KIPS | ENTRY TESTS PREPARATION

CHEMISTRY MDCAT

UNIT–3 (A + SERIES)

TOPIC:-

- ✓ **GASES**
- ✓ **LIQUIDS**
- ✓ **SOLIDS**

Q.1 Which of the following compound does not have hydrogen bonding

A. $C_2H_5 - NH_2$
B. C_2H_5OH
C. CH_3CHO
D. HF

Q.2 A certain gas 'X' exhibit most non-ideal behaviour easy liquefaction and strongest attractive forces. If its compressibility factor value is

A. 1
B. 1.5
C. 0.8
D. 0.2

Q.3 Cubic unit cell of NaCl contains _____ formula units

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

Q.4 Which of the following has highest lattice energy

A. KCl
B. KBr
C. NaCl
D. NaF

Q.5 London dispersion forces are significant in

A. Xe and Cl_2
B. O_2 and H_2O
C. HCl and PH_3
D. All of these

Q.6 Decomposition of glycerine can be avoided by

A. Using pressure cooker
B. Vacuum distillation
C. Boiling at STP
D. All of these

Q.7 Which contain strongest intermolecular forces

A. Na^{+1} and H_2O
B. H_2O and H_2O
C. $(CH_3)_2CO$ and $CHCl_3$
D. Cl_2 and H_2O

Q.8 The boiling point of compound is mostly raised by:

A. Dipole induced dipole interaction
B. London dispersion forces
C. Intra molecular H–bonding
D. Inter molecular H–bonding

Q.9 Amorphous solids?

A. Have prefect arrangement of atoms
B. Have sharp Melting point
C. Can possesses small regions of orderly arrangement of atoms
D. Undergo clean cleavage when cut with knife

Q.10 Ideal gas equation helps to calculate the following property of ideal gas except

A. Pressure
B. Density
C. Moles
D. Molarity

Q.11 Which one is least volatile?

A. H_2O
B. H_2Te
C. H_2S
D. H_2Se

Q.12 Hydrogen bonding is not present between the molecules of

A. NH_3
B. HI
C. HF
D. H_2O

Q.13 Force of attraction which is present in all types of atoms and moleucles are

A. Dipole – dipole
B. Ion –dipole
C. Dipole –induced dipole
D. London dispersion forces

Q.14 Dipole –dipole interaction is _____ as effective as covalent bond.

A. 20%
B. 100%
C. 10%
D. 1%

Q.15 Which of the following has highest vapor pressure?

A. HF
B. H_2O
C. NH_3
D. $CHCl_3$

Q.16 Strongest hydrogen bond present in which molecule?

A. NH_3
B. H_2O
C. HF
D. CH_3OH

Q.17 Water has maximum density at which temperature with same pressure.

A. – 4°C
B. 4K
C. 0°C
D. 277k

Q.18 The boiling point of water at mount Everest is _____.

A. 120°C
B. 25°C
C. 98°C
D. 69°C

Q.19 Amount of energy required to vaporize one mole of a liquid at its boiling point is ____.

A. Vaporization
B. Heat of vaporization
C. Molar heat of vaporization
D. Evaporation

Q.20 Each O-atom of H_2O is attached to _____ in crystal lattice of ice.

A. One H-atoms
B. Two H-atoms
C. Three H-atoms
D. Four H-atoms

Q.21 Hydrogen bond is stronger than

I. dipole –dipole
II. Covalent bond
III. Ionic bond
IV. London dispersion forces
A. I, IV
B. I, III
C. I, III, II
D. I, II, III, IV

Q.22 Maximum rate of evaporation at same temperature is shown by

A. Glycerin
B. Fluorine
C. Water
D. Hydrogen fluoride

Q.23 When 10% urea is added in solution of NaCl as impurity then it form crystal like

A. Hexagonal
B. Cubic
C. Orthorhombic
D. Needle

Q.24 Which solid has highest melting point among the following

A. Covalent
B. Ionic
C. Molecular
D. Metallic

Q.25 All are examples of nonpolar molecular solid except

A. CO_2
B. $C_6H_{12}O_6$
C. I_2
D. Sulphur

Q.26 London dispersion force of attraction is significant in _____

A. Metallic solids
B. Ionic solids
C. Molecular solids
D. All of these

Q.27 Number of chloride ion per unit cell of NaCl

A. 4
B. 6
C. 5
D. 8

Q.28 Dry ice is molecular solid. The force of attraction between its molecule are

A. Ionic bond
B. London dispersion forces
C. Covalent bond
D. Metallic bond

Q.29 Which type of attractive forces is present between acetone and chloroform

A. London dispersion
B. Hydrogen bonding
C. Ion-dipole
D. Debye

Q.30 During which process the particles come so close to each other that the empty spaces between them are minimum

A. Evaporation
B. Condensation
C. Sublimation
D. Fusion

Q.31 Ionic solids are mostly of high density due to

A. Chemical bonding
B. Close packing of ions
C. Crystallite
D. Network structure

Q.32 Vapour pressure of liquid

A. Increases with decrease of temperature
B. Increases with size of container
C. Increases with increase of temperature
D. Increases with volume of liquid

Q.33 Minimum value of root mean square velocity at 25 °C is of _____

A. NH_3
B. CO_2
C. N_2
D. CH_4

Q.34 If we decrease temperature and pressure by a factor of two then the volume of gas will

A. Increase two times
B. Decrease ¼ times
C. Decrease two times
D. Remain constant

Q.35 Correct formula of Boyle's law?

A. $PV = Constant$
B. $P \propto \frac{1}{V} (Constant = T)$
C. $P_1V_1 = P_2V_2$
D. All of them

Q.36 If pressure of an ideal gas increase two times and temperature decreases two times then the new volume

A. Reduce to ½
B. Reduced to ¼
C. Increased two-time
D. Increased four times

Q.37 With the increase of temperature, the density of gas will

A. Increase
B. Remain same
C. Decrease
D. Not predictable

Q.38 A gas X has volume of $20dm^3$ at STP. At what temperature its volume will become $40dm^3$ by keeping pressure constant

A. 819 k
B. 819°C
C. 546 k
D. 546°C

Q.39 Which one pair has same number of molecules at STP

I. 2g of H_2
II. 1g of N_2
III. 17g of NH_3
IV. 1 mole of O_2
A. I, II, III
B. I, II, IV
C. I, III, IV
D. II, IV

Q.40 Which of the following has maximum average K.E at 50°C?

A. N_2
B. CO_2
C. CH_4
D. All have same

Q.41 Absolute zero is NOT equal to

A. 0 K
B. –273 °C
C. –459.67 °F
D. 0°C

Q.42 Correct unit of ideal gas constant R at STP

A. 6400 Nm $K^{-1}mol^{-1}$
B. 0.0821 atm dm^3 $K^{-1}mol^{-1}$
C. 8.314 atm dm^3 $K^{-1}mol^{-1}$
D. 1.989 Nm $K^{-1}mol^{-1}$

Q.43 Correct formula for molar mass of ideal gas

A. $M = \frac{mRT}{PV}$
B. $M = \frac{RT}{PV}$
C. $M = \frac{PV}{mRT}$
D. $M = \frac{mPV}{RT}$

Q.44 $1dm^3$ of N_2, H_2, CH_4 and O_2 has number of particles.

A. 6.02×10^{23}
B. 2.68×10^{22}
C. 6.02×10^{22}
D. 3.01×10^{23}

Q.45 Non-ideal behavior is maximum at

A. Low P, low T
B. Low P, high T
C. High P, low T
D. None of these

Q.46 Vander Waal's equation for 1 mole of gas is

A. $PV = nRT$
B. $PV = RT$
C. $\left(P + n^2\frac{a}{V^2}\right)(V - nb) = nRT$
D. $\left(P + \frac{a}{V^2}\right)(V - b) = RT$

Q.47 Which of the following gas shows less deviations form ideal behaviour at 0°C

A. He
B. H_2
C. N_2
D. CO_2

Q.48 Which of the following has highest vapour pressure

A. Water
B. Diethyl ether
C. Ethanol
D. Propanone

Q.49 In which of the following pair London dispersion forces are significant

A. H_2O, HCl
B. O_2, H_2O
C. I_2, Cl_2
D. CH_3OH, H_2O

Q.50 Evaporation is not a _____ process.

A. Surface
B. Continuous
C. Natural
D. Exothermic

Q.51 Correct order of intermolecular forces for given pair of compounds will be.

