



collegebatch.com

click to campus

SAAT 2016 Question Paper

Siksha 'O' Anusandhan University Admission Test (SAAT)

Download more SAAT Previous Year Question Papers: [Click Here](#)



QUESTION BOOKLET – 2016
Subjects : Paper I : Physics & Chemistry

Question Booklet Version
33
(Write this number on your Answer Sheet)

Roll No.						

Answer Sheet No.						

Question Booklet Sr. No.
(Write this number on your Answer Sheet)

Duration: 1 Hour 30 Minutes

Total Marks : 100

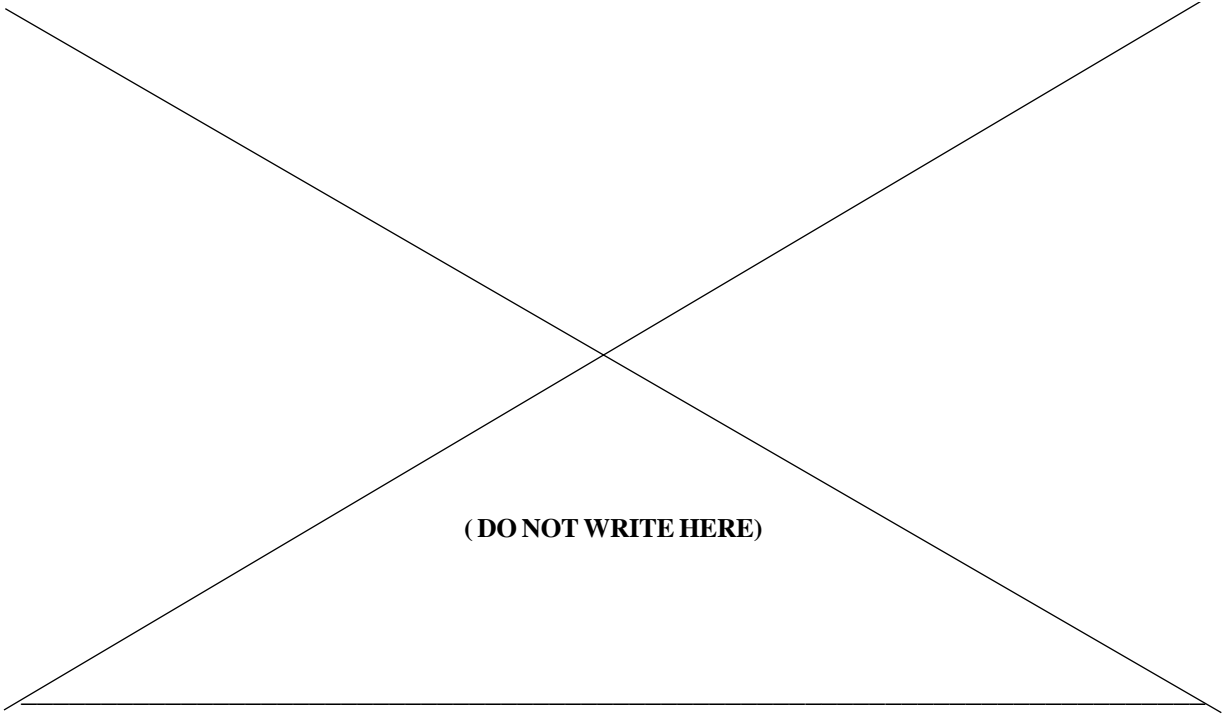
This is to certify that, the entries of Roll Number and Answer Sheet Number have been correctly written and verified.

Candidate's Signature

Invigilator's Signature

Instructions to Candidates

1. This question booklet contains 100 Objective Type Questions (Single Best Response Type) in the subjects of Physics (50) and Chemistry (50).
2. The question paper and OMR (Optical Mark Reader) Answer Sheets are issued to examinees separately at the beginning of the examination session.
3. Choice and sequence for attempting questions will be as per the convenience of the candidate.
4. Candidate should carefully read the instructions printed on the Question Booklet and Answer Sheet and make the correct entries on the Answer Sheet. As Answer Sheets are designed to suit the OPTICAL MARK READER (OMR) SYSTEM, special care should be taken to mark appropriate entries/answers correctly. Special care should be taken to fill QUESTION BOOKLET VERSION, SERIAL No. and Roll No. accurately. The correctness of entries has to be cross-checked by the invigilators. **The candidate must sign on the Answer Sheet and Question Booklet.**
5. Read each question carefully.
6. Determine the correct answer from out of the four available options given for each question.
7. Fill the appropriate circle completely like this ●, for answering the particular question, with Black ink ball point pen only, in the OMR Answer Sheet.
8. Each answer with correct response shall be awarded **one (1) mark**. There is **no Negative Marking**. If the examinee has marked two or more answers or has done scratching and overwriting in the Answer Sheet in response to any question, or has marked the circles inappropriately e.g. half circle, dot, tick mark, cross etc, mark/s shall NOT be awarded for such answer/s, as these may not be read by the scanner. Answer sheet of each candidate will be evaluated by computerized scanning method only (Optical Mark Reader) and there will not be any manual checking during evaluation or verification.
9. Use of whitener or any other material to erase/hide the circle once filled is not permitted. Avoid overwriting and/or striking of answers once marked.
10. Rough work should be done only on the blank space provided in the Question Booklet. **Rough work should not be done on the Answer Sheet.**
11. The required mathematical tables (Log etc.) are provided within the Question Booklet.
12. Immediately after the prescribed examination time is over, the Question Booklet and Answer sheet are to be returned to the Invigilator. Confirm that both the Candidate and Invigilator have signed on question booklet and answer sheet.
13. No candidate is allowed to leave the examination hall till the examination session is over.



