Sri Chaitanya IIT Academy.,India.

A.P T.S KARNATAKA TAMILNADU MAHARASTRA DELHI RANCHI

A right Choice for the Real Aspirant

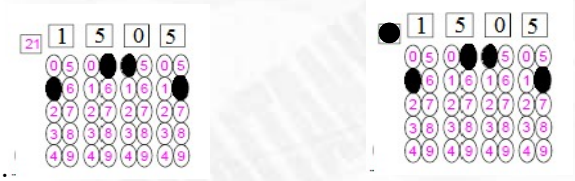
ICON Central Office - Madhapur - Hyderabad

SEC: Sr.Super60(Incoming)_STERLING BT	**JEE-MAIN**	**Date: 10-05-2025**
Time: 09:00AM to 12:00PM	**WTM-31**	**Max. Marks: 300**

IMPORTANT INSTRUCTION:

1. Immediately fill in the Admission number on this page of the Test Booklet with **Blue/Black** Ball Point **Pen** only.
2. The candidates should not write their Admission Number anywhere (except in the specified space) on the Test Booklet/ Answer Sheet.
3. The test is of **3 hours** duration.!
4. The Test Booklet consists of **75 Questions.** The maximum marks are **300.**
5. There are **three** parts in the question paper 1,2,3 consisting of **Mathematics, Physics** and **Chemistry** having **25 Questions** in each subject and subject having **two sections.**
   (I) Section –I contains **20 Multiple Choice Questions** with only one correct option.
   Marking scheme: +4 for correct answer, **0** if not attempt and **-1** in all other cases.
   (II) Section-II contains **05 Numerical Value Type Questions.**
   - The Answer should be within **0 to 9999.** If the Answer is in **Decimal** then round off to the **Nearest Integer** value (Example i,e. If answer is above **10** and less than **10.5** round off is **10** and If answer is from **10.5** and less than **11** round off is **11).**

   To cancel any attempted question bubble on the question number box.
   For example: To cancel attempted Question 21. Bubble on 21 as shown below



   Question Answered for Marking Question Cancelled for Marking
   Marking scheme: +4 for correct answer, **0** if **not attempt** and **-1** in all other cases.
6. Use **Blue / Black Point Pen only** for writing particulars / marking responses on the Answer Sheet. **Use of pencil is strictly prohibited.**
7. No candidate is allowed to carry any textual material, printed or written, bits of papers, mobile phone any electron device etc, except the Identity Card inside the examination hall.
8. Rough work is to be done on the space provided for this purpose in the Test Booklet only.
9. On completion of the test, the candidate must hand over the Answer Sheet to the invigilator on duty in the Hall. **However, the candidate are allowed to take away this Test Booklet with them.**
10. **Do not fold of make any stray marks on the Answer Sheet**

Name of the Candidate (in Capital): _____

Admission Number: | | | | | | | | | |

Candidate's Signature:_____ **Invigilator's Signature:** _____

10-05-25_Sr.Super60(Incoming)_STERLING BT_Jee-Main_WTM-31_Test Syllabus

MATHEMATICS : definite integral problems based on inequations, approximation, definite integration-reduction formula, definite integration Miscellaneous problems

PHYSICS : ELECTROMAGNETIC INDUCTION: Faraday's experiments, Faraday's laws of electromagnetic induction, General form of Faraday's law of electromagnetic induction, Fleming's right hand rule, Lenz's law and conservation of energy (exclude questions on motional emf calculation)

