

Engineering College Admission Test (ECAT) 2011

Chemistry

1. Half Life method is used for --- (1st order rxn, 2nd order rxn, zero order, integer fraction)
2. CO₂ dry ice has _____ types of crystals (molecular, ionic)
3. Aluminium Hydride AlH₃ --- Related Question was asked.
4. Pressure increases on gas, then forces become? (significant, insignificant)
5. Composition of aqua regia.
6. Lanthanide contraction-Period (Related Question was asked)
7. Trend of Oxidation State
8. Which one of the following is false?
 - a) Copper is softer than sodium
 - b) Diamond is not a conductor
 - c) Cs and Na has same structure
9. e/m of cathode and positive rays
10. H₂SO₄ in pure form (dehydrating agent, odorless, conductor of electricity, All)
11. Benzene Stability dependence--- delocalization of PIE Electrons
12. Distribution Law—Solvent Extraction (ratio of solutes in both solvents)
13. Which one is more Dilute? (1 molar or 1 molal solution of Urea)
14. 9% increase during freezing water is due to (tetrahedral structure with empty spaces, trihedral with empty spaces)
15. What's the effect on equilibrium---during change in volume?
16. Catalyst disturbs the (Equilibrium constant, position, none)
17. Electrochemical Series used for (redox rxns, battery rxns)
18. Depression of freezing point when volatile solute is dissolved in it (related question)
19. In first order rxn, 50% of the substance decays in 1 hour, remaining will decay in?
20. Rate of reaction depends upon surface area (related question)
21. The substance which poison the catalyst?
22. Group 4A elements form (hydride, dioxide, halide)
23. Lithium only form(suboxides, superoxide, oxide, all)
24. Red phosphorus (macro molecule, micro molecule)
25. K₂Cr₂O₇, oxidation states of all
26. Transition Elements (All are metals, conductors of heat, variable oxi. State, all)
27. Which of the following react with fehling solution?
28. Enthalpy change---related question
29. An acetal forms—alcohols react aldehydes

English

- Bread at abroad meat better than home is (arrange this)
- DEmorgue-synonym
- Punctuation
- Passive voice
- Degree:temp (analogue asked)
- Weight: Kilogram
- Baba g chalay UET describes (One act play, the one act play, a play)
- Necessity is the mother of invention---scientists have discovered many things---when there is a will, there is a way... (mistakes were made in these and was asked to choose the correct one)

Physics

- Force F is required to be applied on a body of 1 kg placed on inclined plane at an angle of 30 degree to move it. The force is (g , $g\sqrt{3}$, $g/\sqrt{3}$, $g/\sqrt{2}$)
- A ball strikes another ball mass 2 kg and 1 kg at rest with a velocity 30ms^{-1} . If after the collision the velocities are 20 and 15ms^{-1} , then (it undergo Elastic collision---true option)
- Two satellites s_1 and s_2 are with radius from the Centre of earth of $80,000$ and $40,000$ then their orbital velocity v_1 and v_2 are ($\sqrt{2} v_1 = v_2$, $\sqrt{2} v_2 = v_1$, $v_1 = v_2$, none)
- A body takes a pendulum in the lift and it accelerates upwards the tension in the string (increases, decreases, first increases then decreases, decreases then increases)
- The pressure in a pipe of varying cross sectional area, the pressure at smallest radius portion of it (min, max, none)
- A car approaches c_1 to another car c_2 with a velocity of _____. If the apparent frequency of c_1 , when it horns, for c_2 is _____. The real frequency is? (the data was given---the type of question was like this)
- In astronomical telescope the final image is formed at (near point, infinity)
- A gas is enclosed in a container fitted with a piston of cross sectional area of 0.03m^2 and pressure is maintained at 1000Nm^{-2} . When heat is slowly transferred, the piston is pushed up through a distance of 4cm . and 100J heat is transferred to the system then find ΔU ?

