1. The variability in errors in a set of measurement, which is usually estimated by least square method is called
   A. Personal error
   B. Indeterminate error
   C. Operative error
   D. Relative error
   Answer: B

2. Which of the types of errors is best described as the reproducibility of measurements?
   A. Relative accuracy
   B. Probable error
   C. Precision
   D. Average deviation
   Answer: C

3. If $Z = {}^{G}/_{Y}$, the maximum error in Z is best expressed as
   A. $E_z = \left(\frac{E_G}{G} + \frac{E_Y}{Y}\right)$
   B. $E_z = Z\left(\frac{E_A}{A} + \frac{E_B}{B}\right)$
   C. $E_z = Z\left(\frac{E_A}{A} - \frac{E_B}{B}\right)$
   D. $E_z = Z\left(\frac{E_G}{G} + \frac{E_Y}{Y}\right)$
   Answer: D

4. Given the summation $Y = 1.05(\pm 0.02) + 4.10(\pm 0.03) - 1.97(\pm 0.05)$, the absolute error and percentage relative error in the measurement is
   A. 0.06 and 1.89%
   B. 0.05 and 1.87%
   C. 0.06 and 1.87%
   D. 0.05 and 1.89%
   Answer: A

5. A solution of 0.5moldm-3 NaOH was titrated against 0.2moldm-3 H2SO4 in the burette using phenolphthalein as indicator. The results obtained are:
   Initial Burette reading = 2.98 $\pm 0.05 cm^3$
   Final Burette reading = 38.75 $\pm 0.05 cm^3$ where ± 0.05 is the maximum errors
   Determine the absolute error and relative error in ppt. of the measurements.
   A. $\pm 0.20,\ 2.8‰$
   B. $\pm 0.20,\ 3.8‰$
   C. $\pm 0.10,\ 4.8‰$
   D. $\pm 0.10,\ 2.8‰$
   Answer: D

6. Which of the following is/are true? I. Numbers 1-9 are significant II. 0 digit is most times III. Zeros before figures are not significant IV. Zeros after decimal are significant

A. I, II, III
B. I, III, IV
C. I, IV
D. III, IV
Answer: B

7. Evaluate $V = \frac{22.1dm^3 \ x \ 751.2mmHg}{760mmHg}$
A. $76.20dm^3$
B. $76.2dm^3$
C. $76dm^3$
D. $76.2072dm^3$
Answer: B
8. The relationship between the substances undergoing chemical reactions is known as
A. Chemical Formula
B. Molecular formula
C. Stoichiometry
D. Mass Spectrometry
Answer: Stoichiometry
9. The general formula for balancing organic chemical reactions is written as:
A. $C_xH_y + yO_2 \rightarrow xCO_2 + \frac{y}{2}H_2O$
B. $C_xH_y + \left(\frac{x+y}{4}\right)O_2 \rightarrow xCO_2 + \frac{y}{2}H_2O$
C. $C_xH_y + \left(x + \frac{y}{4}\right)O_2 \rightarrow xCO_2 + \frac{y}{2}H_2O$
D. $C_xH_y + \left(\frac{x-y}{4}\right)O_2 \rightarrow xCO_2 + \frac{y}{2}H_2O$
Answer: C

10. Empirical formula is best defined as
A. The simplest formula that shows the number of atoms of a compound
B. The simplest formula that shows the number of atoms of each element in one ion of a compound
C. The simplest formula that shows the number of atoms of each element in one molecule of a compound
D. The simplest formula that shows the actual composition of a molecule of a compound
Answer: C

11. Molecular formula is best defined as
A. The formula that shows the number of atoms of a compound
B. The formula that shows the number of atoms of each element in one ion of a compound
C. The formula that shows the number of atoms of each element in one molecule of a compound
D. The formula that shows the actual composition of a molecule of a compound
Answer: D

12. 6g of metal M reacts completely with 23.66g of chlorine to form 29.66g of the metallic chloride. Find the empirical formula of the metallic fluoride
    A. MCl
    B. MCl_3
    C. MCl_4
    D. MCl_2
    $Answer$: B

13. The equivalence of 1mole of any gas at s.t.p. is
    A. 22.4cm^3
    B. 22400dm^3
    C. 0.0224m^3
    D. 2.24m^3
    Answer: C

14. How many moles of atoms of oxygen are there in 0.3mole of SO_2?
    A. 0.3mole
    B. 0.6mole
    C. 0.9mole
    D. 1.2mole
    Answer: B