A. $H_2O < NH_3$
B. n-pentane > Iso pentane
C. He > Ne
D. $C_6H_{14} < C_4H_{10}$

Q.52 Correct order of boiling point is

A. $HF > NH_3 > H_2O$
B. $H_2O > HF > NH_3$
C. $NH_3 > HF > H_2O$
D. $H_2O > HF > NH_3$

Q.53 Water will boil at 25°C when external pressure will be

A. 23.7 Torr
B. 700 Torr
C. 760 Torr
D. 1489 Torr

Q.54 Which of the following have highest boiling point?

A. CH_4
B. C_2H_8
C. C_3H_8
D. C_4H_{10}

Q.55 Debye forces of attraction present between the molecules of

A. O_2, HCl
B. N_2, H_2
C. H_2O, HCl
D. CH_4, C_6H_{14}

Q.56 Which of the following is not feature of solid?

A. Definite volume
B. Diffusion
C. Hardness
D. Definite shape

Q.57 Which of the following is anisotropic property?

A. Electrical conductivity
B. Refractive index
C. Melting point
D. Both A and B

Q.58 Ionic solid is made up of

A. Atoms
B. Molecules
C. Ions
D. All

Q.59 Existence of a compound in more than one crystalline form is called _____.

A. Allotropy
B. Isomorphism
C. Polymorphism
D. Anisotropy

Q.60 A curve drawn at constant temperature is called an isotherm. This shows relationship between

A. P and 1/ V
B. PV and V
C. P and V
D. V and 1/ P

Chemistry (A+ series)

KIPS PREPARATIONS

2023 U#03 (CTS)

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D
1	○	○	●	○	16	○	○	●	○	31	○	●	○	○	46	○	○	○	●
2	○	○	○	●	17	○	○	○	●	32	○	○	●	○	47	●	○	○	○
3	○	○	○	●	18	○	○	○	●	33	○	○	○	○	48	○	●	○	○
4	○	○	○	●	19	○	○	●	○	34	○	○	○	○	49	○	○	●	○
5	●	○	○	○	20	○	○	●		35	○	○	○	●	50	○	○	○	●
6	○	●	○	○	21	●	○	○	○	36	○	●	○	○	51	○	●	○	○
7	●	○	○	○	22	○	●	○	○	37	○	○	●	○	52	○	●	○	●
8	○	○	○	●	23	○	○	○	●	38	○	○	●	○	53	●	○	○	○
9	○	○	●	○	24	●	○	○	○	39	○	○	●	○	54	○	○	○	●
10	○	○	○	●	25	○	●	○	○	40	○	○	○	●	55	●	○	○	○
11	●	○	○	○	26	○	○	●	○	41	○	○	○	●	56	○	●	○	○
12	○	●	○	○	27	●	○	○	○	42	○	●	○	○	57	○	○	○	●
13	○	○	○	●	28	○	●	○	○	43	●	○	○	○	58	○	○	●	○
14	○	○	○	●	29	○	●	○	○	44	○	●	○	○	59	○	○	●	○
15	○	○	●	○	30	○	●	○	○	45	○	●	○	○	60	○	○	●	○

BIOLOGY MDCAT

UNIT-3 (A+ Series)

TOPIC:

✓ **Bioenergetics**

Q.1 The products formed by the complete oxidation of glucose molecules are:

A. CO_2 and O_2
B. CO_2 and H_2O
C. G3P and pyruvic acid
D. H_2O and lactic acid

Q.2 The incomplete oxidation of glucose is also termed as:

A. Aerobic respiration
B. Fermentation
C. Oxidative phosphorylation
D. Photophosphorylation

Q.3 Which of the following is common for both aerobic and anaerobic respiration?

A. EMP pathway
B. TCA cycle
C. Link reaction
D. ETC

Q.4 The number of NADH molecule/s produced during the conversion of pyruvate into ethanol is/are:

A. 2
B. 1
C. 4
D. 0

Q.5 The chemical formula of lactic acid is represented by:

A. $C_3H_4O_3$
B. C_2H_5OH
C. $C_6H_{12}O_6$
D. $C_3H_6O_3$

Q.6 During cellular respiration, electron transport chain takes place at/in:

A. Cristae
B. Matrix
C. Cytosol
D. F_1 particles

Q.7 It is said to be the 'energy currency' of the cell:

A. NADPH
B. $FADH_2$
C. ATP
D. NADH

Q.8 The type of phosphorylation takes place during EMP pathway is:

A. Substrate level phosphorylation
B. Oxidative phosphorylation
C. Non-cyclic photophosphorylation
D. Cyclic photophosphorylation

Q.9 During glycolysis, NADH molecules are formed during the conversion of:

A. 1,3-bisphosphoglycerate to 3-phosphoglycerate
B. Glyceraldehyde 3-phosphate to 1,3-bisphosphoglycerate
C. 3-phosphoglycerate to 2-phosphoglycerate
D. Phosphoenol pyruvate to pyruvate

Q.10 How many water molecules are consumed during the preparatory phase of glycolysis?

A. 0
B. 2
C. 4
D. 6

Q.11 The total number of ATP molecules produced by one molecule of glyceraldehyde 3-phosphate during glycolysis are:

A. 2
B. 4
C. 6
D. 12

Q.12 During alcoholic fermentation, acetaldehyde:

A. Releases electrons
B. Accepts electrons
C. Releases oxygen
D. Is not formed

Q.13 Which of the following event does not occur during citric acid cycle?

A. Hydration
B. Isomerization
C. Phosphorylation
D. Regeneration of RuBP

Q.14 During aerobic respiration, the link reaction is best describes as:

A. Reductive carboxylation
B. Photorespiration
C. Reductive decarboxylation
D. Oxidative decarboxylation

Q.15 The first molecule that enters from cytosol to mitochondria for aerobic respiration is:

A. Pyruvate
B. Acetyl-coA
C. G3P
D. Glucose

Q.16 The chemical link between glycolysis and citric acid cycle is:
A. Pyruvate
B. Acetyl-coA
C. Glucose
D. FAD

Q.17 Which of the following reduced electron carrier is produced abundantly during Krebs cycle?
A. NADPH
B. NAD
C. ATP
D. NAD'

Q.18 The first step in Krebs cycle is union of acetyl coA with _____'
A. Citrate
B. Succinate
C. Oxaloacetate
D. Fumarate

Q.19 During Krebs cycle, addition of water involves in:
A. Isocitrate → α-ketoglutarate
B. α-ketoglutarate → Succinate
C. Succinate → Fumarate
D. Fumarate → malate

Q.20 All of the following are the outputs of Krebs cycle except:
A. NADH
B. FADH
C. ATP
D. G3P

Q.21 Which of the following occurs both in plants and animals?
A. Photophosphorylation
B. Oxidative phosphorylation
C. RuBisCO formation
D. Photolysis of H_2O

Q.22 Generally, it is said that one molecule of NADH can yield _____ during its oxidation through ETS.
A. 3 ATP molecules
B. 2 ATP molecules
C. 1 ATP molecule
D. 5 ATP molecules

Q.23 The phase in which energy currency of the body is consumed:
A. Glycolysis
B. Link reaction
C. Krebs cycle
D. Electron transport chain

Q.24 The presence of free oxygen made possible the evolution of:
A. Photosynthesis
B. Aerobic respiration
C. Electron transport chain
D. Krebs cycle

Q.25 What is the role of oxygen in respiration?
A. Donates two electrons
B. Reduces cytochrome a3
C. Reduced by hydrogen
D. Produced as by product

Q.26 Which of the following can act as oxidizing agent in Krebs cycle?
A. NADH
B. FAD
C. NADP'
D. ADP

Q.27 Dark reaction starts with the reaction of CO_2 with:
A. Biphosphorylated keto-triose
B. Phosphorylated aldo-triose
C. Phosphorylated aldo-pentose
D. Bisphosphorylated keto-pentose

Q.28 The iron containing protein involves in both non-cyclic and cyclic electron flow is:
A. Plastoquinone
B. Ferredoxin
C. Ceruloplasmin
D. Plastocyanin

Q.29 The release of oxygen during photosynthesis takes place in the presence of:
A. NADP' reductase
B. PS-II
C. PS-I
D. Plastocyanin

Q.30 The correct order of flow of solar energy absorbed by the photosynthetic pigments is:
A. Carotenoids → Chlorophyll 'a' → Chlorophyll 'b'
B. Carotenoids → Chlorophyll 'b' → Chlorophyll 'a'
C. Chlorophyll 'b' → Carotenoids → Chlorophyll 'a'
D. Chlorophyll 'a' → Carotenoids → Chlorophyll 'b'

Q.31 Chlorophyll 'a' present in PS-II absorbs best of light at:
A. 670nm
B. 680nm
C. 690nm
D. 700nm

Q.32 CO_2 after entering the mesophyll cells through stomata:
A. Is converted into $CaCO_3$
B. Gets dissolved in water
C. Is directly used in light reactions
D. Is stored in vacuoles

Q.33 The first electron donor for cyclic photophosphorylation is:

A. Water
B. Sunlight
C. P_{700}
D. NADPH

Q.34 Which of the following best describes the sequence of stages in C_3 pathway?

