# MBBS.COM.PK

## MDCAT PAST PAPER

## FROM 2008-2019 UNIT-WISE

- RS.1400/= (Free Home Delivery)

### For Booking MDCAT Past Papers Unit-Wise Solved:

**Type: -**

Your Name: -------------------------- City: ------------------------ Complete Address: ------------------------------
Mobile Number: -------------------------- Book Name:  MDCAT Past Papers

**Send SMS:-** 03047418334

**WhatsApp:-** 03047418334

**For Order Through:-** EMAIL

**For Online Booking:-** Click Here

**03047418334** To Send Order Through SMS

Bright Future

**Instructions:**
1. Read the instructions and the MCQ Response Form carefully.
2. Choose the **Single Best Answer** for each question.
3. Candidates are strictly prohibited from giving any identification marks except Roll No. & Signature in the specified columns only .

# FILL YOUR PAPER ID IN THE RESPONSE FORM

1. The Question paper ID of each candidate is printed on the first page of his/her Question Paper Booklet.
2. The candidates are only required to fill the correct circle in the Response Form against the first row of circle marked as ID as indicated in the figure.
3. Failure to fill the ID properly as per the instruction shall lead to incorrect evaluation of the Response Form for which the University shall not be responsible.

## BIOLOGY

**Q.1** In chemiosmosis the proton ($H^+$) pumps moves from _____

A) Stroma to Lumen
B) Stroma to cytoplasm
C) Lumen to Stroma
D) Cytoplasm to Stroma

**Q.2** Microtubule subunits (for spindle fibers) are synthesized in _____ phase.

A) $G_2$
B) M
C) S
D) $G_1$

**Q.3** If stimulation is above _____, impulses travel to the brain along the sensory neuron.

A) Action Potential
B) Threshold
C) Resting Potential
D) Recovery Period

**Q.4** Substances responsible for increasing the set point of the hypothalamus are called:

A) Pepsin
B) Pyrogens
C) Prions
D) Androgens

**Q.5** During inspiration the space inside the chest cavity is increased due to:

A) Increased pressure
B) The relaxation of the muscles of the diaphragm
C) Relaxation of the external intercostal muscles
D) The contraction of the muscles of the diaphragm

**Q.6** Which of the following hormone stimulates the ovulation from the follicle into oviduct?

A) Luteinizing hormone
B) Follicle stimulating hormone
C) Estrogen
D) Progesterone

**Q.7** The covalent bond or bridge between two monosaccharides to form a disaccharide is called a:

A) Carboxyl bond
B) Hydroxyl bond
C) Hydrogen bond
D) Glycosidic bond

**Q.8** Site of protein synthesis is:

A) Ribosomes
B) Lysosomes
C) Golgi body
D) Cisternae

**Q.9** Water and Minerals move down their concentration gradient through plasmodesmata, to cells of cortex, endodermis, pericycle and then to sap in the xylem cells. This is also known as the

A) Symplastic Pathway
B) Mineral absorption Pathway
C) Vacuolar pathway
D) Apoplastic pathway

**Q.10** Given below is the diagram of nephron without vascular supply.
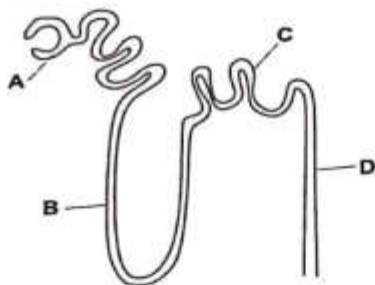


What is name of Part C ?

A) Collecting tubule
B) Proximal tubule
C) Distal tubule
D) Loope of Henle

**Q.11** Xerophytes have small thick leaves to:

A) Help them float on water
B) Help them survive in salty environment
C) Limit water loss by reducing the surface area
D) Limit water loss by increasing the surface area

**Q.12** Among followings which cellular organelle contains circular DNA similar to those found in bacteria?

A) Ribosome
B) Lysosome
C) Chloroplast
D) Nucleus

**Q.13** A person was married to his cousin and both are heterozygous for sickle cell anemia. Among their four kids, what will be proportion of affected homozygotes?

A) 50%
B) 25%
C) 75%
D) 100%

**Q.14** The route of urine excretion from kidney to outside of body is:

A) Kidney→ureter→urinary bladder→urethra
B) Urinary bladder→ kidney→ureter→urethra
C) Kidney→ureter→urethra→urinary bladder
D) Kidney→urethra→urinary bladder→ureter

**Q.15** The phase of mitosis in which sister chromatids move towards opposite poles:

A) Prophase
B) Anaphase
C) Telophase
D) Metaphase

**Q.16** The Plasmid pBR322 has antibiotic resistance genes for:

A) Tetracycline and Doxycycline
B) Streptomycin
C) Doxycycline and Ampicillin
D) Ampicillin and Tetracycline

**Q.17** The nitrogen containing bases in nucleotide are of two types; Purines and Pyrimidines; the purines bases are:

A) Guanine and Cytosine
B) Adenine, Guanine and Cytosine

C) Adenine and Guanine
D) Adenine and Thymine

**Q.18** The following flowchart depicts the steps of the Calvin Cycle. Which option according to you fits in as the correct answer of the missing step?
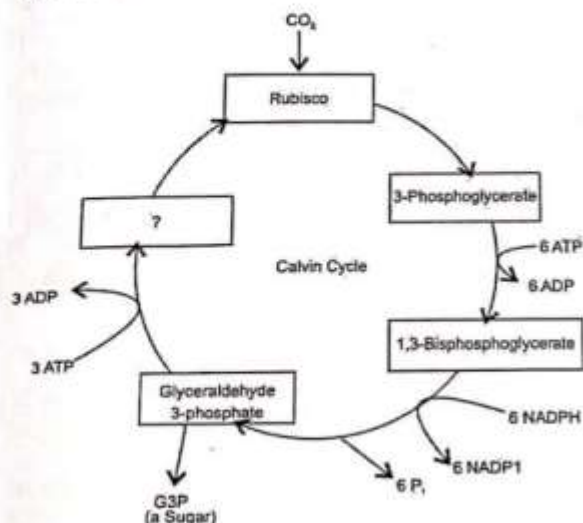


A) Hydrogenase
B) Oxaloaccetate

C) Ribulose bisphosphate
D) Pyruvate

**Q.19** DNA polymerase enzyme for PCR is isolated from bacteria *Thermus aquaticus* because:

A) It can withstand high denaturation temperature.
B) It can withstand low denaturation temperature.

C) It can work at high speed
D) It can be used again and again.