CHEMISTRY : GROUP-16:Introduction;Occurrence;atomic and physical properties ;oxidation states;anomalous properties of O2; Allotropes of sulphur;classsification of oxides(simple oxides,mixed oxides);preparation,properties and uses of O2 (Uses as per NCERT), Structures,preparations,properties and uses of Ozone;test for O3;Quantitative estimation of ozone(O3+KI+H2O----- I2+KOH+O2)(I2+Na2S2O3 Na2S4O6+NaI) (uses as per NCERT), Reactivity towards hydrogen(General discussion);Reactivity towards Oxygen(General discussion);Structures ,preparations,properties and uses of SO2(Uses as per NCERT);Structures ,preparations,properties and uses of SO3 (uses as per NCERT), Reactivity towards the halogen(General Discussion) NOTE:(Ppreparations and properties of compounds of halogen of Group-16 Not to be tested), Oxoacids of sulphur (focus on structures ,oxidation states);preparations,properties and uses (uses as per NCERT) of Sulphuric acid NOTE:Preparation ,properties and uses of H2S and Na2S2O3(not to be tested) NOTE ; GROUP-16: General Introduction: Electronic configuration and general trends in physical and chemical properties of elements across the periods and down the groups; unique behaviour of the first

MATHEMATICS

Max Marks: 100

SECTION-I (SINGLE CORRECT ANSWER TYPE)

This section contains **20 Multiple Choice Questions.** Each question has 4 options (1), (2), (3) and (4) for its answer, out of which ONLY ONE option can be correct.

Marking scheme: +4 for correct answer, 0 if not attempted and –1 in all other cases.

1. If $\int_0^1 e^{x^2}(x-\alpha)dx = 0$, then

   1) $1 < \alpha < 2$ 2) $\alpha < 0$ 3) $0 < \alpha < 1$ 4) $\alpha = 0$

2. The value of the integral $\int_0^1 e^{x^2} dx$ lies in the interval

   1) (0,1) 2) (-1, 0) 3) (1, e) 4) (4, 5)

3. The value of the integral $\int_0^\infty \frac{x \log x}{(1+x^2)^2} dx$ is

   1) 0 2) log7 3) 5log13 4) 1

4. Let $I_1 = \int_0^1 \frac{e^x dx}{1+x}$ and $I_2 = \int_0^1 \frac{x^2 dx}{e^{x^3}(2-x^3)}$. Then $\frac{I_1}{I_2}$ is equal to

   1) $3/e$ 2) $e/3$ 3) 3e 4) $1/3e$

5. Let $I_1 = \int_{-2}^{2} \frac{x^6 + 3x^5 + 7x^4}{x^4 + 2} dx$ and $I_2 = \int_{-3}^{1} \frac{2(x+1)^2 + 11(x+1) + 14}{(x+1)^4 + 2} dx$. Then the value of $I_1 + I_2$ is

   1) 8 2) 200/3 3) 100/3 4) $\frac{80}{3}$

6. The value of the definite integral $\int_0^{\pi/2} \frac{\sin 5x}{\sin x} dx$ is

   1) 0 2) $\frac{\pi}{2}$ 3) π 4) 2π

7. If $I_n = \int_0^{\pi} e^x (\sin x)^n dx$, then $\frac{I_3}{I_1}$ is equal to

1) 3/5 2) 1/5 3) 1 4) 2/5

8. Let f be a differentiable function defined on [0,1] such f(f(x))=x and f(0)=1. If the value $\int_0^1 (x - f(x))^{2018} dx = \frac{p}{q} where$ p and q are relatively prime then the value of $(p+q)$, is_____

1) 2023 2) 2024 3) 2020 4) 2022

9. Let $A_n = \int_0^{\pi/4} \text{Tan}^n x dx$, then for $n > 2$

1) $\frac{1}{2n} < A_n < \frac{1}{2n-2}$ 2) $\frac{1}{2n+2} < A_n < \frac{1}{2n-2}$

3) $\frac{1}{2n+2} < A_n < \frac{1}{2n-1}$ 4) $\frac{1}{2n+2} < A_n < \frac{1}{2n}$

10 $\int_{1/e}^{\tan x} \frac{t}{1+t^2} dt + \int_{1/e}^{\cot x} \frac{dt}{t(1+t^2)} =$