A. Reduction → Carbon fixation → Regeneration of RuBP
B. Carbon fixation → Reduction → Regeneration of RuBP
C. Regeneration of RuBP → Carbon fixation → Reduction
D. Regeneration of RuBP → Reduction → Carbon fixation

Q.35 Which of the following best describes the cyclic photophosphorylation?

A. PS-I → P.E.A → Fd → Cytochrome complex → PS-II
B. PS-I → P.E.A → Cytochrome complex → Fd → PS-I
C. PS-I → P.E.A → Fd → Cytochrome complex → PS-I
D. PS-I → Fd → P.E.A → Cytochrome complex → PS-I

Q.36 The first identifiable product of dark reaction is:

A. RuBP
B. G3P
C. RuP
D. PGA

Q.37 The molecule which receives H^+ from NADPH during dark reaction is:

A. 3-Phosphoglycerate
B. Glyceraldehyde 3-phosphate
C. 1,3-bisphosphoglycerate
D. Ribulose bisphosphate

Q.38 Carotenoids are the accessory pigments of photosynthesis and are present in/on:

A. Thylakoid lumen
B. Thylakoid membrane
C. Stroma of chloroplast
D. Envelope of chloroplast

Q.39 First action spectrum was obtained by T. W. Engelmann by working on:

A. Yeast
B. *Arabidopsis*
C. *Spirogyra*
D. *E. coli*

Q.40 How many CO_2 molecules are inserted in Calvin cycle per molecule of RuBP?

A. 1
B. 2
C. 3
D. 4

Q.41 Chlorophyll 'a' exists in different forms that differ slightly in their absorption peaks in which of the following wavelengths?

A. Green
B. Red
C. Blue
D. Violet

Q.42 The molecular formula for chlorophyll 'b' is:

A. $C_{55}H_{70}O_6N_4Mg$
B. $C_{55}H_{72}O_6N_4Mg$
C. $C_{55}H_{72}O_5N_4Mg$
D. $C_{55}H_{70}O_5N_4Mg$

Q.43 Which of the following is necessary for chemiosmosis?

A. Proton gradient
B. Membrane
C. Proton pumps
D. All A, B, C

Q.44 The ATP synthesized by ATP synthase present in the thylakoid membrane is released towards:

A. Lumen
B. Stroma
C. Inter granum
D. Matrix

Q.45 In Calvin cycle, one molecule of glucose is formed from:

A. $6\ CO_2 + 30\ ATP + 12\ NADPH$
B. $6\ CO_2 + 12\ ATP + 24\ NADPH$
C. $6\ CO2 + 18\ ATP + 12\ NADPH$
D. $6\ CO_2 + 18\ ATP + 30\ NADPH$

Q.46 Reduction of $NADP^+$ occurs in:

A. Oxidative phosphorylation
B. Cyclic photophosphorylation
C. Non- cyclic photophosphorylation
D. Substrate level phosphorylation

Q.47 Which of the following is not the product of light reaction of photosynthesis?

A. ATP
B. Oxygen
C. NADPH
D. $NADP^+$

Q.48 Photolysis of water takes place in:

A. Stroma
B. Inter-membrane space of chloroplast
C. Lumen of thylakoids
D. Lumen of cristae

Q.49 Which of the following is odd among following?
A. Dark reactions
B. Light reactions
C. Calvin cycle
D. C_3 pathway

Q.50 The percentage of CO_2 in atmosphere is:
A. 0.03%- 0.04%
B. 0.3%- 0.4%
C. 78%
D. 0.13%- 0.14%

Q.51 Which of the following bio-element is not present in the chlorophyll molecule?
A. Magnesium
B. Potassium
C. Nitrogen
D. Oxygen

Q.52 During photosynthesis, the oxygen found in glucose molecule comes from:
A. Water
B. Carbon dioxide
C. Chlorophyll
D. Atmosphere

Q.53 Reduced cytochromes are _____ in color.
A. Red
B. Pink
C. Orange
D. Green

Q.54 The process of photosynthesis is:
A. Reductive, endergonic and catabolic
B. Reductive, exergonic and catabolic
C. Reductive, endergonic and anabolic
D. Reductive, exergonic and anabolic

Q.55 G3P is formed during:
A. Calvin cycle and Krebs cycle
B. Glycolysis and Krebs cycle
C. Calvin cycle and glycolysis
D. Glycolysis and ETC

Q.56 When ATP releases some energy, it also releases inorganic phosphate. What purpose does this serve (if any) in the cell?
A. It is released as an excretory waste
B. It can enter the nucleus to affect gene expression
C. It can be added to water and excreted as a liquid
D. It can be added to other molecules in order to activate them

Q.57 Which two reactions occur during photophosphorylation?
A. ATP is hydrolyzed and $NADP^+$ is reduced
B. ATP is hydrolyzed and NADPH is oxidized
C. ATP is synthesized and NADP+ is reduced
D. ATP is synthesized and NADPH is oxidized

Q.58 Which of the following is the smallest among the others?
A. Chlorophyll
B. Porphyrin
C. Pyrrole
D. Phytol

Q.59 Peaks are _____ while valleys are _____ in action spectrum.
A. Broad, broad
B. Narrow, broad
C. Broad, narrow
D. Narrow, narrow

Q.60 Chemiosmosis is the mechanism of _____ across mitochondrial membrane.
A. Generation of NADH
B. ATP hydrolysis
C. Generation of ATP molecules
D. Movement of minerals

Biology (A+ series)

2023

KIPS PREPARATIONS

U#03 CTS

	A	B	C	D		A	B	C	D		A	B	C	D		A	B	C	D
1	○	●	○	○	16	○	●	○	○	31	○	●	○	○	46	○	○	●	○
2	○	●	○	○	17	○	●	○	○	32	○	●	○	○	47	○	○	○	●
3	●	○	○	○	18	○	○	●	○	33	○	○	●	○	48	○	○	●	○
4	○	○	○	●	19	○	○	○	●	34	○	●	○	○	49	○	●	○	○
5	○	○	○	●	20	○	○	○	●	35	○	○	●	○	50	●	○	○	○
6	●	○	○	○	21	○	●	○	○	36	○	✕	○	●	51	○	●	○	○
7	○	○	●	○	22	●	○	○	○	37	○	○	●	✕	52	○	●	○	○
8	●	○	○	○	23	●	○	○	○	38	○	●	○	○	53	○	●	○	○
9	○	●	○	○	24	○	●	○	○	39	○	○	●	○	54	○	○	●	○
10	●	○	○	○	25	○	○	●	○	40	●	○	○	○	55	○	○	●	○
11	●	○	○	○	26	○	●	○	○	41	○	●	○	○	56	○	○	○	●
12	○	●	○	○	27	○	○	○	●	42	●	○	○	○	57	○	○	●	○
13	○	○	○	●	28	○	●	○	○	43	○	○	○	●	58	○	○	●	○
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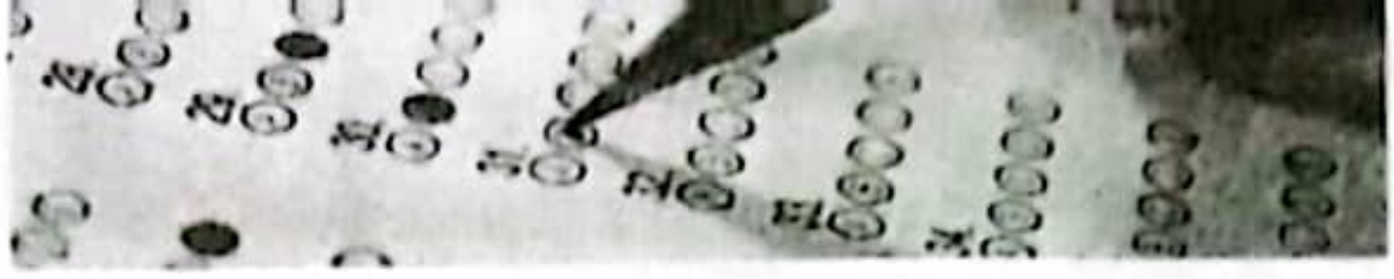
15	●	○	○	○	30	○	●	○	○	45	○	○	●	○	60	○	○	●	○