**Q.20** The type of energy reduced by the enzymes for biological reactions to occur is called the:

A) Light Energy
B) Activation energy

C) Active energy
D) Heat energy

**Q.21** The function of calcium ions in muscle contraction is to:

A) Bind to troponin molecule and cause them to move
B) Aid in the transmission of nerve impulse

C) Polarize visible light
D) Bind to tropomyosin molecule and cause them to form cross bridges

**Q.22** What is common in both Competitive and Non- Competitive Inhibition ?

A) Irreversible Inhibition
B) Feedback Inhibition

C) Reversible Inhibition
D) Non- Reversible Inhibition

**Q.23** Inside ovary, primary oocyte divides through first meiotic division forming two haploid cells, secondary oocyte and:

A) Polar body
B) Oogonium

C) Follicle cell
D) Ovum

**Q.24** Homozygous means:

A) having two identical alleles of a gene.
B) having two identical genes

C) alleles in an organism
D) two different alleles of a gene.

**Q.25** Which hormonal pair would maintain the endometrium and make it receptive for implantation of embryo?

A) Luteinising Hormone and Progesterone
B) Estrogen and Follicle Stimulating Hormone

C) Luteinising Hormone and Follicle Stimulating Hormone
D) Estrogen and Progesterone

**Q.26** Starch is present in tubers, fruits and grains but absent in animal cells, instead animals have a substance stored in liver and muscles known as:

A) glucose
B) glycogen

C) galactose
D) glucagon

**Q.27** Now-a-days every new born gets regular shots of vaccine for polio. It contains ——————————— for polio to make a child immune against this disease.

A) Antisera
B) Antibodies

C) Antibiotics
D) Antigens

**Q.28** Which of the following blood vessels contain semilunar valves?

A) Arteries
B) Veins

C) Arterioles
D) Capillaries

**Q.29** The main neurotransmitter for synapses is _____ which lie outside the central nervous system.

A) Choline
B) Acetylcholine

C) Acetaldehyde
D) Phosphatidylcholine

**Q.30** The thick filaments in a myofibril of muscles are made of _____.

A) Haemoglobin
B) Myoglobin

C) Actin
D) Myosin

**Q.31** The prokaryotes possess small ribosome of size:

A) 40S
B) 70S

C) 65S
D) 60S

**Q.32** The structure present in a eukaryotic cell but absent in prokaryotic cells is

A) Nucleus
B) DNA

C) Ribosomes
D) Cell surface membrane

**Q.33** The process in which a complementary copy of the code from a gene is produced by RNA Polymerase in the nucleus:

A) Proof reading
B) DNA Replication

C) Transcription
D) Translation

**Q.34** Sara is a chemistry student who is carrying out an experiment between an alcohol and acetic acid in the laboratory. The product formed at the end of the experiment will be:

A) Glucose and oxygen
B) Glycogen and water molecule

C) An ester and water molecule
D) Glycerol and Sulfuric acid

**Q.35** In genetics, the term locus refers to the _____ of the gene on the chromosome.

A) Frequency
B) Copy

C) Position
D) Inversion

**Q.36** If 15 μm size object is observed under light microscope using 5X eyepieces and 10X objective, its magnified image size will be:

A) 250μm
B) 50μm

C) 750μm
D) 500μm

**Q.37** Which enzyme is administered to the patients of Severe Combined Immunodeficiency Disease (SCID) ?

A) Pancreatic Enzyme
B) Adenosine Deaminase (ADA)

C) β-galactosidase
D) β-lactamase

**Q.38** Change in frequency of alleles that occurs by chance is called as:

A) Natural selection
B) Migration

C) Mutation
D) Genetic drift

**Q.39** The finger like infoldings which are formed by inner membrane of mitochondria are called:

A) Matrix
B) Porin

C) Cristae
D) Ribosomes

**Q.40** The main nitrogenous excretory product of humans is:

A) Uric acid
B) Ammonia

C) Urea
D) Ammonium

**Q.41** Smooth endoplasmic reticulum is responsible for the metabolism of :

A) Carbohydrates
B) Proteins

C) Nucleic acids
D) Lipids

**Q.42** Acetylecholine and Noradrenaline are two types of _____ used in our nervous system.

A) Hormones
B) Channel and carrier proteins in the cell membrane of a Neurone.

C) Enzymes
D) Neurotransmitters

**Q.43** The reflex action is the phenomena which only involves:

A) brain, receptors,spinal cord
B) receptors, effectors and spinal cord

C) receptors, neurons, brain
D) receptors and effectors

**Q.44** In which situation, Genes are not assorted independently during Meiosis in a chromosome?

A) When genes are not linked and their loci are far apart.
B) When there are too many Genes on a chromosome.

C) When some genes have mutated on the chromosome.
D) When genes are linked and their loci are close to each other.

**Q.45** A person got an infection, he became ill but then he survived. What do you think which type of immunity he would have developed?

A) Naturally induced active immunity
B) Artificially induced active immunity

C) Active immunity
D) Passive immunity

**Q.46** During spermatogensis, the _____, which are haploid cells eventually mature into spermatozoa/mature sperms:

A) Secondary spermatocytes
B) Primary spermatocytes

C) Spermatogonia
D) Spermatids

**Q.47** Transgenic mice have been used to produce:

A) Protein rich milk
B) A growth hormone

C) Protein rich meat
D) Extra hair

**Q.48** According to the theory of natural selection, organisms produce:

A) More offspring than supported
B) Less offspring than supported

C) Offspring according to the resources available
D) Offspring to create resources

Paper ID : A

**Q.49** The photosynthetic pigments of plants are arranged as clusters in thylakoid membranes. The reaction centers of these clusters consist of _____ molecules

A) ATP
B) Chlorophyll
C) Glucose
D) Carotenoids

**Q.50** Meselson and Stahl transferred few bacteria grown in $N^{15}$ medium to $N^{14}$ medium for replicating their DNA. What would be the result after two rounds of replication?

