Test Date: 05/07/2020

Aakash

Medical|IIT-JEE|Foundations

(Divisions of Aakash Educational Services Limited)

B
CODE

Regd. Office: Aakash Tower, 8, Pusa Road, New Delhi-110005, Ph.011-47623456

Time : 3 hrs

Mock Test_CoE_XII

MM : 240

for JEE (Advanced) - 2020

Test – IA (Paper – II)_Actual Pattern-2015

Topics covered:

PHYSICS : **MOCK TEST on Complete Syllabus**

CHEMISTRY : **MOCK TEST on Complete Syllabus**

MATHEMATICS : **MOCK TEST on Complete Syllabus**

General Instructions:

Pattern of the questions are as under:

(i) The question paper consists of 3 parts (Physics, Chemistry and Mathematics). Each part has **3 sections.**

(ii) **Section-1:** This section contains **8** questions. The answer to each of the questions is a **single-digit integer**, ranging from 0 to 9. Each question carries **+4 marks** for correct answer. There is no negative mark for wrong answer.

(iii) **Section-2:** This section contains **8** multiple choice questions. Each question has 4 choices (A), (B), (C) and (D), for its answer, out of which **one or more than one is/are correct.** Each question carries **+4 marks** for correct answer, **0 mark** if not attempted and **–2 marks** for wrong answer.

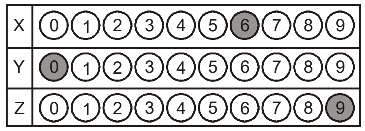
(iv) **Section-3:** This section contains 2 paragraphs. Based upon each paragraph, 2 multiple choice questions have to be answered. Each question has one or more than one correct answer and carries **+4 marks** for correct answer, **0 mark** if not attempted and **–2 marks** for wrong answer.

PART – I: PHYSICS

SECTION - 1

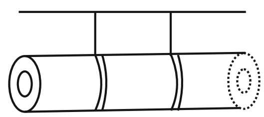
Integer Value Type

This section contains **8** questions. The answer to each of the questions is a **single-digit integer,** ranging from 0 to 9. The answer will have to be appropriately bubbled in the OMR as per the instructions as follows. **Examples-** If the correct answer to question numbers X, Y and Z (say) are 6, 0 and 9 respectively, then mark 6, 0 and 9 in OMR respectively

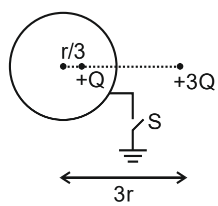


1. Two identical metal spheres of radius *a* are placed in a medium of resistivity ρ at large separation. If the electrical resistance of medium between sphere is $\frac{\rho}{n\pi a}$. Find the value of *n*.

2. A cylindrical shell of mass *M* and radius *R* and 2*R* is attached to the ceiling with the help of two strings as shown. The cylinder moves down and strings do not slip over the surface of cylinder. If tension in each string is $\frac{nMg}{26}$. Find value of *n*



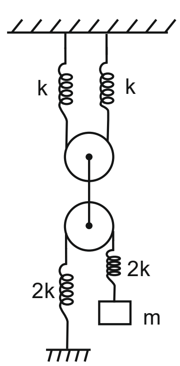
3. A conducting shell of radius *r* has total charge 2Q and a point charge Q is at distance $\frac{r}{3}$ from centre as shown. A charge particle having charge 3Q is placed outside of shell at distance 3*r* from centre. If the shell is now earthed the amount of charge flown through switch S is *n*Q. Find value of *n*



4. Water in a swimming pool at 0°C starts freezing at *t* = 0. Depth of water is 1m, atmospheric temperature is – 4°C, density of water is ρ and latent heat of fusion of water is *L* and thermal conductivity of ice is *K*. Time taken to freeze entire pool is given by $\frac{\rho L}{nK}$, where all quantities are taken in SI units, then find the value of n.