(DO NOT WRITE HERE)

SPACE FOR ROUGH WORK

**PHYSICS**

- In potentiometer experiment, null point is obtained at a particular point for a cell on potentiometer wire x cm long. If the length of the potentiometer wire is increased without changing the cell, the balancing length will (Driving source is not changed)
A) increase B) decrease C) not change D) becomes zero
- An iron rod is placed parallel to magnetic field of intensity 2000 A/m . The magnetic flux through the rod is $6 \times 10^{-4} \text{ Wb}$ and its cross-sectional area is 3 cm^2 . The magnetic permeability of the rod in $\frac{\text{Wb}}{\text{A-m}}$ is
A) 10^{-1} B) 10^{-2} C) 10^{-3} D) 10^{-4}
- Alternating current of peak value $\left(\frac{2}{\pi}\right)$ ampere flows through the primary coil of the transformer. The coefficient of mutual inductance between primary and secondary coil is 1 henry. The peak e.m.f. induced in secondary coil is (Frequency of a.c. = 50 Hz)
A) 100 V B) 200 V C) 300 V D) 400 V
- An electron of mass 'm' has de-Broglie wavelength ' λ ' when accelerated through potential difference 'V'. When proton of mass 'M', is accelerated through potential difference '9V', the de-Broglie wavelength associated with it will be (Assume that wavelength is determined at low voltage)
A) $\frac{\lambda}{3} \sqrt{\frac{M}{m}}$ B) $\frac{\lambda}{3} \cdot \frac{M}{m}$ C) $\frac{\lambda}{3} \sqrt{\frac{m}{M}}$ D) $\frac{\lambda}{3} \cdot \frac{m}{M}$
- Interference fringes are produced on a screen by using two light sources of intensities 'I' and '9I'. The phase difference between the beams is $\frac{\pi}{2}$ at point P and π at point Q on the screen. The difference between the resultant intensities at point P and Q is
A) 2 I B) 4 I C) 6 I D) 8 I
- From Brewster's law, except for polished metallic surfaces, the polarising angle
A) depends on wavelength and is different for different colours
B) independent of wavelength and is different for different colours
C) independent of wavelength and is same for different colours
D) depends on wavelength and is same for different colours
- Two particles X and Y having equal charges after being accelerated through same potential difference enter a region of uniform magnetic field and describe a circular paths of radii ' r_1 ' and ' r_2 ' respectively. The ratio of the mass of X to that of Y is
A) $\frac{r_1}{r_2}$ B) $\sqrt{\frac{r_1}{r_2}}$ C) $\left[\frac{r_2}{r_1}\right]^2$ D) $\left[\frac{r_1}{r_2}\right]^2$

SPACE FOR ROUGH WORK



8. When an electron in Hydrogen atom revolves in stationary orbit, it
- does not radiate light though its velocity changes
 - does not radiate light and velocity remains unchanged
 - radiates light but its velocity is unchanged
 - radiates light with the change of energy
9. The magnetic field (B) inside a long solenoid having 'n', turns per unit length and carrying current 'I' when iron core is kept in it is (μ_0 = permeability of vacuum, χ = magnetic susceptibility)
- $\mu_0 nI(1 - \chi)$
 - $\mu_0 nI\chi$
 - $\mu_0 nI^2(1 + \chi)$
 - $\mu_0 nI(1 + \chi)$
10. In balanced metre bridge, the resistance of bridge wire is $0.1 \Omega / \text{cm}$. Unknown resistance 'X' is connected in left gap and 6Ω in right gap, null point divides the wire in the ratio 2 : 3. Find the current drawn from the battery of 5 V having negligible resistance.
- 1 A
 - 1.5 A
 - 2 A
 - 5 A
11. Three parallel plate air capacitors are connected in parallel. Each capacitor has plate area ' A ' and the separation between the plates is 'd', '2d' and '3d' respectively. The equivalent capacity of combination is (ϵ_0 = absolute permittivity of free space)
- $\frac{7\epsilon_0 A}{18d}$
 - $\frac{11\epsilon_0 A}{18d}$
 - $\frac{13\epsilon_0 A}{18d}$
 - $\frac{17\epsilon_0 A}{18d}$
12. In an oscillator, for sustained oscillations, Barkhausen criterion is $A\beta$ equal to (A = voltage gain without feedback, β = feedback factor)
- zero
 - $\frac{1}{2}$
 - 1
 - 2
13. Light of wavelength ' λ ' which is less than threshold wavelength is incident on a photosensitive material. If incident wavelength is decreased so that emitted photoelectrons are moving with same velocity then stopping potential will
- increase
 - decrease
 - be zero
 - become exactly half
14. A ray of light travelling through rarer medium is incident at very small angle 'i' on a glass slab and after refraction its velocity is reduced by 20%. The angle of deviation is
- $\frac{i}{8}$
 - $\frac{i}{5}$
 - $\frac{i}{2}$
 - $\frac{4i}{5}$
15. The maximum frequency of transmitted radio waves above which the radio waves are no longer reflected back by ionosphere is _____ (N = maximum electron density of ionosphere, g = acceleration due to gravity)
- gN
 - gN^2
 - $g\sqrt{N}$
 - g^2N^2
16. Wire having tension 225 N produces six beats per second when it is tuned with a fork. When tension changes to 256 N, it is tuned with the same fork, the number of beats remain unchanged. The frequency of the fork will be
- 186 Hz
 - 225 Hz
 - 256 Hz
 - 280 Hz