KIPS | ENTRY TESTS PREPARATION



PHYSICS MDCAT

UNIT–3 (A+ SERIES)

TOPICS:

✓ **Rotational and Circular Motion**

Q. 1 **A satellite has mass m speed v and radius r, the force acting on it is**

A. Zero
B. $\frac{mv^2}{r}$
C. mrv
D. mrv^2

Q. 2 **The angular velocity of a wheel is 70 rad/sec. If the radius of the wheel is 0.5 m, then linear velocity of the wheel is**

A. 70 m/s
B. 35 m/s
C. 20 m/s
D. 10 m/s

Q. 3 **A particle is moving along a circular path with uniform speed. What is the angle between instantaneous velocity and acceleration?**

A. 45°
B. 0°
C. 180°
D. 90°

Q. 4 **A particle is moving on a circular path with constant speed, then its acceleration will be**

A. Zero
B. External radial acceleration
C. Internal radial acceleration
D. Constant acceleration

Q. 5 **A 500 kg car takes a round turn of radius 50 m with a velocity of 36 km/hr. The centripetal force is**

A. 250 *N*
B. 750 *N*
C. 1000 *N*
D. 1200 *N*

Q. 6 **2 radians = ------**

A. 114.6°
B. 57.3°
C. 75.3°
D. 37.5°

Q. 7 **Circular motion is example of motion in**

A. Two dimensions
B. One dimensions
C. Three dimensions
D. None of these

Q. 8 **A particle moves in a circular path of radius 10 cm with a constant speed of 10 cm/s. its acceleration is**

A. $100 cm/s^2$
B. $1 cm/s^2$
C. 0
D. $10 cm/s^2$

Q. 9 **A stone is tied with a string and is rotated in a circle horizontally. When the string suddenly breaks, the stone will move:**

A. Away from the centre
B. Tangential to the motion
C. Towards the centre
D. None of the above

Q. 10 **A point P is at a distance R from the axis of rotation of a rigid body whose angular velocity and angular acceleration are ω and α respectively. The linear speed, centripetal acceleration and tangential acceleration of the point can be expressed as:**

	Linear speed	Centripetal acceleration	Tangential acceleration
A.	$R\omega$	$R\omega^2$	$R\alpha$
B.	$R\omega$	$R\alpha$	$R\omega^2$
C.	$R\omega^2$	$R\alpha$	$R\omega$
D.	$R\omega$	$R\omega^2$	$R\omega$

Q. 11 **The angle subtended by an arc equal to radius is**

A. 1 rad
B. One degree
C. 1 Revolution
D. All

Q. 12 **The curved flight of fighter planes at high speed requires a large**

A. Gravitational force
B. Centripetal force
C. Frictional force
D. Centrifugal acceleration

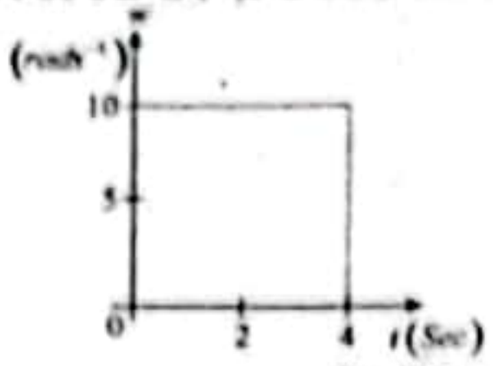
Q. 13 **Which of given is correct formula of centripetal force**

A. $\vec{F} = \frac{mv^2}{r}\hat{r}$
B. $\vec{F} = \frac{mv^2}{r^2}\hat{r}$
C. $\vec{F} = mr\omega^2\hat{r}$
D. $\vec{F} = mr\omega^2(-\hat{r})$

Q. 14 **When a body is moving along a circular path it covers a certain angle in a given interval of time. Such type of motion is**

A. Vibratory motion
B. Linear motion
C. Rotatory motion
D. Angular motion

Q. 15 The angular displacement covered by a body in the following graph is



A. 40 rev
B. 20 rev
C. 30 rad
D. 40 rad

Q. 16 The angular velocity of the minute hand of a clock is

A. $2\pi \text{rad s}^{-1}$
B. $\pi \text{rad s}^{-1}$
C. $\frac{\pi}{60} \text{rad s}^{-1}$
D. $\frac{\pi}{1800} \text{rad s}^{-1}$

Q. 17 The ratio of angular speeds of minute hand and hour hand of a mechanical watch is

A. 1 : 12
B. 6 : 1
C. 12 : 1
D. 1 : 6

Q. 18 A particle is moving along a circular path. Let v, ω, α and a_c be its linear velocity, angular velocity, angular acceleration and centripetal acceleration respectively. Which is the wrong statement from the followings?

A. $\vec{\omega} \perp \vec{v}$
B. $\vec{\omega} \perp \vec{\alpha}$
C. $\vec{\omega} \perp \vec{a}_c$
D. $\vec{v} \perp \vec{a}_c$

Q. 19 If we whirl a stone at the end of a string in the vertical circle, it is likely to break when the stone is

A. At the highest point
B. At any point during motion
C. At the lowest point
D. At the point where gravity is not acting

Q. 20 When a body is whirled in a horizontal circle by means of a string the centripetal force is supplied by

A. Mass of a body
B. Tension in the string
C. Velocity of body
D. Centripetal acceleration

Q. 21 The angular velocity of a particle rotating in a circular orbit 100 times per minute is

A. 1.66 rad/s
B. 10.47 rad/s
C. 10.47 deg/s
D. 60 deg/s

Q. 22 An object is moving in a circle of radius 100 m with a constant speed of 31.4 m/s. What is its average speed for one complete revolution?

A. Zero
B. 31.4 m/s
C. 3.14 m/s
D. $\sqrt{2} \times 31.4 m/s$

Q. 23 What could be the reason a car moving on a horizontal road gets thrown out of the road while taking a turn?

A. Due to the reaction of the ground
B. Due to rolling frictional force between tyre and road
C. By the gravitational force
D. Due to lack of sufficient centripetal force

Q. 24 The centrifugal force always acts

A. Towards the center
B. Away from the center
C. In tangential direction
D. Outside of the plane of motion

Q. 25 A wheel starts from rest and acquires an angular velocity of 60 rad/s in half a minute. Then its angular acceleration is

A. 4 rad/s^2
B. 2 rad/s^2
C. 1 rad/s^2
D. 0.5 rad/s^2

Q. 26 One fighter jet makes the same radius turn as another, but at twice the speed. Compared to the slower jet, the centripetal acceleration of the faster jet is:

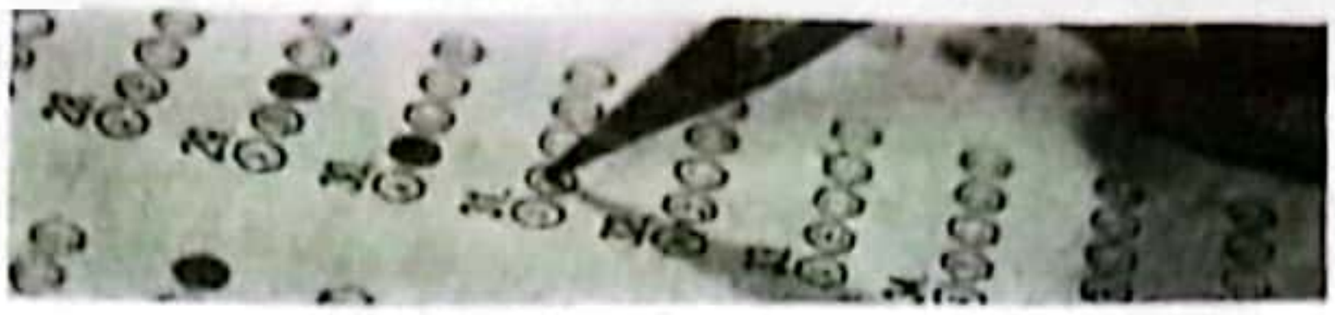
A. Half as much
B. Twice as much
C. The same amount
D. Four times as much