5. A bulb is placed at a depth of $2\sqrt{7}$ m in water and a floating opaque disc is placed over the bulb so that the bulb is not visible from outside the water surface. Find the minimum radius of the disc in metre. $\left(\mu_w = \frac{4}{3}\right)$

6. For the given arrangement, if time period of oscillation of block is given as $T = 2\pi\sqrt{\frac{nm}{k}}$. Find value of n.



7. A tightly wound solenoid has number of turns per unit length n and current in it is I. If the magnetic pressure on the wire of solenoid is given as $\Delta p = \frac{4\mu_0 n^2 I^2}{\lambda}$, then find the value of λ

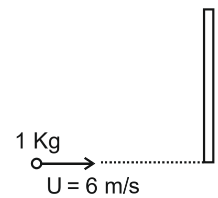
8. A close organ pipe has length of 45 cm. If speed of sound is 360 m/s, then find the number of possible natural oscillations of air column whose frequencies lie below 2000 Hz.

SECTION - 2

One or More Options Correct Type

This section contains **8** multiple choice questions. Each question has 4 choices (A), (B), (C) and (D), for its answer, out of which **one or more than one is/are correct.**

9. A rod of mass 2 kg and length 3 m is placed on a smooth horizontal surface. A particle of mass 1 kg strikes the rod perpendicularly and sticks to it, then



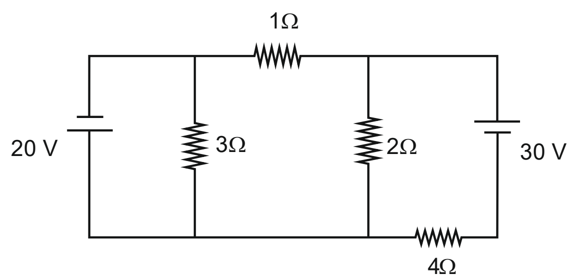
(A) Velocity of Centre of mass after collision is 2 m/s

(B) Angular speed of rod after collision is 2 rad/s

(C) Loss of energy in collision is 12 J

(D) Velocity of particle just after collision is 4 m/s

10. In the circuit shown in the figure



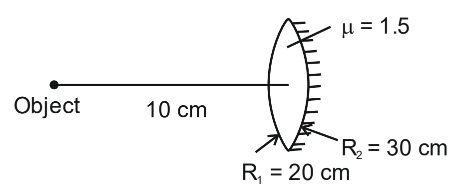
(A) Current through resistance of 1Ω is $\frac{90}{7} A$

(B) Current through resistance of 2Ω is $\frac{25}{7} A$

(C) Current through resistance of 3Ω is $\frac{20}{3} A$

(D) Current through resistance of 4Ω is $\frac{65}{7} A$

11. A small object is placed at distance of 10 cm from a convex lens silvered at one surface as shown. Then



(A) Image is real

(B) Image is virtual

(C) Image is at distance 20 cm from lens

(D) Power of equivalent mirror is 15 dioptre

12. One mole of a diatomic gas undergoes through a process TV^2 = constant. If change in temperature $\Delta T = T_0$, then

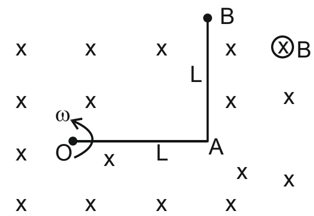
(A) Work done by the gas is $\frac{RT_0}{2}$

(B) Change in internal energy is $\frac{5RT_0}{2}$

(C) Heat supplied to gas is $2RT_0$

(D) Molar heat capacity of process is $2R$

13. An 'L' shaped conducting rod is rotated with constant angular speed ω in uniform magnetic field B as shown in figure, then



(A) $V_A - V_0 = \frac{1}{2}B\omega L^2$

(B) $V_A - V_B = \frac{1}{2}B\omega L^2$

(C) $V_0 - V_A = V_A - V_B$

(D) $V_0 - V_B = B\omega L^2$

14. The diameter of a wire is measured with the help of a screw gauge. Pitch of screw gauge is 0.5 mm and number of division on circular scale is 100. When nothing is placed, the zero of circular scale is 2 division below the central line of main scale. If the reading of measurement is 1.5 mm on main scale and 72 divisions on circular scale. Then

