PRACTICE PAPER

CHEMISTRY

Q1.

At constant temperature in a reaction, $N_2 + O_2 \rightleftharpoons 2NO$ equilibrium is established after the formation of 40% NO. The value of k_c will be

(a) 0.2
(b) 2.5
(c) 0.25
(d) 25

Q2.

The first order reaction has a half-life period of 34.65 seconds, its rate constant is

(a) $2 \times 10^{-3}\ s^{-1}$
(b) $24 \times 10^{-2}\ s^{-1}$
(c) $20\ s^{-1}$
(d) $20\ s^{-1}$ $2 \times 10^{-2}\ s^{-1}$

Q3.

$CuSO_4$ reacts with KCN solution and forms

(a) $Cu(CN)_2$
(b) $Cu(CN)$
(c) $K_4[Cu(CN)_6]$
(d) $K_3\ [Cu(CN)_4]$

Q4.

Equal volumes of 0.1 M $AgNO_3$ and 0.2 M NaCl solution are mixed. The concentration of NO_3^- ions in resulting solution will be

(a) 0.1 M
(b) 0.05 M
(c) 0.2 M
(d) 0.15 M

Q5.

Silicones are

(a) Organometallic compounds
(b) Compounds obtained from silica
(c) Compounds obtained by hydrolysis of organochlorosilanes
(d) macro molecules prepared from silicates

Q6.

Which of the following is not a disaccharide?

(a) Sucrose
(b) Mannose
(c) Lactose
(d) Maltose

Q7.

The least acidic in the series of BF_3, BCI_3 and BBr_3 is BF_3 because

(a) F is most electronegative
(b) F has a small
(c) B^{3+} has a very small size
(d) Back donation of electron from F to B

Q8.

Which complex has square planar structure?

(a) $Ni(CO)_4$
(b) $[NiCI_4]^{2-}$
(c) $[Ni(CN)_4]^{2-}$
(d) $[Zn(NH_3)_4]^{2+}$

Q9.

By the electrolysis of an aqueous solution of $CuSO_4$ the products obtained at both the electrodes are

(a) H_2 at anode, Cu at cathode
(b) $H_2 S_2 O_8$ at anode, O_2 at cathode
(c) O_2 at anode, H_2 cathode
(d) O_2 at anode, Cu at cathode

Q10.

Crystalline barium chloride is not so soluble in water as crystalline sodium chloride is. On adding a saturated solution of barium chloride to a saturated solution of table salt (Which is BaCI with negligible impurities of $NaHCO_3$ and $NaSO_4$), a dense crystalline white substance is deposited. The deposit will most probably be of

(a) NaCI crystals
(b) $BaCI_2 . 2H_2O$ crystals
(c) $Ba(HCO_3)_2$ crystals
(d) $BaSO_4$ crystals

Q11.

Which of the following elements has highest catenation ability ?

(a) O
(b) P
(c) S
(d) N

Q12.

The ionic radii of Rb^+ and I^- are 1.47 and 2.16 A° respectively. The most probable type of geometry exhibited by RbI on the basis of radius ratio rule is

(a) CsCI type
(b) NaCI type
(c) ZnS type
(d) Boron oxide type

Q13.

Treatment of CH_3 CH_2 COOH with bromine in presence of red phosphorous gives mainly

(a) Br CH_2CH_2 COOH
(b) CH_3CHBr COOH
(c) CH_3 CBr_2 COOH
(d) $BrCH_2CHBr$ COOH

Q14.

With reference to chlorine, which one of the following statement is false?

(a) Chlorine is a better oxidizing agent than bromine
(b) The highest oxidation state exhibited by chlorine is +5
(c) Chlorine turns starch iodide paper blue.
(d) The lowest oxidation sate exhibited by chlorine is – 1.

Q15.

A radioactive sample has a half- life of 1500 years. A sealed tube contains 1 g of the sample. How much quantity of sample will be left after 300 years?

(a) 1 g
(b) 0.5 g
(c) 0.25 g
(d) 0.00 g

Q16.

Which of the following will not give primary amines?

(a) Dehydration of amides
(b) Acidic hydrolysis of alkyl isocyanides
(c) Reduction of amides
(d) Reduction of alkyl cyanides

Q17.

Which of the following compounds is not soluble in HNO_3?