15. How many atoms of oxygen are there in 10g of H_2SO_4?
    A. 2.47 x 10^{23}
    B. 2.46 x 10^{23}
    C. 2.45 x 10^{23}
    D. 2.44 x 10^{23}
    Answer: B

16. What is the number of copper atoms in a 1naira coin which weighs 7.39g, assume the material from the coin is made is contains 86% copper
    A. 6.02 x 10^{23}
    B. 6.02 x 10^{22}
    C. 6.02 x 10^{21}
    D. 6.2 x 10^{23}
    Answer: B

17. What is the mass of oxygen O_2 needed to burn 4.6g of Na in the reaction below?
    $4Na + O_2 \rightarrow 2Na_2O$
    A. 1.3g
    B. 1.6g
    C. 1.5g
    D. 1.4g
    Answer: B

18. How many moles of NH3 are there in 500cm3 of the gas?
    A. 0.02mol
    B. 0.2mol

C. 0.002mol
D. 2.00mol
Answer: A

19. What is the mass in grams of 1.45 x 10^{23} molecules of sucrose $C_{12}H_{22}O_{11}$?
A. 82.11g
B. 82.09g
C. 82.08g
D. 82.12g
Answer: C

20. What mass of $CuSO_4$ will be obtained by starting with 10g of CuO from the following reaction (Cu = 63.5g)?
A. 20.04g
B. 20.05g
C. 20.06g
D. 20.07g
Answer: C

21. Calculate the solubility of a solution containing 6g of NaCl {NaCl = 58.44} in 200cm^3 of solution
A. 1.531
B. 0.153
C. 0.513
D. 1.153
Answer: C

22. Calculate the amount in moles and grams of $KMnO_4$ present in 3dm^3 of 0.250mol
A. 1.23mol & 54g
B. 0.75mol & 119g
C. 0.25mol & 233g
D. 0.135mol & 23g
Answer: B

23. A 0.6025g of sample of a chloride salt was dissolved in water and the chloride precipitated by adding excess silver nitrate. The precipitate of silver nitrate was filtered, washed, dried and found to weight 0.7134g. Calculate the percentage chloride in the sample [Cl = 35.45, Ag = 107.87]
A. 22.95%
B. 95.22%
C. 29.25%
D. 25.29%
Answer: C

24. The smallest unit of matter than has the properties of an element is called
A. Atom
B. Molecule
C. Ion
D. Particles
Answer: A

25. The nucleus of an atom contributes to its .....while electrons contributes to its.....
A. Mass/weight
B. Volume/Mass
C. Mass/volume
D. volume/volume
Answer: C

26. Given an atomic species: $^{D}_{M}X$, The atomic identity of X is determined by its
A. D
B. M
C. M-D

D. D-M
Answer: B

27. Isotopes are
    A. Atoms of same element with different atomic numbers
    B. Atoms of same element with differences in their number of neutrons
    C. Atoms of different elements with same mass number
    D. Atoms of different elements with the same atomic number
    Answer: B

28. Isobars are
    A. Atoms of same element with the same number of neutrons
    B. Atoms of same element with differences in their number of neutrons
    C. Atoms of different elements with same mass number
    D. Atoms of different elements with the same atomic number
    Answer: C

29. Isotones are
    A. Atoms of same element with the same number of neutrons
    B. Atoms of same element with differences in their number of neutrons
    C. Atoms of different elements with same mass number
    D. Atoms of different elements with the same atomic number
    Answer: A

30. The father of atomic theory was
    A. J.J. Thompson [1766 – 1823]
    B. Ernest Rutherford [1911 – 1934]
    C. John Dalton [1766 – 1844]
    D. R.A. Millikan [1835-1927]
    Answer: C

31. Atoms are .....
    A. Indestructible and unchangeable
    B. Indestructible and predictable
    C. The smallest particle of an ion
    D. All of the above
    Answer: A

32. When elements combine, they do so in
    A. Simple whole number fractions
    B. Multiple whole number ratios
    C. Simple whole number ratios
    D. Multiple whole number fractions
    Answer: C

33. Atom of the same two or more given elements can combine indifferent single whole numbers ratio to form different compounds. This statement is best described as
    A. Law of Mass Action
    B. Law of Variable proportion
    C. Law of Standard proportion
    D. Law of Multiple proportion
    Answer: D

34. The parameters that describe the distribution of electrons in an atom and their fundamental nature are called
    A. The Principal quantum numbers
    B. The Azimuthal quantum numbers
    C. The Magnetic quantum numbers
    D. The Quantum numbers
    Answer: D

