UNIVERSITY OF ENGNEERING AND TECHNOLOGY, LAHORE

ENTRANCE TEST – 2017
For F.Sc and Non-F.Sc. Students
Time Allowed: 100 Minutes Total
MCQs: 100

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Instructions:
   (i)   Read the instruction on the MCQ Response From carefully.
   (ii)   Choose the single best answer for each question.
   (iii)   Candidates are strictly prohibited from giving any identification mark except Roll No. &
           Signature in the specific columns only.

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COMPULSARY QUESTION FOR IDENTIFICATION

Q-ID   What is the color of your question Paper?

	A	B	C	D
-ID	○	●	○	○
-1	○	○	○	○
-2	○	○	○	○
-3	○	○	○	○

   A)   BLUE   C)   RED
   B)   GREEN   D)   YELLOW

circle response form

Ans: Color of your question Paper is green. Fill the corresponding to letter 'B' Against 'ID' in your MCQ (Exactly as shown in the Diagram).

PHYSICS

1. **You have 20 inductors available each of 15 H. you need an inductor of 1 H in a circuit. You achieve it by combination?**
    A) 15 inductors in parallel   B) 20 inductors in series
    C) 15 inductors in series   D) 20 inductors in parallel

2. **A thermistor with negative temperature co-efficient is placed in a furnace. When temperature of furnace increases the resistance:**
    A) Decreases   B) Increases
    C) Remains same   D) No effect

3. **In frequency modulation, the amplitude of carrier waves remain same but its frequency changes proportion to:**
    A) The amplitude of modulating signals   B) The sign of modulating signals
    C) The frequency of modulating signals   D) All of these

4. **Reception of particular radio station is selected by tuning knob which changes the?**
    A) Inductance   B) Capacitance
    C) Resistance   D) All of these

5. **Density of oxygen is about 16 times that of hydrogen. Therefore if speed of hydrogen is x, then speed of oxygen?**
    A) Greater than x   B) Less than x
    C) Same than x   D) None of these

6. **When you drop a ball it accelerates at 9.8m/sec^2. If you instead throw it downward then it accelerates immediately after leaving your hand assuming no air resistance:**
    A) 9.8   B) More than 9.8
    C) Less than 9.8   D) None of these

7. **In an inelastic collision between two bodies, following is conserved?**
    A) Energy   B) Momentum
    C) Both A and B   D) None of these

8. **As the water falls from the tap, the cross sectional area should decrease according to?**
    A) Equation of continuity   B) Venturi relation
    C) Bernoulli's Equation   D) None of these

9. **AC voltage is passed through single diode rectifier, the output of the rectifier is:**
    A) Full wave DC   B) Half wave DC
    C) Double frequency DC   D) None of these

10. **A Police motor cycle running at 140 km/hr sounds a siren of 2 Hz frequency while shasing a car at 150 Km/hr. The apparent frequency heard by the car driver is:**
    A) Greater than 2 Hz   B) Less than 2 Hz
    C) 2 Hz   D) Siren is not heard

11. **If two NOT gates in parallel are attached to NAND gate in series, the gate formed is:**
    A) NOR   B) NAND
    C) OR   D) XOR

12. In circuit X, L = 100m H and C= 100 μF are attached in series. In circuit Y, L= 100mH and C=10 μF are attached in parallel, the resonating frequency f_y are related as:

A) $f_x = f_y$

B) $f_x = 10 f_y$

C) None of these

D) $f_x = 0.01 f_y$

13. A transformer has 100 turns on the input side and 500 t6urns on the output side. If rms value of input voltage and current is 220V and 5A respectively. The output power is:

A) 500 Watt

B) 1100 Watt

C)1440 Watt

D) 50 Watt

14. A truck of mass 5000 Kg and a car of mass 1000 Kg are both travelling at a speed of 36 Km/hr. Assume the force required to stop the truck in 10 sec is X newton and the force required to stop the car in 10 sec is Y newton. The difference X and Y is equal to?