(a) AgCl
(b) PbS
(c) CuS
(d) CdS

Q18.

The most reactive among the given compounds is

(a) $CH_2 = CH - Cl$
(b) $CH_2 = CH\ CH_2 - Cl$
(c) $CH_3\ CH_2Cl$
(d) $C_6\ H_5Cl$

Q19.

The correct IUPAC name for tetramethyl methane is

(a) 1, 1, 1, 1 – tetramethyl methane
(b) 1, 1, 1 – trimethyl ethane
(c) 2, 2 – dimethyl propane
(d) 1, 2 – dimethyl propane

Q20.

From the structures given below, which structure will exhibit geometrical isomerism?

(a) $CH_3 - CH = CCl_2$
(b) $CH_3CCl = CCI\ CH_3$
(c) $CH_3\ CH_2\ CH = CH_2$
(d) $CH_3 - CH = CH_2$

Q21.

Which of the following are enoltautomers of 3 – methylcyclohexanone?

(a) I & II
(b) I & VI
(c) II & III
(d) Only I

Q22.

Oxidation number of Fe in Fe_3O_4 is

(a) +2
(b) +3
(c) +2.66
(d) +4

Q23.

A complex compound of cobalt has molecular formula containing. Five NH_3 molecules, one nitro group and two chlorine atoms for one C_0 atom One mole of this compound produces three mole ions in aq. Solution. On reacting with excess of $AgNO_3$ solution, two moles of AgCl get precipitated. The ionic formula of the compound is

(a) $[Co\ (NH_3)_4\ NO_2Cl]\ (NH_3)\ Cl_6$
(b) $[Co(NH_3)_5Cl]\ (NO_2)_6$
(c) $[Co(NH_3)_5\ (NO_2)]\ Cl_2$
(d) $[Co(NH_3)_5\ (NO_2)]$ CI

Q24.

Potassium hypochlorite (KCIO) reacts ammonia to give a compound A. A is a powerful oxidizing agent and destroys the bacteria in water Compound, A is

(a) Chloramines
(b) Nitrogen trichloride
(c) N_2O_5
(d) Cl_2O

Q25.

Which of the following will produce a precipitate with $AgNO_3$ solution

(a) Br^-
(b) $S_2\ O_3^{2-}$
(c) PO_4^{3-}
(d) F^-

Q26.

Which method of purification is represented by the following equation?

$Ti + 2I_2 \xrightarrow{773\ k} TiI_4 \xrightarrow{1675\,K} Ti + 2I_2$

(a) Cupellation
(b) Poling
(c) Van Arkel
(d) Zone refining

Q27.

The following compounds have been arranged in order of their increasing thermal stabilities, Identify the correct order.

$K_2\,CO_3$ (I), $MgCO_3$ (II), $BeCO_3$ (IV)

(a) I < II < III < IV
(b) IV < II < III < I
(c) IV < II < I < III
(d) II < IV < III < I

Q28.

Which of the following oxides of nitrogen is the anhydride of nitrous acid?

(a) NO
(b) $N_2\,O_3$
(c) $N_2\,O_4$
(d) $N_2\,O_5$

Q29.

The correct expression for the determination of molecular mass of the solute by osmotic pressure measurement is

(a) $m = \frac{WRT}{PV}$
(b) $m = \frac{RT}{WPV}$
(c) $m = \frac{PRT}{WV}$
(d) $m = \frac{WPV}{RT}$

Q30.

Which of the following compounds turns black on addition of ammonium hydroxide?

(a) $PbCl_2$
(b) $Hg_2 Cl_2$
(c) $CuCl_2$
(d) AgCl

PHYSICS

Q1.

The side of a cube is measured by Vernier calipers.(10 Vernierscale divisions coincide with 9 main scale divisions and one main scale division is 1 mm). The main scale reads 10 mm and first division of Vernier's scale coincides with the main scale. Mass of cube is 2.736 gm. The density of cube in appropriate significant figures will be

(a) 6.26 gcm^{-3}
(b) 2.66 gcm^{-3}
(c) 0.266 gcm^{-3}
(d) 0.626 gcm^{-3}

Q2.

A body is projected at an angle θ with the vertical with a kinetic energy E. The kinetic energy of the particle at the highest point will be

(a) $E \cos^2 \theta$
(b) $E \sin^2 \theta$
(c) E/2
(d) $E \tan^2 \theta$

Q3.