A) 50% hybrid duplex and 50% light duplex
B) 50% hybrid duplex and 50% heavy duplex
C) 100% heavy duplex
D) 100% hybrid duplex

**Q.51** In an action potential, the permeability of sodium ions in the neurons increases due to:

A) Repolarization
B) The opening of sodium channels/gates
C) The action of the acetylcholinesterase enzyme
D) Sodium ions forming an ionic bonding

**Q.52** During the G2 phase:

A) Specific enzymes are synthesized and DNA base units are accumulated
B) The chromosomes are left with only one chromatid
C) Chromosome number is duplicated
D) Energy is stored for Chromosome movement and mitotic specific proteins( Tubulin) are produced

**Q.53** Thin filaments of muscles contain _____ chains of actin molecules.

A) Four
B) One
C) Three
D) Two

**Q.54** Which cell organelle is responsible for cell secretion?

A) Mitochondrion
B) Chloroplast
C) Ribosome
D) Golgi body

**Q.55** Most proteins are made up of:

A) 16 types of Amino acids
B) 10 types of Amino acids
C) 170 types of Amino acids
D) 20 types of Amino acids

**Q.56** A disease caused by gradual breakdown of the thin walls of alveoli is _____ .

A) Tuberculosis
B) Asthma
C) Emphysema
D) Bronchitis

**Q.57** If sequence in DNA is CCCTAGAG, then what would be the sequence in messenger RNA after transcription ?

A) GGGAUCUC
B) GGGATCTC
C) GGGGTCTC
D) GGAAUCUC

**Q.58** Taxonomy includes the arrangement of organisms into different taxa. Which of the following represents the correct hierarchy of various taxa of classification?

A) Species, genus, family, order, class, phylum
B) Order, family, class, phylum, kingdom
C) Species, genus, order, family, class, phylum
D) Species, genus, family, class, order, phylum

**Q.59** Complementary DNA molecule is

A) an artificial DNA
B) single stranded DNA
C) DNA from mRNA
D) a small segment of chromosomal DNA

**Q.60** Capsid, the protective coat of a virus is made up of _____ subunits known as capsomeres.
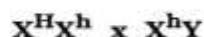
A) Lipid
B) Protein
C) RNA
D) DNA

**Q.61** In plants, which sugar is transported from source to sink through sieve tubes?

A) Fructose
B) Sucrose
C) Glucose
D) Starch

**Q.63** If a carrier haemophilic female ($X^H X^h$) is married to a haemophilic male ($X^h Y$). What will be the ratio of presence of haemophilia in the children. Select best answer from given condition.

$$X^H X^h \ \text{x} \ X^h Y$$

A) 100% all females and males will be haempohilic
B) carrier female 25%, haemophilic female 25%, 25% normal male and 25% haemophilic male.
C) females and males both have 50% chances of getting haemophilia
D) females have 50% chances of getting haemophilia and males will be 100 % haemophilic

**Q.64** As a result of replication, parental DNA would become completely dispersed and that each strand of all the daughter molecules would be a mixture of old and new DNA. This is called as:

A) Conservative idea
B) Dispersive idea
C) Disruptive idea
D) Semi-conservative idea

**Q.65** A student of chemical engineering mistakenly engulfed the toxic compound "A" which was a potent inhibitor of certain enzyme. He was immediately brought to hospital where Dr. injected intravenously substrate "B" to minimize the toxic effect of compound A. His life was saved from serious damages. The treatment method shows that compound A was a _____ inhibitor.

A) Temperature sensitive
B) Competitive reversible
C) Irreversible
D) Non-competitive reversible

**Q.66** Four plants are present in different environmental conditions. Plant A is present in warm climate with continuous rainfall, plant B is present in a cool forest, plant C is present in warm climate with little breeze while plant D is present in warm climate with high wind speed. Which one of the above plants will have highest rate of transpiration?

A) Plant B
B) Plant D
C) Plant C
D) Plant A

**Q.67** Sequence of amino acids in a polypeptide chain of protein molecule corresponds to the sequence of nucleotides on mRNA for that protein. If reading frame of mRNA for a human protein is 993 nucleotide including a stop codon at the end, how many amino acids would be incorporated in the polypeptide chain?

A) 331
B) 993
C) 93
D) 330

**Q.68** The major function of Basophils is to:

A) Destroy small particles by phagocytosis
B) Release heparin to prevent blood clotting
C) Inactivate inflammation producing substances
D) Transport oxygen

**Q.69** Large lymph vessels ultimately form larger lymph duct, which drains its lymph into:

A) Carotid and Aorta
B) Vena Cava and Aorta
C) Subclavian Vein
D) Subclavian Artery

**Q.70** Blood group AB is an example of _____.

A) Complete dominance
B) Recessive alleles
C) Incomplete dominance
D) Co-dominance

**Q.71** Passive processes for the movement of molecules across cell surface membrane are:

A) facilitated diffusion and osmosis
B) pinocytosis and facilitated difusion
C) diffusion and exocytosis
D) osmosis and phagocytosis

**Q.71** In glycine R is _____.

A) fatty acid
B) ethane
C) hydrogen
D) methane

**Q.72** Glycolysis takes place in the _____ of cell.

A) Golgi complex
B) Nucleus
C) Cytoplasm
D) Mitochondria

**Q.73** Lipids contain double amount of energy as compared to the same amount of carbohydrates due to the presence of:

A) Lower proportion of C-H bonds
B) Higher proportion of C-H bonds
C) Higher proportion of C-O bonds
D) Higher proportion of Oxygen

**Q.74** If water has high latent heat of vapourisation, how this property of water could be helpful to plants and animals?

A) With the release of large amount of water vapours, a small amount of heat loss can take place.
B) No cooling effect with the release of even large amount of water vapours.
C) It will keep their temperature very high.
D) With the release of small amount of water vapours, a great amount of heat loss can take place.

**Q.75** How many molecules of ATP would be utilized for phosphorylation of one glucose molecule during glycolysis?

A) One
B) Four
C) Two
D) Three

**Q.76** Among followings, _____ enzyme is naturally found in human immunodeficiency virus (HIV).

A) DNA polymerase
B) RNA polymerase
C) Reverse transcriptase
D) Ligase

**Q.77** The structure of a fibrous protein comprises of polypeptide chains in the form of:

A) Cluster
B) Flat uncoiled chains
C) Spherical or curled up ball
D) Long strands or fibrils

**Q.78** Which is an example of a Disaccharide :

A) Lactose
B) Glycogen
C) Starch
D) Fructose

**Q.79** Which one is an example of a Nucleotide?

A) Adenosine
B) ATP
C) Guanine
D) NAD

**Q.80** Which of the following photosystem is involved in cyclic photophosphorylation?

A) PS I and PS II
B) PS II
C) PS III
D) PS I

## CHEMISTRY

**Q.81** Which product is obtained by the hydrolysis of 1- chlorobutane with the aqueous sodium hydroxide ?

A) 1-butanol
B) 1- butene
C) Butanone
D) 1- butanal

**Q.82** Treatment of ethene with cold sulphuric acid followed by reaction with boiling water yields:

A) Ethane
B) Ethyne
C) Ethanal
D) Ethanol

Paper ID : A

**Q.83** The average atomic mass of Boron is 10.8. It has two isotopes of masses 10 and 11 respectively. What is the percentage of isotope with the average mass of 10?