A) 4 MN

B) 4 KN

C) 14.4 KN

D) None of these

15. A tight wire is clamped at two points 2 m apart. It is plucked near one end, what are the three longest wavelengths produced on the vibrating wire:

A) 2m, 1m, 0.67m

B) 4m, 2m, 1.33m

C) 4m, 2m 1.33m

D) 1m, 0.5m, 0.33m

16. When using optical fiber in data transmission, the angle of incidence $\hat{i}$ of the light source on the glass fiber should be?

A) Less than critical angle

B) Greater than critical angle

C) Less than angle of refraction

D) Greater than angle of refraction

17. Consider two spheres A and B of radii ra and rb both concentric with point charge Q. if ra>rb then the total flux passing normally through the sphere A and B is related as?

A) Flux through A is greater

B) Flux through B is greater

C) Flux through both spheres is equal

D) Flux through A may be greater or less than B

18. A mixture of two gases at constant temperature contain molecules of two kinds. The first kind is of mass m1 and rms speed c1 and the second has mass m2 and rms speed c2. The ratio $\frac{C_1}{C_2}$ is:

A) $\frac{m_1}{m_2}$

B) $\frac{m_2}{m_1}$

C) $\left[\frac{m_1}{m_2}\right]^{\frac{1}{2}}$

D) $\left[\frac{m_2}{m_1}\right]^{\frac{1}{2}}$

19. A 500 kg rocket travels in deep space at a constant speed of 3000 m sec -1. The power being produced by the rocket engine at this time is:

A) 1500 KW

B) 0.16 KW

C) 6 KW

D) None of these

20. A shell is fired at an angle of 45 degrees above ground with an initial velocity of 100 m sec$_{-1}$. It will hit the ground, assuming g = 10 m sec$_{-2}$, after bout:

A) 7 seconds

B) 14 seconds

C) 10 seconds

D) 20 seconds

21. In an inelastic collision between two bodies, the following is conserved:

A) kinetic energy only

B) Kinetic energy and momentum

C) Momentum only

D) Total energy and momentum

22. Young's double slit experiment is used to study interference of:

A) Microwaves

B) Radio waves

C) Sound waves

D) Visible light

23. You have 10 resistors available, each of 20 KW. You need to form a 2.5 KW resistor for your circuit using the available resistors. You can connect:

A) Eight 20 KW in series

B) Eight 20 KW in parallel

C) Four 20 KW in parallel

D) None of these

24. You have 15 capacitors available with you, each of 15 nF. You need a capacitance for around 150 nF in a circuit.

A) 10 capacitors in series

B) 12 capacitors in series

C) 10 capacitors in parallel

D) 8 capacitors in parallel

25. The following device does not use electromagnetic waves for its operation:

A) Ultra – sound machine

B) Radar

C) x – Rays Machine

D) Mobile phone

26. A 1000 kg truck carrying a load of 500 kg travels on a mountain for 5 minutes at constant spee Its power output is 2500 watts. Assuming g = 10 m/sec2, it will achieve a vertical height of:

A) 75 m

B) 50 m

C) 1.2 m

D) 100 m

27. When a metal surface is exposed in light, in may emit electron. The maximum energy of these electrons depends on:

A) Intensity of light

B) Area of metal surface

C) Wavelength of light   D) All of these above

28. **The truth table shown in figure is implemented by:**

AB	Output
00	0
01	1
10	1
11	0

A) NOR gate   B) AND gate
C) OR gate   D) XOR gate

29. **AC voltage is fed into a single diode rectifier. The output of the rectifier is:**
A) Full wave rectified DC voltage   B) Half wave rectified DC voltage
C) Double frequency AC voltage   D) Nothing

30. **According to Heisenberg's uncertainty principle, for any given particle is not possible to accurately measure:**
A) Both position and momentum   B) Its position
C) Its momentum   D) Its velocity

31. Asim is now three times as old as Irfan. After 10 years, Asim will be twice as old as Irfan. Asim's at this time is:
A) 10　　　　　　　　　　　　　　　　B) 20
C) 30　　　　　　　　　　　　　　　　D) 40