1) 2(tane-1) 2) 2tane 3) 1 4) tane+cote

11. If $b_n = \int_0^{\frac{\pi}{2}} \frac{\cos^2 nx}{\sin x} dx, n \in N$, then

1) $b_3 - b_2, b_4 - b_3, b_5 - b_4$ are in A.P with common difference-2

2) $\frac{1}{b_3 - b_2}, \frac{1}{b_4 - b_3}, \frac{1}{b_5 - b_4}$ are in A.P with common difference 2

3) $b_3 - b_2, b_4 - b_3, b_5 - b_4,$ are in G.P

4) $\frac{1}{b_3 - b_2}, \frac{1}{b_4 - b_3}, \frac{1}{b_5 - b_4}$ are in A.P with common difference -2

12. Let $f(x)=\int_0^x g(t)\log_e\left(\frac{1-t}{1+t}\right)dt$ where g is a continuous odd function if $\int_{-\pi/2}^{\pi/2}\left(f(x)+\frac{x^2\cos x}{1+e^x}\right)dx=\left(\frac{\pi}{\alpha}\right)^2-\alpha$, then α is equal to_____

1) 1 2)2 3)3 4)4

13. The value of definite integral $\int_{\frac{-1}{\sqrt{3}}}^{\frac{1}{\sqrt{3}}}\frac{\cos^{-1}\left(\frac{2x}{1+x^2}\right)+\tan^{-1}\left(\frac{2x}{1-x^2}\right)}{e^x+1}dx$ is equal to

1) $\frac{\pi}{2\sqrt{3}}$ 2) $\frac{\pi}{\sqrt{3}}$ 3) $\frac{\pi}{4\sqrt{3}}$ 4) $\frac{\pi}{3\sqrt{3}}$

14. If $I=\int_{e^{\pi/6}}^{e^{\pi/2}}\frac{\sin(\ell n(\sin(\ell nx)))\cos(\ell nx)}{x\sin(\ell nx)}dx$ then the value of $\cos^{-1}(I+1)$ is equal to :

1) $\frac{\pi}{4}$ 2) $\frac{\pi}{3}$ 3) $ln2$ 4) $2ln2$

15. Let $f:[0,5]\to R$ be such that $f''(x)=f''(5-x),\forall x\in[0,5], f'(0)=1$ and $f'(5)=7$, then the value of $\int_1^4 f'(x)dx$ is :

1) 4 2) 6 3) 8 4) 12

16. If $f(x)=\int_2^x\frac{dt}{1+t^4}$, then :

1) $f(3)<\frac{1}{17}$ 2) $f(3)>\frac{1}{17}$ 3) $f(3)=\frac{1}{17}$ 4) $f(3)<\frac{1}{82}$

17. The value of definite integral $\int_1^{\sqrt{3}}\left(x^{2x^2+1}+\ell n\left(x^{\left(2x^{2x^2+1}\right)}\right)\right)dx$ is equal to :

1) 2 2) 3 3)131 4)13

18. If $f(x)+g(x)+h(x)=2\forall x\in R$, then the value of the expression $\int_0^{3/4}(f^2(x)+g^2(x)+h^2(x))dx$, CANNOT be

1) $\frac{1}{2}$ 2) 1 3) $\frac{3}{2}$ 4) 4

19. If $I_n=\int_{-1}^{1}|x|\left(1+x+\frac{x^2}{2}+\frac{x^3}{3}+.....+\frac{x^{2n}}{2n}\right)dx$, then :

1) $I_2=\frac{4}{3}$ 2) $I_2=\frac{7}{6}$ 3) $\lim_{n\to\infty} I_n=\frac{4}{3}$ 4) $\lim_{n\to\infty} I_n=\frac{5}{4}$

20. A strictly increasing continuous function $f(x)$ intersects with its inverse $f^{-1}(x)$ at $x=\alpha$ and $x=\beta$. If $\int_\alpha^\beta f(x)dx+\int_\alpha^\beta f^{-1}(x)dx=13$. Where $\alpha,\beta\in N$, then the value of $|\alpha\beta|$ equal

1) 25 2) 36 3) 42 4) 56

SECTION-II (NUMERICAL VALUE TYPE)

This section contains **5 Numerical Value Type Questions.** The Answer should be within **0 to 9999.** If the Answer is in **Decimal** then round off to the **Nearest Integer** value (Example i,e. If answer is above **10** and less than **10.5** round off is **10** and If answer is from **10.5** and less than **11** round off is **11).**

Marking scheme: +4 for correct answer, 0 if not attempt and -1 in all other cases.