A) 20%
B) 50%

C) 60%
D) 80%

**Q.84** In contact process, to which substance adequate quantities of water is added to convert it to sulphuric acid?

A) $SO_3$
B) $H_2S_2O_7$

C) $SO_2$
D) $HSO_4^-$

**Q.85** Which of the equations shows the same "twice" the enthaply change of neutralization as the following equation
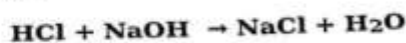
$$HCl + NaOH \rightarrow NaCl + H_2O$$

A) $NH_4Cl + NaOH \rightarrow NaCl + H_2O + NH_3$
B) $MgCO_3 + 2HCl \rightarrow MgCl_2 + CO_2 + H_2O$

C) $KOH + HCl \rightarrow KCl + H_2O$
D) $H_2SO_4 + Mg(OH)_2 \rightarrow MgSO_4 + 2H_2O$

**Q.86** The decomposition of phosphorus pentachloride in the presence of moisture takes place by the following mechanism:

$PCl_5 \, (s) + H_2O \, (l) \quad \rightarrow \quad POCl_3 \, (l) + 2HCl \, (aq) \quad$ (Slow Step)

$POCl_3 \, (l) + 3H_2O \, (l) \quad \rightarrow \quad H_3PO_4 \, (l) + 3HCl \, (aq) \quad$ (Fast Step)

_____

$PCl_5 \, (s) + 4H_2O \, (l) \quad \rightarrow \quad H_3PO_4 \, (l) + 5HCl \, (aq)$

**Q.87** The rate equation for this reaction will be:

A) Rate $= k \, [PCl_5][H_2O]$
B) Rate $= [PCl_5][H_2O]$

C) Rate $= k \, [POCl_3][H_2O]^3$
D) Rate $= k \, [PCl_5][H_2O]^4$

**Q.88** The names of functional groups in the following compound X are;
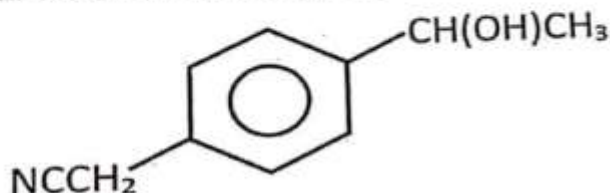


A) Primary alcohol, nitrile and benzene ring
B) Secondary alcohol, nitrile and phenol ring

C) Secondary alcohol, amine and benzene ring
D) Secondary alcohol, nitrile and aryl ring

**Q.89** If the energy of activation of a chemical reaction is very low, the rate of that chemical reaction is observed to be very high because ?

A) Reaction proceeds without any transition state
B) Number of efficient or fruitful collisions increase

C) Concentration of the reactants becomes irrelevant
D) Molecules of the reactants move slowly

**Q.90** Which of the following compounds will give a secondary alcohol after reaction with $NaBH_4$?

A) $CH_3COOCH_3$
B) $CH_3COCH_3$

C) $CH_3CH_2COOH$
D) $CH_3CH_2CHO$

**Q.91** Copper is a typical transition metal. Its atomic number is 29. In which oxidation state does it have partially filled orbital in d-subshell?

A) $Cu^{2+}$
B) $Cu^-$

C) $Cu$
D) $Cu^+$

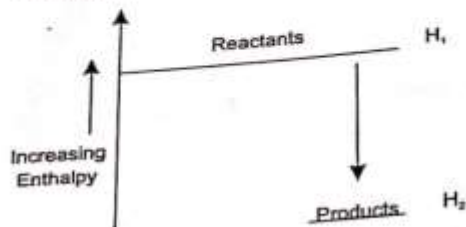**Q.91** Which of the following reagent is required for preparation of acyl chloride $(CH_3COCl)$ from ethanoic acid?

C) PCl5
D) CH3Cl

A) POCl3
B) HCl

**Q.92** The given diagram shows the enthalpy changes during a chemical reaction.



This diagram represents:

A) A non-spontaneous process
B) An isothermic process

C) An endothermic reaction
D) An exothermic reaction

**Q.93** Ionization energy decreases down the group from top to bottom due to:

A) Increase in proton number
B) Decrease in atomic size

C) Increase in shielding effect of the intervening electrons
D) Increase in atomic mass

**Q.94** Free Nitrogen and oxygen are present in atmosphere but they do not react with each other under normal conditions, because:

A) Oxygen is found in less concentration.
B) Nitrogen requires a catalyst.

C) Nitrogen is highly inactive gas.
D) Oxygen is very inactive.

**Q.95** Which derivative of benzene shows maximum reactivity in electrophilic substitution reactions?

A) Benzoic acid
B) Benzaldehyde

C) Nitrobenzene
D) Methyl benzene

**Q.96** Which of the following reactions is used for the production of alcohols on industrial scale?
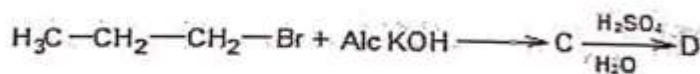
A) Hydrogenation of alkenes
B) Hydroxylation of alkenes

C) Hydrohalogenation of alkenes
D) Hydration of alkenes

**Q.97** The pH of $10^{-2}$ M aqueous solution of sodium hydroxide is

A) 12
B) 10

C) 13
D) 14

**Q.98** In the reaction sequence:

$$H_3C-CH_2-CH_2-Br + Alc\ KOH \longrightarrow C \xrightarrow[H_2O]{H_2SO_4} D$$

Product D will be

A) 2-propanol
B) 1-propanol

C) Propanoic acid
D) Mixture of methanol and ethanol

**Q.99** What is the measure of activation energy in an endothermic reaction?

A) The energy of activation of forward reaction is less than that of backward reaction.
B) The energy of activation of forward-backward reaction is same.

C) The energy of activation of backward reaction is less that that of forward reaction.
D) The energy of activation of backward reaction is more than that of forward reaction.