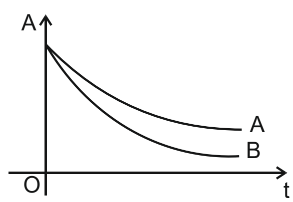
(A) Least count of screw gauge is 0.005 mm

(B) Zero error is positive

(C) Diameter of wire is 1.87 mm

(D) Diameter of wire is 1.85 mm

15. For two radioactive substances A and B, the activity versus time curve is shown in figure then



(A) Half-life of A is more than that of B

(B) Average life of A is less than that of B

(C) Initial number of active nuclei of A is greater than that of B

(D) Decay constant of A is less than that of B

16. In a standard YDSE (λ, d, D) the maximum intensity on screen is I_m. Then

(A) Intensity on screen in front of slit can be zero

(B) Minimum separation between lines where intensity is $\frac{I_m}{2}$ is $\frac{\lambda D}{2d}$

(C) Minimum separation between lines where intensity is $\frac{I_m}{4}$ is $\frac{\lambda D}{3d}$

(D) Minimum separation between lines where intensity is $\frac{3I_m}{4}$ is $\frac{\lambda D}{3d}$

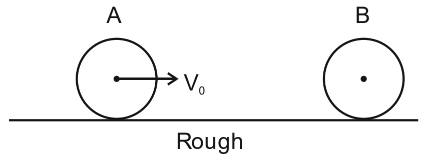
SECTION - 3

Paragraph Type

This section contains **2 paragraphs**, each describing theory, experiment, data etc. **Four questions** relate to two paragraphs with two questions on each paragraph. Each question pertaining to a particular passage should has **one or more than one correct answers** among the four given choices (A), (B), (C) and (D).

Paragraph for Question Nos. 17 and 18

Two identical spheres (M, R) are on a rough surface. B is at rest and A is rolling with velocity V_0 without slipping. A make an elastic one-dimensional collision with B (there is no friction between A and B)



17. If A and B are solid spheres, then

(A) Final velocity of A will be $\frac{2V_0}{7}$

(B) Final velocity of B will be $\frac{5V_0}{7}$

(C) Work done by friction on A would be positive

(D) Work done by friction on B negative

18. If A and B are hollow spheres, then

(A) Final velocity of A is $\frac{2V_0}{5}$

(B) Final velocity of B is $\frac{3V_0}{5}$

(C) Work done by friction on A is negative

(D) Work done by friction on B is positive

Paragraph for Question Nos. 19 and 20

When a particle (m, q) is projected in a viscous medium a drag force given by $\vec{f} = -b\vec{v}$ acts on particle. When this particle is projected with velocity V_0, it stops after travelling a distance of 10 m in straight line. Now a uniform magnetic field B_0 is switched on.

19. If particle is projected with same velocity V_0 perpendicular to B_0 then it stops 6 m away from point of projection, then

(A) Path of particle is circular

(B) Path of particle is spiralling into a point

(C) Magnetic field $B_0 = \frac{3b}{4q}$

(D) Magnetic field $B_0 = \frac{4b}{3q}$

20. If magnetic field is changed as $B = 2B_0$, and particle is projected with same velocity V_0 perpendicular to B, then

(A) Path of particle is spiralling into a point

(B) Path of particle is helical

(C) Particle stops at $\frac{30}{\sqrt{73}}$ m away from point of projection

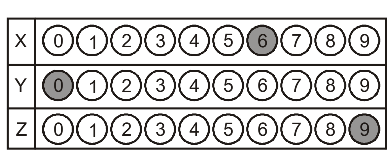
(D) Particle stops at $\frac{50}{\sqrt{73}}$ m away from point of projection