Q. 27 A child on a ride is a merry go round which is moving at a constant speed of 15ms^{-1}. This means that child is

A. At rest
B. Moving with constant velocity
C. In accelerated motion
D. Moving without acceleration

Q. 28 1 rad =

A. 0.129 rev
B. 0.249 rev
C. 0.159 rev
D. 0.259 rev



Q. 29 $2\pi/3$ rad =
A. 120° B. 60°
C. 90° D. 30°

Q. 30 Angular velocity of earth about its on axis.
A. 7.27×10^{-3} rad s^{-1} B. 7.27×10^{-5} rad s^{-1}
C. 6.27×10^{-3} rad s^{-1} D. 6.27×10^{-5} rad s^{-1}

Q. 31 Radian is a unit of angular displacement which can also be measured in degrees. How many radians are equal to one degree?
A. $\frac{180}{\pi}$ B. $\frac{\pi}{180}$ C. $\frac{2\pi}{180}$ D. $\frac{\pi}{57.3}$

Q. 32 Time rate of change of angular momentum is
A. Force B. Velocity
C. Torque D. Acceleration

Q. 33 85.95° degree in terms of radian is
A. $\frac{1}{2}$radian B. 1 radian
C. $1\frac{1}{2}$radian D. 2 radian

Q. 34 An aircraft executes a horizontal loop of radius 1 km with steady speed of 900 km/h. What is its centripetal acceleration?
A. $250km/s^2$ B. $75m/s^2$
C. $62.5m/s^2$ D. $60m/s^2$

Q. 35 The tension in the string revolving in a vertical circle with a mass m at the end which is at the lowest position.
A. $\frac{mv^2}{r}$ B. $\frac{mv^2}{r}+mg$ C. $\frac{mv^2}{r}-mg$ D. mg

Q. 36 A wheel of radius 2 m turns through an angle of 57.3°. It lays out a tangential distance:
A. 2m B. 4m
C. 57.3m D. 114.6m

Q. 37 Angular form of centripetal acceleration a_c = _____
A. $\omega^2\vec{r}$ B. $\omega\vec{r}$ C. $-\omega^2\vec{r}$ D. $-\omega\vec{r}$

Q. 38 Revolution per minute is unit for
A. Angular displacement B. Angular velocity
C. Angular acceleration D. Time

Q. 39 An object moves in a circle. If the mass is tripled, the speed halved, and the radius unchanged, then the magnitude of the centripetal force must be multiplied by a factor of
A. 3/2 B. ¾ C. 9/4 D. 6

Q. 40 A body is rotating clockwise with increasing angular velocity. Its angular acceleration is directed
A. Into the plane of paper B. Along the radius
C. Out of the plane of paper D. Along the tangent to the circle

Q. 41 What is the value of linear velocity, if $\vec{\omega}=3\hat{i}-4\hat{j}+\hat{k}$ and $\vec{r}=5\hat{i}-6\hat{j}+6\hat{k}$
A. $6\hat{i}+2\hat{j}-3\hat{k}$ B. $-18\hat{i}-13\hat{j}+2\hat{k}$
C. $4\hat{i}-13\hat{j}+6\hat{k}$ D. $6\hat{i}-2\hat{j}+8\hat{k}$

Q. 42 How many revolutions will be in $\frac{\pi}{9}$ rad?
A. $\frac{1}{18}$rev B. $\frac{1}{4}$rev C. $\frac{1}{2}$rev D. $\frac{1}{36}$rev

Q. 43 A disc is rotating about an axis through its centre and perpendicular to its plane. A point p on the disc is twice as far from the axis as a point Q. What will be ratio of $\frac{v_p}{v_Q}$?
A. 4 B. 2 C. 1/2 D. 1/4

Q. 44 The slope of graph plotted between K.E vs r is representing
A. Centripetal force B. Momentum
C. Tangential acceleration D. Centripetal acceleration

Q. 45 **A bucket is filled with water is revolved in vertical circle of r = 4m. Speed at highest point just to avoid fall of water is**

A. $2\ m\ s^{-1}$ B. $4\ m\ s^{-1}$
C. $2\pi\ m\ s^{-1}$ D. $2.5\ m\ s^{-1}$

Q. 46 **The force which prevents a body from falling in a non-inertial frame is called**

A. Real weight B. Apparent weight
C. Weightlessness D. No weight

Q. 47 **A man of weight 100N standing in an elevator which is moving upward with uniform speed against the gravity, then his apparent weight becomes**

A. 0 B. Equal to real weight
C. Less than real weight D. Greater than real weight

Q. 48 **A mass of 2 kg is whirled in a horizontal circle by means of a string at an initial speed of 5 rpm. Keeping the radius constant, the tension in the string is doubled. The new speed is nearly**

A. 14 rpm B. 10 rpm C. 20 rpm D. 7rpm

Q. 49 **A monkey is accelerating down a string whose breaking strength is two third of his weight. The minimum acceleration of the monkey should be**

A. $\frac{1}{3}g$ B. $\frac{2}{3}g$ C. g D. $0\ ms^{-2}$

Q. 50 **Torque per unit moment of inertia is equivalent to**

A. Angular velocity B. Angular acceleration
C. Radius of gyration D. Inertia

Q. 51 **An electric fan attains its maximum angular velocity of 5 revolutions per sec after 15 revolutions. Assume constant acceleration, how much time will the fan take to attain its maximum angular velocity?**

A. 3 seconds B. 6 seconds C. 4 seconds D. 5 seconds

Q. 52 **In uniform circular motion, a particle is moving with the centripetal acceleration of $8m/s^2$ on a circular path having a radius of 2m. Find its displacement and distance in half of the one complete time period.**

A. 4m and 2πm B. 2m and $4\ \pi$m
C. 8m and $4\ \pi$m D. 4m and $8\ \pi$m

Q. 53 **The minute hand of large clock is 3.0 inch long. What is its mean angular speed?**

A. 1.4×10^{-4}rad/sec B. 1.7×10^{-3}rad.sec
C. 3.0×10^{-1}rad/sec D. 3.0×10^{-1}rad/sec

Q. 54 **If a wheel of radius r turns through an angle of 90°, then the distance through which any point on its rim moves is**

A. $\frac{\pi}{3}r$ B. $\frac{\pi}{2}r$ C. $\frac{\pi}{30}r$ D. $\frac{\pi}{180}r$

Q. 55 **In circular motion, if the angular velocity and angular acceleration becomes parallel, then the motion becomes:**

A. Slower B. Faster
C. Constant D. Both 'A' and 'C'

Q. 56 **The centripetal force acting on a body rotating in a circle of radius 'r' is F. If the body moves in a circle of radius half of the initial value keeping other quantities constant than the percentage change in the centripetal force is**

A. 300% B. 100% C. 200% D. 250%

Q. 57 **The pilot having a weight 686N dividing down with an acceleration of $9.8\ ms^{-1}$. Its apparent weight is**

A. 343 N B. 1372 N
C. 686 N D. 0

Q. 58 **The angular speed of fly wheel making 180 rev / min is _____ in (rad/sec).**

A. π B. 2π C. 6π D. $4\pi^2$

Q. 59 **What is outward force acting on a mass of 10 kg when rotating at one end on an inelastic string 10m long at speed of 1m/s?**

A. 1 N B. 2 N
C. 10 N D. 100N

Q. 60 **A stationary wheel starts rotating about its own axis at uniform angular acceleration $8\ rad/s^2$. Time taken by it to complete 77 rotation is.**

A. 5.5 s B. 11s C. 7s D. 14s

Physics (A+ series)

2023 KIPS PREPARATIONS U#03 CTS

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ENGLISH MDCAT

TEST–3 (A+ SERIES)

TOPICS:

Clauses, Conjunctions and Sentences & Cloze Sentence

Directions:

Identify the type of sentence:

Q.1 **Always read the instructions carefully.**
A. Declarative B. Imperative C. Exclamatory D. Interrogative

Q.2 **Look out! There's a car.coming.**
A. Declarative B. Imperative C. Exclamatory D. Interrogative

Q.3 **Don't you talk to me like that.**
A. Declarative B. Imperative C. Exclamatory D. Interrogative

Q.4 **Wear your coat, or you will catch cold.**
A. Simple B. Compound C. Complex D. Compound Complex