32. The solution of the equation $x\,dy + (y-1)dx = 0$ is:
A) $\ln\left|x + (y-1)\right| = 0$　　　　　B) $x(y-1) = c$
C) $xe^{(y-1)} = c$　　　　　　　　　　D) $xy + x(y-1) = c$

33. The maximum value of the function $f(x,y) = -x + 3y$ subject to constraints $-x \le 2$, $x \le 3$ and $y \le 1$ is at:
A) $(-100, 100)$　　　　　　　　　　B) $(-2, 1)$
C) $(-100, 0)$　　　　　　　　　　　D) $(3, 1)$

34. Vectors $\underline{u} = a\underline{i} - \underline{j} + \underline{k}$ and $\underline{v} = \underline{i} - 2\underline{j} + b\underline{k}$ are collinear if:
A) $a = 1, b = 1$　　　　　　　　　　B) $a = \frac{1}{2},\ b = 2$
C) $a = 2, b = \frac{1}{2}$　　　　　　　D) $a = -1, b = -1$

35. Vectors $u = ai - j + k$ and $v = i - 2j + bk$ are perpendicular if:
A) $a = 3, b = -1$　　　　　　　　　　B) $a = 2, b = -1$
C) $a = 1, b = -3$　　　　　　　　　　D) $a = 2, b = -1$

36. Equation of a circle with centre at $(4, 3)$ and radius $= 2$ is given by:
A) $(x + 4)^2 + (y + 3)^2 = 4$　　　　B) $4x^2 + 3y^2 = 4$
C) $(x^2/16) + (y^2/9) = 4$
　　　　　　　　　　　　　　　　　　D) $x^2 + y^2 - 8x - 6y + 21 = 0$

37. The equation $x^2 + \frac{(y-1)^2}{4} = 1$ represents:

A) A circle with centre at $(0, 1)$ and radius $= 2$
B) A parabola with parameter $a = 4$
C) An ellipse with centre at $(0, 1)$ and minor axis of length 1
D) A hyparabola with parameter $a = 4$

38. Let $y = \int\left[4\cos^2\left(x + \frac{\pi}{3}\right) - 2\right]dx$, then y equals:

A) $4\cos^2\left(x + \frac{\pi}{3}\right) - 2x + c$　　　B) $4\sin^2\left(x + \frac{\pi}{3}\right) - 2x + c$

C) $\sin\left(2x + \frac{2\pi}{3}\right) + c$　　　　　D) None of the above

39. $f(x_o + \delta x) \approx f(x_o) + f'(x_o)\delta x$, therefore the approximate value of $Sin\left(\frac{9\pi}{16}\right)$ is:

A) $\frac{\pi}{16}$　　　　　　　　　　　B) 0

C) $-\frac{\pi}{16}$　　　　　　　　　　D) $\frac{9\pi}{16}$

40. The hypotenuse of a right triangle is $5\,cm$. To obtain a triangle with maximum area, the sides must be:
A) $4\,cm$ and $\sqrt{39}\,cm$　　　　　　B) Both $\sqrt{5}\,cm$
C) Both $2\sqrt{5}\,cm$
　　　　　　　　　　　　　　　　　　D) Both $\frac{\sqrt{5}}{2}\,cm$

41. If $y = e^{\sin x \cos x}$, then $\frac{dy}{dx}$ is:
A) $e^{\sin x \cos x}\sin x \cos x$
　　　　　　　　　　　　　　　　　　B) $e^{\sin x \cos x}\cos 2x$
C) $e^{\sin x \cos x}\sin 2x$　　　　　　D) None of the above

42. The function $f(x) = \frac{x^3}{3} - \frac{x^2}{2} + 5$ has:
A) An inflexion at $x = 1$
　　　　　　　　　　　　　　　　　　B) A relative minimum at $x = 1$
C) An inflexion at $x = 0$　　　　　　D) A relative minimum at $x = 0$

43. The line that passes through the point of intersection of $x + y - 1 = 0$ and $x = 0$ and is parallel to the line $x - y = 0$ is given by:
A) $y = x - 1$　　　　　　　　　　　B) $y = -x - 1$
C) $y = x + 1$　　　　　　　　　　　D) $y = -x + 1$