PART – II: CHEMISTRY

SECTION - 1

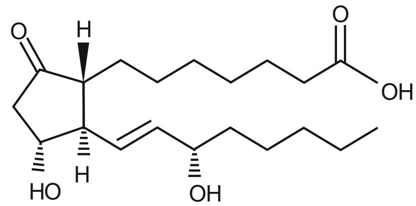
Integer Value Type

This section contains **8** questions. The answer to each of the questions is a **single-digit integer,** ranging from 0 to 9. The answer will have to be appropriately bubbled in the OMR as per the instructions as follows. **Examples-** If the correct answer to question numbers X, Y and Z (say) are 6, 0 and 9 respectively, then mark 6, 0 and 9 in OMR respectively



21. Vacuum pump used in laboratory can generate a vacuum of about 1 nano torr. Assuming that at 25°C, air consists of N_2 molecules with a collision diameter of 400 pm.. The mean free path is roughly 4.4×10^x m. The value of x is [use $K = 1.4 \times 10^{-23}\ JK^{-1}$, $\frac{1}{\sqrt{2}} = 0.7$, $16\pi = 50$]

22. Prostaglandin E1 is a compound produced by the body to regulate a variety of processes including blood clotting fever, pain and inflammation

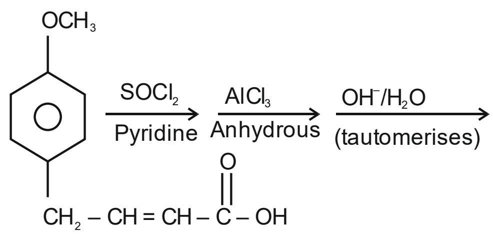


(PGE 1)

Number of chiral carbons centres present in PGE1 is x while the number of sp^2 hybridised carbon atoms present in PGE1 is y.

If the geometrical configuration about the double bond in PGE1 is "E" then report (x + y + 1) and if it is "Z", then report (x + y – 1)

23. The index of hydrogen deficiency in the end product of the following reaction sequence is



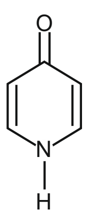
24. Energy in the n^{th} Bohr's orbit is given to be equal to $-A/n^2$, Where $A = 2.18 \times 10^{-18}$ Joule. The wave number of the photon emitted when an electron jumps from the third orbit to the second is approximately $1.5 \times 10^p\ m^{-1}$, value of P will be

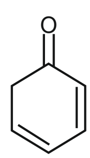
25. Consider the following list of reagents

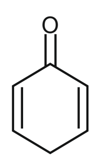
Acidified $K_2Cr_2O_7$, Alkaline $KMnO_4$, $CuSO_4$, H_2O_2, Cl_2, O_3. $FeCl_3$ and $Na_2S_2O_3$. The total number of reagents that can oxidise aqueous iodide to iodine is

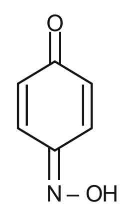
26. 15 ml of a gaseous hydrocarbon requires 375 ml air containing 24% O_2 by volume at 300 K and 1 atm for complete combustion after combustion the gases occupy 345 ml the formula of Hydrocarbon is C_xH_y. The value of (y – x). [Assuming that the water formed is in liquid form and the volumes were measured at the same temperature and pressure]

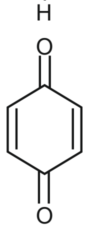
27. How many compounds undergo Tautomerism to form an Aromatic product among the following?