Q.5 **He blushes; therefore, he is guilty.**
A. Simple B. Compound C. Complex D. Compound Complex

Q.6 **It will be interesting to see whether he recognises you.**
A. Simple B. Compound C. Complex D. Compound Complex

Q.7 **She met my brother, whom she later married.**
A. Simple B. Compound C. Complex D. Compound Complex

Q.8 **When we won the state championship, the team captain jumped for joy, and the fans cheered.**
A. Simple B. Compound C. Complex D. Compound Complex

Directions:

Choose the Right Conjunction

Q.9 **She decided to buy the bicycle ___it was expensive.**
A. , but B. ,although C. and D. Both A&B

Q.10 **The telephone always rings _____you are having a bath.**
A. as B. when C. while D. All

Q.11 **Barbara can't drive, _____neither can her husband.**
A. and B. but C. or D. nor

Q.12 **There was widespread destruction ____only six people died.**
A. ,however, B. ,yet C. since D. because

Q.13 **We're going to have a picnic _____.**
A. unless it rains B. if it doesn't rain C. until it doesn't rain D. Both A&B

Q.14 **_____I could see into the future, I'd know what to do.**
A. When B. If C. unless D. Both A&B

Q.15 **Let's wait ____the rain stops.**
A. because B. if C. and D. until

Q.16 **Is your car for sale, ____I might be interested?**
A. because B. while C. when D. since

Q.17 **The soldiers were exhausted ____they had marched a long way.**
A. ,for B. ,because of C. ,owing to C. ,due to

Q.18 **Although having slept eight hours,___ I still feel tired.**
A. but B. yet C. however C. None

Q.19 **You can have_____.**
A. either tea and coffee B. neither tea or coffee
C. both tea as well as coffee C. either tea or coffee

Q.20 **We go there not only in winter,_____.**
A. and in summer B. but also in summer C. or in summer D. as well as in summer

Directions:

Identify the clause

Q.21 **<u>Putting down m y newspaper</u>, I walked over to the window.**
A. Non-finite B. Participle clause C. Adverbial participle D. All

Q.22 **People <u>who live in glass houses</u> should not throw stones.**
A. Adjective B. Dependent C. Essential D. All

Q.23 **I often wonder <u>how you are getting on.</u>**
A. Dependent Adjective B. Dependent Adverbial C. Dependent Noun D. All

Q.24 **<u>As soon as he heard the news</u> he wrote to me.**
A. Dependent Adjective B. Dependent Adverbial C. Dependent Noun D. All

Q.25 I have a little shadow <u>which goes in and out with me</u>.

A. Restrictive B. Non-restrictive B. Non- essential D. Independent

Directions:

Choose the Wrong One

Q.26

A. Despite I had very little time, I succeeded in finishing that report.
B. Although I had very little time, I succeeded in finishing that report.
C. Despite having very little time, I succeeded in finishing that report.
D. In spite of very little time, I succeeded in finishing that report.

Q.27

A. When he entered the room, Mike saw three children sitting on the carpet.
B. As he entered the room, Mike saw three children sitting on the carpet.
C. He entered the room Mike saw three children sitting on the carpet.
D. While entering the room, Mike saw three children sitting on the carpet.

Q.28

A. Although she was tired, she went to work. B. She was tired but she went to work.
C. She was tired; however, she went to work. D. Although she was tired but she went to work.

Directions:

Choose the Correct One

Q.29

A. As you know, I work very hard. B. As you know, that I work very hard.
C. As you know, so I work very hard. D. Because you know; that's why I work very hard.

Q.30

A. People disliked her, and she was so rude. B. People disliked her because she was so rude.
C. People disliked her, yet she was so rude. D. People disliked her, or she was so rude.

Directions:

Choose the best option to fill in the blank.

Q.31 The new boots are lighter and ____, and therefore more comfortable to wear.

A. hard B. heavier C. tough D. softer

Q.32 Ahmad ____the salesman's offer because the price was____.

A. accepted…high B. rejected….unfair C. took….expensive D. considered… terrible

Q.33 Although Kate's report on her scientific findings was lengthy, the presentation she held was rather____.

A. brief B. neutral C. mundane D. straightforward

Q.34 Because his time was limited, Weng decided to read the ____novel War and Peace in ____edition.

A. word… an unedited B. lengthy… an abridged
C. famous… a modern D. romantic… an autographed

Q.35 Phsical laws do not force bodies to act in a specific way, but merely ___how they do behave.

A. determine B. describe C. commence D. demand

Q.36 Although Mary tries to be on time for her class, she still arrives___.

A. silly B. great C. noisy D. late

Q.37 There are large number of reasons which _____ people to buy new things during the festive seasons.

A. hinder B. motivate C. foster D. discourages

Q.38 Ecology, like economics, concerns itself with the movement of valuable ____ through a complex network of producers and consumers.

A. nutrients B. dividends C. communications D. artifacts

Q.39 It would be difficult for one so ____ to be led to believe that all men are equal and that we must disregard race, color and creed.

A. intolerant B. democratic C. emotional D. broadminded

Q.40 Although his out-numbered troops fought bravely, the general felt he had no choice but to___ defeat and order a retreat.

A. oversee B. acknowledge C. hasten D. overcome

English (A+ series) U#03 (CTS)

2023

KIPS PREPARATIONS

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LOGICAL REASONING MDCAT

UNIT–2 (A+SERIES)

TOPIC:

✓ **LOGICAL PROBLEM**

Q.1 **Statements:**

Some buckets are salts.

All salts are ipods.

Some ipods are woods.

Conclusions:

I. Some woods are salt.

II. Some buckets are woods.

III. Some ipods are buckets

A. None follows

B. Only II follows

C. Only III follows

D. Only I follows

Q.2 **Statements:**

All books are copies.

All copies are pencils.

No pencils are erasers.

Conclusions:

I. No erasers are books.

II. No copies are erasers.

III. Some pencils are copies.

IV. All books are pencils.

A. Only I II and III follow

B. Only II, III and IV follow

C. Only I, III and IV follow

D. All follow

Q.3 **Statements:**

All computer are Pentiums.

Some Pentiums are machines

Conclusions:

I. Some computers are machines

II. Some machines are computers

A. If only conclusion I follow

B. If only conclusion II follows

C. If neither I nor II follows

D. If both follow

Q.4 **Statements:**

All Dogs are fruits. No Chair is fruit. Some chairs are clowns.

Conclusions:

I. Some clowns are dogs.

II. Some chairs are dogs.

III. No chair is clown.

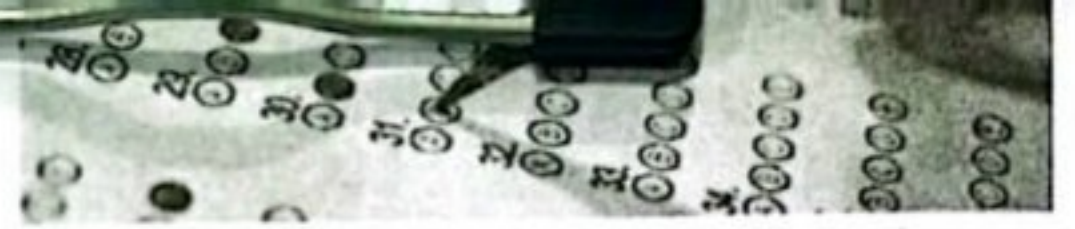
IV. No dog is clown

A. Either I or IV follows

B. Only II follows

C. Only I and III follow

D. Either II or III follows.



Q.5 **Statements:**

All pencils are pens.

No pens are markers.

All markers are drawings.

Conclusions:

I. No pencil is a marker

II. No pencil is a drawing.

III. Some drawings are pens.

IV. Some markers are pencils.

A. Only I follows

B. Only I and II follow

C. Only II and III follow

D. Only III and IV follow

Q.6 **Statements:**

All grapes are apples.

All papayas are apples.

Some apples are mangoes.

Conclusions:

I. No grape is mango.

II. Some papayas are not mangoes.

III. Some grapes are papayas.

IV. All mangoes are grapes.

A. Only I follows

B. Only II and II follow

C. Only I, II and III follow

D. None of these

Q.7 **Statements:**

All stairs are lifts.

No lift is an escalator.

Some escalators are helicopters.

Conclusions:

I. No stairs is an escalator.

II. Some helicopters are not escalators.

III. Some lifts are stairs.

A. Only I and II follow

B. Only II and III follow

C. Only I and III follow

D. All follow

Q.8 **Statements:**

Most bulls are cows.

