ppt
d) orange ppt

Q110. Pfund Series of spectral lines are produced forming the spectrum of hydrogen atom when electron jumps down to_____ orbit.

a) 2^{nd}
b) 3^{rd}
c) 4^{th}
d) 5^{th}

Q111. The electronic configuration of H^- is:

a) $1s^0$
b) $1s^1$
c) $1s^2$
d) $1s^2,2s^1$

Q112. Carboxylic acid can be formed by reaction of Grignard reagent with:

a) Carbonate
b) Carbon dioxide
c) Aldehyde
d) Carbon mono oxide

Q113. An electron having following set of values lies in:
n = 4, l= 0, m = 0 & s = -1/2

a) 4s
b) 4p
c) 5s
d) 5p

Q114. At which condition real gases show ideal behavior?

a) 100°C and 10 atm
b) 1000°C and 20 atm
c) 1000°C and 1 atm
d) 10°C and 100 atm

Q115. Which of the following statements describes a crystalline solid?

a) Particles are randomly arranged with no repeating pattern.
b) Particles are arranged in a long-range, repeating 3D pattern.
c) It softens gradually over a range of temperatures.
d) It has no definite shape or melting point.

Q116. The actual amount of CaO obtained on thermal decomposition of 25g of $CaCO_3$ is 12g. What is the approximate percentage yield? (Molar mass of $CaCO_3$ = 100, Molar mass of CaO = 56)

$CaCO_3 \rightarrow CaO + CO_2$

a) 50 %
b) 60 %
c) 86 %
d) 90 %

Q117. If actual yield and theoretical yield are 20g and 25g respectively, what will be the % yield?

a) 60%
b) 70%
c) 80%
d) 85%

Q118. The new volume when pressure is halved while temperature and number of moles are doubled will be:

a) Doubled
b) Quadrupled
c) Sextupled
d) Octupled

Q119. Rate of reaction in E_1 depends on the:

a) R-X only
b) Base only
c) Nucleophile only
d) Both base and R-X

Q120. For 3rd order reaction rate=k[A][B] ^{2} when concentration of both reactant is doubled the new rate becomes:

a) halved
b) doubled
c) quadrupled
d) octupled

Q121. Grignard's reagent is treated with methanal to produce:

a) Phenol
b) Primary alcohol
c) Propanoic acid
d) Ketone

Q122. Probability of finding an electron is maximum in:

a) Orbit
b) Orbital
c) Degenerate orbit
d) Nodes

Q123. All alkynes give ketones on hydration EXCEPT:

a) Acetylene
b) Propyne
c) Butyne
d) Pentyne

Q124. Benzene is stable because of:

a) containing single bond
b) presence of delocalization of π electron
c) containing sp^3 hybridized carbon
d) isolated double bonds

Q125. The value of lattice energy across the period in the periodic table:

a) Increases
b) Decreases
c) Remains same
d) Changes randomly

Q126. Primary alcohol can be converted into carboxylic acid by:

a) CH_3COOH/P_2O_5
b) NH_3
c) CH_3OH
d) $H_2SO_4/K_2Cr_2O_7$

Q127. A gas expands adiabatically and does 10 J of work then the change in internal energy is:

a) 10J
b) -10J
c) 20J
d) 0J

Q128. The equation of continuity Av = constant. The constant shows:

a) volume of fluid
b) mass the of fluid
c) density the of fluid
d) volume flow rate

Q129. The quantity that remains constant in an ideal transformer is:

a) Voltage
b) Current
c) Power
d) Heat

Q130. First law of thermodynamics states that:

a) $\Delta Q = \Delta U + \Delta W$
b) $\Delta Q = \Delta U - \Delta W$
c) $\Delta U = \Delta Q + \Delta W$
d) $\Delta W = \Delta U + \Delta Q$

Q131. A bullet fired from gun pierces a target due to:

a) Mechanical energy
b) Heat energy
c) Kinetic energy
d) Potential energy

Q132. If 10 waves pass through a denser medium in 1 second with a speed of 10 m/sec, then the wavelength of the wave will be:

a) 0.1 m
b) 1 m
c) 10 m
d) 100 m

Q133. The place where compressions of a sound wave combine with the rarefactions of another sound wave and cancel each other is called a:

a) dead beat.
b) null point.
c) zero point.
d) node point.

Q134. What is the reason for the steady current flow in a circuit?

a) Presence of very large resistance
b) Presence of a constant voltage source in circuit
c) presence of switch in circuit
d) Presence of ammeter in circuit

Q135. Cobalt-60, a radioisotope, is used in hospitals:

a) for X-rays image
b) to damage the cancer cells
c) to damage the healthy cells
d) for surgical equipment sterilization

Q136. What is meant by random nature of radioactive decay of a substance?

a) We cannot control the decay rate.
b) Probability of decay of every unstable nucleus is constant.
c) We can locate every next decaying nuclei.
d) We can speed up the decay process.

Q137. For a projectile, the angle of projection for maximum horizontal range is:

a) 22.5^o
b) 30^o
c) 45^o
d) 60^o

Q138. The speed of sound is faster on a rainy day because:

a) mass of moist air is more than the dry air.
b) density of moist air is less than the dry air.
c) temperature of the medium remains the same.
d) medium of propagation of sound remains the same.

Q139. Two opposite point charges, each of magnitude Q are separated by a distance s. The electric potential at a point mid-way between them is:

a) q
b) -kq/s
c) infinity
d) zero

Q140. A fan rotates uniformly at the rate of 2 rev/s. Its angular velocity in SI units will be:

a) 2π rev/s
b) 4π rev/min
c) $\pi/2$ rad/s
d) 4π rad/s

Q141. The process of conversion of alternating current into direct current is known as:

a) modulation.
b) polarisation.
c) rectification.
d) quantisation.

Q142. If the speed of a standing wave in a string is 2 m/s and its wavelength is 0.25 m, then the frequency of the standing wave will be:

a) 0.125 Hz.
b) 2.0 Hz.
c) 4.0 Hz.
d) 8.0 Hz.