SPACE FOR ROUGH WORK



17. Assuming the expression for the pressure exerted by the gas on the walls of the container, it can be shown that pressure is

- A) $\left[\frac{1}{3}\right]^{\text{rd}}$ kinetic energy per unit volume of a gas
- B) $\left[\frac{2}{3}\right]^{\text{rd}}$ kinetic energy per unit volume of a gas
- C) $\left[\frac{3}{4}\right]^{\text{th}}$ kinetic energy per unit volume of a gas
- D) $\frac{3}{2} \times$ kinetic energy per unit volume of a gas

18. A mass 'm₁' connected to a horizontal spring performs S.H.M. with amplitude 'A'. While mass 'm₁' is passing through mean position another mass 'm₂' is placed on it so that both the masses move together with amplitude 'A₁'. The ratio of $\frac{A_1}{A}$ is (m₂ < m₁)

- A) $\left[\frac{m_1}{m_1 + m_2}\right]^{\frac{1}{2}}$
- B) $\left[\frac{m_1 + m_2}{m_1}\right]^{\frac{1}{2}}$
- C) $\left[\frac{m_2}{m_1 + m_2}\right]^{\frac{1}{2}}$
- D) $\left[\frac{m_1 + m_2}{m_2}\right]^{\frac{1}{2}}$

19. A particle moves along a circle of radius 'r' with constant tangential acceleration. If the velocity of the particle is 'v' at the end of second revolution, after the revolution has started then the tangential acceleration is

- A) $\frac{v^2}{8\pi r}$
- B) $\frac{v^2}{6\pi r}$
- C) $\frac{v^2}{4\pi r}$
- D) $\frac{v^2}{2\pi r}$

20. Two strings A and B of same material are stretched by same tension. The radius of the string A is double the radius of string B. Transverse wave travels on string A with speed 'V_A' and on string B with speed 'V_B'. The ratio $\frac{V_A}{V_B}$ is

- A) $\frac{1}{4}$
- B) $\frac{1}{2}$
- C) 2
- D) 4

21. Which of the following quantity does **NOT** change due to damping of oscillations ?

- A) Angular frequency
- B) Time period
- C) Initial phase
- D) Amplitude

22. If the end correction of an open pipe is 0.8 cm then the inner radius of that pipe will be

- A) $\frac{1}{3}$ cm
- B) $\frac{2}{3}$ cm
- C) $\frac{3}{2}$ cm
- D) 0.2 cm

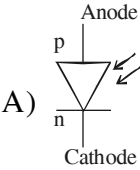
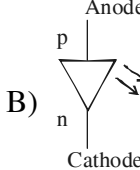
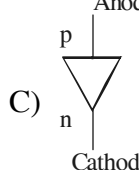
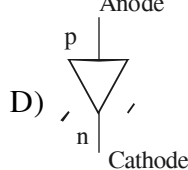
23. A progressive wave is represented by $y = 12 \sin(5t - 4x)$ cm. On this wave, how far away are the two points having phase difference of 90° ?

- A) $\frac{\pi}{2}$ cm
- B) $\frac{\pi}{4}$ cm
- C) $\frac{\pi}{8}$ cm
- D) $\frac{\pi}{16}$ cm