No bull is horse.

All horses are cows.

Conclusions:

I. Some cows are not horses.

II. All cows are not horses.

III. Some bulls are cows.

IV. Some bulls are not horses.

A. Only II, III and IV follow

B. Only I, III and IV follow

C. All follow

D. None of these

Q.9 **Statements:**

All bulls are bells.

Some bulls are cows.

Some bells are chairs.

Conclusions:

I. Some cows are chairs.

II. Some bells are bulls.

III. All bells are cow.

A. All follow

B. None follows

C. Only II follows

D. Only II and III follow

Q.10 **Statements:**

Some books are intelligent.

No intelligent is wise.

Some wise are wind.

Conclusions:

I. Some books are not wise.

II. Some wind is not intelligent.

III. Some wise are not books.

A. Only I follow

B. Only II follow

C. Only I and III follow

D. Only I and II follow

Q.11 **Statements:**

All weddings are writings

All weddings are wirings.

Conclusions:

I. Some writings are wirings

II. All writings are wirings.

A. If only I follows

B. If only II follows

C. If neither I nor II follows

D. If both I and II follow

Q.12 **Statements:**

No one is two.

Some two are threes.

All four are two.

Conclusions:

I. Some four are threes.

II. No one is a four.

III. Some four are not one.

A. Only I and II follow

B. Only I and III follow

C. Only II and III follow

D. Only I follows

Q.13 3, 15, 35, ?, 99, 143

A. 48 B. 63

C. 80 D. 95

Q.14 Find out the wrong term 8, 13, 21, 32, 47, 63, 83

A. 21 B. 13

C. 83 D. 47

Q.15 DEF HIJ MNO?

A. STU B. RST

C. RTV D. SRQ

Q.16 DEB IJG NOL ? XYV

A. STP B. RSQ

C. STQ D. STO

Q.17 If in a certain language SECURE is coded as ERUCES, how is SALINE coded in that code?

A. SALIQE B. EALINS

C. ENILAS D. ERUCES

Q.18 Needle: Clock:: Wheel : ?

A. Walk B. Road

C. Vehicle D. Driving

Q.19 Physician : Treatment :: Judge : ?

A. Court B. Judgement

C. Lawyer D. Punishment

Q.20 Engineer is related to Machine in the same way as Doctor is related to...?

A. Hospital B. Body

C. Disease D. Medicine

Logical Reasoning (U#02)

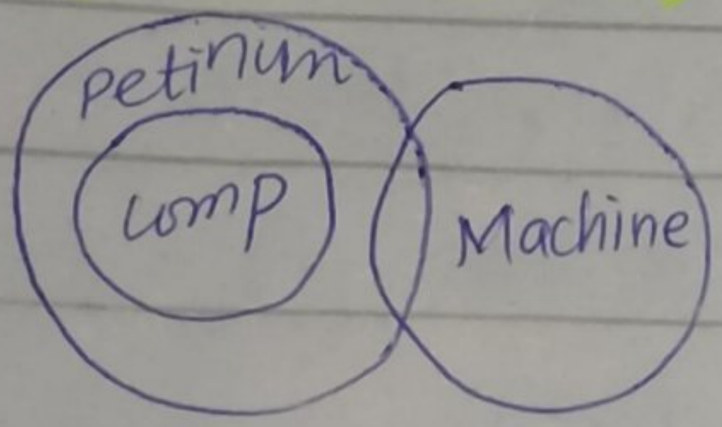
2023 KIPS PREPARATIONS (A+ series)

	A	B	C	D		A	B	C	D		A	B	C	D		A
1	○	○	●	○	16	○	○	●	○	31	○	○	○	○	46	○
2	○	○	○	●	17	○	○	●	○	32	○	○	○	○	47	○
3	○	○	●	○	18	○	○	●	○	33	○	○	○	○	48	○
4	●	○	○	○	19	○	●	○	○	34	○	○	○	○	49	○
5	●	○	○	○	20	○	○	●	○	35	○	○	○	○	50	○
6	○	○	○	●	21	○	○	○	○	36	○	○	○	○	51	○
7	○	○	●	○	22	○	○	○	○	37	○	○	○	○	52	○
8	○	●	○	○	23	○	○	○	○	38	○	○	○	○	53	○
9	○	○	●	○	24	○	○	○	○	39	○	○	○	○	54	○
10	○	○	○	●	25	○	○	○	○	40	○	○	○	○	55	○
11	●	○	○	○	26	○	○	○	○	41	○	○	○	○	56	○
12	○	○	●	○	27	○	○	○	○	42	○	○	○	○	57	○
13	○	●	○	●	28	○	○	○	○	43	○	○	○	○	58	○
14	○	○	○	●	29	○	○	○	○	44	○	○	○	○	59	○
15	●	○	○	○	30	○	○	○	○	45	○	○	○	○	60	○

10th Aug, 23, Thursday

T-2 (A+ series) Logical Reasoning

3-



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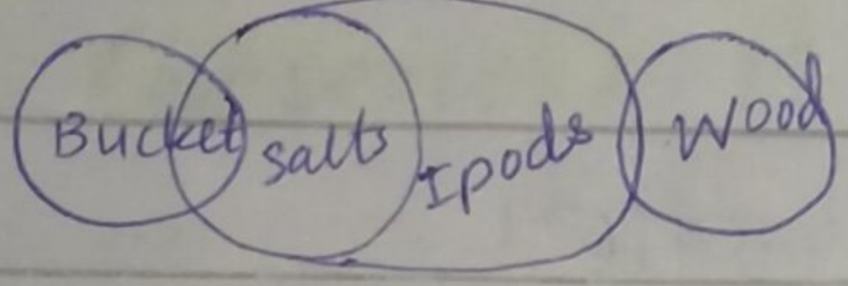

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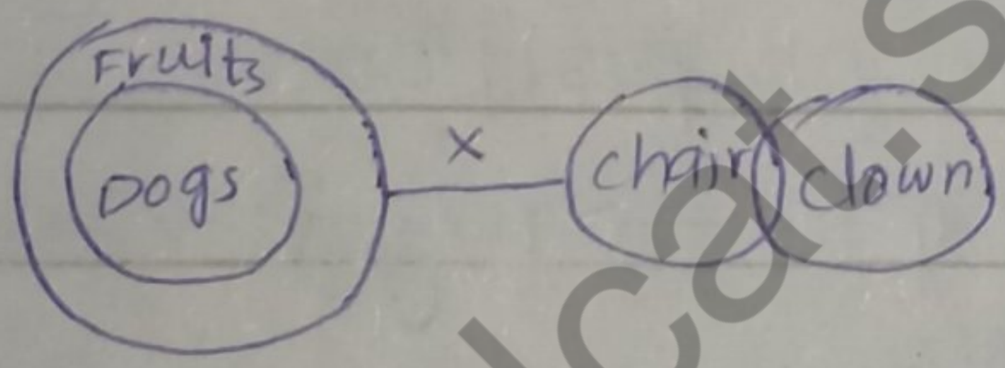