The minimum velocity in m/s with which a car driver must traverse a flat curve of radius 150 m and coefficient of friction 0.6 to avoid skidding is

(a) 60
(b) 30
(c) 15
(d) 25

Q4.

A particle of mass 4m which is at rest explodes into three fragments. Two of the fragments each of mass m are found to move with a speed v each in mutually perpendicular directions. The energy released in the process of explosion is

(a) $3mv^2/2$
(b) $3mv^2$
(c) 2mv2
(d) $Mv^2/2$

Q5.

A uniform circular disc has radius a, a square potion of diagonal a is cut from it. The centre of mass of the remaining portion from the centre is

(a) $a / \pi - 2$
(b) $- a / \pi - 2$
(c) $a / 4\pi - 2$
(d) $- a / 4\pi - 2$

Read the Statement 1 and 2 carefully to mark the correct option out of the options given below

(1) If both Statement 1 and Statement 2 are true and Statement 2 is the correct explanation of the Statement 1
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Q6.

Statement 1: For a star with single planet, a precisely circular orbit for the planet is possible but very unlikely.

Statement 2: Circular orbit is possible when velocity of planet is precisely equal to the orbit velocity of the star.

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

Q7.

The minimum force required to punch a hole of diameter d in a steel plate of thickness t when unltimate shear strength of steel σ is given by

(a) $\pi d\sigma t$
(b) $\pi (d/2)\ 2\sigma t$
(c) $2\pi d\sigma t$
(d) $\pi (d/2)\ \sigma t$

Q8.

Two metallic spheres S_1 and S_2 made of the same material and mass of S_1 is three times the mass of S_2, are heated to the same temperature but insulted from each other. The ratio of intial rate of cooling of S_1 to that of S_2 is

(a) 1/3
(b) $1/\sqrt{3}$
(c) $1/\sqrt{3}$
(d) $(1/3)^{10}$

Q9.

The temperature of an ideal gas is increased from 120 K to 480 K. The root mean square velocity of gas molecules is v at 120 K. The velue of root mean square velocity at 480 K is

(a) 4 v
(b) 2 v
(c) v/2
(d) v/4

Q10.

The difference between apparent frequency of a source of sound as observed by an observer during tsapproach and recession is 2% of the frequency of the source. If the speed of sound in air is 300 m/s, the velocity of sound is

(a) 1.5 m/s
(b) 12 m/s
(c) 6 m/s
(d) 3 m/s

Q11.

For a wave displacement amplitude is 10 – 8 m, density of air is 1.3 kgm^{-3}, velocity in air is 340 m/s and frequency is 2000 Hz. The intensity of the wave will be given by

(a) $5.3 \times 10^{-4}\ Wm^{-2}$
(b) $5.3 \times 10^{-6}\ Wm^{-2}$
(c) $3.5 \times 10^{-8}\ Wm^{-2}$
(d) $3.5 \times 10^{-6}\ Wm^{-2}$

Q12.

Two point charges +q and –q are held fixed at (- d, 0) and (d, 0) respectively in a XY coordinate system. Then

(a) the electric field E at all points in on the X axis has the same direction
(b) E at all points on Y axis is along I
(c) Work has to be done in bringing a test charge from infinity to the origin
(d) The dipole moment is 2qd directed along I

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Q13.

Statement 1: If a wire is stretched to increase its length x times, its resistance also increase by x times.

Statement 2: Resistance of a conductor directly depends upon the length of the conductor

(a) 1 (b) 2

(c) 3 (d) 4

Q14.

In hydrogen atom, an electron is making 6.6x 10^{15}rps around the nucleus in an orbit of radius 0.523 A°. The equivalent dipole moment is

(a) $9.06 \times 10^{-18}\ Am^2$ (b) $9.06 \times 10^{-24}\ Am^2$

(c) $3.06 \times 10^{-24}\ Am^2$ (d) $18.12 \times 10^{-24}\ Am^2$

Q15.

A coil in the shape of an equilateral triangle of side 0.02 m is suspended in a vertical plane between the pole pieces of a permanent magnet with a horizontal magnetic field of 5×10^{-2} T parallel to its plane. A current of 0.1 A is passed through it. The couple acting on the coil will be

(a) 6.86×10^{-7} Nm
(b) 8.66×10^{-7} Nm
(c) 8.7×10^{-9} Nm
(d) 8×10^{-8} Nm

Q16.