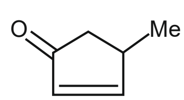
(A) 

(B) 

(C) 

(D) 

(E) 

(F) 

28. In a chemical reaction initial concentration (C_0) = 1.386 mol dm^{-3} of a substance becomes half in 40 sec and 20 sec through first and zero order respectively. Ratio of rate constant for first order (K_1) to zero (K_0) of the reaction is $\frac{x}{10}mol^{-1}dm^3$. Value of 'x' is ___

SECTION - 2

One or More Options Correct Type

This section contains **8** multiple choice questions. Each question has 4 choices (A), (B), (C) and (D), for its answer, out of which **one or more than one is/are correct.**

---

29. Which of the following regarding oxalate compound is/are TRUE?

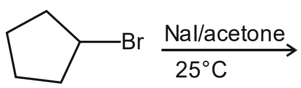
(A) Oxalic acid ($H_2C_2O_4$) can be estimated by titrating against either KOH or $KMnO_4$ solution

(B) $LiHC_2O_4$ can be estimated by titrating against either KOH or K_2CrO_4 and in both analyses, equivalent weight of $LiHC_2O_4$ is 48 (MW of $LiHC_2O_4$ = 96)

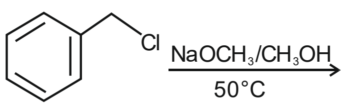
(C) Mohr salt can be estimated by titration using acidified $KMnO_4$ or acidified $K_2Cr_2O_7$. The molar ratio $K_2Cr_2O_7$: $KMnO_4$ used to oxidise 1 mole of Mohr salt would be 5 : 6

(D) If 10 mL acidified $K_2C_2O_4$ solution required 9.60 mL of a 0.02 M acidified $KMnO_4$ then same solution required 8.0 mL of a 0.12 M HCl solution

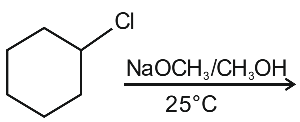
30. Select the following reactions & mechanism given are correct.

(A) 

S_N2 Mechanism

(B) 

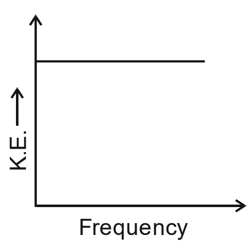
S_N1 Mechanism

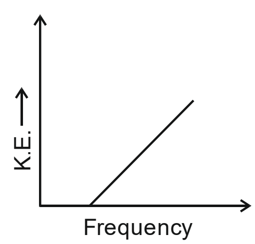
(C) 

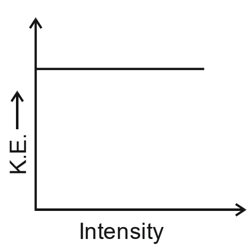
E_2 Mechanism

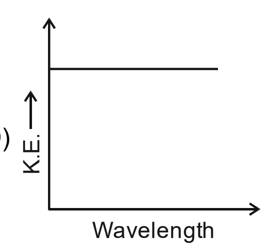
(D) $(CH_3)_3C-OH \xrightarrow[25°C]{HBr(48\%)/H_2O} SN^1$ Mechanism

31. Which is/are correct regarding photoelectric effect?

(A) 

(B) 

(C) 

(D) 

32. Which of the following statement(s) is/are INCORRECT?

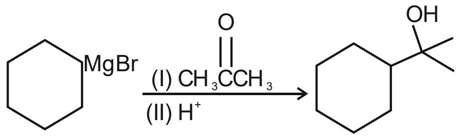
(A) All adiabatic processes are isoentropic processes

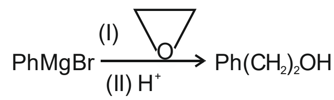
(B) When $(\Delta G_{system})_{T,P} < 0$; the reaction must be exothermic

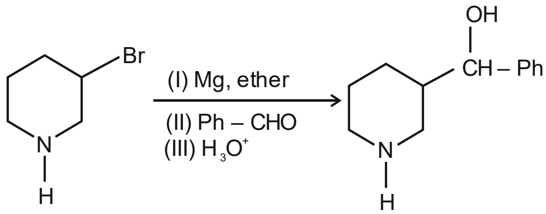
(C) dG = Vdp – SdT is applicable for closed system having both PV and non PV work

(D) dG = VdP – SdT is applicable for closed system having only non PV work

33. Which of the following reaction(s) is/are feasible?

(A) 