44. $\log_3 27 - \log_5 25$ is equal to:
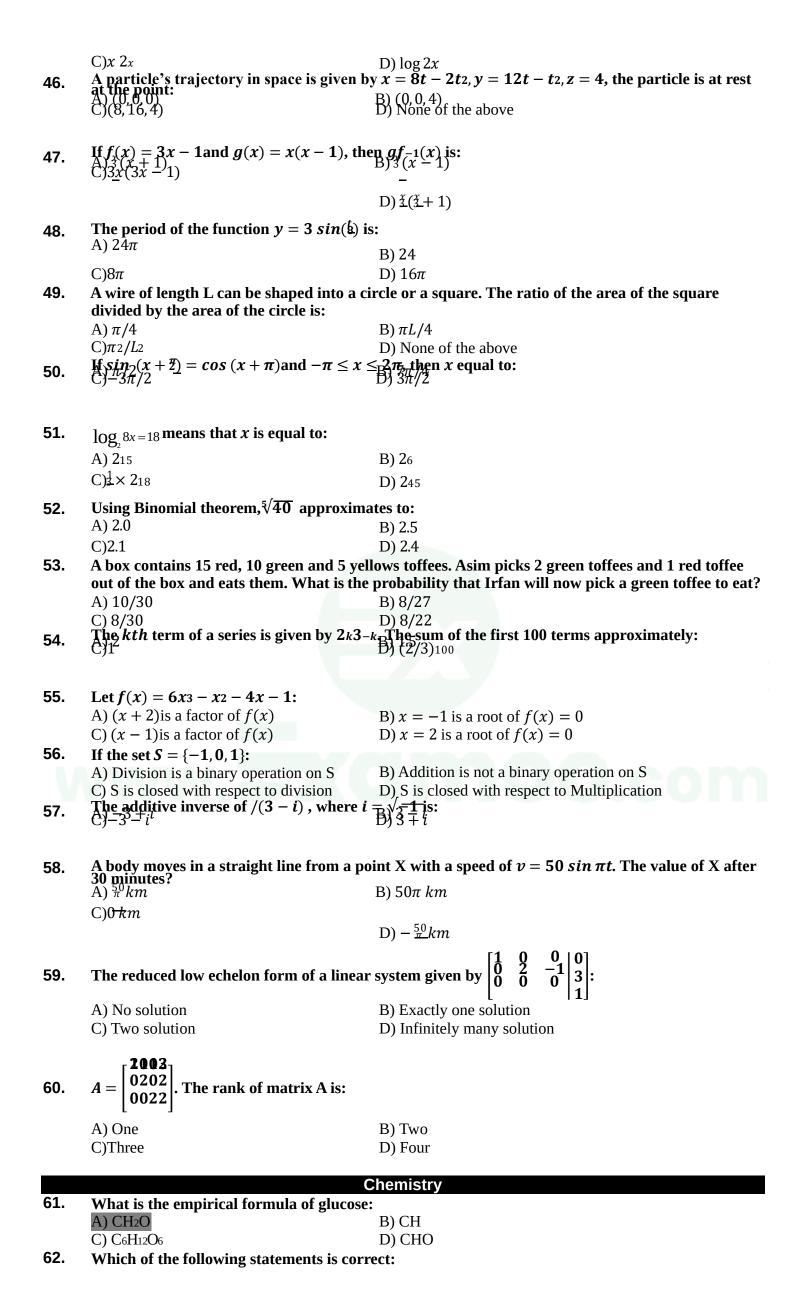A) $\log_4 2$　　　　　　　　　　　　B) 2
C) 1　　　　　　　　　　　　　　　　D) None of the above

45. If $y = 2^x$, then $\frac{dy}{dx}$ equals:
A) 2^x
　　　　　　　　　　　　　　　　　　B) $2^x \ln 2$

C) $x \, 2_x$ D) $\log 2x$

46. A particle's trajectory in space is given by $x = 8t - 2t_2, y = 12t - t_2, z = 4$, the particle is at rest at the point:
A) $(0, 0, 0)$ B) $(0, 0, 4)$
C) $(8, 16, 4)$ D) None of the above

