MODEL TEST PAPER XIII
CHEMISTRY

Q.1

The pair of compounds which cannot exist together in solution is

(a) $NaHCO_3$ and NaOH
(b) Na_2CO_3 and $NaHCO_3$
(c) Na_2CO_3 and NaOH
(d) $NaHCO_3$ and NaCl.

Q.2

For the reaction $2NO + CI_2 \rightarrow 2NOCI$, the following data was collected

S. no.	initial conc.NO	mol/ L of Cl_2	initial rate of formation of NOClmol/L/min
1.	0.10	0.10	0.18
2.	0.10	0.20	0.35
3.	0.20	0.20	1.45

What is the rate expression for the reaction?

(a) rate=$k[NO]^2[CI_2]$
(b) rate=$k[NO]\ [CI_2]^2$
(c) rate=$k[NO][CI_2]$
(d) rate=$k[NO]^2[CI_2]^2$

Q.3

Which of the following reactions accur at anode when the electrolysis of $CuCI_2$ is done using platinum electrode.

(a) $Cu \rightarrow Cu^{2+} + 2e$
(b) $2CI^- \rightarrow CI_2(g) + 2e$
(c) $2H_2O \rightarrow O_2 + 4\ H^+ + 4\ e$
(d) $2Cu \rightarrow Cu_2^{2+}\ 2e$

Q.4

Which one of the following is not an acid salt ?

(a) NaH_2PO_2
(b) NaH_2PO_3
(c) NaH_2PO_4
(d) Na_2HPO_4

Q.5

KF combines with HF to from KHF_2 the compound contains species:

(a) K^+F^- and H^+
(b) K^+, F^- and HF
(c) K^+ and $[HF_2]^-$
(d) $[KHF]^+$and F^-

Q.6

At 25°C, the solubility of iodine in water is 0.35 g/lit. If distribution coefficient of iodine between CS_2 and water is 600, the solubility of iodine in CCI_4 will be about

(a) 1714 g/lit
(b) 210 g/lit
(c) 569.6 g/lit
(d) 857 g/lit

Q.7

The spin only magnetic moment of Mn^{4+} is nearly

(a) 3 BM
(b) 6 BM
(c) 4 BM
(d) 5 BM

Q.8

Which of the following is true when salts like $FeCI_3$, $Al_2(SO_4)_3$ are applied to stop bleeding

(a) Albuminoidsubstance (colloidal blood particles) are coagulated by Fe^{3+} or Al^{3+} ions.
(b) *p*H of the blood increases.
(c) Denaturation of globular proteins in blood takes place and they change into fibrous proteins.
(d) *p*H of the blood remains constant.

Q.9

The van der wall's constant 'a' has the dimension of:

(a) mol/L^2
(b) atm. L^2mol^{-2}
(c) L. atm. mol^{-1}
(d) atm. $L^{-2}mol^{-1}$

Q.10

Which of the statements is correct regarding osmotic pressure (π), volume (V) and temperature (T) ?

(a) $\pi \propto \frac{1}{V}$ if T is constant
(b) $\pi \propto V$ if T is constant
(c) $\pi \propto T$ if V is constant
(d) πV is not constant if T is constant

Q.11

Among the following species identify the isostructural pairs. $NF_3, NO_3-, BF_3, H_3O^+, HN_3$

(a) $[NF_3, NO_3-]$and $[BF_3, -, H_3O^+]$
(b) $[NF_3, HN_3]$and $[NO_3-, H_3O^+]$
(c) $[NF_3, H_3O^+]$and $[NO_3-, BF_3]$
(d) $[NF_3H_3O^+]$and $[HN_3-, BF_3]$

Q,12

The equilibrium constant of a reaction is 200. If the volume of the reaction flask is tripled, the equilibrium constant will be

(a) 300
(b) 200
(c) 100
(d) 150

Q.13

Which of the following metal ions plays an important role in the muscle contraction ?

(a) Na^+
(b) K^+
(c) Fe^{3+}
(d) Ca^{2+}

Q.14

An organic compound A on heating with dilute H_2SO_4at 75°C in presence of $HgSO_4$ followed by oxidation of the formed product gives acetic acid. The compound A is

(a) Acetaldehyde
(b) Ethylene
(c) Acetylene
(d) Ethyl alcohal

Q.15

Water has a higher boiling temperature than hydrogen sulphide because

(a) Molecular weight of H_2O is less than that of H_2S
(b) There is hydrogen bonding in H_2O but no hydrogen bonding in H_2S
(c) There is hydrogen bonding in H_2O
(d) Bonding forces are stronger in H_2O as compared to H_2S.