Q143. The distance traveled by a wave in unit time is termed as:

a) Wavelength
b) Amplitude
c) Displacement
d) Wave speed

Q144. The frequency of a wave having wavelength 0.5m while passing a point with speed of 4 m/s is:

a) 2 Hz
b) 4 Hz
c) 6 Hz
d) 8 Hz

Q145. If particles of a slinky spring are moving perpendicularly to the propagation of the waves, then waves in the slinky spring will be:

a) matter waves
b) electromagnetic waves
c) transverse waves
d) longitudinal waves

Q146. The quantity measured in J/mol.K is

a) Specific heat
b) Thermal conductivity
c) Molar specific heat
d) Latent heat

Q147. When a car is moving with constant acceleration, the shape of velocity time graph is:

a) Parabola
b) Incline curve
c) Straight line
d) Decline curve

Q148. Time rate of change of momentum of a body equals the:

a) Impulse
b) Force
c) Torque
d) Velocity

Q149. In a displacement-time graph, the slope of the tangent drawn at a specific point on the curve indicates the object's

a) Average velocity over entire graph
b) Instantaneous velocity at that point
c) Instantaneous velocity at the starting point
d) Instantaneous velocity at the final point

Q150. Which of the following statements explains by Lenz's law of electromagnetic induction?

a) The production of induced e.m.f.
b) The magnitude of induced e.m.f.
c) The direction of induced e.m.f.
d) The strength of induced e.m.f.

Q151. When a particle executes simple harmonic motion, the quantity $4\pi^2f^2$ is equal to :

a) gl
b) g/l
c) l/g
d) √g/l

Q152. At a certain time, 50% of a radioactive sample remains undecayed. After 10 seconds, only 12.5% of the sample remains. The half-life of the substance is:

a) 2.5 s
b) 3.3 s
c) 5 s
d) 10 s

Q153. A conducting coil with its plane perpendicular to a uniform magnetic field is moved at constant speed in the field region, the induced emf in the coil is:

a) zero
b) constant
c) increasing
d) decreasing

Q154. The work done between two points per unit positive charge against the electric field due to a source charge is called as:

a) Electric Power
b) Electric Potential difference
c) Electric flux
d) Electric field Intensity

Q155. In the atomic spectrum of neon each line represents:

a) A different atom
b) A different element
c) A photon with specific energy
d) An atom splitting

Q156. In a spray bottle, pressing the nozzle causes fast air flow, which:

a) creates high pressure to lift the liquid
b) creates low pressure to lift the liquid
c) increases pressure at the tube opening
d) reduces liquids surface tension

Q157. A force of 10 N acts on a body of mass 2 kg. The acceleration produced is:

a) 5 m/s^2
b) 10 m/s^2
c) 20 m/s^2
d) 0.2 m/s^2

Q158. Two identical masses are placed at heights h and 2h, the ratio of gravitational potential energies will be:

a) 1:2
b) 2:1
c) equal
d) dependent on mass

Q159. The scalar product of two parallel vectors is equal to:

a) Zero
b) Square of the magnitude
c) Product of their magnitude
d) Sum of their magnitude

Q160. The volume flow rate is equal to:

a) mv
b) Av
c) Aρ
d) vρ

Q161. In which process the work is done on the cost of internal energy?

a) Isochoric process
b) Isobaric process
c) Isothermal process
d) Adiabatic process

Q162. In an isothermal process internal energy of the system:

a) Decreases
b) Increases
c) Remain the same
d) Becomes zero

Q163. Identify which type of an adverb is used in the following sentence?
"The cat chased the rat everywhere".

a) adverb of time
b) adverb of manner
c) adverb of frequency
d) adverb of place

Q164. He was known for resolving <u>contentious</u> matters. The underlined word in the context means:

a) Disputed
b) Secretive
c) Unethical
d) Private

Q165. The director _____movie was a blockbuster earned heaps of money.

a) who's
b) whom
c) whose
d) which

Q166. Which of the following sentences is correctly punctuated?

a) I love Pakistan!
b) Wow. That's amazing
c) Lets eat. Grandma.
d) He's not coming, is he

Q167. The captain stood at the head of the table during the meeting. What does "head" most likely mean?

a) A body part
b) A leader or position of authority
c) The front part of something
d) A senior person

Q168. What is the correct direct speech form of the sentence: He claimed that he could speak French fluently.

a) He claimed, "I can speak French fluently."
b) He claimed, "I am speaking French fluently."
c) He claimed, "I speak French fluently."
d) He claimed, "I was speaking French fluently."

Q169. The student said, "I am taking extra classes so that I can improve my grades before the finals." The most appropriate indirect form of the given sentence is:

a) The student said that he was taking extra classes so that he can improve his grades before the finals.
b) The student said that he had taken extra classes so that he can improve his grades before the finals.
c) The student said that he had been taking extra classes so that he could improve his grades before the finals.
d) The student said that he was taking extra classes so that he could improve his grades before the finals.

Q170. What does the sentence "She broke down in front of the audience" imply?

a) She sang a song.
b) She collapsed emotionally.
c) She left the stage.
d) She performed well.

Q171. "Mistakes could have been avoided if the instructions had been followed carefully by the workers". The most appropriate active voice of the given sentence is:

a) The workers could avoid mistakes if they followed the instructions carefully.
b) The workers could have avoided mistakes if they followed the instructions carefully.
c) The workers could have avoided mistakes if they had followed the instructions carefully.
d) The workers avoid mistakes if they follow the instructions carefully.

Q172. Five boxes - Red, Green, Blue, Yellow, and Black- are stacked one over another with 1 at the bottom and 5 at the top. These boxes are arranged using the following rules:

1. **Red is above Green**
2. **Yellow is immediately above Black**
3. **Black is not at the bottom**

If Blue Box is at 4 position, which box is at the position 2?

a) Red
b) Green
c) Yellow
d) Black

Q173. What percentage of 90 minutes is 54 seconds?

a) One percent
b) Six Percent
c) Three percent
d) Ten percent

Q174. A belief is regarded as "true and reasonable", when it is:

a) Commonly accepted.
b) Matches your feelings.
c) Based on evidence and logic.
d) Found in old texts.