24. Two particles of masses 'm' and '9m' are separated by a distance 'r'. At a point on the line joining them the gravitational field is zero. The gravitational potential at that point is (G = Universal constant of gravitation)
- A) $-\frac{4Gm}{r}$ B) $-\frac{8Gm}{r}$ C) $-\frac{16Gm}{r}$ D) $-\frac{32Gm}{r}$
25. A black rectangular surface of area 'A' emits energy 'E' per second at 27°C. If length and breadth are reduced to $\frac{1}{3}$ rd of initial value and temperature is raised to 327°C then energy emitted per second becomes
- A) $\frac{4E}{9}$ B) $\frac{7E}{9}$ C) $\frac{10E}{9}$ D) $\frac{16E}{9}$
26. For a gas $\frac{R}{C_v} = 0.4$, where 'R' is the universal gas constant and 'C_v' is molar specific heat at constant volume. The gas is made up of molecules which are
- A) rigid diatomic B) monoatomic
C) non-rigid diatomic D) polyatomic
27. In vertical circular motion, the ratio of kinetic energy of a particle at highest point to that at lowest point is
- A) 5 B) 2 C) 0.5 D) 0.2
28. Two wires having same length and material are stretched by same force. Their diameters are in the ratio 1 : 3. The ratio of strain energy per unit volume for these two wires (smaller to larger diameter) when stretched is
- A) 3 : 1 B) 9 : 1 C) 27 : 1 D) 81 : 1
29. A ring and a disc roll on the horizontal surface without slipping with same linear velocity. If both have same mass and total kinetic energy of the ring is 4 J then total kinetic energy of the disc is
- A) 3 J B) 4 J C) 5 J D) 6 J
30. When the observer moves towards the stationary source with velocity, 'V₁', the apparent frequency of emitted note is 'F₁'. When the observer moves away from the source with velocity 'V₁', the apparent frequency is 'F₂'. If 'V' is the velocity of sound in air and $\frac{F_1}{F_2} = 2$ then $\frac{V}{V_1} = ?$
- A) 2 B) 3 C) 4 D) 5
31. A liquid drop having surface energy 'E' is spread into 512 droplets of same size. The final surface energy of the droplets is
- A) 2E B) 4E C) 8E D) 12E
32. Let 'M' be the mass and 'L' be the length of a thin uniform rod. In first case, axis of rotation is passing through centre and perpendicular to the length of the rod. In second case axis of rotation is passing through one end and perpendicular to the length of the rod. The ratio of radius of gyration in first case to second case is
- A) 1 B) $\frac{1}{2}$ C) $\frac{1}{4}$ D) $\frac{1}{8}$



33. A simple pendulum of length ' l ' has maximum angular displacement ' θ '. The maximum kinetic energy of the bob of mass ' m ' is
(g = acceleration due to gravity)
- A) $mg l (1 + \cos \theta)$ B) $mg l (1 + \cos^2 \theta)$
C) $mg l (1 - \cos \theta)$ D) $mg l (\cos \theta - 1)$
34. Angular speed of hour hand of a clock in degree per second is
- A) $\frac{1}{30}$ B) $\frac{1}{60}$ C) $\frac{1}{120}$ D) $\frac{1}{720}$
35. The value of gravitational acceleration ' g ' at a height ' h ' above the earth's surface is $\frac{3g}{4}$ then
(R = radius of earth)
- A) $h = R$ B) $h = \frac{R}{2}$ C) $h = \frac{R}{3}$ D) $h = \frac{R}{4}$
36. The schematic symbol of light emitting diode is (LED)
- A)  B)  C)  D) 
37. The amount of work done in increasing the voltage across the plates of capacitor from 5V to 10V is ' W '. The work done in increasing it from 10V to 15V will be
- A) W B) $0.6 W$ C) $1.25 W$ D) $1.67 W$
38. Magnetic flux passing through a coil is initially 4×10^{-4} Wb. It reduces to 10% of its original value in ' t ' second. If the e.m.f. induced is 0.72 mV then ' t ' in second is
- A) 0.3 B) 0.4 C) 0.5 D) 0.6
39. Resolving power of telescope increases when
- A) wavelength of light decreases B) wavelength of light increases
C) focal length of eye-piece increases D) focal length of eye-piece decreases
40. When light of wavelength ' λ ' is incident on photosensitive surface, the stopping potential is ' V '. When light of wavelength ' 3λ ' is incident on same surface, the stopping potential is $\frac{V}{6}$. Threshold wavelength for the surface is
- A) 2λ B) 3λ C) 4λ D) 5λ
41. The bob of a simple pendulum performs S.H.M. with period ' T ' in air and with period ' T_1 ' in water. Relation between ' T ' and ' T_1 ' is (neglect friction due to water, density of the material of the bob is $= \frac{9}{8} \times 10^3 \text{ kg/m}^3$, density of water $= 1 \frac{\text{g}}{\text{cc}}$)
- A) $T_1 = 3 T$ B) $T_1 = 2 T$ C) $T_1 = T$ D) $T_1 = \frac{T}{2}$