Paper ID : A

**Q.100** Maleic acid and Fumaric acid, both have chemical formula $C_4H_4O_4$. The structure of these acids is shown below.
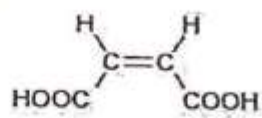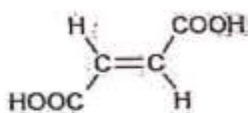


Maleic acid          Fumaric acid

Maleic acid and Fumaric acid are:

A) Position isomers
B) Structural isomers

C) Metamers
D) Cis-trans isomers

**Q.101** Alkenes undergo:

A) Nucleophilic subsitution
B) Nucleophilic addition

C) Electrophilic Addition
D) Electrophilic subsitution

**Q.102** Nitriles (RCN) on hydrolysis in the presence of a mineral acid yield:

A) Ethers
B) Carboxylic acids

C) Aldehydes
D) Alcohols

**Q.103** The $K_a$ values of HCl, $CH_3COOH$, HF and $H_2SO_4$ are $10^{+7}$, $1.85 \times 10^{-5}$, $6.7 \times 10^{-5}$ and $10^{+2}$ respectively. The decreasing order of acidic strength is:

A) $HCl > HF > H_2SO_4 > CH_3COOH$
B) $HCl > CH_3COOH > HF > H_2SO_4$

C) $HCl > H_2SO_4 > HF > CH_3COOH$
D) $CH_3COOH > HF > H_2SO_4 > HCl$

**Q.104** Which of the following will give a positive test with Tollen's reagent?

A) Aldehydes
B) Tertiary Alcohols

C) Ketones
D) Carboxylic Acids

**Q.105** Select the reagent X from the following choices for this conversion;

$$CH_3CH(OH)CH(CH_3)_2 \xrightarrow{\text{Reagent X}} CH_3COCH(CH_3)_2$$

A) Acidified Phosphoric acid
B) Acidified Oxalic acid

C) Acidified Potassium hydroxide
D) Acidified Potassium dichromate (VI)

**Q.106** which of following compounds is responsible for the depletion of ozone layer?

A) Carbon tetrachloride
B) Choroflorocarbons

C) Hydroflorocarbons
D) Methane

**Q.107** Which one the following compound is additional polymer ?

A) Carbohydrate
B) Polyvinyl chloride

C) Nylon
D) Polyester

**Q.108** Ketones can be made by oxidation of

A) Secondary Alcohols
B) Tertiary Alcohols

C) Aldehydes
D) Primary Alcohols

**Q.109** Which of the following bond is responsible for joining the amino acids in proteins?

A) Ionic Bond
B) Metallic Bond

C) Di sulfide bond
D) Peptide Bond

Paper ID : A

**Q.110** Identification tests for functional groups of organic compounds are associated with specific observations. Tollen's reagent is ammonical silver nitrate solution, which is used for the identification of a functional group X with an observation O. Identify X and O.

A) X= Ketone O= grey precipitate
B) X= Ketone  O= Silver mirror

C) X=Aldehyde O= Silver mirror
D) X= Aldehyde O= red precipitate

**Q.111** The structure of Xenon trioxide is shown below,
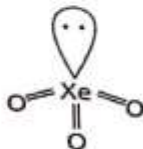


With reference to the Valence shell electron pair repulsion theory, (VSEPR) , the shape of $XeO_3$ is;

A) Trigonal pyramidal
B) Tetrahedral

C) Bent (or angular)
D) Trigonal planar

**Q.112** Which two elements are isotopes?

A) $^{18}_{9}X$ and $^{20}_{10}Y$

B) $^{14}_{8}X$ and $^{15}_{8}Y$

C) $^{16}_{8}X$ and $^{16}_{8}Y$

D) $^{12}_{6}X$ and $^{12}_{7}Y$

**Q.113** Accoridng to Watson and Crick's model of DNA, the DNA molecule consists of a double helix. What type of forces are responsible to keep two strands of DNA together?

A) Hydrogen bonding
B) Dipole-induces dipole forces

C) van der Waal's forces
D) Ionic bonding

**Q.114** An inter molecular force of attraction X  is relatively stronger than the other inter molecular forces , it stabilizes α-helix and β-pleated sheets of proteins. The double helical structure of DNA is also stabilized by this force of attraction. Identify X.

A) Hydrogen bonding
B) van der Waal's Forces

C) Ionic interactions
D) Dipole dipole attraction

**Q.115** Which one of the following molecules has $SP^3$ hybridization?

A) $CH_4$
B) $C_2H_2$

C) $CO_2$
D) $C_2H_4$

**Q.116** Oxidation number of particular element can be directly or indirectly inferred from its:

A) Atomic mass
B) Physical state

C) Group number
D) Atomic size

**Q.117** Which of the following sets constitutes of all the molecules and ions of non-planar geometry?

A) $PH_4^+$, $NH_3$, $SO_3$, Benzene
B) $CH \equiv CH$, $H_2O$, $BeCl_2$, $H_2S$

C) $SO_2$, $C_2H_4$, $BF_3$, $NO_3^-$
D) $CH_4$, $NH_4^+$, $MnO_4^-$, $NF_3$

**Q.118** Nitrogen has the atomic mass of 7.

Which of the following electronic configurations is of a Nitrogen atom in ground state?

A) $1s^2, 2s^2, 2p_x^2, 2p_y^1$
B) $1s^2, 2s^2, 2p_x^2, 2p_z^1$

C) $1s^2, 2s^2, 2p_x^1, 2p_y^1, 2p_z^1$
D) $1s^2, 2s^2, 2p_y^2, 2p_z^1$

Paper ID : A

**Q.119** CFC's are organic compounds, which are derivatives of saturated hydrocarbons. They have high bond dissociation values therefore they are inert and non toxic for the living organisms.

The word CFC's stands for;

A) Chlorofluoridecarbons
B) Carboflourochlorines

C) Chlorofluorcarbides
D) Chlorofluorocarbons

**Q.120** Amino acids are bi-functional compounds, with a general formula $NH_2CH(R)CO_2H$. A tripeptide is formed between Alanine (ala), Glycine (gly) and lysine (lys). There is no repetition of amino acid in this tri-peptide, suggest how many tri-peptides are possible?

A) 9
B) 3

C) 6
D) 12

**Q.121** Which type of reaction takes place when a carbonyl compound is treated with a mixture of NaCN and an acid?

A) Substitution reaction
B) Electrophilic addition  reaction

C) Nucleophilic addition reaction
D) Displacement reaction

**Q.122** Disposable cups are made of a polymer polystyrene. Polystyrene is:

A) A polyamide
B) A condensation polymer

C) An addition polymer
D) A polyester

**Q.123** During stoichiometric calculations, which of the following laws must be followed?

A) Dalton's law
B) Law of conservation of mass

C) Avogadro's law
D) Law of conservation of energy

**Q.124** Which of the following element is not present in halogens?

A) Cl
B) I

C) F
D) Fe

**Q.125** Which enthalpy change is relevant in the following process

$$Na_{(s)} \rightarrow Na_{(g)} \qquad \Delta H = +$$
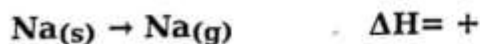
A) Enthalpy of atomization
B) Enthalpy of vaporization