Q175. During a chemistry practical class, teacher was briefly out of the class, and the lab safety instructions were ignored. During that time, a student mixed unknown chemicals left from a previous experiment. A strong smell fills the room, and one student starts coughing.
To avoid future accidents, from the given options, the most sustainable course of action is to :

a) cancel all chemistry practicals.
b) rusticate the student involved.
c) strengthen lab safety instructions.
d) penalise the teacher for being absent.

Q176. Find the odd one out.

a) 6 : 35
b) 2 : 15
c) 4 : 25
d) 7 : 45

Q177. Find the odd one out.

a) D : G
b) U : W
c) H : J
d) Q : S

Q178. X's son is cousin of Y's son. If Y has no brother what is X to Y?

a) Cousin
b) Nephew
c) Uncle
d) Sister

Q179. What number comes next in the following series:
48 45 40 33 24

a) 11
b) 8
c) 13
d) 1

Q180. Quantity A: The price of a television when it is on sale at 25% off.
Quantity B: The price of that television when its one sale at $25 off.

a) Quantity A is greater.
b) Quantity B is greater.
c) Quantities A and B are equal.
d) It is impossible to determine which quantity is greater.

ROUGH WORK

University of Health Sciences, Lahore.

MDCAT-2026

For F.Sc. and Non-F.Sc. Students

Total MCQs: 180
Maximum Marks: 180

Time Allowed: 3Hrs

Paper ID - D

Candidate Roll No.

_____
Candidate Name

_____
Candidate Signature

_____
Dy Superintendent Sign

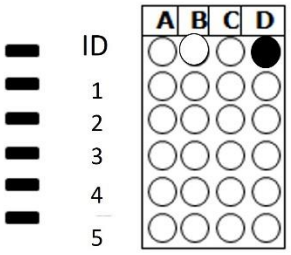
Instructions:

i. Read the instructions on the MCQ Response Form carefully.
ii. Choose the **Single Best Answer** for each question.
iii. Candidates are strictly prohibited from giving any identification mark except Roll. No. & Signature in the specified columns only.
iv. RETURN the first page of your question paper to the invigilator-this is mandatory

COMPULSORY QUESTION FOR IDENTIFICATION

1. **Each paper has a specific ID.**
2. **You have to fill the circle on your response form corresponding to the ID of your paper. This is a compulsory requirement.**

FOR EXAMPLE if the ID of your Question paper is 'D' then fill the circle corresponding to ID as shown in the diagram below:



Q1. A hemophilic father can pass the genes of hemophilia to his:
a) Sons only
b) Daughters only
c) Both sons and daughters equally
d) Both sons and daughters in 2:1 ratio respectively

Q2. This enzyme is used to synthesize cDNA from RNA:
a) Restriction Endonuclease
b) Reverse Transcriptase
c) Ligase
d) Helicase

Q3. Which of the following is ABSENT in Prokaryotic cells:
a) Mitochondria
b) Circular DNA
c) Ribosomes
d) Cell membrane

Q4. In unstimulated stage, a neuron has a membrane potential of:
a) -50mV
b) +50mV
c) -70mV
d) +70mV

Q5. Which of the following diseases is associated with reduced synovial fluid in a joint?
a) Gout
b) Arthritis
c) Rickets
d) Sciatica

Q6. Points on the axon where myelin sheath is not present is called:
a) Nodes of Ranvier
b) Schwann cells
c) Neuroglia
d) Dendron

Q7. _____can denature enzymes resulting in slow catalysis.
a) Low temperature
b) High temperature
c) High water content
d) Low water content

Q8. Parietal cells of gastric glands are responsible for the secretion of:
a) HCl
b) Pepsinogen
c) Mucus
d) Gastrin

Q9. Pepsinogen is converted into pepsin due to:
a) Low pH
b) High pH
c) Optimum temperature
d) Freezing temperature

Q10. During active transport across the cell membrane, a cell requires a continuous supply of ATP to move substances against the concentration gradient. The organelle responsible for producing this energy is:
a) Nucleus.
b) Mitochondria.
c) Golgi apparatus.
d) Endoplasmic reticulum.

Q11. Viruses are classified on the basis of:
a) Color and size only
b) Structure and nucleic acid
c) Habitat only
d) Temperature tolerance

Q12. If two genes are said to be linked, what is meant by the term 'linked'?
a) Two genes are both at the same loci on a chromosome
b) Two genes both occupy the same chromosome
c) They are both alleles of the same gene
d) The phenotypes of the genes are both influenced by the gender of their owner

Q13. Which statement correctly compares ribosomes in prokaryotic and eukaryotic cells?
a) Both have 80S ribosomes
b) Prokaryotes have 80S, eukaryotes have 70S
c) Prokaryotes have 70S, eukaryotes have 80S
d) Both lack ribosomes

Q14. Which of the following best describes the correct function of peritubular capillaries?
a) Oxygen uptake from the kidney cells
b) Supply of carbon dioxide to the kidney cells
c) Reabsorption of urea
d) Reabsorption of useful constituents

Q15. Which of the following is responsible for reducing variations in progeny?
a) Meiosis
b) Epistasis
c) Crossing over
d) Gene Linkage

Q16. Nerve impulses are transmitted in reflex action in the following direction:
a) From CNS to Effectors and from CNS to the Receptors.
b) From Effectors to CNS and from CNS to the Receptors.
c) From Receptors to the CNS and from CNS to the Effectors.
d) From CNS to Receptors and from Effectors to CNS.

Q17. Which blood vessel carries filtered blood away from glomerulus?
a) Renal artery
b) Renal vein
c) Afferent arteriole
d) Efferent arteriole

Q18. Structurally ganglia are clusters of:
a) Complete neurons
b) Cell bodies of neurons
c) Axonal fibers
d) Both axon & dendrites

Q19. Upon arrival of nerve impulse, which of the following allows calcium ions to enter the cytosol?
a) Sarcolemma
b) Sarcomere
c) Sarcoplasmic reticulum
d) Myofilaments

Q20. Which of the following hormones is produced by Corpus Luteum?
a) Leutinizing
b) Progesterone
c) Testosterone
d) Secretin

Q21. In a kidney tubule, which substances are filtered out of the blood in the glomerulus?
a) Glucose, protein, salts and water
b) Glucose, protein, urea and water
c) Glucose, salts, urea and water
d) Protein, salts, urea and water

Q22. During an immune response, what type of cells are PRIMARILY involved in the production of antibodies?
a) T lymphocytes
b) B lymphocytes
c) Macrophages
d) Platelets

Q23. A patient develops a swollen area where lymph is actively being screened for pathogens and immune cells are rapidly multiplying. The lymphatic structure that is involved in this process is:
a) spleen.
b) lymph nodes.
c) lymphatic ducts.
d) lymphatic capillaries.