- In Carnot engine the gas is (expanded isothermally and compressed adiabatically respectively, or other options were there)
- A charge of 100mC passes through a potential difference of 100V of mass 0.1mg, then what is change in velocity?
- When a 500 ohm resistance is replaced by 100 ohm in a cell, effect on terminal velocity?
- Current passing through two wires in same direction (repel, attract)
- A particle passes through the solenoid along the axis, then it will pass along the path (parallel to axis, along spiral path, etc.)
- In RC circuit _____ leads the _____
- If a bulb and capacitors are connected in series, the current passing is AC, then then bulb will (glow, fused, nothing happens, etc.)
- Transistor is used as (switch---right answer)
- If inputs are different then for NAND gate, the output is?
- A boy named Amir sees a scale placed on earth while he is in aero plane. Then the length of scale will (increased, decreased, same)
- If the speed of body is increased, the mass of body will (increase, decrease, none)
- As the temperature increases, no of longer wavelength radiation (increases, decreases, none)
- When photo electrons are emitted from metal surface then what would be greater than threshold? (intensity, frequency, both, none)
- Davison and Germer experiment proves (wave nature of electron, particle nature of electron, both)
- Laser will produce if the atoms in lower energy states are _____ than those in higher energy states. (greater, less, equal, All)
- A flexible loop of wire is lying such that field of lines are parallel to area. If area begins to change then emf induced is (max, zero, both, none)
- In FM, the amplitude of carrier wave is (diminished, increased, both, none)

Mathematics

- The average value of an even function is (-ve, +ve, infinite, none)
- The value of the equation $x^2 - x + P$ should be greater than 3 when $P = ?$
- $ax^3 - 8x + b + 6$ is exactly divisible by $x^2 + 2x - 3 = 0$ then the value of a and b ?
- $x + 2y + 2 = 0$ and $x^2 + y^2 = 4$ meet at?
- Rank of A is related with ranks of AA^T (small, equal, same, none)
- Sum of series $\sum, n=1$ to $\infty \dots 1/5^n = ?$
- After t second, increase in volume is $5 - 2/t + 1$ then at $t=3$ rate of increase is?
- $4^{x+1} = 2(7 \cdot 2^x)$ find solution
- If $f(x) = 2x/x - 1$ and x not equal to 1. Then composite function $ff = f^2$ is infinity at (1, +1, +2 and -1, None)
- Find area of $y = -1 + (9/x^2)$ when $3 \geq x \leq 5$
- $\cos 40 + \cos 100 + \cos 140 = ?$
- $\log_x 5 = 4 \log_5(X)$ find solution
- $\log_3(X-1) + \log_3(X+3) - \log(x+1) = 1$ find solution
- 5 men, 4 girls, not two girls stand together, and then how many ways line can be formed?
- 5 membered committee is to be formed from five couples then how many committee can be formed when men are greater than women?
- A is scalar, X is a column vector, then AX is? (Column vector, etc.)

- the equation $5x^2 - 3y^2 + 10x + 2y + 13 = 0$ has centre?
- the rate of chemical reaction ----- as the reaction proceeds
increases, decrease, same
3. if the intensity and frequency of light is doubled, then the emission of electron is?????
 4. most ideal gas at room temp
CO₂, SO₂, NH₃, N₂
 5. density of methane at 0.20525 atm and 127 C is???
 6. speed of earth around the sun??
 7. In which paper some of additive is not added?
Carbon paper
Glazed paper
Filter paper
Art paper
 8. a force of 9N acts perpendicular to force of 16N resultant will be?
a. 33 b. 14
c. 18 d. 25
 9. the value of r_1 for monoatomic gas is
a. 1.29 b. 2.29 c. 1.67 d. 1.29
 10. An inductor may store energy in its..
a. coil
b. magnetic field
c. electric field
d. both b & c
 11. ALUMINIUM TRIOXIDE IS
A) BASIC OXIDE
B) ACIDIC OXIDE
C) AMPHOTERIC OXIDE
D) NON
 12. In RLC series circuit, the current at resonance frequency is..
a. min
b. max
c. zero
d. confused...!
 13. the ratio of gravitational mass and inertial mass is ?