C) Enthalpy of fusion
D) Enthalpy of formation

**Q.126** Which of the following substances exhibits hydrogen bonding?

A) HI
B) $H_2S$

C) $SiH_4$
D) $NH_3$

**Q.127** Which balanced chemical equation show the formation of ethanoyl chloride using thionyl chloride?

A) $CH_3COOH + SOCl_2 \rightarrow CH_3COCl + SO_2 + HCl$
B) $CH_3CH_2COOH + 2SOCl \rightarrow CH_3CH_2COCl + SO_2 + HCl$

C) $CH_3CH_2COOH + 2SOCl \rightarrow CH_3CH_2COCl + SO_3 + HCl$
D) $HCOOH + SOCl_2 \rightarrow HCOCl + SO_2 + HCl$

**Q.128** The number of moles of water in 1Kg ice are

A) 100 moles
B) 1000 moles

C) 50 moles
D) 55.5 moles

**129** For an equilibrium reaction;

$$2SO_{2(g)} + O_{2(g)} \rightleftharpoons 2SO_{3(g)}$$

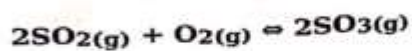the forward reaction is exothermic, increase in temperature shifts the equilibrium position towards left because,

A) the concentrations of $SO_2$ and $O_2$ decrease and concentration of $SO_3$ increases as the temperature increases

B) the concentrations of $SO_2$ and $O_2$ increase and concentration of $SO_3$ decreases as the temperature increases

C) the concentrations of $SO_2$ and $O_2$ increase and concentration of $SO_3$ stays same as the temperature increases

D) the concentrations of $SO_3$ , $SO_2$ and $O_2$ increase as the temperature increases

**130**

| | |
|---|---|
| $Mg^{2+} + 2e^- \rightarrow Mg$ | $E° = - 2.37$ V |
| $Zn^{2+} + 2e^- \rightarrow Zn$ | $E° = - 0.76$ V |
| $2H^+ + 2e^- \rightarrow H_2$ | $E° = 0.000$ V |
| $Cu^{2+} + 2e^- \rightarrow Cu$ | $E° = + 0.34$ V |
| $Cl_2 + 2e^- \rightarrow 2Cl^-$ | $E° = + 1.36$ V |
| $Au^{3+} + 2e^- \rightarrow Au$ | $E° = + 1.50$ V |

Keeping in view the values of standard reduction potential given above, which one of the following would you select as a feasible redox chemical reaction?

A) $Mg + 2H^+ \rightarrow Mg^{2+} + H_2$

B) $Cu + Zn^{2+} \rightarrow Cu^{2+} + Zn$

C) $2Cl^- + I_2 \rightarrow Cl_2 + 2I^-$

D) $2Au + 6H^+ \rightarrow 2Au^{3+} + 3H_2$

**Q.131** Modern periodic table is arranged in ascending order of ?

A) Atomic mass

B) Proton number

C) Mass number

D) Nucleon number

**Q.132** In the second period of elements,although oxygen lies next to nitrogen yet its ionization first energy is lower than that of nitrogen because?

A) Oxygen is paramagnetic in character.

B) In oxygen, there exists repulsion between pair of electrons present in the same orbital of valence shell.

C) Nuclear charge of oxygen is greater than nitrogen.

D) Oxygen has higher electron affinity.

**Q.133** Chlorofluorocarbons (CFCs) are important compounds which are used as refrigerants but these are also responsible for Ozone layer depletion. If a Chlorofluorocarbon $CFCl_3$ is present in stratosphere, which of it's reaction intermediates are actually responsible for the breakdown of Ozone molecule?

A) $CFCl_2·$ and $Cl·$

B) $Cl·$ and $ClO·$

C) $CFCl_2·$ and $ClO·$

D) $CFCl2.$ and $CFCl3$

**Q.134** Solution contains 85.5 g of sucrose ($C_{12}H_{22}O_{11}$) in 250 cm$^3$. What is its molarity?

A) 0.5 M

B) 2 M

C) 0.25 M

D) 1 M

**Q.135** Which of the following is the electronic configuration of Cr?

A) $[Ar] 3d^6 4s^0$

B) $[Ar] 3d^4 4s^2$

C) $[Ar] 3d^5 4s^2$

D) $[Ar] 3d^5 4s^1$

Paper ID : A

.136 All the collisions between the particles of gases are elastic in nature. What is meant by "Elastic Collisions"?

A) No change in potential energy during the collisions
B) The velocity of the molecules changes

C) No change in the kinetic energy
D) No change in mass during the collisions

.137 Aqueous solutions of Iodine and Sodium hydroxide were mixed in a round bottom flask at 70°C.Following chemical reaction was carried out.

$3I_2 + 6NaOH \rightarrow NaIO_3 + NaI + H_2O$

This reaction is termed as

A) Redox reaction
B) Free radical reaction

C) Precipitation reaction
D) Substitution reaction

.138 Carboxylic acids can be reduced into corresponding alcohols. Which of the following reagent can be used for this purpose?

A) $LiAlH_4$
B) $K_2Cr_2O_4$

C) $KMnO_4$
D) $H_2SO_4$

.139 How many moles of calcium carbonate are present in 1.75 kg of calcium carbonate? ($A_r$ of Ca = 40, $A_r$ of C = 12, $A_r$ of O = 16)

A) 0.0175 mol
B) 1.75 mol

C) 17.5 mol
D) 1750 mol

.140 Which of the following molecule shows cis- trans isomers ?

A) $C_2HCl_3$
B) $C_2H_2Cl_4$

C) $C_2H_4$
D) $C_2H_2Br_2$

## PHYSICS

.141 Heavy nucleus of atoms go through fission so that they can:

A) absorb high amount of energy
B) absorb low amount of energy

C) increase their binding energy per nucleon
D) reduce their binding energy per nucleon

142 For projectile motion in the absence of air resistance:

A) vertical speed is constant
B) horizontal force is constant

C) horizontal acceleration is zero
D) vertical acceleration is zero

.143 The range of the projectile depends upon the velocity of the projection and the angle of the projection i.e 45°. For a fixed velocity, when the angle of projection is larger than 45°. Which of the following is correct?

A) Both the height and the range attained by the projectile will be less.
B) Both the height and the range attained by the projectile will be more.

C) The height attained by the projectile will be less but the range is more.
D) The height attained by the projectile will be more but the range is less.

.144 The wavelength of the electromagnetic wave having frequency of 3 kHz will be?

A) 80 km
B) 140 km

C) 100 km
D) 120 km

.145 An alternation voltage V (in volts) is represented by the equation:

$V = 300 \sin (100nt)$

What is the value of "f" for this voltage?