Q24. Which chamber of the heart has the thickest muscular tissues?
a) Right atrium
b) Right ventricle
c) Left atrium
d) Left ventricle

Q25. A person is diagnosed with colon disease. Absorption of which of the following may be affected?
a) Glucose
b) Water
c) Fats
d) Amino acids

Q26. Testosterone in males is produced by:
a) Interstitial cells of Leydig
b) Sertoli Cells
c) Spermatogonia
d) Primary spermatocytes

Q27. Which of the following is a function of lymphatic system?

a) Absorption of glucose from intestine
b) Blood clotting after an injury
c) Filtering out and destroying germs and toxins
d) Temperature regulation

Q28. In human reproduction, a sudden rise in LH causes:

a) Menstrual flow
b) Ovulation
c) Fertilization to form zygote
d) Implantation of embryo

Q29. Main products of Krebs cycle reactions are:

a) Glucose and Oxygen
b) NADH and $FADH_2$
c) ATP and glyceraldehyde 3-phosphate (G3P)
d) Pyruvate and Acetyl Co-A

Q30. During heart surgery, a surgeon fixes a valve that stops blood from flowing backward into the right ventricle. Based on the given situation, the valve that was repaired is:

a) Mitral valve
b) Aortic semilunar valve
c) Tricuspid valve
d) Pulmonary semilunar valve

Q31. Bile salts are helpful in the digestion of:

a) Amino acids
b) Fatty acids
c) Nucleic acids
d) Carbohydrates

Q32. Exocrine tissue of the pancreas produces an enzyme for carbohydrate digestion known as:

a) Lipase
b) Trypsin
c) Enterokinase
d) Amylase

Q33. Endocrine cells of duodenum are stimulated by _____to release hormone secretin.

a) Acetylcholine
b) Acidic chyme
c) Bile salts
d) Sodium bicarbonate in bile juice

Q34. Chordae tendineae are:

a) Blood vessels
b) Fibrous cords
c) Cardiac muscles
d) Epithelial tissue

Q35. The cross between two heterozygous round-seeded plants having Rr X Rr would result in _____ during segregation of the alleles in next generation.

a) 100 % round seeds
b) 50% round seeds and 50% wrinkled seeds
c) 75% round seeds and 25% wrinkled seeds
d) 100% wrinkled seeds

Q36. Which of the following provides passage of transportation of protein from nucleus to other organelles?

a) Endoplasmic Reticulum
b) Mitochondria
c) Golgi complex
d) Nuclear membrane

Q37. The ability of the immune system to mount a larger and more rapid response to an antigen that has already been encountered before is termed as:

a) Primary Immune response
b) Immunological Memory
c) Short-term Memory
d) Long-term Memory

Q38. Let X, Y and Z be three amino acids which are encoded by UCA=X, ACU=Y and GUC=Z. What will be the sequence of nucleotide in DNA coding/sense strand that comprises information for following polypeptide:

Polypeptide= Y-X-Y-Y-X-Z-Z-X-Z-Y

a) 5′-ACUUCAACUACUUCAGUCGUCUCAGUCACU-3′
b) 5′-ACTTCAACTACTTCAGTCGTCTCAGTCACT-3′
c) 3′-TGAAGTTGATGAAGTCAGCAGAGTCAGTGA-5′
d) 3′-UGAAGUUGAUGAAGUCAGCAGAGUCAGUGA-5′

Q39. All of the following ideas were proposed by Lamarck, EXCEPT:
a) Use and disuse of organs
b) Acquired characters are inherited by the offspring
c) Organs not used will become vestigial
d) Over production leads to evolution

Q40. In an experiment, increasing substrate concentration increases the rate of reaction until it reaches a steady state. At this stage, which of the following changes would most effectively increase the rate of reaction?
a) Increasing substrate concentration
b) Decreasing temperature
c) Increasing enzyme concentration
d) Adding a non-competitive inhibitor

Q41. Which of the following bonding or interaction is responsible for quaternary protein folding?
a) 1,4 Glycosidic Bond
b) Hydrophobic interaction
c) Ester Bond
d) 1, 6 Glycosidic Bond

Q42. Which part of the brain controls heart rate and breathing?
a) Cerebellum
b) Hypothalamus
c) Medulla oblongata
d) Cerebrum

Q43. When the muscle is at rest, _____is disposed in such a way that it covers the sites on the _____chain where the head of ____becomes attached.
a) tropomyosin : actin : myosin
b) myosin : actin : tropomyosin
c) actin : tropomyosin : myosin
d) actin : myosin : tropomyosin

Q44. If green is a dominant and yellow is a recessive trait then what would be the ratio of homozygotes in F2 generation?
a) 0%
b) 25%
c) 50%
d) 75%

Q45. In human respiratory system, bronchioles have:
a) Cartilage rings
b) Cartilage plates
c) Circular smooth muscles
d) Longitudinal smooth muscles

Q46. Which of the following cartilage is most commonly found in the ribs, nose, and trachea?
a) Hyaline Cartilage
b) Elastic Cartilage
c) Fibrocartilage
d) Osteoblast

Q47. If the corpus luteum degenerates prematurely, the most likely outcome is:
a) Enhanced ovulation and fertilization
b) Increased LH secretin and extra egg release
c) Increased estrogen secretion
d) Implantation failure and end of pregnancy

Q48. Which one of the following veins connects the small intestines to the liver?
a) Renal vein
b) Hepatic portal vein
c) Iliac vein
d) Hepatic vein

Q49. The segregation of alleles occurs during the process of _____ in eukaryotic organisms.
a) Mitosis
b) Binary fission
c) Meiosis
d) DNA replication before cell division