42. In a capillary tube of radius 'R', a straight thin metal wire of radius 'r' ($R > r$) is inserted symmetrically and one end of the combination is dipped vertically in water such that the lower end of the combination is at same level. The rise of water in the capillary tube is [T = surface tension of water, ρ = density of water, g = gravitational acceleration]
- A) $\frac{T}{(R+r)\rho g}$ B) $\frac{R\rho g}{2T}$ C) $\frac{2T}{(R-r)\rho g}$ D) $\frac{(R-r)\rho g}{T}$
43. When open pipe is closed from one end then third overtone of closed pipe is higher in frequency by 150 Hz than second overtone of open pipe. The fundamental frequency of open end pipe will be
- A) 75 Hz B) 150 Hz C) 225 Hz D) 300 Hz
44. A disc of radius 'R' and thickness $\frac{R}{6}$ has moment of inertia 'I' about an axis passing through its centre and perpendicular to its plane. Disc is melted and recast into a solid sphere. The moment of inertia of a sphere about its diameter is
- A) $\frac{I}{5}$ B) $\frac{I}{6}$ C) $\frac{I}{32}$ D) $\frac{I}{64}$
45. Let a steel bar of length 'l', breadth 'b' and depth 'd' be loaded at the centre by a load 'W'. Then the sag of bending of beam is (Y = Young's modulus of material of steel)
- A) $\frac{Wl^3}{2bd^3Y}$ B) $\frac{Wl^3}{4bd^3Y}$ C) $\frac{Wl^2}{2bd^3Y}$ D) $\frac{Wl^3}{4bd^2Y}$
46. In Bohr's theory of Hydrogen atom, the electron jumps from higher orbit 'n' to lower orbit 'p'. The wavelength will be minimum for the transition
- A) $n = 5$ to $p = 4$ B) $n = 4$ to $p = 3$ C) $n = 3$ to $p = 2$ D) $n = 2$ to $p = 1$
47. Two identical parallel plate air capacitors are connected in series to a battery of e.m.f. 'V'. If one of the capacitor is completely filled with dielectric material of constant 'K', then potential difference of the other capacitor will become
- A) $\frac{K}{V(K+1)}$ B) $\frac{KV}{K+1}$ C) $\frac{K-1}{KV}$ D) $\frac{V}{K(K+1)}$
48. The LC parallel resonant circuit
- A) has a very high impedance B) has a very high current
C) acts as resistance of very low value D) has zero impedance
49. A galvanometer of resistance $30\ \Omega$ is connected to a battery of emf 2V with $1970\ \Omega$ resistance in series. A full scale deflection of 20 divisions is obtained in the galvanometer. To reduce the deflection to 10 divisions, the resistance in series required is
- A) $4030\ \Omega$ B) $4000\ \Omega$ C) $3970\ \Omega$ D) $2000\ \Omega$
50. Two coherent sources 'P' and 'Q' produce interference at point 'A' on the screen where there is a dark band which is formed between 4th bright band and 5th bright band. Wavelength of light used is $6000\ \text{\AA}$. The path difference between PA and QA is
- A) $1.4 \times 10^{-4}\ \text{cm}$ B) $2.7 \times 10^{-4}\ \text{cm}$ C) $4.5 \times 10^{-4}\ \text{cm}$ D) $6.2 \times 10^{-4}\ \text{cm}$

**CHEMISTRY**

51. Which halide of magnesium has highest ionic character ?
A) Chloride B) Bromide C) Iodide D) Fluoride
52. The reaction takes place in two steps as
i) $\text{NO}_2\text{Cl}_{(g)} \xrightarrow{K_1} \text{NO}_2_{(g)} + \text{Cl}_{(g)}$
ii) $\text{NO}_2\text{Cl}_{(g)} + \text{Cl}_{(g)} \xrightarrow{K_2} \text{NO}_2_{(g)} + \text{Cl}_2_{(g)}$
Identify the reaction intermediate
A) $\text{NO}_2\text{Cl}_{(g)}$ B) $\text{NO}_2_{(g)}$ C) $\text{Cl}_2_{(g)}$ D) $\text{Cl}_{(g)}$
53. Which of the following aminoacids is basic in nature ?
A) Valine B) Tyrosine C) Arginine D) Leucine
54. The relation between solubility of a gas in liquid at constant temperature and external pressure is stated by which law ?
A) Raoult's law B) van't Hoff Boyle's law
C) van't Hoff Charles' law D) Henry's law
55. Which among the following phenolic compounds is most acidic in nature ?
A) p-aminophenol B) phenol
C) m-nitrophenol D) p-nitrophenol
56. In the cell represented by $\text{Pb}_{(s)} | \text{Pb}^{2+}_{(1M)} || \text{Ag}^{+}_{(1M)} | \text{Ag}_{(s)}$, the reducing agent is
A) Pb B) Pb^{2+} C) Ag D) Ag^{+}
57. Which metal crystallises in a simple cubic structure ?
A) Polonium B) Copper C) Nickel D) Iron
58. The amine 'A' when treated with nitrous acid gives yellow oily substance. The amine A is
A) triethylamine B) trimethylamine
C) aniline D) methylphenylamine
59. The element that does **NOT** form acidic oxide is
A) Carbon B) Phosphorus C) Chlorine D) Barium
60. While assigning R, S configuration the correct order of priority of groups attached to chiral carbon atom is
A) $\text{CONH}_2 > \text{COCH}_3 > \text{CH}_2\text{OH} > \text{CHO}$
B) $\text{CONH}_2 > \text{COCH}_3 > \text{CHO} > \text{CH}_2\text{OH}$
C) $\text{COCH}_3 > \text{CONH}_2 > \text{CHO} > \text{CH}_2\text{OH}$
D) $\text{CHO} > \text{CH}_2\text{OH} > \text{COCH}_3 > \text{CONH}_2$
61. Which among the following solids is a nonpolar solid ?
A) Hydrogen chloride B) Sulphur dioxide
C) Water D) Carbon dioxide
62. Identify the metal that forms colourless compounds.
A) Iron (Z = 26) B) Chromium (Z = 24)
C) Vanadium (Z = 23) D) Scandium (Z = 21)