A) 25 Hz
B) 200 Hz

C) 50 Hz
D) 100 Hz

Paper ID : A

**.146** The diameter of a wire is measured by using a micrometer screw gauge with least count of 0.01 mm, then which of the following readings will be correct?

A) 0.067 cm
B) 0.0067 mm

C) 0.67 cm
D) 6.70 cm

**.147** Which of the following is statement shows that no work is done?

A) Pushing a car to start it moving
B) Writing an essay on a page.

C) Lifting the weights.
D) The moon orbiting the earth.

**.148** When the length of simple pendulum is doubled, then ratio of its new time period to old time period is:

A) $2\sqrt{2}$
B) $-\sqrt{2}$

C) $\sqrt{2}$
D) $1/\sqrt{2}$

**.149** The direction of current through the load resistance of a full-wave rectification circuit:

A) inverts for negative cycle
B) changes for every cycle

C) inverts for positive cycle
D) remains constant

**.150** A wire has a spring constant of $5 \times 10^4$ N m$^{-1}$. It is stretched by a force to extension of 1.4 mm. Calculate the strain energy stored in the wire.

A) $4.9 \times 10^{-5}$ J
B) 4.9 J

C) $4.9 \times 10^{-5}$ J
D) $4.9 \times 10^{-2}$ J

**.151** If two objects of equal masses 'm' are moving towards each other with the same speeds 'v' then what will be the total final momentum after elastic head-on collision?

A) - mv kg/s
B) mv kg m/s

C) 2 mv kg/s
D) 0 kg m/s

**.152** Molecules of a gas at constant pressure for a fixed amount of gas have average kinetic energy X. Increasing temperature from 27°C to 327°C, average K.E. of molecules will become:

A) 200X
B) 20X

C) 300X
D) 2X

**.153** An automobile is moving forwards with uniform velocity due to the force exerted by its engine. If that force is double with the velocity remaining constant what happens to its total power?

A) It does not change
B) It is squared

C) It is halved
D) It is doubled

**.154** In Double Slit experiment, the fringe spacing of the diffracted rays increases when:

A) the distance between the screen and the slits decreases
B) the wavelength of the diffracted rays increases

C) the distance from mid points of the slits to the central point of the fringe on the screen increases
D) the distance between the slits increases

**.155** The area under the extension-load graph of an elastic material whose elastic limit has not been exceeded gives its:

A) Stress
B) Strain energy

C) Young modulus
D) Strain

**.156** Minimum energy required to eject an electron from metal surface is called:

A) Work function
B) Stopping potential

C) Threshold frequency
D) Electromotive force

**.157** The unit of magnetic flux density is the tesla, 'T', it can also be expressed as

A) 1 N$^1$ A$^{-1}$ m
B) 1 N$^{-1}$ A$^{-1}$ m$^{-1}$

C) 1 N A$^{-1}$ m
D) 1 N A$^{-1}$ m$^{-1}$

Paper ID : A

Paper ID : A

**Q.158** Percentage un-certainty in length and width of a rectangle is 2% and 3%. The total un-certainty in area of that rectangle is?

A) 1.5%  
B) 5%  
C) 6%  
D) 1%

**Q.159** What is the quark composition of a Proton?

A) Two up quarks and one down quark  
B) One up quark and two strange quarks  
C) Two up quarks and one strange quark  
D) Two down quarks and one up quark

**Q.160** What will be the expression for the observed frequency, if the source is moving towards the observer?

A) $f_o = \left(\dfrac{v}{v - u_s}\right) f$

C) $f_o = \left(\dfrac{v}{v + u_s}\right) f$

B) $f_o = \left(\dfrac{v}{v \pm u_s}\right) f$

D) $f = \left(\dfrac{v}{v - u_s}\right) f_o$

**Q.161** Work done due to centripetal force for circular motion  will be:

A) Reduced  
B) Maximum  
C) Half  
D) Zero

**Q.162** If we give a direct current to the transfomer's primary coil, then there will be:

A) Less emf produced in the secondary  
B) No emf produced in the secondary  
C) Equal emf produced in the secondary  
D) More emf produced in the secondary

**Q.163** The value and units of the Plank constant 'h' can be expressed as:

A) $6.63 \times 10^{-34}$ Js$^{-1}$  
B) $6.63 \times 10^{-43}$ Js  
C) $6.63 \times 10^{-34}$ Js  
D) $3.63 \times 10^{-34}$ Js

**Q.164** A negligible small current between input terminals of the operational amplifier is because of:

A) Low input resistance  
B) Low output resistance  
C) High output resistance  
D) High input resistance

**Q.165** If a conductor of length 7m is placed in a magnetic field of strength

0.3T carrying current 1A, parallel to the field. What will be the force acting on it due to this magnetic field?

A) 2.1 N  
B) 0 N  
C) 3.1 N  
D) 7 N

**Q.166** The horizontal component of Earth magnetic flux density is $1.8 \times 10^{-6}$ T. The current in a horizontal cable is 160A. Calculate the maximum force per unit length?

A) $2.88 \times 10^{-4}$ N/m  
B) $2.88 \times 10^{-8}$ N/m  
C) $2.88 \times 10^{-2}$ N/m  
D) $2.88 \times 10^{-6}$ N/m

**Q.167** If we change the magnetic flux linking a coil by rotating the coil in a constant magnetic field, the rate of change of this flux is:

A) Proportional to the emf produced in it  
B) Proportional to the change in magnetic field  
C) Proportional to the resistance of the coil  
D) Proportional to the material of the coil

**Q.168** Electric field strength of a point charge is E and electric potential is V at a distance r from the point charge. What is the electric potential at a point for the same point charge where electric field strength is E/4?

A) V/4
B) V/2
C) 4V
D) 2V

**Q.169** In simple harmonic motion , acceleration will be maximum, when object  is at:

A) maximum displacement from the mean position
B) center position
C) mean position
D) half of the maximum displacement from mean position

**Q.170** Calculate the energy of a photon of frequency $3.0 \times 10^{18}$ Hz.

$(h = 6.63 \times 10^{-34})$

A) $19.89 \times 10^{-18}$ J
B) $1.89 \times 10^{-16}$ J
C) $11.89 \times 10^{-16}$ J
D) $19.89 \times 10^{-16}$ J

**Q.171** In relation  $\lambda\, T_{1/2} = 0.693$ , which quantity is represented by $\lambda$?

A) half life
B) wavelength
C) activity
D) decay constant

**Q.172** Path difference for the destructive interference can be written as:

A) $\Delta s = n\,\lambda$
B) $\Delta s = (n + 1/3)\, \lambda / 2$
C) $\Delta s = 2n\,(\lambda)$
D) $\Delta s = (2n + 1)\, \lambda / 2$

**Q.173** If a light is emitted by a single source passes through two narrow slits 1.00 mm apart. The interefence pattern is observed on a screen 200 cm away and the separation between the centres of adjacent bright fringes is 2.00 mm. What would be the wavelength of the light?