Q.16

The oxidation number of phosphorus and basicity of acid in pyrophosphoric acid respectively are

(a) + 1 and four
(b) + 4 and three
(c) + 5 and four
(d) + 3 and one

Q.17

Which of the following can act both as a bronsted acid amd a bronsted base?

(a) H_2SO_4
(b) Na_2CO_3
(c) HS
(d) NH_4

Q.18

Diazoniumsalt decomposes as $C_6H_5N_2Cl \rightarrow C_6H_5Cl + N_2$ at $0°$ C.

The evolution of N_2 becomes two times faster when the initial concentration of the salt is doubled. Therefore , it is

(a) A first order reaction
(b) A second order reaction
(c) Independent of the initial concentration
(d) A zero order reaction

Q.19

The molal freezing point constant for water is 1.86°C. Therefore, the freezing point of 0.1 M NaCl solution in water is expected to be

(a) $-1.86°C$
(b) $-0.186°C$
(c) $-0.372°C$
(d) $+0.372°C$

Q.20

The root mean square speed of SO_2 gas becomes the same as that of oxygen at 27° C when the temperature is (Atomic masses of S and O are 32 and 16 respectively)

(a) 327° C
(b) 127° C
(c) 300 K
(d) 400 K

Q.21

Which one of the following will react with CH_3MgI followed by hydrolysis to produce a tertiary alcohol ?

(a) Formaldehyde
(b) A ketone
(c) Acetaldehyde
(d) Acetic acid

Q.22

The bond between H and F in HF is

(a) Predominantly covalent with some ionic character
(b) 100% covalent
(c) 100% electrovalent
(d) Predominantly ionic with some covalent character

Q.23

Rolled gold is composed of

(a) Cu and Al
(b) Au on brass
(c) Cu and Sn
(d) Al and Sn

Q.24

Calcium carbonate decomposes on heating according to the equation $CaCO_3 \rightleftharpoons CaO + CO_2$ At S.T.P. the volume of CO_2 obtained by thermal decomposition of 50 g of $CaCO_3$ will be

(a) 22.4 litres
(b) 44 litres
(c) 11.2 litres
(d) 1 litres

Q.25

When Zinc dust is added to sufficiently large volume of aqueous solution of coppersulphate, 3.175 g of copper metal and 20J of heat are produced. The ΔH for the reaction

$Zn(s) + CusSO_4\ (aq) \rightarrow ZnSO_4\ (aq) + Cu(s)$ is (Atomic weight of Zn and Cu are 65.3 and 63.5 respectively)

(a) 20 J
(b) 400 J
(c) 63.5 J
(d) 65.3 J

Q.26

In the reaction $3Cl_2 + 6OH^- \rightarrow 5Cl^- + ClO_3 - +3H_2O$ chloride is

(a) Oxidized
(b) Oxidized as well as reduced
(c) Reduced
(d) Neither oxidized nor reduced

Q.27

Which of the following compounds does not exist ?

(a) PCl_5
(b) $AsCl_5$
(c) $SbCl_3$
(d) $BiCl_5$

Q.28

Magnesium burns in air to give

(a) MgO
(b) Mg_3N_2
(c) $MgCO_3$
(d) MgO& Mg_3N_2 both

Q.29

Bakelite is obtained from phenol by condensation reaction with

(a) Ethanol
(b) Methanal
(c) Vinyl chloride
(d) Ethylene glycol

Q.30

A metal sulphide which is soluble in water and is white in colour

(a) Cus
(b) Na_2S
(c) PbS
(d) ZnS

PHYSICS

Q.1

Pitch of a micrometer is 1mm and it has 100 divisions on acircular scale with no zero error. While measuring the thickness of a pile of 50 papers it is found that linear scale does not give any reading but 25^{th} division of circular scale coincide with refrence line. Thickness of the pile is

(a) 15.2 mm
(b) 23.5 mm
(c) 21.5 mm
(d) 12.5 mm

Q.2

The height y and distance x along horizontal plane of a projectile on a certain planet, with no surrounding atmosphere are given by $y = 8t-5t^2$ m and x=0t metre where t is in second. The velocity with which the projectile is projected