Q50. Over time, many dihybrid cross experiments of autosomally-linked genes in sweet pea plants (*Lathyrus odoratus*) have been carried out by reputed scientists. Which of the following best explains the presence of some non-parental phenotypes in the offspring of such crosses?
a) Crossing over has occurred, leading to the production of recombinant plants
b) The scientists made errors such as not cleaning the small paint brush that they used to transfer pollen grains between plants
c) Independent assortment had occurred, so unusual phenotypes are to be expected
d) Only plants of one gender exhibit parental phenotypes due to linkage

Q51. HIV stands for:
a) Human Immunodeficiency Virus
b) Human Internal Virus
c) High Impact Virus
d) Human Immunogenic Vaccine

Q52. The part of digestive system which is NOT directly involved in digestion is:
a) Mouth
b) Oesophagus
c) Stomach
d) Small intestine

Q53. Pacinian corpuscles are present in the:
a) Retina
b) Lungs
c) Liver
d) Skin

Q54. The receptors for hearing and equilibrium are the example of:
a) Mechanoreceptors
b) Thermoreceptors
c) Nociceptors
d) Photoreceptors

Q55. Receptors that detect smell of food are:
a) Chemoreceptors
b) Mechanoreceptors
c) Nociceptors
d) Photoreceptors

Q56. The most abundant voluntary muscles in human body are:
a) Cardiac
b) Skeletal
c) Smooth
d) Smooth & Cardiac

Q57. mRNA forms _____ % of the total RNA in the cell
a) 3-4%
b) 4-5%
c) 5-6%
d) 6-7%

Q58. The inner layer of stomach whose glands secrete digestive enzymes, HCl and mucus is known as:
a) submucosa
b) mucosa
c) muscularis
d) serosa

Q59. According to Lamarck, the characteristics which are developed during the lifetime of an individual due to use and disuse of organs are called as:
a) prominent characters
b) biological characters
c) acquired characters
d) physical characters

Q60. The collagen fibers of bone are hardened by deposition of:
a) Calcium and oxalates
b) Calcium and phosphates
c) Magnesium and nitrates
d) Iron and glycogen

Q61. The type of muscles responsible for the movement of food through lumen of intestine are:
a) Smooth muscles
b) Cardiac muscles
c) Skeletal muscles
d) Skeletal & cardiac muscles

Q62. According to Watson and Crick's model, each complete turn of the DNA double helix, consists of:
a) 6 base pairs
b) 8 base pairs
c) 10 base pairs
d) 12 base pairs

Q63. The major purpose of mastication is to:
a) Make morsel soft
b) Make food moist
c) Increase surface area
d) Improve the taste

Q64. Which of the following hormones stimulates the development of primary follicles in the ovary?
a) Estrogen
b) Progesterone
c) Luteinizing hormone
d) Follicle stimulating hormone

Q65. What unique characteristic is typically found in sensory neurons of spinal nerves?
a) A single axon
b) A single dendron
c) Multiple dendrites
d) Multiple nodes of Ranvier

Q66. In which part of the neuron, Nissl's granules are present?
a) Axoplasm
b) Myelin sheath
c) Dendrite
d) Soma (Cell body)

Q67. Functions of cerebellum include:
a) To act as relay station
b) Conversion of short-term memories into long term memories
c) To guide smooth and accurate motions and maintain body position
d) To act as link between nervous and chemical coordination

Q68. What type of blood cells are primarily and specifically responsible for specific immunity?
a) Erythrocytes
b) Thrombocytes
c) Neutrophils
d) Lymphocytes

Q69. Which type of enzyme inhibition can be overcome by increasing substrate concentration?
a) Non-competitive inhibition
b) Competitive inhibition
c) Irreversible inhibition
d) Allosteric inhibition

Q70. What would be the number of chromosomes in an animal cell whose sperm has 8 chromosomes?
a) 4 chromosomes
b) 16 chromosomes
c) 24 chromosomes
d) 32 chromosomes

Q71. Which of the following best describes the Golgi apparatus?
a) Site of energy production
b) Packing and modification center of the cell
c) Storage of genetic material
d) Site of protein synthesis

Q72. The offsprings of better-adapted individuals are expected to make up a larger proportion of the next generation. The most likely explanation is:
a) Mutation
b) Inheritance of Acquired characters
c) Natural selection
d) Genetic drift

Q73. Which body system is directly responsible for initiating shivering?
a) Respiratory system
b) Circulatory system
c) Nervous system
d) Digestive system

Q74. If enterokinase is absent in small intestine, which digestive enzyme remains inactive?
a) Pepsinogen
b) Trypsinogen
c) Amylase
d) Lipase

Q75. Which of the following neurotransmitters works outside the brain?
a) Dopamine
b) Serotonin
c) Acetylcholine
d) Melatonin

Q76. Fate of ammonia released from amino acid during deamination in liver is:
a) Carbon cycle
b) Glycolysis
c) Urea cycle
d) Kreb's cycle

Q77. Villi contains a lymph capillary called:
a) Microvilli
b) Brush border
c) Lacteal
d) Lymph node

Q78. Translation is:
a) nucleus →mRNA → ribosome
b) nucleus →tRNA → ribosome
c) nucleus →mRNA → ER
d) nucleus →tRNA → ER

Q79. Which nitrogenous waste requires the least amount of water per gram of its excretion?
a) Ammonia
b) Urea
c) Uric acid
d) Creatinine

Q80. Kidney stones are mainly formed due to:
a) Lower filtration of blood at Bowman's Capsule
b) Protein breakdown in stomach
c) Excessive glucose levels in blood
d) High level of circulating calcium in blood

Q81. _____ is a repeated protein unit that makes the viral protein coat.
a) Nucleic acid
b) Capsomere
c) Core
d) Envelop

Q82. Which type of isomerism is exhibited by 2-Butene?
a) Tautomerism
b) Geometric isomerism
c) Functional group isomerism
d) Metamerism

Q83. Nylon-6,6 is made from two monomers each of which contains:
a) 6 carbon atoms.
b) 6 amino groups.
c) 6 nitrogen atoms.
d) 6 carboxylic acid groups.