1:1
2:1
1:2
3:1
 14. e/m value of an electron is...
a. variable
b. constant
c. strong
d. confused...!
 15. molarity of heavy water kitni hoti hai?

16. the sum of all integer multiple of 5 between 7 and 97 is....
- 336
 - 844
 - 945
 - 563
17. molarity of heavy water? entropy of black hole?
18. what is age of EARTH????
- 9.1×10^{17} sec
 - 1.9×10^{17} sec
 - 0.9×10^{17} min
 - none
19. Half Life method is used for --- (1st order rxn, 2nd order rxn, zero order, integer fraction)
20. bernulli eq is according to ----- law???
21. at what temp the speed of sound is doubled??????????????
22. A2 is symmetric if..
- A is identify
 - A is skew symmetric
 - A is symmetric
 - Confused...:(
23. jv observr nd source both mov kr re hn dopplr effect me tb knsa frmula lgta hy?
do any 1 knw?/
24. A triangle wdh n0 right angle is ?
- obtuse
 - acute
 - oblique
 - euilateral
25. if a player throw a ball toward other ball taking time to reched is 5 sec find max hieght attain by the taking $g=10\text{m/s}^2$
- 13.25m
 - 21.5m
 - 20m
 - 15.6m
26. which has greater oxidizing property
- flourine
 - chlorine
 - bromine
 - iodine
27. The Equation of circle is $(x-3)^2+(y-7)^2=7$. Which axis is the circle touching?
- x-axis
 - y-axis
 - both a and b
 - non of these
28. the formula for dolomite is??
29. The blood pressure varies from high systolic pressure of about:
- 80-90 torr
 - 75-85 torr

- (c). 75-80 torr
(d). None of these
30. GEARY is related to which energy???
- a) electrical
 - b) tidal
 - c) wave
 - d) none
31. Stoke's law holds for:
- (a). Cylindrical bodies
 - (b). Cubical bodies
 - (c). Spherical bodies
 - (d). None of these.
32. the formula for laughing gas is
- a) N_2O (dinitrogen oxide)
 - b) NO (nitric oxide)
 - c) NO_2
 - d) SO_3
33. a Projectile has MAXimum RANGE of 200 Meters What is MAXimum Height Attained by IT
- 25 m
 - 50 m
 - 75m
 - 100 m
34. FIND THE FREQUENCY OF AN ELECTRON WHEN ENTERED IN A UNIFORM MAGNETIC FIELD OF 5T.
- A $1.39 \times 10^{11} \text{ Hz}$
 - B $2.23 \times 10^{12} \text{ Hz}$
 - C $6.25 \times 10^{18} \text{ Hz}$
 - NONE
35. From going into ONE medium to another which does not change
- frequency
 - Speed
 - Wavelength
 - ALL
36. A Body Moving Along the circumference of a circle completes two revolutions. If the radius of the circular path is R, the ratio of displacement to the covered path will be?
- a: $(\pi) R$
 - b: $2(\pi)R$
 - c: Zero
 - d: $4(\pi)R$
37. a convex lens of 20cm, focal length is used to form an erect image which is twice as large as the object. the position of object from the lens is
- a 10cm