21. The value of $\int_0^1 4x^3\left\{\frac{d^2}{dx^2}(1-x^2)^5\right\}dx$ is _____

22. The total number of distinct $x\in[0,1]$ for which $\int_0^x\frac{t^2}{1+t^4}dt=2x-1$ is _____

23. The value of the integral $\int_0^{1/2}\frac{1+\sqrt{3}}{((x+1)^2(1-x)^6)^{1/4}}dx$ is _____

24. If $I=\frac{2}{\pi}\int_{-\pi/4}^{\pi/4}\frac{dx}{(1+e^{\sin x})(2-\cos 2x)}$. Then $27I^2$ equal _____

25. The value of the integral $\int_0^{\pi/2}\frac{6\sqrt{\cos\theta}}{(\sqrt{\cos\theta}+\sqrt{\sin\theta})^5}d\theta$ equals _____

PHYSICS **Max Marks: 100**

SECTION-I (SINGLE CORRECT ANSWER TYPE)

This section contains **20 Multiple Choice Questions.** Each question has 4 options (1), (2), (3) and (4) for its answer, out of which ONLY ONE option can be correct.

Marking scheme: +4 for correct answer, 0 if not attempted and –1 in all other cases.

26. A coil having an area of $2m^2$ is placed in a magnetic field which changes from $1\,Wb/m^2$ to $4\,Wb/m^2$ in an interval of 2 second. The average emf induced in the coil will be

1) $4V$ 2) $3V$ 3) $1.5V$ 4) $2V$

27. A closed coil with a resistance R is placed in a magnetic field. The flux linked with the coil is ϕ. When the magnetic field is suddenly reversed in direction, the charge that flows through the coil will be

1) $\frac{\phi}{2R}$ 2) $\frac{\phi}{R}$ 3) $\frac{2\phi}{R}$ 4) zero

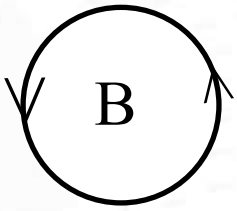
28. A magnetic flux of 500 micro weber passing through a 200 turns coil of face area $1m^2$ is reversed in $20\times10^{-3}s$. The average emf induced in the coil in volts is

1) 2.5 2) 5 3) 7.5 4) 10

29. A conducting circular loop of radius $10/\sqrt{\pi}$ cm is placed perpendicular to a uniform magnetic field of 0.5T. The field is decreased to zero in 0.5 s at a steady rate. The induced emf at 0.25s is

1) 5 mV 2) 100mV 3) 1 mV 4) 10 mV

30. A coil is placed in a magnetic field of induction B as shown below



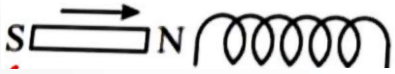
A current is induced in the coil as shown because B is

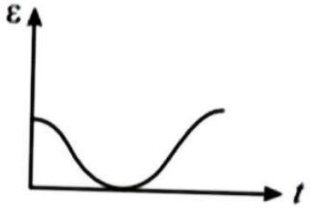
1) Outward and decreasing with time
2) Parallel to the plane of coil and decreasing with time
3) Outward and increasing with time
4) Parallel to the plane of coil and increasing with time

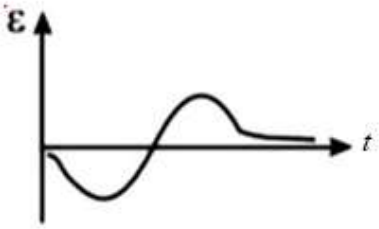
31. The magnetic flux through a coil perpendicular to its plane is varying according the relation $\phi=(5t^3+4t^2+2t-5)Wb$, where t is time. If the resistance of the coil is 5Ω, then the induced current through the coil at t=2s is