Q84. A student observes that solid substance "X" does not conduct electricity but conducts when melted, while substance "Y" does not conduct electricity in any state. What is the most appropriate classification of "X" and "Y"?
a) X is a molecular crystal, Y is an ionic crystal
b) X is an ionic crystal; Y is a molecular crystal
c) Both X and Y are ionic crystals
d) Both X and Y are molecular crystals

Q85. The solubility of AgBr is 7.1 X 10^{-7} M. This dissolved AgBr produces equal moles of Ag^{+} and Br^{-}, then the solubility product of this equilibrium reaction would be:
a) 5.041 X 10^{-13}
b) 4.941 X 10^{+13}
c) 7.1 X 10^{-7}
d) 14.082 X 10^{-14}

Q86. What is the solvent in an aqueous solution of methanol?
a) HCl
b) Water
c) Methanol
d) NaOH

Q87. Which one of the following is the best example of an amorphous solid?
a) Diamond
b) Glass
c) Sodium chloride
d) Potassium Bromide

Q88. The starting material for the preparation of PVC is:
a) Ethylene
b) Acetylene
c) Vinyl alcohol
d) Methylene

Q89. Acetic acid is converted into acetyl chloride using which reagent?
a) thionyl chloride
b) chlorine
c) sodium chloride
d) phosphorous trioxide

Q90. Which of the following product will be formed when 2-oxo-pentanal is treated with $NaBH_4$?
a) $CH_3CH(OH)CH_2CH_2OH$
b) $CH_2CH_2CH_2CH_2CH_2OH$
c) $CH_3CH(OH)CHCH(OH)CH_3$
d) $CH_3CH_2CH_2CH(OH)CH_2(OH)$

Q91. At a constant temperature and pressure, a 2.0 L container holds 0.5 moles of Nitrogen gas (N2). If an additional 1.0 mole of Nitrogen is pumped into the container without changing the temperature or pressure, what will be the new volume of the container?

a) 3.0 L
b) 4.0 L
c) 6.0 L
d) 8.0 L

Q92. The value of ideal gas constant in dm^3.torr. K^{-1}.mol^{-1} is:

a) 0.0821
b) 1.98722
c) 8.3143
d) 62.364

Q93. How many unpaired electrons are there in Fe^{++}(Z=26)?

a) 6
b) 4
c) 3
d) 2

Q94. An element X having atomic number "Z=27" belongs to which block of periodic table?

a) s-block
b) p-block
c) d-block
d) f-block

Q95. A thermodynamic system goes through a cyclic process which absorbs 1200 J heat and ejects 700 J heat. Which statement correctly describes this?

a) The ΔE of a system increases by 500 J
b) The ΔE of a system decreases by 500 J
c) The system performs network of 500 J
d) The surroundings perform network of 500 J

Q96. Which of the following elements from Period 3 of Periodic table, has the largest ionic radius when forms a stable ion?

a) Sodium
b) Silicon
c) Phosphorous
d) Chlorine

Q97. Which type of interaction is primarily responsible for holding molecules together in noble gases?

a) Covalent bond
b) Electrostatic forces of attraction
c) Hydrogen bonding
d) London dispersion forces

Q98. The reaction between ethyl chloride and dry silver oxide on heating yields:

a) dimethyl ether.
b) diethyl ether
c) ethanoic acid.
d) ethanal.

Q99. Phenol gives which colored precipitate with aqueous Br_2?

a) red ppt
b) white ppt
c) blue ppt
d) orange ppt

Q100. Pfund Series of spectral lines are produced forming the spectrum of hydrogen atom when electron jumps down to_____ orbit.

a) 2^{nd}
b) 3^{rd}
c) 4^{th}
d) 5^{th}

Q101. The electronic configuration of H^- is:

a) $1s^0$
b) $1s^1$
c) $1s^2$
d) $1s^2,2s^1$

Q102. Carboxylic acid can be formed by reaction of Grignard reagent with:

a) Carbonate
b) Carbon dioxide
c) Aldehyde
d) Carbon mono oxide

Q103. An electron having following set of values lies in:
n = 4, l= 0, m = 0 & s = -1/2

a) 4s
b) 4p
c) 5s
d) 5p

Q104. At which condition real gases show ideal behavior?

a) 100°C and 10 atm
b) 1000°C and 20 atm
c) 1000°C and 1 atm
d) 10°C and 100 atm

Q105. Which of the following statements describes a crystalline solid?

a) Particles are randomly arranged with no repeating pattern.
b) Particles are arranged in a long-range, repeating 3D pattern.
c) It softens gradually over a range of temperatures.
d) It has no definite shape or melting point.

Q106. The actual amount of CaO obtained on thermal decomposition of 25g of $CaCO_3$ is 12g. What is the approximate percentage yield? (Molar mass of $CaCO_3$ = 100, Molar mass of CaO = 56)

$CaCO_3 \rightarrow CaO + CO_2$

a) 50 %
b) 60 %
c) 86 %
d) 90 %

Q107. If actual yield and theoretical yield are 20g and 25g respectively, what will be the % yield?

a) 60%
b) 70%
c) 80%
d) 85%

Q108. The new volume when pressure is halved while temperature and number of moles are doubled will be:

a) Doubled
b) Quadrupled
c) Sextupled
d) Octupled

Q109. Rate of reaction in E_1 depends on the:

a) R-X only
b) Base only
c) Nucleophile only
d) Both base and R-X

Q110. For 3rd order reaction rate=k[A][B] ² when concentration of both reactant is doubled the new rate becomes:

a) halved
b) doubled
c) quadrupled
d) octupled

Q111. Grignard's reagent is treated with methanal to produce:

a) Phenol
b) Primary alcohol
c) Propanoic acid
d) Ketone

Q112. Probability of finding an electron is maximum in:

a) Orbit
b) Orbital
c) Degenerate orbit
d) Nodes

Q113. All alkynes give ketones on hydration EXCEPT:

a) Acetylene
b) Propyne
c) Butyne
d) Pentyne

Q114. Benzene is stable because of:

a) containing single bond
b) presence of delocalization of π electron
c) containing sp^3 hybridized carbon
d) isolated double bonds

Q115. The value of lattice energy across the period in the periodic table:

a) Increases
b) Decreases
c) Remains same
d) Changes randomly

Q116. Primary alcohol can be converted into carboxylic acid by:

a) CH_3COOH/P_2O_5
b) NH_3
c) CH_3OH
d) $H_2SO_4/K_2Cr_2O_7$

Q117. Select the true statement for a transition element.