(a) 14 m/s
(b) 10 m/s
(c) 8 m/s
(d) 6 m/s

Q.3

A body of mass 3.513 kg is moving along x axis with a speed of 5 m/s. The magnitude of its momentum is

(a) 17.57 kg m/s
(b) 17.6 kg m/s
(c) 17.565 kg m/s
(d) 17.56 kg m/s

Q.4

The energy of a body of mass 5 kg is 100 J. the height to which it does, when it is thrown upwards, is

(a) 1 m
(b) 10 m
(c) 2.04 m
(d) 3.42 m

Q.5

A set of cubical blocks lies at rest such that the blocks are parallel to each other along a line on smooth horizontal surface. The separation between the near surfaces at any two adjacent blocks is L. the block at one end is given a speed v towards the next one at time t =0. All collisions are completely inelastic. The centre of mass of the system will have a final speed as

(a) Zero
(b) Nv
(c) v/n
(d) v

Q.6

Imagine a light planet revolving around a very massive star in a circular orbit of radius R with a period of revolution T. if the gravitational force of attraction between the planet and the star is proportional to $R^{-5/2}$, then

(a) T^2 is proportional to R^3
(b) T^2 is proportional to $R^{7/2}$
(c) T^2 is proportional to $R^{3/2}$
(d) T^2 is proportional to $R^{3/73}$

Q.7

Two solids P and Q are floating in water with P having half its volume immersed and Q with 2/3 of its volume immersed in water. The ratio of densities of P and Q is

(a) 2 : 3
(b) 5 : 3
(c) 3 : 4
(d) 7 : 3

Following question consist of two statements printed as Statement 1 and Statement 2. While answering these questions you are required to select any one of the responses indicated as

1. If both Statement 1 and Statement 2 are true and Statement 2 is a correct explanation of Statement 1.
2. If both Statement 1 and Statement 2 are true but the Statement 2 is not a correct explanation of Statement 1.
3. If Statement 1 is true but the Statement 2 is false.
4. If Statement 1 is false but Statement 2 is true.

Q.8

Statement 1: Yield point and breakdown points are same for a material.

Statement 2: Stress and strain curve is non-linear for all values of stress.

(a) 1
(b) 2
(c) 3
(d) 4

Q.9

Specific heat of a constant pressure is greater than the specific heat at constant volume because

(a) Heat is used up to increase temperature at constant pressure
(b) Heat is used by gas for expansion purposes at constant pressure
(c) Heat is used to increase internal energy
(d) None of the above

Q.10

In a given process of an ideal gas, $dW=0$ and $dQ<0$. Then for the gas

a. The temperature will decrease
b. The volume will increase
c. The pressure will remain constant
d. The pressure will increase

Q.11

A particle free to move along the x axis has potential energy $U(x) = k[1-\exp(-x^2)]$for $-\infty \leq x \leq t$ where k is appositive constant of appropriate dimension. Then

(a) At points away from the origin, the particles is in unstable equilibrium
(b) For any finite non zero value of x, there is a force directed away from the origin
(c) If its total mechanical energy is k/2, it has its minimum kinetic energy at the origin
(d) For small displacements from x=0, the motion is simple harmonic

Q.12

A non-conducting solid sphere of radius R is uniformly charged. The magnitude of the electric field due to the sphere at a distance r from its centre

(a) Increases as r increases for $r<R$
(b) Decreases as r increases for $0< r < \infty$
(c) Decreases as r increases for $R < r < 0$
(d) Is discontinuous at $r = R$

Q.13

The heat produced in 30 seconds in a resistor of 5Ω is 15 kJ. The current through the resistor is

(a) 5 A
(b) 100 A
(c) 40 A
(d) 10 A

Q.14

When a magnetic needle is kept in anon uniform magnetic field, it experiences

(a) A force and a torque
(b) Only a force
(c) Only a torque
(d) Neither a force nor a torque

Q.15

B_H at a place is 5×10^{-5} T. The current flowing in it to create a neutral point at the centre of a circular coil of radius 5 cm is

(a) 0.2 A
(b) 0.4 A
(c) 1.4 A
(d) 1.2 A

Q.16

Energy stored in a coil of self inductance 40 mH carrying a steady current of 2A is

(a) 8 J
(b) 0.8 J
(c) 0.08 J
(d) 80 J

Q.17

Two circuits have mutual inductance of 0.1 H. What average emf is incluced in one circuit when the current in the other circuit changes from 0 to 20 A in 0.02 s ?