35. Principal quantum number describes
    A. Main energy distribution
    B. Main energy shell
    C. Main energy sub-level
    D. Main energy orientation
    Answer: B

36. Azimuthal quantum number describes
    A. Main energy distribution
    B. Main energy shell
    C. Main energy sub-level
    D. Main energy orientation
    Answer: C

37. Azimuthal quantum number is otherwise known as
    A. Subordinate quantum number
    B. Proportional quantum number
    C. Analytical quantum number
    D. Subsidiary quantum number
    Answer: D

38. The respective shapes of d, f, s & $p - orbitals$ are
    A. Dumbbell, spherical, characteristic shape & double-dumbbell
    B. Spherical, double-dumbbell, dumbbell & characteristic shape
    C. Dumbbell, double-dumbbell, spherical & characteristic shape
    D. Double-dumbbell, characteristic shape, spherical & dumbbell
    Answer: D

39. The number of possible orientations in a 3-dimensional space for each type of orbital can best be described as
    A. Spin Quantum number
    B. Magnetic Quantum number
    C. Azimuthal quantum number
    D. Principal quantum number
    Answer: B

40. The number of possible orientations that an electron can have in the presence of a magnetic field or in relation to another is best be described as
    A. Spin Quantum number
    B. Magnetic Quantum number
    C. Azimuthal quantum number
    D. Principal quantum number
    Answer: A

41. f student took a reading for 20.44% instead of 20.34%. calculate the absolute error and the relative error respectively
    A. 0.10%, 0.05
    B. 0.10%, 0.005
    C. 1.0%, 0.005
    D. 1.0%, 0.05
    Answer: B

42. The molar concentration of a solution is determined by four separate titrations, the results being 0.2041, 0.2039. 0.2049 and 0.2043. calculate the mean & median of the data
    A. 0.2042 & 0.2044
    B. 0.2043 & 0.2042
    C. 0.2043 & 0.2043
    D. 0.2043 & 0.2041
    Answer: B

43. Calculate the root mean square velocity (r.m.s.) of 1 mole of CO_2 at 27^0C (mm = $44gmol^{-1}$)
    A. $4.12 \times 10^2 m/s$
    B. $12 \times 10^2 m/s$
    C. $5.2 \times 10^2 m/s$
    D. $1.2 \times 10^2 m/s$
    Answer: A

44. In a first order reaction, half of the reactant is decomposed in 300seconds. The time taken for $^2/_3$ of the reactant to be decomposed is ……..
    A. 198.84sec
    B. 475.49sec
    C. 2.54×10^{-3}sec
    D. 4.75 sec
    Answer: B

45. The rate constant for the first order reaction at 50^0C is twice that at 30^0C. the activation energy (Ea) of the reaction is ……. ($R = 8.314Jmol^{-1}$)
    A. 178KJ
    B. 187KJ
    C. 188KJ
    D. 177KJ
    Answer: C

46. Addition of catalyst to a reaction at a particular temperature …….the rate of reaction by …….the activation energy
    A. increase, lowering
    B. decreasing, lowering
    C. increase, increasing
    D. decreasing, increasing
    Answer: A

47. The electronic configuration of potassium with the atomic number 19 is ……
    A. $1s^2 2s^2 2p^6 3s^2 3p^6$
    B. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$
    C. $1s^2 2s^2 2p^6 3d^9$
    D. $1s^2 2s^2 2p^6 3s^2 3p^4 3d^1$
    Answer: B

48. …….ions/molecules are always larger than the atoms from which they are formed
    A. neutral
    B. positive
    C. negative
    D. none
    Answer: C

49. The value of m_l *when* $l = 2$ *is*
    A. +2, +1, 0, -1, -2
    B. +2, +1, 0
    C. +2, +1, 0, -1
    D. -2, -1, 0
    Answer: A

50. …….is a substance which accepts a lone pair of electrons in forming a co-ordinate bond
    A. base
    B. acid
    C. salt
    D. proton
    Answer: B

51. …….is an example of Lewis base

A. NH_3
B. H^+
C. SO_3
D. He
Answer: B

52. …… is an example of a monoprotic acid
A. *CH_3COOH*
B. *H_2SO_4*
C. *$H_2C_2O_4$*
D. *H_3PO_4*
Answer: A

53. Find the *pOH* of 0.1moldm$^-$ hydrochloric acid
A. 1
B. 12
C. 13
D. 8
Answer: 13

54. A 0.453g sample of a liquid consisting C, H and O was burned in pure oxygen and 1.039g of CO_2 and 0.6369 of H_2O were obtained. What is the empirical formula of this compound? [C = 12.01115, H = 1.00797,O = 15.9994]
A. CHO
B. $C_4H_{12}O$
C. $C_2H_6O_2$
D. $C_2H_6O_2$
Answer: B