(B) 

(C) 

(D) $PhMgBr \xrightarrow[(II)H^+]{(I)HCHO} Ph-CH_2-OH$

34. Which of the following statement(s) is/are correct?

$$CH_3-CH=CH_2 \xrightarrow[H_2O_2,\ OH^-]{BH_3,\ THF} (P) \xrightarrow[CH_2Cl_2]{PCC} (Q)$$

$$CH_3-CH=CH_2 \xrightarrow[NaBH_4,\ OH^-]{Hg(OAc)_2,\ H_2O} (R) \xrightarrow[CH_2Cl_2]{PCC} (S)$$

(A) 'P' and 'R' are functional isomer
(B) 'P' and 'R' are positional isomer
(D) 'Q' and 'S' are functional isomer
(D) 'Q' and 'S' are positional isomer

35. Identify the correct statement(s) from the following:

(A) Nitric Oxide is diamagnetic in liquid state
(B) The H – N – H bond angle in NH_3 is greater than the H – As – H bond angle in AsH_3
(C) In aqueous solution, Chlorine is a stronger oxidising agent than fluorine
(D) Dilute HCl oxidises Metallic Fe to Fe^{+2}

36. Which of the following is true about the complex? $[Pt(NH_3)Cl_2]$? [Atomic no. of Pt = 78]

(A) It will have two geometrical isomeric forms cis & trans
(B) The hybridisation state of Pt(II) is sp^3 and it has tetrahedral geometry
(C) It is diamagnetic complex
(D) It can show hydrate isomerism

SECTION - 3

Paragraph Type

This section contains **2 paragraphs**, each describing theory, experiment, data etc. **Four questions** relate to two paragraphs with two questions on each paragraph. Each question pertaining to a particular passage should has **one or more than one correct answers** among the four given choices (A), (B), (C) and (D).

Paragraph for Question Nos. 37 and 38

The concentration of Potassium ions inside a biological cell is at-least 20 times higher than the outside. The resulting potential difference across the cell is important in several processes such as transmission of nerve impulses and maintaining the ion balance. A simple model for such a concentration cell involving a metal M is:

$M(s)|M^+(aq.\ 0.05\ molar)\ ||\ M^+\ (aq.\ 1\ molar)\ |\ M(s)$

For the above electrolytic cell the magnitude of the cell potential $|E_{cell}| = 70$ mV at temperature TK

37. For the above cell

(A) $E_{cell} < 0$
(B) $E_{cell} > 0$
(C) $\Delta G > 0$
(D) $\Delta G < 0$

38. If the 0.05 molar solution of M^+ is replaced by a 0.0025 molar M^+ solution, then the magnitude of the cell potential would be:

(A) 35 mV
(B) 70 mV
(C) 140 mV
(D) 700 mV

Paragraph for Question Nos. 39 and 40

The coordination number of Ni^{+2} is 4 in both the complexes P and Q

$$NiCl_4 + KCN(\text{excess}) \longrightarrow P(\text{Cyano Complex})$$

$$NiCl_2 + \text{Conc. } HCl(\text{excess}) \longrightarrow Q(\text{Chloro Complex})$$

39. Predict the magnetic nature of P and Q

(A) Both are diamagnetic
(B) P is diamagnetic with 0 unpaired e^-
(C) Q is paramagnetic with 2 unpaired e^-
(D) Both are paramagnetic with 2 unpaired e^-

40. Select the correct statement(s)

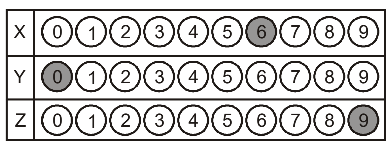
(A) P is square planar and dsp^2 hybridised
(B) P is tetrahedral and sp^3 hybridised
(C) Q is square planar and dsp^2 hybridised
(D) Q is tetrahedral and sp^3 hybridised