The negative sign in the equation $e = -d\phi/dt$ indicates

(a) emf is always taken negative
(b) current density is negative
(c) inducedemf opposes the causes producing it
(d) none of the above

Q17.

A step up transformer operates on a 200 Volt line. The ratio of primary to secondary turns is 1:5. The output voltage in secondary coil is

(a) 0.1 V
(b) 70 V
(c) 1000 V
(d) 2 V

Q18.

A plane em wave travels in free space along X axis. At a particular point in space, the electric field along Y axis is 9.3 V/m. The magnitude of the magnetic induction along Z axis is

(a) 3.1×10^{-7} T
(b) 3.1×10^{-8} T
(c) 3×10^{-5} T
(d) 9.3×10^{-6} T

Q19.

Two plane mirrors are placed at right angle to each other. A ray strikes one mirror at an angle of incidence i, such that it is also reflected from the second mirror is

(a) Parallel to the ray incident on the first mirror and they two are in the opposite direction
(b) Inclined at an angle 2i with ray incident on first mirror.
(c) Parallel to the ray incident on the first mirror and both are in same direction
(d) Inclined a t an angle I with

Q20.

Light of wavelength 5890 A° falls on a double slit arrangement having separation of 0.2 mm. A thin lens of focal length 1 metre is placed near the slits. The linear separation of frings on a screen placed in the focal plane of the lens is

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

Q21.

Sources 1 and 2 emit lights of different wavelengths whereas sources 3 an 4 emit lights of different intensities. The coherence

(a) can be obtained by using sources 1 and 2
(b) can be obtained by using sources 3 and 4
(c) can not be obtained by any of these sources
(d) can not be obtained by using sources 3 and 4

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Q22.

Statement 1 : Crossed electric and magnetic fields and magnetic fields can be used to find velocity of electron beam

Statement 2: Crossed fields are mutually perpendicular electric and magnetic fields through which an electron beam passes undeflected

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

Q23.

One MW is to be generated from $_{92}U^{235}$. The mass of uranium required per day is

(a) 1.5 g
(b) 5.01 g
(c) 1.05 g
(d) 0.51 g

Q24.

The number of alpha and beta decays, $_{88}Re^{222}$ experiences, before turning into stable Pb^{206} isotope is

(a) 4, 2
(b) 2, 4
(c) 1, 3
(d) 6, 10

Q25.

If the reverse voltage in a diode is increased, the width of the depletion region

(a) increase
(b) decrease
(c) fluctuates
(d) does not change

Q26.

A carrier wave of peak voltage 12 V is used to transmit a massage signal. The peak voltage of modulating signal in order to have a modulation index of 75% should be

(a) 1
(b) 2
(c) 0.5
(d) 1.5

Q27.

A particle of mass m and charge q moves with a constant velocity v along the positive x direction it enters a region containing a uniform magnetic field B directed along the negative z direction, extending from x = a to x = b. The maximum value of v required so that particle can just enter the region $x > b$ is

(a) qbB/m
(b) q(b- a) b/m
(c) qaB/m
(d) q(b +a) B/2m

Q28.

A simple pendulum has time period T_1. The point of suspension is now moved upward according to the relation $y = kt^2$ ($k = 1\ m/s^2$) where y is the vertical displacement. The time period now becomes T2. The ratio of T_1^2 / T_2^2 is (Take $g = 10\ m/s^2$)

(a) 6/5
(b) 5/6
(c) 1
(d) 4/5

Q29.

A metal ball immersed in alcohol weight W_1 at 0°C and W_2 at 50°C. The coefficient of cubical expansion of the metal is less than that of the alcohol. Assuming that the density of the metal is large compared to that of alcohol, it can be shown that

(a) $W_1 > W_2$
(b) $W_1 = W_2$
(c) $W_1 < W_2$
(d) All of these

Q30.

The intensity of radiation emitted by the sun has its maximum value at a wavelength of 510 nm and that emitted by the North Star has the maximum value at 350 nm. If these stars behave like black bodies, the ratio of the surface temperature of the sun and the North Star is

(a) 1.46
(b) 0.69
(c) 1.21
(d) 0.83

MATHEMATICS

Q1.