- b 30cm
- c 20cm
- d 15cm

40. if A,G,h are the arithmetic geometric and harmonic between 2 numbers then a,g,h are in
 A.p
 G.p
 H.p
 none
41. if radius of earth shrinks 50% then duration of its day become
 24hr
 6hr
 12hr
 48hr
42. THE HYDRATION ENERGY IS MAXIMUM IN
 FLOURINE,CHLORINE,BROMINE,IODINE
43. Find the centroid of triangle with points (3,3),(1,4) and (2,2)?
 a)3,1
 b)4,5
 c)2,3
 d)5,6
44. For an ideal transform if volt across secondary is 5v and current is 10 amp and current across primary is 3 amp find voltage across primary?
45. the strong acid is a very good
 a)oxidizing agent
 b)reducing agent
 c)dechlorizing agent
 d)bleaching agent
46. $x^2+y^2+15x+12y=0$ is a the circle
 having centre at x axis
 centre at y axis
 passing through origin
 centre at origin
47. vinyl alcohol show" which isomerism.
 a chain
 b functional
 c metamerism
 d geometrical
48. which is not fallow octete rule? a) $PbCl_3$ b) $PbCl_5$ c) none of these d) All of these
49. the equation $5x^2-3y^2+10x+2y+13=0$ represents
 a)circle
 b)parabola
 c)ellipse
 d)hyperbola
50. which of ths forces r able to provide an attraction btwn 2 neutrnz
 a.electrostatic nd nuclear
 b.electrostatics nd nuclear
 c.grvitiol nd nuclear
 d.only nuclear

51. What is the inductive reactance if frequency is 2 hz and inductance is 5 henry?
52. If (1,2) and (2,3) are end points of diameter of circle. Then what is the equation of circle?
53. UNIFORM ELECTRIC AND MAGNETIC FIELD EXIST IN REGION IN SAME DIRECTION. AN ELECTRON IS PROJECTED WITH VELOCITY POINTED IN SAME DIRECTION. ELECTRON WILL

- A. TURN TO ITS RIGHT
 B. TURN TO ITS LEFT
 C. KEEP MOVING IN SAME DIRECTION BUT SPEED INCREASES
 D. KEEP MOVING IN SAME DIRECTION BUT ITS SPEED WILL DECREASE

54. Which will be more effective in knocking a bear

- A) a rubber bullet
 B) a lead bullet of same momentum

55. Half-life method is for reactions having order??

- 1st order
 2nd Order
 3rd order
 Integer

56. A uniform magnetic field is applied on a stationary electron. Then the electron

- a. moves in direction of field
 b. moves opposite to field
 c. starts spinning
 d. remains stationary

57. A ball rolls down a frictionless inclined plane with a uniform acceleration of 1 m/s^2 . If its velocity at some instant of time is 10 m/s , what will be the velocity after 5 seconds.

- a. 5 m/s
 b. 10 m/s
 c. 15 m/s
 d. 16 m/s

58. Transverse waves transfer from

Solids

Liquids

59. Gases

all

60. The solution set of $x = \tan x$ is

- a) π
 b) $\{\pi/4\}$
 c) $\{1\}$
 d) $\{\}$

61. Kinetic energy of a body is increased by 21%. The increase in its momentum will be

- 5%
 30%
 10%

21 %

none.

62. Which is most ionic...

- a. LiF
- b. NaF
- c. RbF
- d. CsF

63. Four given three bulbs of 25, 40 and 60 watt. which of them has lowest resistance..

- a. 25
- b. 40
- c. 60
- d. confused :(

64. which gas is used for artificial ripening of fruit.

- a. ethyne
- b. ethane
- c. methane
- d. none

65. ANGULAR FREQUENCY OF SECOND PENDULUM IS.

- A π
- B 2π
- C $3\pi/2$
- D 1

66. In nano technology the atoms, used mostly, are of which size?

67. Rocket Propulsion is according to?

- a. 1st
- b. 2nd
- c. 3rd law of motion
- d. none

68. Heating a magnet will

- a. weaken it
- b. strengthen it
- c. reverse its polarity
- d. have no effect

69. From going into rare to denser medium The Speed of Sound and Light Behaves as

Sound Increase and Light decrease

Light increase and sound decrease

both increase

both decrease

70. Silicon can be obtained from

- A rocks
- B mud
- C sand
- D water

71. if we use water as a dielectric medium between the plates of capacitor then what effect on its capacitance?.

- a increase
- b decrease
- c no effect
- d none

72. a die is rolled then probability of getting a number which is even or greater than 4 is

2/3

1/6

1/2

5/6

73. WAVes transfer

Energy

Momentum

Power

Both A And B

None of these

74. which one is the example of equilibrium.