47. If $f(x) = 3x - 1$ and $g(x) = x(x - 1)$, then $gf_{-1}(x)$ is:
A) $\frac{1}{3}(x + 1)$ B) $3(x - 1)$
C) $3x(3x - 1)$
D) $\frac{x}{3}(x + 1)$

48. The period of the function $y = 3\sin(\frac{x}{8})$ is:
A) 24π B) 24
C) 8π D) 16π

49. A wire of length L can be shaped into a circle or a square. The ratio of the area of the square divided by the area of the circle is:
A) $\pi/4$ B) $\pi L/4$
C) π_2/L_2 D) None of the above

50. If $\sin_2(x + \frac{\pi}{2}) = \cos(x + \pi)$ and $-\pi \le x \le 2\pi$, then x equal to:
A) $\pi/2$ B) $5\pi/3$
C) $-3\pi/2$ D) $3\pi/2$

51. $\log_2 8x = 18$ means that x is equal to:
A) 2_{15} B) 2_6
C) $\frac{1}{2} \times 2_{18}$ D) 2_{45}

52. Using Binomial theorem, $\sqrt[5]{40}$ approximates to:
A) 2.0   B) 2.5
C) 2.1   D) 2.4

53. A box contains 15 red, 10 green and 5 yellows toffees. Asim picks 2 green toffees and 1 red toffee out of the box and eats them. What is the probability that Irfan will now pick a green toffee to eat?
A) 10/30   B) 8/27
C) 8/30   D) 8/22

54. The kth term of a series is given by $2_k 3 - k$. The sum of the first 100 terms approximately:
A) 2   B) $(2/3)_{100}$
C) 1

55. Let $f(x) = 6x_3 - x_2 - 4x - 1$:
A) $(x + 2)$ is a factor of $f(x)$ B) $x = -1$ is a root of $f(x) = 0$
C) $(x - 1)$ is a factor of $f(x)$ D) $x = 2$ is a root of $f(x) = 0$

56. If the set $S = \{-1, 0, 1\}$:
A) Division is a binary operation on S   B) Addition is not a binary operation on S
C) S is closed with respect to division   D) S is closed with respect to Multiplication

57. The additive inverse of $/(3 - i)$, where $i = \sqrt{-1}$ is:
A) $3 - i$ B) $3 + i$
C) $-3 - i$

58. A body moves in a straight line from a point X with a speed of $v = 50\sin \pi t$. The value of X after 30 minutes?
A) $\frac{50}{\pi} km$ B) $50\pi \, km$
C) $0 \, km$
D) $-\frac{50}{\pi} km$

59. The reduced low echelon form of a linear system given by $\begin{bmatrix} 1 & 0 & 0 & | & 0 \\ 0 & 2 & -1 & | & 3 \\ 0 & 0 & 0 & | & 1 \end{bmatrix}$:
A) No solution   B) Exactly one solution
C) Two solution   D) Infinitely many solution

60. $A = \begin{bmatrix} 2003 \\ 0202 \\ 0022 \end{bmatrix}$. The rank of matrix A is:
A) One   B) Two
C) Three   D) Four

Chemistry

61. What is the empirical formula of glucose:
A) CH_2O B) CH
C) $C_6H_{12}O_6$ D) CHO

62. Which of the following statements is correct:

A) 1.008g of H has 6.02 x 10²³ atoms   B) 2.016g of H_2 has 2 x 6.02 x 10²³ atoms

C) 1.008g of H_2 has 6.02 x 10²³ atoms   D) Both Options A and B are correct

Note: According to given statement all options are correct but in key of UET paper 2017 the right answer is A)

63.   **Base principle of crystallization is:**

A) Solution should be completely soluble in solvent at room temperature so that the solute is thrown out of crystals at any temperature

B) Solute should be soluble in a suitable amount of solvent at high temperature and excess amount of solute is thrown out as crystals when it is cooled

C) Solute should not be soluble in suitable amount of solvent at any temperature so that the solute is thrown out as crystals at any temperature