If $0 < \alpha, ß, \gamma < \frac{\pi}{2}$ such that $\alpha + ß + \gamma = \frac{\pi}{2}$ and cotα, cotß, cotγ are in A.P. Then the value of cotα cotγ is

(a) 0
(b) 1
(c) 3
(d) 6

Q2.

The number of integral values of a, for which $\cos 2x + a \sin x = 2a - 7$ posses a solution is

(a) 1
(b) 2
(c) 5
(d) 7

Q3.

If $\sin^{-1} x + \tan^{-1} x = \frac{\pi}{2}$ then $2x^2 + 1$ is equal to

(a) $\sqrt{2}$
(b) $\sqrt{2} - 1$
(c) $\sqrt{5}$
(d) None of these

Q4.

The point A (2, 1) is translated parallel to the line $x - y = 3$ by a distance 4 units. If the new position A' is in third quadrant, then the coordinates of A' are

(a) $\left(-2\sqrt{2} + 2, -2\sqrt{2} + 1\right)$
(b) $\left(2\sqrt{2} + 2, -2\sqrt{2} + 1\right)$
(c) $\left(2\sqrt{2} - 2, 2\sqrt{2} - 1\right)$
(d) None of these

Q5.

The line $x + y \tan\theta = \cos\theta$ touches the circle $x^2 + y^2 = 9$ for

(a) $\theta = \frac{\pi}{2}$
(b) $\theta = \pi$
(c) $\theta = \frac{\pi}{4}$
(d) No value of θ

Q6.

The ratio of the length of the focal chord of a parabola to its latus rectum is

(a) $\text{cin}^2 \alpha$
(b) $\text{cosec}^2 \alpha$
(c) $\cos^2 \alpha$
(d) $\text{can}^2 \alpha$

Q7.

If $f(x) = e^x$ and x_1, x_2, x_3 form an A.P. Then $f(x_1), f(x_2), f(x_3)$ are in

(a) A.P.
(b) H.P.
(c) G.P.
(d) None of these

Q8.

$\underset{x \to 0}{Lt} \frac{(\cos x)^{1/2} - (\cos x)^{1/3}}{Sin^2 x}$ is

(a) $-\frac{1}{12}$
(b) $\frac{1}{12}$
(c) $\frac{1}{6}$
(d) None of these

Q9.

If $f(x) = |\cos 2x|$ then $f'\left(\frac{\pi}{4}\right)$ is equal to

(a) 0
(b) 2
(c) -2
(d) None of these

Q10.

If $y = \tan^{-1}\left(\tan\sqrt{1-x^2}\right)$, then real $\frac{dy}{dx}$ at $x = 4$ is

(a) $\frac{1}{y}$
(b) $\frac{2}{y}$
(c) $\frac{4}{y}$
(d) Does not exists

Q11.

If the tangent at (1, 1) on $y^2 = x(2 - x)^2$ meet the curve again at P, then P is

(a) $\left(\frac{9}{4}, \frac{3}{8}\right)$
(b) $\left(\frac{9}{4}, 1\right)$
(c) $\left(\frac{1}{3}, \frac{2}{5}\right)$
(d) None of these

Q12.

$\int \frac{\sin\,x\,dx}{\sin\,4x}$ is equal to

(a) $\frac{1}{8}\log\left|\frac{\sin\,x-1}{\sin\,x+1}\right| - \frac{1}{4\sqrt{2}}\log\left|\frac{\sqrt{2}\sin\,x-1}{\sqrt{2}\sin\,x+1}\right| + c$
(b) $\frac{1}{8}\log\left|\frac{\sin\,x+1}{\sin\,x-1}\right| - \frac{1}{4\sqrt{2}}\log\left|\frac{\sqrt{2}\sin\,x-1}{\sqrt{2}\sin\,x+1}\right| + c$
(c) $\frac{1}{8}\log\left|\frac{\sin\,x+1}{\sin\,x-1}\right| - \frac{1}{4\sqrt{2}}\log\left|\frac{\sqrt{2}\sin\,x+1}{\sqrt{2}\sin\,x-1}\right| + c$
(d) None of these

Q13.