1) 15.6A 2) 16.6A 3) 17.6A 4) 18.6A

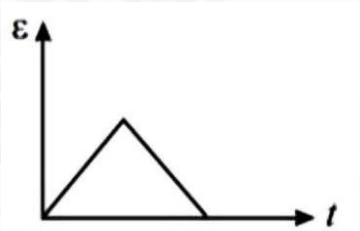
32. A short bar magnet is moved with constant velocity along the axis of a short coil. The magnet enters into the coil and then leaves it. The variation of induced emf (ε) with time (t) is best represented by



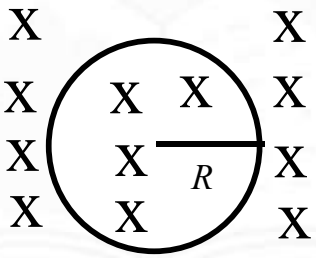
1) 

2) 

3) 

4) 

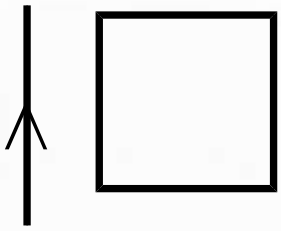
32. A conducting loop of radius R is present in a uniform magnetic field B perpendicular to plane of the ring. If radius varies as a function of time t as $R = R_0 + t^2$; R_0 is a positive constant, then the induced emf in the loop is



1) $2\pi Bt(R_0 + t^2)$ clock wise
2) $4\pi Bt^2(R_0 + t^2)$ anticlockwise
3) $4\pi Bt(t^2 + R_0)$ anticlockwise
4) $\pi Bt(t + R_0)$ clockwise

34. Lenz's law is a consequence of
1) Conservation of charge
2) Conservation of linear momentum
3) Conservation of energy
4) Conservation of angular momentum

35. A square conducting loop is placed near a long straight conductor carrying a current. Then match the following

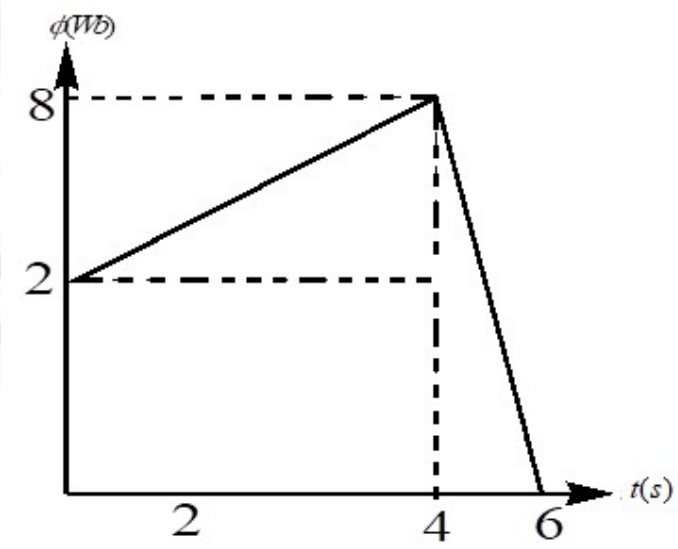


Column-I	**Column-II**
a) If current is increased	p) induced current in loop is clock wise
b) If current is decreased	q) induced current is anti clock wise
c) If loop is moved away from the conductor	r) wire will attract the loop
d) If loop is moved towards the wire	s) wire will repel the loop

1) $a \to q,s;b \to p,r;c \to p,r;d \to q,s$ 2) $a \to p,r;b \to q,s;c \to p,s;d \to q,r$