PART – III: MATHEMATICS

SECTION - 1

Integer Value Type

This section contains **8** questions. The answer to each of the questions is a **single-digit integer,** ranging from 0 to 9. The answer will have to be appropriately bubbled in the OMR as per the instructions as follows. **Examples-** If the correct answer to question numbers X, Y and Z (say) are 6, 0 and 9 respectively, then mark 6, 0 and 9 in OMR respectively



41. There are 3 women participating in a chess tournament. Every participant played 3 games with other participants. Number of games that the men played among themselves proved to exceed by 27 number of games that men played with women. Then number of men playing in the tournament is___

42. The number of points inside or on the ellipse $2x^2 + y^2 = 8$ satisfying $\tan^4 x + \cot^4 x + 3 = 5\sin^2 y$ is

43. A line with DR's (2,1,2) intersects lines $\bar{r} = -\hat{j} + \lambda(\hat{i} + \hat{j} + \hat{k})$ and $\bar{r} = -\hat{i} + \lambda(2\hat{i} + \hat{j} + \hat{k})$ at A and B. If shortest distance of origin from AB is d then $9d^2$ is equal to

44. The least integer 'a' for which $1 + \log_3(x^2+1) \le \log_3(ax^2 + 4x + a)$ is true for all real values of x is

45. Let S be the sample space of all 3 × 3 matrices with entries from the set {0,1}. Let E_1, E_2 be the events given by E_1 = {A $\in$ S : det A = 0}. E_2 = {A $\in$ S : Sum of entries of A is 7}. If a matrix is chosen at random then $12P\left(\frac{E_1}{E_2}\right)$ equals.

46. The least value of x satisfying $\frac{1}{[x]} + \frac{1}{[2x]} = \{x\} + \frac{1}{3}$ is N, then number of positive divisors of 24N is (Where [.] is the greatest integer function and $\{x\}$ is fractional part of x)

47. If for all values of $h \in R - \{0\}$ two distinct tangents can be drawn from the points (2 + h, 3h – 1) to the curve $y = x^3 - 6x^2 - a + bx$ then $\frac{a}{b}$ is equal to

48. Let P(x) be a polynomial of degree 4 having extremum at x = 1, 2 and $\lim_{x \to 0}\left(1 + \frac{P(x)}{x^2}\right) = 2$, then the value of P(2) is

SECTION - 2

One or More Options Correct Type

This section contains **8** multiple choice questions. Each question has 4 choices (A), (B), (C) and (D), for its answer, out of which **one or more than one is/are correct.**

49. The series $\frac{8}{5}+\frac{16}{65}+\frac{24}{325}+....\frac{8n}{4n^4+1}$

(A) Sum of infinite number of terms of series is 4

(B) Sum of n terms of series is less than 2 $\forall n \in N$

(C) Sum to n terms of series cannot be an integer for any n $\in$ N

(D) Sum of infinite number of terms of series is less than 3

50. Orthocentre of a ΔABC is H(2,3) and altitude through A meets the circumcircle of triangle ABC at D(4,7). Which among following are true?

(A) Equation of side BC is $x + 2y = 13$

(B) If ΔABC is equilateral then A is (0, – 1)

(C) If ΔABC is equilateral then inradius = $\sqrt{5}$

(D) If ΔABC is equilateral then area $= 15\sqrt{3}$ sq.units

51. The function $f(x)=\cos^{-1}\left(\frac{2[|\sin x|+|\cos x|]}{\sin^2 x+2\sin x+\frac{11}{4}}\right)$ is defined if x belongs to (where [.] denotes greatest integer function and |.| denotes absolute value)

(A) $\left[0,\frac{7\pi}{6}\right]$

(B) $\left[0,\frac{\pi}{6}\right]$

(C) $\left[\frac{11\pi}{6},2\pi\right]$

(D) $\left[\frac{7\pi}{6},\frac{11\pi}{6}\right]$

52. If $h(x)=\lim_{n\to\infty}\frac{x^n f(x)+g(x)+3}{2x^n+4x+1}$ when $n \ne 1$ and $h(1)=e^2$, such that $f(x)$, $g(x)$, $h(x)$ are continuous function at x = 1 then