- a paratrooper moves downward
- b car on a road
- c electron around nucleus
- d both a and c

75. IF A SIMPLE PENDULUM SHIFTED FROM LAHORE TO MOUNT EVEREST THEN ITS TIME PERIOD AND FREQUENCY?

- A. INCREASE AND DECREASE
- B. DECREASE AND INCREASE
- C. NO EFFECT
- D. MAY BE INCREASED.

76. If earth stops rotating then value of g at lahore will

inc

dec

both

none.

77. Which has more rotational k.E . . . Hoop, disc, sphere ?

78. Global positioning system is made of satellites 3, 8, 24, 12

79. light is most refined form of..:

- a. energy
- b. mass

- c. waves
d. anti matter
80. The confusion here, Beta Option here I guess?
which is least reactive?
a. alcohol
b. water
c. ether
d. none
81. Why the iodine-iodine bond distance of gaseous is lesser than solid?
82. If a Body Of Mass 2kg is suspended from a ceiling of an elevator moving up with an acceleration g . Its apparent weight in the elevator will be?
a: 9.8N
b: 19.6N
c: 129.4N
d: 39.2N
83. In nano technology the atoms, used mostly, are of which size?
84. In a right triangle..no angle is greater than...
a. 90
b. 60
c. 45
d. 120
85. WHICH COMPOUND GIVE BOTH ALDEHYDE AND KETONE ON OZONOLYSIS?
A 2 METHYL 2 BUTENE
B 2 BUTENE
C 4 METHYL 2 PENTENE
D NONE
86. Frequency of A.C mains in Pakistan..
a. 30Hz
b. 50Hz
c. 60Hz
d. 120Hz..
87. Bernoulli equation is based on law?
Stock's law
Newtons law
Einstiens equation
none
88. (Synonyms)

Cardigan

a. Xenophobic b. rough cloth c. wunderkind d. wry
89. The Equation of circle is $(x-3)^2 + (y-7)^2 = 7$. Which axis is the circle touching?
a) x-axis
b) y-axis
c) both a and b
d) non of these
90. Rank of A is related with ranks of AAt (small, equal, same, none)
91. If given three bulbs of 25, 40 and 60 watt..which of them has lowest resistance..
a. 25
b. 40

- c. 60
d. confused :(
92. Which has more rotational k.E : ... Hoop, disc, sphere ?
93. light is most refined form of...
- a.energy
 - b.mass
 - c.waves
 - d.anti matter
94. Best modulation w.r.t noise is..
- a. A.M
 - b. F.M
 - c. blue band
 - d. micro band
95. The unit vector is defined by..
- a. [1,0]
 - b. [0,1]
 - c. [1,1,0]
 - d. [1,1]
96. Formula Of Methylene Chloride ?
- a. CH_2Cl_2
 - b. CHCl_3
 - c. CH_3Cl
 - d. CCl_4
97. $\cosh^2 x + \sinh^2 x =$
- a. $\sinh^2 x$
 - b. 1
 - c. -1
 - d. $\cosh^2 x$
98. if a metal is covered with oxide layer , the value of work function will be
- (a). decrease
 - (b).increase
 - (c).no affect
99. the ratio in which y axis divided the line joining points (2, -3) and (-5, 6) is
- a) 2:3
 - b) 1:2
 - c) 2:5
 - d) 3:5
100. Keep it in mind
12th derivative of e^{6x}
 $6^{12} \cdot e^{6x}$
101. The average value of an even function is
(-ve, +ve, infinite, none)
102. what is the angle of projectile when the distance of height and range of same measure?
103. the multiplicative inverse of x such that $x=0$:
- a)-x
 - b)does not exist