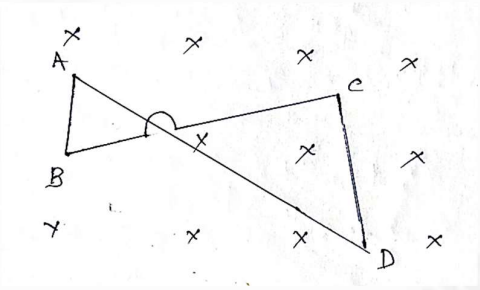
3) $a \to r,s;b \to r,s;c \to q,r;d \to p,q$ 4) $a \to p,q;b \to p,r;c \to r,s;d \to q,r$

36. The magnetic flux(ϕ) versus time (t) graph for a coil is shown in figure. The magnitude of average emf induced in the coil for a time interval of 0s to 6s is



1)$1\,V$ 2) $\frac{1}{3}V$ 3) $\frac{2}{3}V$ 4) $2\,V$

37. A conducting wire frame is placed in a magnetic field which is directed into the plane of paper and is increasing at a constant rate. The directions of induced currents in wires AB and CD are respectively



1) B to A and D to C
2) A to B and C to D
3) A to B and D to C
4) B to A and C to D

38. The dimensional formula of magnetic flux is

1) $\left[MLT^{-2}\right]$ 2) $\left[ML^{-1}T^{-2}\right]$ 3) $\left[M^2L^3T^{-2}A^{-1}\right]$ 4) $\left[ML^2T^{-2}A^{-1}\right]$

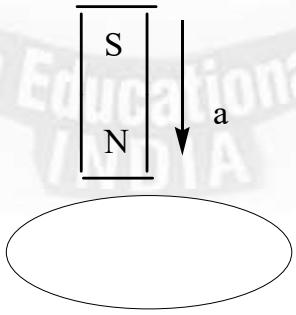
39. A magnet is brought towards a coil (i) rapidly and (ii) slowly. The induced emf and charge will be respectively

1) More in both cases
2) More in first case and equal in both cases
3) Less in first case and unequal in both cases
4) Equal In both cases and unequal in both cases

40. A coil having an area A_0 is placed in a magnetic field which changes from B_0 to $4B_0$ in a time interval t. The emf induced in the coil will be of magnitude

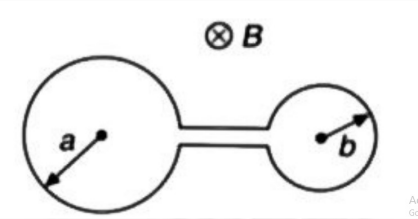
1) $\frac{3A_0B_0}{t}$ 2) $\frac{4A_0B_0}{t}$ 3) $\frac{3B_0}{A_0t}$ 4) $\frac{4B_0}{A_0t}$

41. A conducting ring is attached to the wall of a room. When the north pole of a magnetic is brought near to it (not passing through the ring) the induced current in the ring will be , If the loop is seen from the Upper side



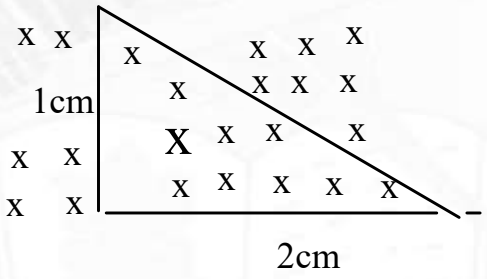
1) First clock wise and then anti-clock wise
2) In the clock wise direction
3) In the anti-clock wise direction
4) First anti-clock wise and then clock wise direction

42. Figure shows two circular rings of radii a and $b(a>b)$ joined together by a wire of negligible resistance. If the arrangement is placed in a time varying magnetic field $\frac{dB}{dt}=k$ and if the resistance per unit length of wire is λ, then induced current is



1) $\frac{k(a+b)}{2\lambda}$ 2) $\frac{k(a-b)}{2\lambda}$ 3) $\frac{k(a^2-b^2)}{2\lambda(a+b)}$ 4) $\frac{k(a^2+b^2)}{2\lambda(a+b)}$

43. The magnetic flux through the triangular loop shown in the figure where a uniform magnetic induction of 2T points perpendicular into the plane of the triangle is