(A) $f(1) = 2e^2$

(B) $g(1) = 5e^2 - 3$

(C) $f(1) + g(1) = 7e^2 + 5$

(D) $f(1) - g(1) = 7e^2 + 5$

53. Let $f(z) = |z| + |z - 1| + |z - i| + |z - 3 - 4i|$ then ($z \in$ complex number)

(A) Minimum value of $f(z) = 5 + \sqrt{2}$

(B) Minimum value of $f(z) = 5 - \sqrt{2}$

(C) Minimum value of $f(z)$ occurs at $\text{Re}(z)=\frac{3}{7}$

(D) Minimum value of f(z) occurs at $\text{Im}(z)=\frac{4}{7}$

54. Let $f : R \to R$ be a differentiable function satisfying $f(x + y) + f(x)\, f(y) = f(xy + 1)$. Also f(0) = – 1, $f'(0)=f'(1)=1$. Then

(A) $f(1) = 0$

(B) $f(2) = 1$

(C) $f(3) = 2$

(D) $f(4) = 5$

55. If f : R $\to$ [a, 6] defined by $f(x)=\frac{x^2-2x+d}{x^2+3x+d}$ is an onto function then

(A) a is equal to $\frac{2}{7}$

(B) d is equal to 4

(C) a is equal to 1

(D) d – 7a is equal to –3

56. If $\int_0^x f(t)dt = e^x - ae^{2x}\int_0^1 f(t)e^{-t}\,dt$ then

(A) $a = \frac{1}{3-2e}$

(B) $f(x) = e^x - 2e^{2x}$

(C) $a = \frac{1}{e}$

(D) $f(x) = e^x - e^{-x}$

SECTION - 3

Paragraph Type

This section contains **2 paragraphs**, each describing theory, experiment, data etc. **Four questions** relate to two paragraphs with two questions on each paragraph. Each question pertaining to a particular passage should has **one or more than one correct answers** among the four given choices (A), (B), (C) and (D).

Paragraph for Question Nos. 57 and 58

Let P(α, β) be a point in the first quadrant. Two circles are drawn through P also touching the co-ordinate axes.

57. Relation between α and β for which two circles are orthogonal is

(A) $\alpha^2 + \beta^2 = 4\alpha\beta$

(B) $(\alpha+\beta)^2 = 4\alpha\beta$

(C) $\alpha^2 + \beta^2 = \alpha\beta$

(D) $\alpha^2 + \beta^2 = 6\alpha\beta$

58. Equation of common chord of two circles is

(A) $x + y = \alpha - \beta$

(B) $x + y = 2\sqrt{\alpha\beta}$

(C) $x + y = \alpha + \beta$

(D) $x + y = \frac{\alpha^2+\beta^2}{\sqrt{\alpha\beta}}$

Paragraph for Question Nos. 59 and 60

Let $\int_0^\infty e^{-x^2}\,dx = a$ (where 'a' is a finite quantity)

59. The value of $\int_0^\infty \frac{e^{-jx}}{\sqrt{x}}dx$ (Where j is positive constant) is

(A) $2a\sqrt{j}$

(B) $\frac{a}{\sqrt{j}}$

(C) $a\sqrt{j}$

(D) $\frac{2a}{\sqrt{j}}$

60. Given that $\frac{d}{d\alpha}(f(\alpha)) = -\int_0^\infty xe^{-x^2}\sin(\alpha x)dx$, where $f(\alpha) = \int_0^\infty e^{-x^2}\cos(\alpha x)dx$. The value at $f(2)$ is

(A) ae

(B) $\frac{a}{e}$

(C) $a\sqrt{e}$

(D) $\frac{a}{\sqrt{e}}$

❒ ❒ ❒