D) Solute should not be affect by temperature for its solubility in order to form crystals

64.   **The bubbling up of gas from soda drink is best explained by:**

A) Gas diffuses from the liquid into the surroundings

B) Gas diffuses from the surroundings into the liquid

C) The low density of gas as compared to the liquid cause the gas to bubble up

D) Decreased pressure of the surroundings cause the gas to come out from high pressure liquid

65.   **The effect of pressure on density of gas is explained as under:**

A) Increase in pressure cause decrease in density

B) Decrease in pressure results in increase in density

C) Increase in pressure causes increase in density

D) No effect

Note: According to given statement the right answer is C but in key of UET paper 2017 the right answer is B)

66.   **Forces which make the liquefaction of Helium gas possible are:**

A) Debye forces   B) London dispersion forces

C) Dipole dipole forces   D) Liquefaction is not possible

67.   **Existence of sulphur in two forms is:**

A) Allotropy   B) Polymorphy

C) Isomorphy   D) Anisotropy

68.   **The boiling point of hydrofluoric acid (HF) as compared to water (H_2O) is due to:**

A) Fluoride (F) being less electronegative than oxygen

B) Formation of one hydrogen bond by F atom per HF molecule as compared to two hydrogen bonds by O atom per H_2O molecule

C) Boiling point of HF is more than the boiling point of water

D) Statement A and B are correct

69.   **Radiations emitted in the form of Photons when electrons of Hydrogen atom full from higher level to n = 1 level are in the:**

A) Visible light region   B) Infra-red region

C) X-ray region   D) Ultra-violet region

70.   **The structure of nitrogen molecule (N_2) is explained by:**

A) End to end overlap of orbitals form sigma (s) bond and sideways overlap of other orbitals form two pi (π) bonds

B) End to end overlap of orbitals one sigma (s) and end to end overlap of other orbitals form two pi (π) bonds

C) One sigma (s) bond and two pi (π) bond

D) Both options A and C are correct

71.   **The solubility of sodium chloride in water is possible because:**

A) Hydration energy of water is greater than lattice energy

B) Lattice energy of sodium chloride is greater than hydration energy

C) Ions of sodium chloride are tightly bound in their lattices

D) Hydration energy of water is less than lattice energy

72. Calculate enthalpy change in formation of $NaHCO_{3(aq)}$ using Hess's law:

$$2NaOH_{(aq)} + CO_{3(g)} \longrightarrow Na_2CO_{3(aq)} + H_2O(L); \qquad \Delta H = -89.08 kJ \qquad (i)$$

$$2NaOH_{(aq)} + CO_{2(g)} \longrightarrow NaHCO_{3(aq)} + NaOH(aq); \qquad \Delta H = \text{-------} kJ \qquad (ii)$$

$$NaHCO_{3(aq)} + NaOH_{(aq)} \longrightarrow Na_2CO_{3(aq)} + H_2O(L); \qquad \Delta H = -41.02 kJ \qquad (ii)$$

A) -130.10kJ
B) -48.06kJ
C) +48.06kJ
D) +130.10kJ

73. According to first law of thermodynamics, if thermal energy is applied to water placed in a cylinder fitted with a frictionless piston:
A) Thermal energy is converted into kinetic energy of water molecules
B) Pressure of water molecules increases
C) The piston is pushed up
D) All of the above

74. In the reaction $CO_{(g)} + H_2O_{(g)} \Leftrightarrow CO_{2(g)} + H_{2(g)}; \qquad \Delta H = -41.84 kJ/mol$, if heat is applied at equilibrium stage, it is observed that:
A) More CO_2 and H_2 are produced to compensate for temperature change
B) The reaction will move in backward direction for compensation
C) No change will take place
D) The reaction will stop

75. NaCl is not soluble in acetone because:
A) The polarity of acetone is weak as compared to NaCl
B) Acetone molecules cannot overcome the inter-ionic forces of NaCl
C) Acetone is moderately polar solvent
D) All of the above