1) $10^{-4}Wb$ 2) $2\times10^{-4}Wb$ 3) $1Wb$ 4) $2Wb$

44. Assertion (A): when plane of a coil is perpendicular to a magnetic field, the magnitude of flux linked with the coil is minimum.
Reason (R): Flux $\phi=nAB\cos\theta$ where A=area: $B=field$ n= number of turns $\theta=angle$ made by normal to the plane of coil with field

1) Both A and R are true and R is the correct explanation for A
2) Both A and R are true and R is the not correct explanation for A
3) A is true, R is false
4) A is false, R is true

45. Given bellow are two statements
Statement I**:** It is more difficult to push a magnet in to a coil with more number of turns
Statement II : The emf induced in a coil opposes the motion of a magnet when it is moved towards the coil
1) statement I is true but statement II is false
2) statement I is false but statement II is true
3) Both statement I and statement II are true
4) Both statement I and statement II are false

SECTION-II (NUMERICAL VALUE TYPE)

This section contains **5 Numerical Value Type Questions.** The Answer should be within **0 to 9999.** If the Answer is in **Decimal** then round off to the **Nearest Integer** value (Example i,e. If answer is above **10** and less than **10.5** round off is **10** and If answer is from **10.5** and less than **11** round off is **11).**
Marking scheme: +4 for correct answer, 0 if not attempt and -1 in all other cases

46. The magnetic field in a certain region is given by $B=\left(40\hat{i}-15\hat{k}\right)\times10^{-4}T$. The magnitude of magnetic flux passing through a loop of area 5 cm^2 placed flat on XY plane is ___ nWb

47. To measure the magnetic field B between the poles of an electromagnet, a small test loop of area $1\,cm^2$ resistance 10Ω, and 20 turns is pulled out of it . It is observed that a charge of $2\mu C$ passed through the loop. The value of B (in mT) is _____

48. A coil having 500 square loops wound one over the other, each of side 10 cm is placed normal to a magnetic flux which increases at the rate of 1.0 tesla/second. The induced emf in volts is

49. A conducting circular loop is placed in XY-plane in presence of magnetic field $\vec{B}=\left(3t^3\hat{j}+3t^2\hat{k}\right)$ in SI unit. If radius of the loop is 1m, the induced emf in the loop at t=2s is $N\pi$ volt. The value of N is

50. An elastic, circular conducting loop is placed in a magnetic field of 0.8 T with its plane perpendicular to the field and released. The radius of the loop starts shrinking at a constant rate of 2cm/s. The induced emf in the loop at the instant when the radius of the loop is 10cm (in mV) is close to

CHEMISTRY

Max Marks: 100

SECTION-I (SINGLE CORRECT ANSWER TYPE)

This section contains **20 Multiple Choice Questions.** Each question has 4 options (1), (2), (3) and (4) for its answer, out of which ONLY ONE option can be correct.

Marking scheme: +4 for correct answer, 0 if not attempted and –1 in all other cases.

51. $\Delta H^0 f$ / $kJ\ mole^{-1}$ is maximum for (energy released)