SPACE FOR ROUGH WORK



63. What is the highest oxidation state exhibited by group 17 elements ?
A) + 1 B) + 3 C) + 5 D) + 7
64. Mathematical equation of first law of thermodynamics for isochoric process is
A) $\Delta U = q_v$ B) $-\Delta U = q_v$ C) $q = -W$ D) $\Delta U = W$
65. Name the catalyst used in commercial method of preparation of phenol.
A) Silica B) Calcium phosphate
C) Anhydrous aluminium chloride D) Cobalt naphthenate
66. Name the reagent that is used in leaching of gold
A) Carbon B) Sodium cyanide
C) Carbon monoxide D) Iodine
67. Which of the following is an analgesic ?
A) Ofloxacin B) Penicillin C) Aminoglycosides D) Paracetamol
68. The compound which is **NOT** formed when a mixture of n-butyl bromide and ethyl bromide treated with sodium metal in presence of dry ether is
A) Butane B) Octane C) Hexane D) Ethane
69. What is the general molecular formula of the products obtained on heating lanthanoids (Ln) with sulphur ?
A) LnS B) LnS₃ C) Ln₃S₂ D) Ln₂S₃
70. Butylated hydroxy anisole is
A) an anti oxidant B) cleansing agent
C) disinfectant D) an antihistamine
71. The rate constant and half life of a first order reaction are related to each other as
A) $t_{1/2} = \frac{0.693}{K}$ B) $t_{1/2} = 0.693K$ C) $K = 0.693 t_{1/2}$ D) $Kt_{1/2} = \frac{1}{0.693}$
72. What is the combining ratio of glycerol and fatty acids when they combine to form triglyceride ?
A) 3 : 4 B) 3 : 2 C) 1 : 3 D) 1 : 2
73. The molecular formula of Wilkinson catalyst, used in hydrogenation of alkenes is
A) Co (CO)₈ B) (Ph₃P)₃ RhCl
C) [Pt (NH₃)₂ Cl₂] D) K [Ag (CN)₂]
74. The criterion for a spontaneous process is
A) $\Delta G > 0$ B) $\Delta G < 0$ C) $\Delta G = 0$ D) $\Delta S_{total} < 0$
75. Brown ring test is used for detection of which radical ?
A) Ferrous B) Nitrite C) Nitrate D) Ferric
76. How is sodium chromate converted into sodium dichromate in the manufacture of potassium dichromate from chromite ore ?
A) By the action of concentrated sulphuric acid
B) By roasting with soda ash
C) By the action of sodium hydroxide
D) By the action of lime stone



77. In dry cell, what acts as negative electrode ?
A) Zinc
B) Graphite
C) Ammonium chloride
D) Manganese dioxide
78. Select the compound which on treatment with nitrous acid liberates nitrogen.
A) Nitroethane
B) Triethylamine
C) Diethylamine
D) Ethylamine
79. 5.0 g of sodium hydroxide (molar mass 40 g mol^{-1}) is dissolved in little quantity of water and the solution is diluted up to 100 ml. What is the molarity of the resulting solution ?
A) 0.1 mol dm^{-3} B) 1.0 mol dm^{-3} C) $0.125 \text{ mol dm}^{-3}$ D) 1.25 mol dm^{-3}
80. Which of the following compounds when treated with dibenzyl cadmium yields benzyl methyl ketone ?
A) Acetone
B) Acetaldehyde
C) Acetic acid
D) Acetyl chloride
81. Bulletproof helmets are made from
A) Lexan
B) Saran
C) Glyptal
D) Thiokol
82. Which metal is refined by Mond Process ?
A) Titanium
B) Copper
C) Nickel
D) Zinc
83. Isopropyl methyl ether when treated with cold hydrogen iodide gives
A) isopropyl iodide and methyl iodide
B) isopropyl alcohol and methyl iodide
C) isopropyl alcohol and methyl alcohol
D) isopropyl iodide and methyl alcohol
84. In face centred cubic unit cell, what is the volume occupied ?
A) $\frac{4}{3}\pi r^3$ B) $\frac{8}{3}\pi r^3$ C) $\frac{16}{3}\pi r^3$ D) $\frac{64r^3}{3\sqrt{3}}$
85. Glucose on oxidation with bromine water yields gluconic acid. This reaction confirms presence of
A) six carbon atoms linked in straight chain
B) secondary alcoholic group in glucose
C) aldehyde group in glucose
D) primary alcoholic group in glucose
86. Identify an extensive property amongst the following
A) Viscosity
B) Heat capacity
C) Density
D) Surface tension
87. Which of the following carboxylic acids is a tricarboxylic acid ?
A) Oxalic acid
B) Citric acid
C) Succinic acid
D) Adipic acid
88. Average rate of reaction $2 \text{ SO}_2(\text{g}) + \text{O}_2(\text{g}) \longrightarrow 2 \text{ SO}_3(\text{g})$ is written as
A) $\frac{\Delta[\text{SO}_2]}{\Delta t}$ B) $-\frac{\Delta[\text{O}_2]}{\Delta t}$ C) $\frac{1}{2} \frac{\Delta[\text{SO}_2]}{\Delta t}$ D) $\frac{\Delta[\text{SO}_3]}{\Delta t}$