a) All are hard and weak metals with low melting point
b) All are hard and strong metals with high melting point
c) All are soft and strong metals with high melting point
d) All are soft and weak metals with low melting point

Q118. Which of the following tests is used for distinguishing methyl ketones from other ketones?

a) Silver mirror test
b) Silver nitrate test
c) Iodoform test
d) Lucas test

Q119. 9.03×10^{23} molecules of an ideal gas at STP will have volume of:

a) 11.2 dm^3
b) 22.4 dm^3
c) 33.6 dm^3
d) 44.8dm^3

Q120. Rate = $k[A]^0[B]$
If we double the concentration of A and B, the rate of reaction becomes:

a) remains the same
b) gets doubled
c) gets tripled
d) gets halved

Q121. The oxidation number of both nitrogen atoms in NH_4NO_3 is/are:

a) +4 and -4
b) -3 and +5
c) -4 and +6
d) -4 and +5

Q122. The maximum number of electrons a subshell with azimuthal quantum number (ℓ) can accommodate is calculated by:

a) ℓ +1
b) 2ℓ +1
c) $2(2\ell$ +1)
d) 2ℓ +2

Q123. In galvanic cell oxidation occurs on:

a) Cathode
b) Anode
c) Salt bridge
d) Electrolyte

Q124. The oxidation number of Cl in $HClO_3$ is:

a) 1-
b) 5-
c) 1+
d) 5+

Q125. What will be the mass of 0.5 moles of $CaCO_3$?

a) 50 g
b) 55 g
c) 45 g
d) 60 g

Q126. Sara dissolved 5 g each of crushed and large sized crystal of copper sulphate in two separate test tubes containing 10 mL water. After 5 minutes of stirring, she observed that the test tube containing crushed copper sulphate had dissolved in water while the test tube containing the large sized crystal still showed undissolved form. The reason for FASTER dissolution is that the crushed copper sulphate:

a) are more in density.
b) have greater surface area.
c) are low in density
d) have smaller surface area.

Q127. For a projectile, the angle of projection for maximum horizontal range is:

a) 22.5°
b) 30°
c) 45°
d) 60°

Q128. The speed of sound is faster on a rainy day because:

a) mass of moist air is more than the dry air.
b) density of moist air is less than the dry air.
c) temperature of the medium remains the same.
d) medium of propagation of sound remains the same.

Q129. Two opposite point charges, each of magnitude Q are separated by a distance s. The electric potential at a point mid-way between them is:

a) q
b) -kq/s
c) infinity
d) zero

Q130. A fan rotates uniformly at the rate of 2 rev/s. Its angular velocity in SI units will be:

a) 2π rev/s
b) 4π rev/min
c) π/2 rad/s
d) 4π rad/s

Q131. The process of conversion of alternating current into direct current is known as:

a) modulation.
b) polarisation.
c) rectification.
d) quantisation.

Q132. If the speed of a standing wave in a string is 2 m/s and its wavelength is 0.25 m, then the frequency of the standing wave will be:

a) 0.125 Hz.
b) 2.0 Hz.
c) 4.0 Hz.
d) 8.0 Hz.

Q133. The distance traveled by a wave in unit time is termed as:

a) Wavelength
b) Amplitude
c) Displacement
d) Wave speed

Q134. The frequency of a wave having wavelength 0.5m while passing a point with speed of 4 m/s is:

a) 2 Hz
b) 4 Hz
c) 6 Hz
d) 8 Hz

Q135. If particles of a slinky spring are moving perpendicularly to the propagation of the waves, then waves in the slinky spring will be:

a) matter waves
b) electromagnetic waves
c) transverse waves
d) longitudinal waves

Q136. The quantity measured in J/mol.K is

a) Specific heat
b) Thermal conductivity
c) Molar specific heat
d) Latent heat

Q137. When a car is moving with constant acceleration, the shape of velocity time graph is:

a) Parabola
b) Incline curve
c) Straight line
d) Decline curve

Q138. Time rate of change of momentum of a body equals the:

a) Impulse
b) Force
c) Torque
d) Velocity

Q139. In a displacement-time graph, the slope of the tangent drawn at a specific point on the curve indicates the object's

a) Average velocity over entire graph
b) Instantaneous velocity at that point
c) Instantaneous velocity at the starting point
d) Instantaneous velocity at the final point

Q140. Which of the following statements explains by Lenz's law of electromagnetic induction?

a) The production of induced e.m.f.
b) The magnitude of induced e.m.f.
c) The direction of induced e.m.f.
d) The strength of induced e.m.f.

Q141. When a particle executes simple harmonic motion, the quantity $4\pi^2f^2$ is equal to :

a) gl
b) g/l
c) l/g
d) √g/l

Q142. At a certain time, 50% of a radioactive sample remains undecayed. After 10 seconds, only 12.5% of the sample remains. The half-life of the substance is:

a) 2.5 s
b) 3.3 s
c) 5 s
d) 10 s

Q143. A conducting coil with its plane perpendicular to a uniform magnetic field is moved at constant speed in the field region, the induced emf in the coil is:

a) zero
b) constant
c) increasing
d) decreasing

Q144. The work done between two points per unit positive charge against the electric field due to a source charge is called as:

a) Electric Power
b) Electric Potential difference
c) Electric flux
d) Electric field Intensity

Q145. In the atomic spectrum of neon each line represents:

a) A different atom
b) A different element
c) A photon with specific energy
d) An atom splitting

Q146. In a spray bottle, pressing the nozzle causes fast air flow, which:

a) creates high pressure to lift the liquid
b) creates low pressure to lift the liquid
c) increases pressure at the tube opening
d) reduces liquids surface tension

Q147. A force of 10 N acts on a body of mass 2 kg. The acceleration produced is:

a) 5 m/s^2
b) 10 m/s^2
c) 20 m/s^2
d) 0.2 m/s^2

Q148. Two identical masses are placed at heights h and 2h, the ratio of gravitational potential energies will be:

a) 1:2
b) 2:1
c) equal
d) dependent on mass

Q149. The scalar product of two parallel vectors is equal to:

a) Zero
b) Square of the magnitude
c) Product of their magnitude
d) Sum of their magnitude