(a) 240 V
(b) 230 V
(c) 100 V
(d) 300 V

Q.18

Average energy density of electromagnetic field of a wave having aplitude of 48 V/m is

(a) 2×10^{-8} J
(b) 3×10^{-9} J
(c) 1×10^{-8} J m^{-3}
(d) 4×10^{-4} J

Q.19

A radar beam is sent onto a moving aeroplane in opposite direction of its approach. In which of these ways it will be affected?

(a) Its wavelength decreases
(b) Its wavelength remains unaffected
(c) Its wavelength increases
(d) None of these

Q.20

A vessel of height 2d is half filled with a liquid of refractive index 1.414 and the other half with a liquid of refractive index μ. If the two liquids do not mix together, the apparent depth of the vessel is

(a) $\frac{d(\mu+1.414)}{1.414\mu}$
(b) $\frac{1.414\mu}{d(\mu+1.414)}$
(c) $\frac{\mu}{d(\mu+1.414)}$
(d) None of the above

Q.21

A ray of light containing both red and blue light is incident on the refracting surface of a prism, then

(a) Both colours suffer equal deviations
(b) Red colour suffers more deviation than blue colour
(c) Blue colour suffer more deviation than re colour
(d) Both colour do not suffer any deviation

Q.22

Light of wavelength 0.6μm from a sodium lamp falls on a photocell and causes emission of photoelectrons for which the stopping potential is 0.5V. with light of wavelength 0.4μm from a sodium lamp, the stopping potential is 1.5V. The value of h/e is

(a) 4×10^{-59}Vs
(b) 0.25×10^{15}Vs
(c) 4×10^{-15}Vs
(d) 4×10^{-8}Vs

Q.23

The initial nucleus of uranium series is $_{92}U^{238}$and the final nucleus is $_{82}Pb^{206}$. When uranium decays to lead how many α and β particles are produced ?

(a) 6, 8
(b) 8, 6
(c) 4, 3
(d) 3, 4

Q.24

The ratio of minimum to maximum wavelength in Balmer series is

(a) 5 : 9
(b) 5 : 36
(c) 1 : 4
(d) 3 : 4

Q.25

Statement 1: Unit cell is the smallest unit of crystal lattice whose repetition in three dimensions give rise to a crystal structure

Statement 2: Primitives is another name of a unit cell

(a) 1 (b) 2
(c) 3 (d) 4

Q.26

Water from a tap emergers vertically downwards with an initial speed of 1 m/s. The cross sectional area of tap is $10^{-4}m^2$. Assume that the pressure is constant throughout the stream of water and that the flow is stead, the stream of water and that the flow is steady, the cross sectional area of stream 0.15 m below the tap is

(a) $5 \times 10^{-4}m^2$
(b) $1 \times 10^{-4}m^2$
(c) $5 \times 10^{-5}m^2$
(d) $2 \times 10^{-5}m^2$

Q.27

The pressure of a medium is changed from $1.01x10^5$ Pa to $1.165x10^5$Pa and change in volume is 10% keeping temperature constant. The bulk modulus of the medium is

(a) 204.8×10^5 Pa
(b) 102.4×10^5 Pa
(c) 51.2×10^5 Pa
(d) 1.55×10^5 Pa

Q.28

The average translation kinetic energy of O_2 (molar mass 32) molecules at a particular temperature is 0.048 eV. The translational kinetic energy of N_2 (molarmass 28) molecules in eV at the same temperature is

(a) 0.0015
(b) 0.003
(c) 0.048
(d) 0.768

Q.29

A concave mirror is placed on a horizontal table with its axis directed vertically upwards. Let O be the pole of the mirror and C its centre of curvature. A point object is placed at C. It has a real image, also located at C. If the mirror is now filled with water, the image will be

(a) Real an will remain at C
(b) Real and located at a point between C and ∞
(c) Virtual and located at a point between C and O
(d) Real and located at a point between C and O

Q.30

The half-life of $_{131}I$ is 8 days. Given a sample of $_{131}I$ at time t=0, we can infer that

(a) No nucleus will decay before t = 4 days
(b) No nucleus will decay before t = 8 days
(c) All nuclei will decay before t = 16 days
(d) A given nucleus may decay at any time after t=0

MATHEMATICS

Q.1

in a group of 50 people, 35 speak Hindi, 25 speak both English and Hindi, and all the people speak at least one of two language. The number of people speak English is