SPACE FOR ROUGH WORK



89. What is the amount of work done when 0.5 mole of methane, $\text{CH}_4(\text{g})$, is subjected to combustion at 300 K ? (given, $R = 8.314 \text{ J K}^{-1} \text{ mol}^{-1}$)
A) -2494 J B) -4988 J C) $+4988 \text{ J}$ D) $+2494 \text{ J}$
90. Primary nitroalkanes are obtained in good yield by oxidising aldoximes with the help of
A) trifluoroperoxyacetic acid B) acidified potassium permanganate
C) concentrated nitric acid D) potassium dichromate and dilute sulphuric acid
91. If 'n' represents total number of asymmetric carbon atoms in a compound, the possible number of optical isomers of the compound is
A) $2n$ B) n^2 C) 2^n D) $2n + 2$
92. The equation that represents van't Hoff general solution equation is
A) $\pi = \frac{n}{V} RT$ B) $\pi = nRT$ C) $\pi = \frac{V}{n} RT$ D) $\pi = nVRT$
93. Which is the most stable allotrope of sulphur ?
A) Octahedral sulphur B) Monoclinic sulphur
C) Plastic sulphur D) Colloidal sulphur
94. Correct statement for thermoplastic polymer is
A) It does not become soft on heating under pressure
B) It can not be remoulded
C) It is either linear or branched chain polymer
D) It is cross-linked polymer
95. How many Faradays of electricity are required to deposit 10 g of calcium from molten calcium chloride using inert electrodes ? (molar mass of calcium = 40 g mol^{-1})
A) 0.5 F B) 1 F C) 0.25 F D) 2 F
96. The reagent used in Wolff-Kishner reduction is
A) $\text{NH}_2 - \text{NH}_2$ and KOH in ethylene glycol
B) Zn - Hg/conc.HCl
C) NaBH_4
D) Na - Hg/ H_2O
97. Which of the following is a neutral complex ?
A) $[\text{Pt}(\text{NH}_3)_2 \text{Cl}_2]$ B) $[\text{Co}(\text{NH}_3)_6] \text{Cl}_3$
C) $[\text{Ni}(\text{NH}_3)_6] \text{Cl}_2$ D) $\text{K}_4 [\text{Fe}(\text{CN})_6]$
98. Identify the compound amongst the following of which 0.1 M aqueous solution has highest boiling point.
A) Glucose B) Sodium chloride
C) Calcium chloride D) Ferric chloride
99. What is the reagent used in Etard reaction ?
A) Chromyl chloride B) Ethanoyl chloride
C) SnCl_2 and HCl D) Cadmium chloride
100. The most abundant noble gas in atmosphere is
A) Neon B) Argon C) Xenon D) Krypton