Q150. The volume flow rate is equal to:

a) mv
b) Av
c) Aρ
d) vρ

Q151. In which process the work is done on the cost of internal energy?

a) Isochoric process
b) Isobaric process
c) Isothermal process
d) Adiabatic process

Q152. In an isothermal process internal energy of the system:

a) Decreases
b) Increases
c) Remain the same
d) Becomes zero

Q153. A gas expands adiabatically and does 10 J of work then the change in internal energy is:

a) 10J
b) -10J
c) 20J
d) 0J

Q154. The equation of continuity Av = constant. The constant shows:

a) volume of fluid
b) mass the of fluid
c) density the of fluid
d) volume flow rate

Q155. The quantity that remains constant in an ideal transformer is:
a) Voltage
b) Current
c) Power
d) Heat

Q156. First law of thermodynamics states that:
a) $\Delta Q = \Delta U + \Delta W$
b) $\Delta Q = \Delta U - \Delta W$
c) $\Delta U = \Delta Q + \Delta W$
d) $\Delta W = \Delta U + \Delta Q$

Q157. A bullet fired from gun pierces a target due to:
a) Mechanical energy
b) Heat energy
c) Kinetic energy
d) Potential energy

Q158. If 10 waves pass through a denser medium in 1 second with a speed of 10 m/sec, then the wavelength of the wave will be:
a) 0.1 m
b) 1 m
c) 10 m
d) 100 m

Q159. The place where compressions of a sound wave combine with the rarefactions of another sound wave and cancel each other is called a:
a) dead beat.
b) null point.
c) zero point.
d) node point.

Q160. What is the reason for the steady current flow in a circuit?
a) Presence of very large resistance
b) Presence of a constant voltage source in circuit
c) presence of switch in circuit
d) Presence of ammeter in circuit

Q161. Cobalt-60, a radioisotope, is used in hospitals:
a) for X-rays image
b) to damage the cancer cells
c) to damage the healthy cells
d) for surgical equipment sterilization

Q162. What is meant by random nature of radioactive decay of a substance?
a) We cannot control the decay rate.
b) Probability of decay of every unstable nucleus is constant.
c) We can locate every next decaying nuclei.
d) We can speed up the decay process.

Q163. He was known for resolving <u>contentious</u> matters. The underlined word in the context means:
a) Disputed
b) Secretive
c) Unethical
d) Private

Q164. Identify which type of an adverb is used in the following sentence?
"The cat chased the rat everywhere".
a) adverb of time
b) adverb of manner
c) adverb of frequency
d) adverb of place

Q165. Which of the following sentences is correctly punctuated?
a) I love Pakistan!
b) Wow. That's amazing
c) Lets eat. Grandma.
d) He's not coming, is he

Q166. The captain stood at the head of the table during the meeting. What does "head" most likely mean?
a) A body part
b) A leader or position of authority
c) The front part of something
d) A senior person

Q167. What is the correct direct speech form of the sentence: He claimed that he could speak French fluently.
a) He claimed, "I can speak French fluently."
b) He claimed, "I am speaking French fluently."
c) He claimed, "I speak French fluently."
d) He claimed, "I was speaking French fluently."

Q168. The student said, "I am taking extra classes so that I can improve my grades before the finals." The most appropriate indirect form of the given sentence is:

a) The student said that he was taking extra classes so that he can improve his grades before the finals.
b) The student said that he had taken extra classes so that he can improve his grades before the finals.
c) The student said that he had been taking extra classes so that he could improve his grades before the finals.
d) The student said that he was taking extra classes so that he could improve his grades before the finals.

Q169. What does the sentence "She broke down in front of the audience" imply?

a) She sang a song.
b) She collapsed emotionally.
c) She left the stage.
d) She performed well.

Q170. "Mistakes could have been avoided if the instructions had been followed carefully by the workers". The most appropriate active voice of the given sentence is:

a) The workers could avoid mistakes if they followed the instructions carefully.
b) The workers could have avoided mistakes if they followed the instructions carefully.
c) The workers could have avoided mistakes if they had followed the instructions carefully.
d) The workers avoid mistakes if they follow the instructions carefully.

Q171. The director _____movie was a blockbuster earned heaps of money.

a) who's
b) whom
c) whose
d) which

Q172. What percentage of 90 minutes is 54 seconds?

a) One percent
b) Six Percent
c) Three percent
d) Ten percent

Q173. Five boxes - Red, Green, Blue, Yellow, and Black- are stacked one over another with 1 at the bottom and 5 at the top. These boxes are arranged using the following rules:

1. **Red is above Green**
2. **Yellow is immediately above Black**
3. **Black is not at the bottom**

If Blue Box is at 4 position, which box is at the position 2?

a) Red
b) Green
c) Yellow
d) Black

Q174. What number comes next in the following series:

48 45 40 33 24

a) 11
b) 8
c) 13
d) 1

Q175. Quantity A: The price of a television when it is on sale at 25% off.
Quantity B: The price of that television when its one sale at $25 off.

a) Quantity A is greater.
b) Quantity B is greater.
c) Quantities A and B are equal.
d) It is impossible to determine which quantity is greater.

Q176. Find the odd one out.

a) D : G
b) U : W
c) H : J
d) Q : S

Q177. X's son is cousin of Y's son. If Y has no brother what is X to Y?

a) Cousin
b) Nephew
c) Uncle
d) Sister

Q178. Find the odd one out.

a) 6 : 35
b) 2 : 15
c) 4 : 25
d) 7 : 45

Q179. During a chemistry practical class, teacher was briefly out of the class, and the lab safety instructions were ignored. During that time, a student mixed unknown chemicals left from a previous experiment. A strong smell fills the room, and one student starts coughing.
To avoid future accidents, from the given options, the most sustainable course of action is to :

a) cancel all chemistry practicals.
b) rusticate the student involved.
c) strengthen lab safety instructions.
d) penalise the teacher for being absent.

Q180. A belief is regarded as "true and reasonable", when it is:

a) Commonly accepted.
b) Matches your feelings.
c) Based on evidence and logic.
d) Found in old texts.

ROUGH WORK