A) 2 µm
B) 1 µm
C) 2 pm
D) 1 nm

**Q.174** The sum  of all forms of molecular energies (Kinetic and Potential) of a substance is termed as ?

A) Internal energy
B) Elastic energy
C) Heat energy
D) Absolute energy

**Q.175** Calculate the rate at which energy is transferred by 220 V mains supply which provides a current of 0.1 A to a LED?

A) 22 kW
B) 2.2 kW
C) 22 W
D) 2.2 W

**Q.176** A particle carrying a charge of 5e falls through a potential difference of 25V. What would be energy acquired by the particle in 'J'.

A) $125 \times 10^{-19}$ J
B) $1.6 \times 10^{-19}$ J
C) $125 \times 1.6 \times 10^{-19}$ J
D) 125 J

**Q.177** A copper wire has length L and cross-sectional A. Its resistance is R. If we halved the length and halved the diameter of wire then what will be the resistance of this wire?

A) R
B) 3R
C) 2R
D) 4R

**Q.178** Kirchhoff's first law/rule corresponds to:

A) Law of conservation of energy
B) Law of conservation of charge
C) Law of conservation of momentum
D) Law of conservation of mass

Paper ID : A

**Q.179** Electric field strength at a point between oppositely charged plates is E. If the distance between plates is reduced to half , what will be the new value of electric intensity?

A) 4E
B) E/2

C) E/4
D) 2E

**O.180** An object is moving along a circular path of radius 4m. What will be its angular displacement if it moves 14m on this circular path?

A) 5.5 radians
B) 3.5 radians

C) 5.0 radians
D) 4.5 radians

## ENGLISH

**Part - I : Choose THE BEST Option.**

**Q.181** The accident happened due to the driver's -----.

A) Nuisance
B) Negligence

C) Reluctance
D) Regret

**Q.182** They sometimes feel a ----- for the mountains and the sea.

A) Yearning
B) Yelling

C) Yielding
D) Yapping

**Q.183** I ----- caution in interpreting these results.

A) Uproot
B) Usher

C) Usurp
D) Urge

**Q.184** She was feeling -------------- even after five hours of the surgery.

A) Groggy
B) Grope

C) Haggard
D) Pally

**Q.185** The new teacher showed no -------- about hitting the students.

A) Quotation
B) Qualms

C) Quakes
D) Quarrel

**Q.186** The parents were stunned when they saw that children had created complete--------------------in the bedroom:

A) Knack
B) Mayhem

C) Groggy
D) Dank

**Q.187** The culpable child -------- some words to her mother for pardoning his delinquency.

A) Rude
B) Mumbled

C) Crazy
D) Showy

**Q.188** Part - II: *In each of the following question, four alternative sentences are given. Choose the CORRECT one and fill the Circle corresponding to that letter in the MCQ Response Form.*

A. He asked, "Is your brother home?"

B. He asked "Is your brother home?"

C. He asked, "Is your brother home"?

D. He asked "Is your brother home?".

Paper ID : A

Q.189   A. I was been to America for medical check up.

B. I had being to America for medical check up.

C. I have been to America for medical check up.

D. I has been to America for medical check up .

Q.190   A. After breaking the glass, Ruby said "Please don't tell on me."

B. After breaking the glass Ruby said: "Please don't tell on me."

C. After breaking the glass, Ruby said: "Please don't tell on me."

D. After breaking the glass Ruby said: please don't tell on me.

Q.191   A. It is healthful to eat a variety of food.

B. It were healthful to eat a variety of food.

C. It is healthful to ate a variety of food.

D.  It were healthful to ate a variety of food.

Q.192   A.We hadn't the foggy notion of the worker who tried to spoil the company's reputation.

B.We hadn't the foggiest notion of the worker who tries to spoil the company's reputation.

C.We hadn't the foggiest notion of the worker whom tried to spoil the company's reputation.

D.We hadn't the foggiest notion of the worker who tried to spoil the company's reputation.

Q.193   A. We use to play football when we lived abroad.

B. We are used to play football when we lived abroad.

C. We used to play football when we lived abroad.

D. We have use to play football when we lived abroad.

Part - III: SPOT THE ERROR: In the following sentences some segments of each sentence are underlined. Your task is to identify that underlined segment of the sentence, which contains the mistake that needs to be corrected. Fill the Circle corresponding to that letter under the segment in the MCQ Response Form.

**Q.194** <u>She had</u> one of those <u>picture children</u> often reproduced
    A          B

in advertising leaflets and <u>the photogravure</u> sections of the
             C

<u>Sunday papers.</u>
  D

**Q.195** When <u>the mother</u> <u>threatened to</u> lock Aslam <u>in the attic,</u>
     A     B         C

the mere <u>thought for</u> being confined made him breathless.
     D

**Q.196** <u>Let's</u> hurry. <u>The</u> bus <u>is</u> leaving <u>to</u> the last stop.
  A      B    C     D

**Q.197** <u>Despite</u> all my enthusiastic <u>chain of effort,</u> I could not <u>attained</u> the
   A              B        C

desired results to be <u>crowned with</u> brilliant success.
        D

**Q.198** Education and economic progress <u>along with</u> good
                A

governance <u>is the factor</u> that <u>take</u> a country <u>towards</u> quick
      B      C       D

development.

**Q.199** Ali and Irfan <u>have</u> to receive the guests <u>at the reception</u> of the
      A              B

hotel, while Amir <u>have</u> to bring their bags <u>from</u> the cars.
       C          D

**.200** <u>Ruth was</u> wondering what she could <u>do for help</u> but she <u>did not</u>
                B       C
  A

## For Booking MDCAT Past Papers Unit-Wise Solved:

**Type: -**

**Your Name:** ----------------------------------------------------------------------------------------------------

**City:** ---------------------------------------------------------------------------------------------------------------

**Complete Address:** ---------------------------------------------------------------------------------------------

**Mobile Number:** ------------------------------------------------------------------------------------------------

**Book Name:  MDCAT Past Papers**

**Send SMS On 03047418334  OR  WhatsApp  📞 03047418334**

**For Order Through Email**         **Click Here**

**For Online Booking**         **Click Here**

# MBBS.COM.PK

## Also offers

- **AFNS BOOK** [Syllabus & Past Papers]
- **Army Medical** College Preparation Book
- **Entry Test Book** For NUMS MDCAT
- **MDCAT English** Vocabulary [With Mnemonics & Illustrations]