76. Ethylene glycol is mixed with water in automobile radiators as antifreeze because:
A) It increases the boiling point of radiator coolant
B) It is non-volatile in character
C) Has low vapour pressure as compared to water
D) All of the above

77. Oxidation number of sulphur in SO_4^{-2} is:
A) +6
B) +4
C) -6
D) +2

78. During the purification process of copper, a thin sheet of pure and impure copper is placed in electrolytic cell, which results in:
A) Cu_- from impure sheet converts to Cu^{+2} ions and migrate to cathode impurities are left at anode
B) Cu_- from impure sheet converts to Cu^{+2} ions and migrate to anode. Impurities are left as cathode
C) Cu^{+2} from impure sheet converts to Cu_- and migrate to anode and impurities are left at cathode
D) Cu^{+2} from solution migrate to cathode and pure copper starts to deposit on cathode

79. The purpose of two half cells in a galvanic cell is:
A) More ions can be produced due to presence of two half cells
B) Chemical reaction between the solutions of two half cells does not take place
C) More current can be generated due to two half cells
D) None of the above

80. Catalyst helps in a reaction by:
A) Increasing the rate of reaction
B) Lowering the actuation energy barrier
C) Increasing the actuation energy barrier
D) Both Options A and B are correct

81. Sub-group "B" of the periodic table represents:
A) Normal elements
B) Less typical elements
C) Block "p" elements
D) Block "f" elements

82. When an electron is added to O_- then the energy change is expressed by:
A) Electron affinity
B) Energy release
C) Energy absorption
D) Both options A and C are correct

83. The important usage of lime in agriculture is:
A) For chlorophyll development
B) As fertilizer
C) For neutralizing acidic soils
D) To increase fruit production

84. Quartz crystal has typical tetrahedral structure between oxygen and silicon atoms. How many silicon atoms are connected to an oxygen atom in this structure:
A) 4
B) 3
C) 2
D) 1

85. In the reaction $H_2S + NO_2 \longrightarrow H_2O + S + NO$, NO_2 acts as:
A) An oxidizing agent
B) A dehydrating agent
C) A reducing agent
D) A catalyst

86. In the reaction $HCOOH \xrightarrow{\text{conc.}H_2SO_4} CO + H_2O$, H_2SO_4 acts as:
A) A catalyst
B) A reducing agent

C) A dehydrating agent   D) An oxidizing agent

87. **True statement(s) about paramagnetic property of transition elements is/are:**
A) Presence of unpaired electron in atom and molecule
B) Weakly attracted by strong magnetic field
C) Weakly repelled by strong magnetic field
D) Both A and B are correct

88. **Tubes made of steel can be hammered while hot, but a cutting tool also made of steel cannot be hammered while hot. This due to:**
A) More carbon content in cutting tools
B) More iron content in cutting tools
C) More sulphur and phosphorous content in cutting tools
D) None of the above options

89. **Alkanes are less reactive as compared to alkenes because:**
A) Electrons are tightly held by sigma bond in alkanes, thus less reactive
B) Electrons cloud away from nuclei due to pi bond in alkenes, thus more reactive
C) Pi bonds make alkenes reactive to electrophilic reagent
D) All of the above

90. **Important property of polymers of PVC pipes is:**
A) They decompose when heated
B) Become hard on heating and cannot be softened again
C) Can be softened on heating and hardened when cooled with drastically different properties from original
D) Can be softened repeatedly on heating and hardened when cooled with little change in property

Read each of the passage below, and then answer the questions that follow the passage. The correct response may be stated outright or merely suggested in the passage.

The following passage is taken from a classic study of tarantulas published in scientific America in 1952.