1) H_2O 2) H_2S 3) H_2Se 4) H_2Te

52. Acidic nature of hydrides H_2O, H_2S, H_2Se, H_2Te

1) Increases from H_2O to H_2Te 2) decreases from H_2O to H_2Te

3) Remains same from H_2O to H_2Te 4) First Increases then decreases

53. Which of the following cannot form dichlorides and dibromides

1) Oxygen 2) Sulphur 3) Selinium 4) Tellurium

54. Among which of the following the stable compounds are

1) Hexa bromides 2) Hexa chlorides 3)Hexa iodides 4) Hexa fluorides

55. The binary compounds of oxygen and fluorine are called fluorides rather than oxides because

1) They always contain F^- ions 2) O atom is larger than F atom

3) F is more electronegative than O 4) O is better oxidising agent

56. Which of the following is a solid

1) SF_4 2) SF_6 3) TeF_4 4) SeF_4

57. Oxygen does not form OF_6 because

1) It has a small size

2) There are no vacant d – orbitals available

3) It has high ionization energy

4) It has large size

58. The stability order of hydrides of 16^{th} group elements

1) $H_2O > H_2S > H_2Se > H_2Te$ 2) $H_2O > H_2Te > H_2Se > H_2S$

3) $H_2S > H_2Te > H_2Se > H_2O$ 4) $H_2Te > H_2Se > H_2S > H_2O$

59. A: H_2Te is powerful reducing agent

R: $H - Te$ bond dissociation energy is low

1) A is true R is true and R is correct explanation of A

2) A is true R is true and R is not correct explanation of A

3) A is true R is false

4) A is false R is true

60. Monohalides of sulphur exist as

1) Monomers 2) dimers 3) trimers 4) polymers

61. The first ionization energies of group 16 elements
1) Fall sharply from oxygen to sulphur and then fall regularly from sulphur to tellurium
2) Fall regularly from oxygen to tellurium
3) Rise regularly from oxygen to tellurium
4) Rise slightly from oxygen to sulphur and then fall regularly from Sulphur to tellurium

62. Disproportionation of Se_2Cl_2 gives
1) $SeCl_3$ 2) $SeCl_6$ 3) $SeCl_4$ 4) $SeCl$

63. Oxygen is always divalent while sulphur can form 2, 4 and 6 bonds because
1) Oxygen is more electronegative than sulphur
2) sulphur has vacant d-orbitals while oxygen does not
3) sulphur has larger atomic radius than oxygen
4) Sulphur is more electronegative than oxygen

64. Half life period of polonium is
1) 18.3 days 2) 3.18 days 3) 1.38 days 4) 13.8 days

65. The maximum bond angle in
1) H_2O 2) H_2S 3) H_2Se 4) H_2Te

66. Among H_2O, H_2S, H_2Se, and H_2Te the one with highest boiling point is
1) H_2O because of Hydrogen bonding
2) H_2Te because of higher molecular mass
3) H_2S because of higher electronic affinity of S
4) H_2Se because of lower electronic affinity of Se

67. The large difference between melting and boiling points of O_2 and S is due to
1) Their atomicity 2) Their reactivity
3) Their relative abundancies 4) Their similar electronegative values

68. Which of the following oxidation state in observed in the flourides of selenium and tellurium generally is
1) +2 2) +6 3) +4 4) -2

69. The abundance of sulphur in the earth crust is about
1) 0.1 to 0.5 percent 2) 0.03 to 0.1 percent
3) 1 to 1.25 percent 4) 5 to 10 percent

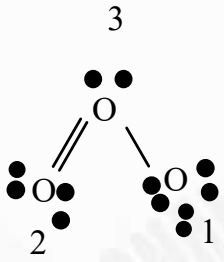
70. Galena is
1) ZnS 2) PbS 3) $CuFeS_2$ 4) $CuSO_4.2H_2O$

SECTION-II (NUMERICAL VALUE TYPE)

This section contains **5 Numerical Value Type Questions.** The Answer should be within **0 to 9999.** If the Answer is in **Decimal** then round off to the **Nearest Integer** value (Example i,e. If answer is above **10** and less than **10.5** round off is **10** and If answer is from **10.5** and less than **11** round off is **11).**

Marking scheme: +4 for correct answer, 0 if not attempt and -1 in all other cases

71. The lewis dot structure of O_3 molecule is given bellow. Sum of formal charges on oxygen atoms labelled 1, 2, 3 respectively is



72. The bond dissociation energy for one $O-O$ bond in ozone is approximately 105 KJ/mol. How much energy is required to dissociate 3 moles of ozone molecules into oxygen atoms?

73. The sum of $P\pi - d\pi$ bonds present in SO_2 and SO_3 molecules

74. Number of lone pairs of electrons in OF_2 ?

75. How many of the following statements are correct

a) Oxygen has less electron gain enthalpy than sulphur

b) All the elements of group 16^{th} exhibits allotropy

c) *Se* and *Te* are found in sulphide ores

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