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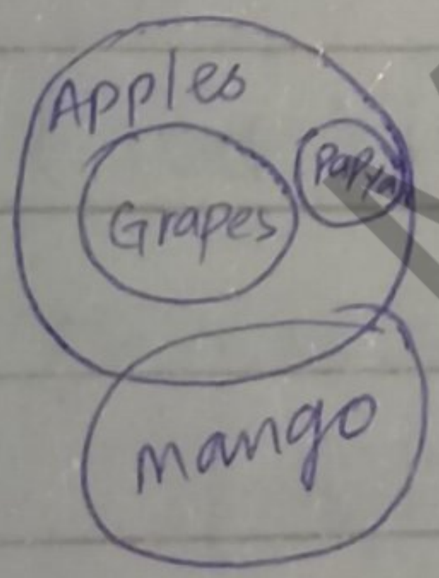
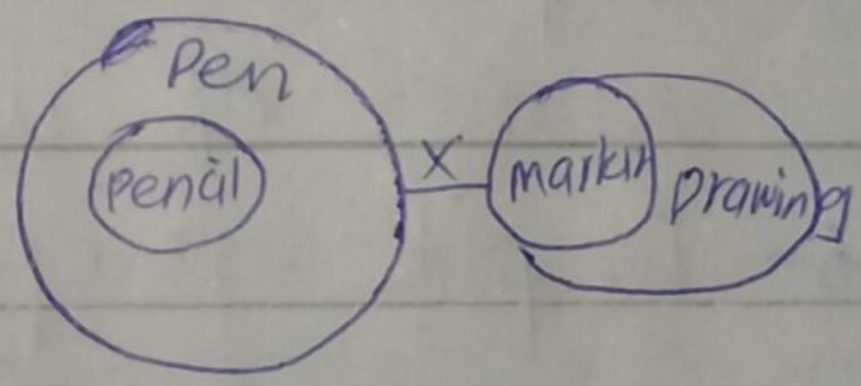
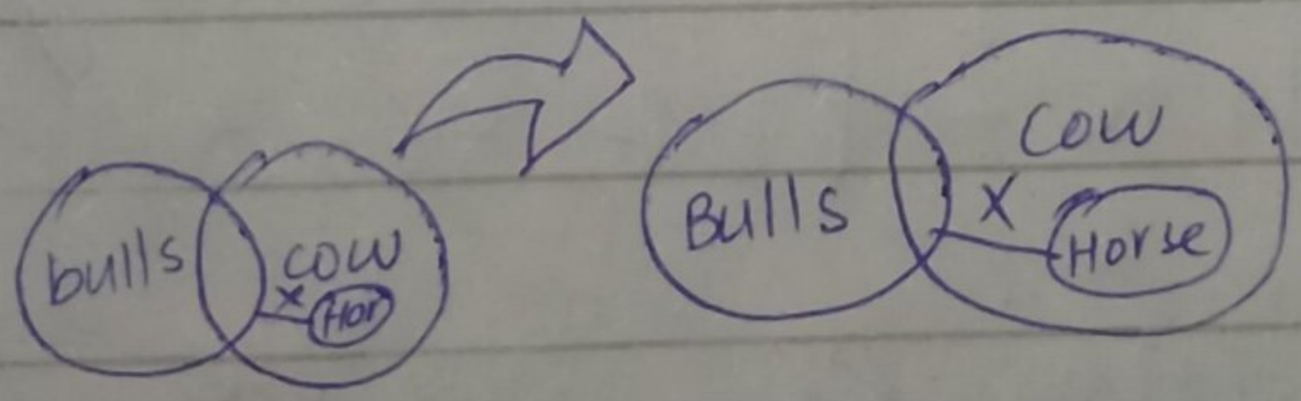
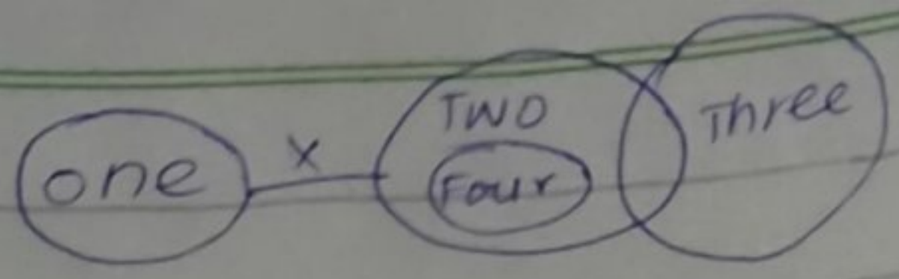


5-



8-



12- 

14- 8 | 13 | 21 | 32 | 47 | 63 | 83
5 8 11 14 17 20
Difference of 3

13- (even no.)^2 - 1

T-3 (A+ series) English

11- same ideas use ' and ' to separate them

13- unless — conditional

both are same ← If he does not

14- unless — shows -ve

16- , because - strong reason

same function ← since

17- because — conjunction
because of — preposition

21- present partriple → ing form as adj

23- dependent Noun
answer of what — object (Noun)

26- Despite - preposition (After use of clause

28- double conjunction (wrong

33- mundane - ly - common

← Preposition کے بعد phrase
Conjuction کے بعد clause

T-3 (A+ series) Biology

53- reduced subs — has color

54- endergonic - heat absorbs or use

58- 4-C, 1N — pyrode

NADPH — anabolic reaction — Plant

NADH — catabolic reaction - animal

26- FAD — oxidizing agent

NADH - reducing agent

pyruvic acid

↳ If we remove H from pyruvic acid, it will become **Pyruvate**

Pyruvate is a conjugate base.

T-3 (A+ series) Physics

2- $V = rw$

5- $F_c = mv^2/r$

7- sphere — 3D

8- $a_c = \frac{v^2}{r}$ do not convert unit because they are same

10- $V = rw$, $a = rw^2$, $a_T = r\alpha$

11- radius = arc length

13- vector form <u>-ve value</u> direction opposite

14- about an axis — rotational motion

43- $V = r\omega$ $V \propto r$ $\frac{V_p}{V_r} = \frac{r_p}{r_Q} = \frac{2\%0}{1\%0} = 2$

44 $F_c = \frac{2K \cdot E}{r}$

45 $V = \sqrt{gr} = \sqrt{3.14 \times 4} = 2\pi$

48- $T = mr\omega^2$ $T \propto \omega^2$ $\omega \propto \sqrt{T}$

$\omega_2 = \sqrt{\frac{T_2}{T_1}}\,\omega_1 = \sqrt{\frac{2T_1}{T_1}}\,\omega_1 = 1.4 \times 5$

$= 7$ rpm

47- acceleration zero velocity constant
apparent weight = real weight

49- $T = W - ma$

$\frac{2}{3}W = W - ma$

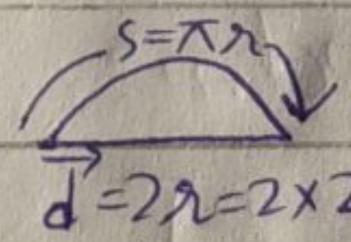
$ma = W - \frac{2}{3}W$

$ma = \frac{1}{3}W$

$a = \frac{1}{3}g$

51- $\theta = \omega t$

52- $\vec{d} = 2r$ semi-circular path



53- $\theta = 2\pi(3600)$

54- $S = r/\theta$ $90^\circ = \frac{\pi}{2}$ rad

56- $F_c \propto \frac{1}{r}$ $\frac{F_2}{F_1} = \frac{r_1}{r_2} = \frac{r_1}{r_{1/2}} = 2$

$F_2 = 2F_1 = F_f$ $\Delta F = F_f - F_i$

15- Area of square = l^2

18-

21- $\omega = \frac{100_{rev}}{min}$ → shows angle $= \frac{100 \times 2\pi}{60}$

22- constant speed = average

25- $\alpha = \frac{\omega_f - \omega_i}{t}$

26- $a_c = v^2/r \rightarrow a \propto v^2 \rightarrow \frac{a_2}{a_1} = \frac{v_2^2}{v_1^2} = \left(\frac{2v_i}{v_1}\right)$

27- merry go round-

34- $a_c = \frac{v^2}{r} = \frac{(250)^2}{1000} = 625$

37- Centripetal force → acceleration → -ve sign

39- $\frac{mv^2}{r}$

40- anticlockwise - outward angular acceleration

41- $\vec{V} = \vec{\omega} \times \vec{r} =$

	$\hat{i}$	$\hat{j}$	$\hat{k}$
	3	-4	1
	5	-6	6

$\hat{i}(-24-(-6)) - \hat{j}(18-5) + \hat{k}(-18-(-20))$

66- θ = 77 rotations = $\frac{7}{1} \times 2(\frac{22}{7}) = (22)^2$

1 rotation = 2π

$\theta = \frac{1}{2}\alpha t^2$ → second equation

$(22)^2 = \frac{1}{2}(8)t^2$ $\sqrt{\frac{22}{4}} = t$ $t = 11s$

T-3 (At series) Chemistry

1- Aldehyd & ketone dipole-dipole

2- $Z < 1$ - attraction

$Z > 1$ - repulsion

0.8 — towards ideal gas

7- ion dipole > H-bonding > dipole dipole > deby > LDF

8- Inter > Intra

11- $B.P \propto \frac{1}{\text{volatility}} \propto \frac{1}{\text{vapor preisure}}$

33- $rms \propto \frac{1}{\sqrt{\text{Molar Mass}}}$

37- $\text{density} \propto P \propto M \propto \frac{1}{T}$

38- 273K $20dm^3$

546K $40dm^3$

43- $PV = \frac{m}{M}RT$

44- $22.414 dm^3 = 6.02 \times 10^{23}$

$1 dm^3$ | $6.02 \times 10^{23} / 22.414$