A fertilized female tarantula lays from 200 to 400 eggs at a time, thus it is possible for a single tarantula to produce several thousand young. She takes no care of them beyond (5) weaving a cocoon of silk to enclose the eggs. After they hatch, the young walk away, find convenient places in which to dig their bur-rows and spend the rest of their lives in sole-tude. Tarantulas feed mostly on insects and (10) millipeds. Once their appetite is appeased, they digest the food for several days before eating again. Their sight is poor, being limited to sensing a change in the intensity of light and to the perception of moving objects. They (15) apparently have little or no sense of hearing, for a hungry tarantula will pay no attention to a loudly chirping cricket placed in its cage unless the insect happens to touch one of its legs. (20) but all spiders, and especially hairy ones, have an extremely delicate sense of touch. Laboratory experiments prove that tarantulas can distinguish three types of touch: pressure against the body wall, stroking of the body (25) hari and riffling of certain very fine hairs on the legs called trichobothria. Pressure against the body, by a finger or the end of a pencil, causes the tarantula to move off slowly for a short distance. The touch (30) response unless the approach is from above, where the spider can see the motion, in which cases it rises on its hind legs, lifts its front legs, opens its fangs and holds this threatening pos-ture as long as the object continues to move. (35) when the motion stops, the spider drops back to the ground, remains quiet for a few sec- onds, and then moves slowly away.

The entire body of a tarantula, especially its legs, is thickly clothed with hair. Some of it (40) is short and woolly, some long and stiff. Touching this body hair produces one of two distinct reactions. When the spider is hungry, it responds with an immediate and swift attack. At the touch of a cricket's antennae the (45) tarantula seizes the insect so swiftly that a motion picture taken at the rate of 64 frames per second shows only the result and not the process of capture. But when the spider in not hungry, the stimulation of its hairs merely (50) causes it to shake the touched lim. An insect can walk under its hairy belly unharmed the trichobothria, very fine hairs growing from disk like membranes on the legs, were once thought to be the spider's hearing organs, (55) but we now know that they have nothing to do with soon they are sensitive only to air movement. A light breeze makes them vibrate slowly without disturbing the common hair. When one blows gently on the trichobothria, (60) the tarantula reacts with a quick jerk of its four front legs. If the front and hind legs are stimu-lated at the same time, the spider makes a sud-den jump. This reaction is quite independent of the state of its appetite. (65) these three tactile responses – to pressure on the body wall, to moving of the common hair, and to flexing of the trichobothria-are so different from one another that there is no possibility of confusing them. They serve the (70) tarantula adequately for most of its needs and enable it to avoid most annoyances and dangers. But they fail the spider completely when it meets its deadly enemy, the digger wasp Pepsis.

91. According to the author, which of the following attributes is (are) characteristic of female tarantulas?
I. maternal instincts   ii. Visual acuity   iii. Fertility

A) I only
B) III only
C) II only
D) I and II only

92. Lines 6-9 primarily suggest that the female tarantula
A) Becomes apprehensive at sudden noises
B) Must consume insects or millipedes daily
C) Is better able to discern pressure than stroking
D) Is reclusive by nature

93. The word "excites" in line 29 most nearly means
A) Irritates
B) Stimulates
C) Delights
D) Exhilarates

94. The author's attitude toward tarantulas would best be described as
A) Fearful
B) Approving
C) Sentimental
D) Objective

95. The main purpose of the passage is to
A) Report on controversial new discoveries about spider behavior
B) Summarize what is known about the physical and social responses of tarantulas
C) Challenge the findings of recent laboratory experiments involving tarantulas
D) Explain the lack of social organization in the spider family

96. The description of what happens when one films a tarantula's reaction to the touch of a cricket (lines 44-48) chiefly is intended to convey a sense of the tarantula's
A) Omnivorous appetite
B) Graceful movement
C) Photogenic appearance
D) Quickness in attacking

97. **The word "independent" in line 63 most nearly means**

A) Individualistic   C) Self-governing

B) Affluent   D) Regardless

98. **In the passage, the author does all of the following except:**

A) Deny a possibility   C) Describe a reaction

B) Correct a misapprehension   D) Pose a question

99. **In the paragraphs immediately following this passage, the author most likely will**

A) Explain why scientists previously confused the tarantula's three tactile responses

B) Demonstrate how the tarantula's three tactile

C) Point out the weaknesses of the digger wasp that enable the tarantula to subdue it

D) Describe how the digger wasp goes about attacking tarantulas

100. **The word "They" in line 63 refers which of the following**

A) Crickets   C) Tarantulas

B) Spiders   D) Tactile responses