- c) $1/x$
d) 0
104. $\log_3(X-1) + \log_3(X+3) - \log_3(x+1) = 1$ find solution
105. $\cos 40^\circ + \cos 100^\circ + \cos 140^\circ = ?$
106. If $R_g = 95 \text{ ohm}$ and $R_s = 5 \text{ ohm}$.
what %age of current will flow through R_s ???
107. A BODY MOVES WITH UNIFORM ACCELERATION WITH A DISTANCE "X" FOR 1st sec.
what is relation between X AND Y?
A: $Y = 24X$
B: $Y = 12X$
C: $Y = 16X$
D: $Y = 8X$
108. choke is use to
1. increase current
2. decrease voltage
3. limit current
4. none
109. Which has high boiling point ?
A) HF
B) HCl
C) HBr
D) HI
110. A Body Is Fallin freely Under Gravity. How much Distance it Falls During an interval of time between 1st and 2nd seconds of its motion, taking $g = 10$?
a: 14m
b: 20m
c: 5m
d: 25m
111. $ax^3 - 8x + b + 6$ is exactly divisible by $x^2 + 2x - 3 = 0$ then the value of a and b ?
112. $8\sec^2\theta - 6\sec\theta + 1 = 0$ has no roots.....why...???
113. joule thomson effect is not obeyed by
a. ideal gas
b. non ideal gas
c. both obey
d. both dont obey
114. If linear momentum of a body measures 50 percent then K.E of the body will increases how many percent
a. 50
b. 100
c. 125
d. 200
115. octet rule is only followed by period?
a. period 1
b. period 2
c. period 3
d. period 4
116. what is range of $x/x^2 - 4$????????
117. if $f(x) = \sin x$ slope of normal to the tangent of function at $x = 0$ will be

- 0
- +1
- none

118. $(i+x)^{-n}$ is valid for
x greater than 1
less than 1
x=0
x is not equal to 0

119. A man Holding 7N weight moves 7m horizontally and 5m Vertical.
find the Work Done?
270 J
300 J
720 J
120 J
??\

120. a body moves with uniform acceleration with a distance x for 1 second. relation between x & y?
y=24x
y=12x
y=16x
y=8x

121. Which one is produced 1st?
a) Induced emf
b) Induced current
c) both
d) none

122. how many diagonals can be formed from 10 sided polygon
a. 35
b. 45
c. 25
d. 55

123. The frequency of simple pendulum depends upon?
a) length
b) value of g
c) both a & b
d) none

124. Proton is made up of quark??
a) 1
b) 2
c) 3
d) 4

125. which doesn't hold property of existence of multiplicity inverse?
a. Q
b. R
c. N
d. all

126. which set is a field?
a. N
b. Z
c. W
d. Q

127. if $x \cdot y = 5$
thn find invrse of 2?

- a.50
- b.1/50
- c.60
- d.1/30

128. which factor iz nt type of heat transfer?

- a.conduction
- b.convection
- c.radiation
- d.consumption

129. $i + i^2 + i^3 + \dots + i^{69} = \text{????????}$

- a.i
- b.0
- c.i
- d.-1

130. If a linear momentum of a body measured 50 %. Then the Kinetic energy of the body will increase:

(ECAT 2008)

- A) 50 %
- B) 100 %
- C) 125 %
- D) 200 %

131. $x \cdot y = 3xy$

thn identity elemnt w.r.t * (stERIC) iz

- a.3
- b.1/3
- c.1/9
- d.1

132. The statement x or y

X or y implies to x is false if

- a. X iz true nd y iz true
- b. X iz false nd y iz false
- c. X iz true nd y is false
- d. X iz false nd y iz true

133. Orderd proprties dsn't hld for

- a.Z
- b.N
- c.Q
- d.C

134. $i^2 + i^4 + i^6 + i^8 = \text{????????}$

- a.1
- b.2
- c.0
- d.4

135.

The pH of water is

- a) acidic b) basic c) neutral d) none

136. Our internet carries...

- a) A.C
- b) D.C
- c) None
- d) all

137. what is the angular momentum of the Earth??????????

138. the process for which entropy remains constant is a

- reversible process
- irreversible process
- constant process

which and how ???????????

139.