(a) 40
(b) 45
(c) 50
(d) 60

Q.2

The domain of $-16x - x^2$is

(a) (-∞,∞)
(b) (0,∞)
(c) [-16,0]
(d) [0,16]

Q.3

$cos20^0 cos40^0 cos60^0 cos80^0$is equal to

(a) $\frac{1}{2}$
(b) $\frac{1}{8}$
(c) $\frac{1}{16}$
(d) $\frac{1}{2\sqrt{2}}$

Q.4

The principle value of argument of $-2 - 2i$ is

(a) $\frac{\pi}{4}$
(b) $\frac{3\pi}{4}$
(c) $-\frac{3\pi}{4}$
(d) $\frac{5\pi}{4}$

Q.5

Solution set of $3x^2 + 8x < 3$ is

(a) $(-3, 1)$
(b) $\left(-3, \frac{1}{3}\right)$
(c) $(0, 1)$
(d) $\left(0, \frac{1}{3}\right)$

Q.6

The number of different 8 letter words formed from the letters of the word TRIANGLE if no two vowels comes together.

(a) 14400
(b) 7200
(c) 3600
(d) 1800

Q.7

In an examination, a candidate has to pass in all the five subjects to be declared to pass. The number of ways he can fail are

(a) 25 (b) 28
(c) 31 (d) 36

Q.8

The fourth term from the end in the expansion of $\left(\frac{x^3}{2}-\frac{2}{x^3}\right)^9$ is

(a) $\frac{520}{x^4}$
(b) $\frac{575}{x^6}$
(c) $\frac{628}{x^8}$
(d) $\frac{672}{x^9}$

Q.9

The first term of a G.P. is 1. The sum of third and fifth term is 90. The common ratio of G.P. is

(a) ± 3
(b) ± 2
(c) ± 1
(d) None of these

Q.10

The vertices of ΔPQR are P(2, 1), Q(−2,3) and R(4,5). The equation of median through the vertex R is

(a) $x+y+1=0$
(b) $x-y+1=0$
(c) $x+y-1=0$
(d) $2x+y=1$

Q.11

If the circle passes through (2,4) and has its centre at the intersection of $x-y=4$ and $2x+3y=-7$. The equation of the circle is

(a) $x^2+y^2-2x+6y-40=0$
(b) $x^2+y^2+2x-6y-40=0$
(c) $x^2+y^2+2x+6y-40=0$
(d) $x^2+y^2-2x-6y-40=0$

Q.12

The foci of an ellipse is$(0, \pm 5)$ and the major axis is 20. The equation of ellipse is

(a) $\frac{x^2}{25} + \frac{y^2}{36} = 1$
(b) $\frac{x^2}{75} + \frac{y^2}{100} = 1$
(c) $\frac{x^2}{49} + \frac{y^2}{36} = 1$
(d) None of these

Q.13

The ratio is which the plane $2x + 3y + 5z = 1$ divide the line joining the points (1, 0,−3) and (1,−5,7) is

(a) 2 : 1 (b) 5 : 2
(c) 2 : 3 (d) 3 : 4

Q.14

$Lt_{x\to 0} \frac{3^x+3^{-x}-2}{x^2}$is equal to

(a) Log 2
(b) Log 3
(c) $(\log 2)^2$
(d) $(\log 3)^2$

Q.15

If 4 digit numbers greater than 5.000 are formed from the digits 0, 1, 3, 5, 7. The probability of forming a number divisible by 5 when digits are repeated

(a) $\frac{2}{5}$
(b) $\frac{3}{5}$
(c) $\frac{2}{7}$
(d) $\frac{4}{7}$

Q.16

$\int \frac{dx}{\sqrt{5-4x-2x^2}}$ is equal to

(a) $\frac{1}{\sqrt{2}} \sin^{-1}\left\{\frac{\sqrt{2}(x-1)}{\sqrt{7}}\right\} + c$
(b) $\frac{1}{\sqrt{2}} \sin^{-1}\left\{\frac{\sqrt{2}(x+1)}{\sqrt{7}}\right\} + c$
(c) $\frac{1}{\sqrt{2}} \cos^{-1}\left\{\frac{\sqrt{2}(x-1)}{\sqrt{7}}\right\} + c$
(d) $\frac{1}{\sqrt{2}} \cos^{-1}\left\{\frac{(x-1)}{\sqrt{7}}\right\} + c$