If $\int_0^1 \frac{e^x}{x+1}\,dx = a$ the $\int_{b-1}^{b} \frac{e^{-x}}{x-b-1}$ is equal to

(a) e^b a
(b) e^{-b} a
(c) – e^{-b} a
(d) None of these

Q14.

$\text{Lim}_{n\to\infty}\frac{(n)^{\frac{1}{n}}}{n}$ is equal to

(a) 1
(b) e^{-1}
(c) e^1
(d) None of these

Q15.

If $\vec{a} = \hat{\imath} + \hat{\jmath} + \hat{k}, \vec{b} = 4\hat{\imath} + 3\hat{\jmath} + 4\hat{k}$ *and* $\vec{c} = \hat{\imath} + \alpha\hat{\jmath} + ß\hat{k}$ are linearly dependent vectors and |c| = $\sqrt{6}$, then

(a) α = 2, ß = - 1
(b) α = ± 2, ß = 1
(c) α = -2, ß = - 1
(d) None of these

Q16.

If (a + ib) (c + id) = (a^2 + b^2) i^2 then

(a) a = d, b = c
(b) a = c, b = d
(c) a = -c, b = -d
(d) a = - d, b = c

Q17.

The least value of the function $f(x, y, z) = x^2 + 4y^2 + 3z^3 - 2x - 12y - 6z + 15$ is

(a) 2
(b) 1
(c) 0
(d) 15

Q18.

The sum of the n terms of the series $1 + (1 + 3) + (1 + 3 + 5) + \ldots.$ is

(a) $\frac{n\,(n+1)}{2}$
(b) $\frac{n(n+1)(2n+1)}{6}$
(c) $\frac{n(n-1)}{2}$
(d) None of these

Q19.

If three number are in G.P, then the numbers obtained by adding the middle term to each of three numbers are in

(a) H.P.
(b) A.P.
(c) G.P.
(d) None of these

Q20.

The sum of all the divisions of the number 180 is

(a) 546 (b) 1170

(c) 840 (d) 1260

Q21.

There are 3 letters and 3 envelopes corresponding to these letters. The number of ways in which all the letters can be placed in wrong envelopes are

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

Q22.

The number of four digits number that can be formed from digits 0, 1, 2, 3 are

(a) 256 (b) 192

(c) 144 (d) None of these

Q23.

The number of terms in the expansion of $\left(x^3 + 1 + \frac{1}{x^3}\right)^n$, n∈N is

(a) n (b) 2n

(c)n+1 (d) 2n +1

Q24.

If a +b + c = 0 = 1 m + n, then the value of determinant= $\begin{vmatrix} al & bm & cn \\ cm & an & bl \\ bn & cl & am \end{vmatrix}$ is

(a) al + bm + cn (b) al^2+ bm + cn

(c) 0 (d) None of these

Q25.

The number of ways in which n distinct objects can be put into two identical boxes so that no box remains empty is

(a) $2^n - 1$ (b) 2^{n-1} -1

(c) 2^{n+1} -1 (d) None of these

Q26.

The probability of two persons having same date and month for the birthday is

(a) $\frac{1}{365}$

(b) $\frac{1}{(365)^2}$

(c) $\frac{2}{365}$

(d) None of these

Q27.

The probability that six boys and six girls sit along in line alternatively is

(a) $\frac{1}{462}$

(b)$\frac{1}{380}$

(c) $\frac{1}{260}$

(d) None of these

Q28.

Let $A \cup \{2, 4, 6\} = \{2, 4, 6, 8, 10\}$ and $n(A) = m$ then

(a) $1 \le p \le 4$

(b) $2 \le p \le 5$

(c) $2 \le p \le 7$

(d) none of these

Q29.

Let A' denotes the transpose of matrix A, then which of the following statement is not correct.

(a) $(A')'=A$

(b) $(KA)' = KA'$

(c) $(AB)' = A'B'$

(d) $(A + B)'= A' + B'$

Q30.

$\frac{1}{2}\left(\frac{1}{6}\right)^2 + \left(\frac{2}{3}\right)\left(\frac{1}{6}\right) + \left(\frac{3}{4}\right)\left(\frac{1}{6}\right)^4 + \cdots$is equal to

(a) $\frac{1}{30} + \log\frac{5}{6}$

(b) $\frac{1}{6} + \log\frac{5}{6}$

(c) $\frac{6}{30} + \log\frac{5}{6}$

(d) None of these