ANTILOGARITHMS

	0	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
0.50	3162	3170	3177	3184	3192	3199	3206	3214	3221	3228	1	1	2	3	4	4	5	6	7
0.51	3236	3243	3251	3258	3266	3273	3281	3289	3296	3304	1	2	2	3	4	5	5	6	7
0.52	3311	3319	3327	3334	3342	3350	3357	3365	3373	3381	1	2	2	3	4	5	5	6	7
0.53	3388	3396	3404	3412	3420	3428	3436	3443	3451	3459	1	2	2	3	4	5	6	6	7
0.54	3467	3475	3483	3491	3499	3508	3516	3524	3532	3540	1	2	2	3	4	5	6	6	7
0.55	3548	3556	3565	3573	3581	3589	3597	3606	3614	3622	1	2	2	3	4	5	6	7	7
0.56	3631	3639	3648	3656	3664	3673	3681	3690	3698	3707	1	2	3	3	4	5	6	7	8
0.57	3715	3724	3733	3741	3750	3758	3767	3776	3784	3793	1	2	3	3	4	5	6	7	8
0.58	3802	3811	3819	3828	3837	3846	3855	3864	3873	3882	1	2	3	4	4	5	6	7	8
0.59	3890	3899	3908	3917	3926	3936	3945	3954	3963	3972	1	2	3	4	5	5	6	7	8
0.60	3981	3990	3999	4009	4018	4027	4036	4046	4055	4064	1	2	3	4	5	6	6	7	8
0.61	4074	4083	4093	4102	4111	4121	4130	4140	4150	4159	1	2	3	4	5	6	7	8	9
0.62	4169	4178	4188	4198	4207	4217	4227	4236	4246	4256	1	2	3	4	5	6	7	8	9
0.63	4266	4276	4285	4295	4305	4315	4325	4335	4345	4355	1	2	3	4	5	6	7	8	9
0.64	4365	4375	4385	4396	4406	4416	4426	4436	4446	4457	1	2	3	4	5	6	7	8	9
0.65	4467	4477	4487	4498	4508	4519	4529	4539	4550	4560	1	2	3	4	5	6	7	8	9
0.66	4571	4581	4592	4603	4613	4624	4634	4645	4656	4667	1	2	3	4	5	6	7	9	10
0.67	4677	4688	4699	4710	4721	4732	4742	4753	4764	4775	1	2	3	4	5	7	8	9	10
0.68	4786	4797	4808	4819	4831	4842	4853	4864	4875	4887	1	2	3	4	6	7	8	9	10
0.69	4898	4909	4920	4932	4943	4955	4966	4977	4989	5000	1	2	3	5	6	7	8	9	10
0.70	5012	5023	5035	5047	5058	5070	5082	5093	5105	5117	1	2	4	5	6	7	8	9	11
0.71	5129	5140	5152	5164	5176	5188	5200	5212	5224	5236	1	2	4	5	6	7	8	10	11
0.72	5248	5260	5272	5284	5297	5309	5321	5333	5346	5348	1	2	4	5	6	7	9	10	11
0.73	5370	5383	5395	5408	5420	5433	5445	5458	5470	5483	1	3	4	5	6	8	9	10	11
0.74	5495	5508	5521	5534	5546	5559	5572	5585	5598	5610	1	3	4	5	6	8	9	10	12
0.75	5623	5636	5649	5662	5675	5689	5702	5715	5728	5741	1	3	4	5	7	8	9	10	12
0.76	5754	5768	5781	5794	5808	5821	5834	5848	5861	5875	1	3	4	5	7	8	9	11	12
0.77	5888	5902	5916	5929	5943	5957	5970	5984	5998	6012	1	3	4	5	7	8	10	11	12
0.78	6026	6039	6053	6067	6081	6095	6109	6124	6138	6152	1	3	4	6	7	8	10	11	13
0.79	6166	6180	6194	6209	6223	6237	6252	6266	6281	6295	1	3	4	6	7	8	10	11	13
0.80	6310	6324	6339	6353	6368	6383	6397	6412	6427	6442	1	3	4	6	7	9	10	12	13
0.81	6457	6471	6486	6501	6516	6531	6546	6561	6577	6592	2	3	5	6	8	9	11	12	14
0.82	6607	6622	6637	6653	6668	6683	6699	6714	6730	6745	2	3	5	6	8	9	11	12	14
0.83	6761	6776	6792	6808	6823	6839	6855	6871	6887	6902	2	3	5	6	8	9	11	13	14
0.84	6918	6934	6950	6966	6982	6998	7015	7031	7047	7063	2	3	5	6	8	10	11	13	15
0.85	7079	7096	7112	7129	7145	7161	7178	7194	7211	7228	2	3	5	7	8	10	12	13	15
0.86	7244	7261	7278	7295	7311	7328	7345	7362	7379	7396	2	3	5	7	8	10	12	13	15
0.87	7413	7430	7447	7464	7482	7499	7516	7534	7551	7568	2	3	5	7	9	10	12	14	16
0.88	7586	7603	7621	7638	7656	7674	7691	7709	7727	7745	2	4	5	7	8	11	12	14	16
0.89	7762	7780	7798	7816	7834	7852	7870	7889	7907	7925	2	4	5	7	9	11	13	14	16
0.90	7943	7962	7980	7998	8017	8035	8054	8072	8091	8110	2	4	6	7	9	11	13	15	17
0.91	8128	8147	8166	8185	8204	8222	8241	8260	8279	8299	2	4	6	8	9	11	13	15	17
0.92	8318	8337	8356	8375	8395	8414	8433	8453	8472	8492	2	4	6	8	10	12	14	15	17
0.93	8511	8531	8551	8570	8590	8610	8630	8650	8670	8690	2	4	6	8	10	12	14	16	18
0.94	8710	8730	8750	8770	8790	8810	8831	8851	8872	8892	2	4	6	8	10	12	14	16	18
0.95	8913	8933	8954	8974	8995	9016	9036	9057	9078	9099	2	4	6	8	10	12	15	17	19
0.96	9120	9141	9162	9183	9204	9220	9247	9268	9290	9311	2	4	6	8	11	13	15	17	19
0.97	9333	9354	9376	9397	9419	9441	9462	9484	9506	9528	2	4	7	9	11	13	15	17	20
0.98	9550	9572	9594	9616	9638	9661	9683	9705	9727	9750	2	4	7	9	11	13	16	18	20
0.99	9772	9795	9817	9840	9863	9886	9908	9931	9954	9977	2	5	7	9	11	14	16	18	20