Q.17

$\begin{vmatrix} a+b+c & -c & -b \\ -c & a+b+c & -a \\ -b & -a & -a \end{vmatrix}$ is equal to

(a) $2(a+b)(b+c)(c+a)$
(b) $(a+b)(b+c)(c+a)$
(c) $(a-b)(b-c)(c-a)$
(d) $3(a-b)(b-c)(c-a)$

Q.18

$Let\ f(x) = \frac{4x+3}{6x-4}, x \neq \frac{2}{3}$. Then range of is

(a) R
(b) $R - \left\{\frac{2}{3}\right\}$
(c) $R - \left\{\frac{3}{4}\right\}$
(d) $(0, \infty)$

Q.19

The value of $\tan^{-1}\left[2\cos\left(2\,sin^{-1}\frac{1}{2}\right)\right]$ is

a. $\frac{\pi}{4}$
b. $\frac{\pi}{2}$
c. π
d. $\frac{3\pi}{2}$

Q.20

If $f(x) = \begin{cases} \frac{1-\cos ax}{x\sin x} & x \neq 0 \\ \frac{1}{2} & x = 0 \end{cases}$, is continous at x=0.

Then the value of a is

(a) 0
(b) 1
(c) -1
(d) ± 1

Q.21

If $y = a^{x^{a^{x}}\ldots\ldots\ldots\infty}$ then $\frac{dy}{dx}$ is equal to

(a) $\frac{y^2 \log y}{x(1-y \log y \log x)}$
(b) $\frac{x^2 \log x}{y(1-x \log x \log y)}$
(c) $\frac{x^2 \log y}{x(1-x \log x \log y)}$
(d) $\frac{y^2 \log x}{y(1-x \log x \log y)}$

Q.22

The point on the curve $y = 5x^2 - 2x^3$ at which the tangent is parallel to the line $y = 4x + 5$are

(a) (1, 2)
(b) (2, 3)
(c) (1, 3)
(d) None of these

Q.23

The maximum value of $\sin x + \cos x$ on [0, 2π] is

(a) 1
(b) 2
(c) √2
(d) 0

Q.24

$\int \frac{dx}{1+\sin x+\cos x}$ is equal to

(a) $\log\left|\tan\frac{x}{2} + 1\right| + c$
(b) $\log\left|\tan\frac{x}{2}\right| + c$
(c) $\log|\cot x + 1| + c$
(d) $\log\left|\cot\frac{x}{2}\right| + c$

Q.25

$\int_0^{\pi/4} \sec x \sqrt{\frac{1-\sin x}{1+\sin x}}\, dx$ is equal to

(a) √2
(b) 2 + √2
(c) 2 − √2
(d) 0

Q.26

Solution of $\frac{dy}{dx} + 2y \tan x = \sin x$ is

(a) $y = \sin x + c\ cos^2 x$
(b) $y = cos^2 x + c$
(c) $y = \cos x + c\ cos^2 x$
(d) $y = tan^2 x + c$

Q.27

If the scalar projection of $\vec{a} = \lambda\hat{\imath} + \hat{\jmath} + 4\hat{k}$ on $\vec{b} = 2\hat{\imath} + 6\hat{\jmath} + 3\hat{k}$ is 4 units, then the value of λ is

(a) 1 (b) 5
(c) 8 (d) 13

Q.28

The equation of the line which passes through $P(-3, -2)$ and perpendicular to the lines

$\frac{x}{1} = \frac{y}{2} = \frac{z}{3}$ and $\frac{x+2}{-3} = \frac{y-1}{2} = \frac{z+1}{5}$ is

(a) $\frac{x+2}{1} = \frac{y-3}{2} = \frac{z+2}{4}$
(b) $\frac{x+1}{2} = \frac{y-3}{-7} = \frac{z+2}{4}$
(c) $\frac{x-1}{3} = \frac{y+1}{2} = \frac{z-2}{5}$
(d) None of these

Q.29

A and B throw a die alternately till one of them gets a '6' and wins the game. If A stars first, then the probability of winning of A is

(a) $\frac{5}{6}$
(b) $\frac{1}{6}$
(c) $\frac{5}{11}$
(d) $\frac{6}{11}$

Q.30

Eight coins are thrown simultaneously. The probability of getting at least six head is

(a) $\frac{37}{256}$
(b) $\frac{28}{256}$
(c) $\frac{8}{256}$
(d) $\frac{1}{256}$