55. A reducing agent does
A. accepts electrons
B. donates a lone pair of electrons
C. donates electrons
D. donates and accepts at the same time
Answer: C

56. How many moles of oxygen atom are combined with 4.20moles of Cl atoms in Cl_2O_7?
A. 4.20
B. 42.00
C. 17.40
D. 14.70
Answer: D

57. What is the pH of a solution that is 0.5mol/dm^3 in acetic acid (CH_3COOH) adn2.5mol/dm^3 in sodium acetate (CH_3COONa), Ka of acetic acid is 1.75 x 10^{-3}
A. 5.23
B. 4.12
C. 5.44
D. 3.50
Answer: D

58. $K_p = K_c$ when and only when Δn is
A. < 1
B. > 1
C. Zero
D. $\geq$ 1
Answer: C

59. The oxidation number of 'B' in the compound E_2BK_3 is ……. [E = +1; K = -2]
    A. +3
    B. +2
    C. +4
    D. -2
    Answer: C

60. The following principles are applicable to writing electronic configurations except
    A. Hundi's principle
    B. Aufbau principle
    C. Pauli's principle
    D. Hund's principle
    Answer: A

61. The process of building atoms from the ground level, placing the first electron at the lowest potential energy is known as
    A. Hundi's principle
    B. Aufbau principle
    C. Pauli's principle
    D. Hund's principle
    Answer: B

62. The electronic configuration of oxygen is
    A. $1s^2\ 2s^2\ 2p_x{}^2\ 2p_y{}^1\ 2p_z{}^1$
    B. $1s^2\ 2s^2\ 2p^2\ 4d^2$
    C. $1s^2\ 2s^2\ 3p^2\ 4d^2$
    D. $1s^2\ 2s^2\ 2p_x{}^1\ 2p_y{}^1\ 2p_z{}^1$
    Answer: A

63. The idea of arranging electrons into generated orbitals one by one before pairing is known as
    A. Hundi's principle
    B. Aufbau principle
    C. Pauli's principle
    D. Hund's principle
    Answer: D

64. The statement "Electrons to the opposite spin can occupy the same orbital" is best described as
    A. Hundi's principle
    B. Aufbau principle
    C. Pauli's principle
    D. Hund's principle
    Answer: C

65. The state of equilibrium is limited to chemical reactions in
    A. An open system
    B. A reversible system
    C. A closed system
    D. A dynamic system
    Answer: C

66. The Law of Mass Action states that:
    A. $Rate \propto Concentration\ of\ reaction$
    B. $Rate \propto Concentration\ of\ products$

C. $Rate \propto Concentration$
D. $Rate \propto Concentration\ of\ reactants$
Answer: D

67. Consider a hypothetical reaction: $aA + bB \rightarrow cC + yY$
Which of the following statements is correct?
A. $k_f[C]^c[Y]^y = k_r[A]^a[B]^b$
B. $k_f[A]^a[B]^b = k_r[C]^c[D]^d$
C. $k_f[A]^a[B]^b = k_r[C]^c[Y]^y$
D. $k_r[C]^c[Y]^y = k_f[A]^a[B]^b$
Answer: C

68. For the reaction: $N_2 + 3H_2 \leftrightarrow 2NH_3$, the value of k_p is
A. $\frac{{P_{NH_3}}^2}{P_{N_2}\ {P_{H_2}}^3}$
B. $\frac{{P_{NH_3}}^2}{P_N\ {P_{H_2}}^3}$
C. $\frac{{P_{NH_3}}^3}{P_{N_2}\ {P_{H_2}}^2}$
D. $\frac{P_{NH_3}}{P_{N_2}\ {P_{H_2}}^3}$
Answer: A

69. The relationship between k_p and k_c is
A. $k_p = k_p.(RT)$
B. $k_p = k_c.(RT)^{\Delta n}$
C. $k_c = k_p.(RT)^{\Delta n}$
D. $k_p = k_c.(RT)$
Answer: B

70. When Δn is positive, the value of k_p is
A. Greater than k_c
B. Less than k_c
C. Equal to k_c
D. Less than k_c by 1
Answer: A

71. When Δn is negative, the value of k_p is
A. Greater than k_c
B. Less than k_c
C. Equal to k_c
D. Less than k_c by 1
Answer: B

72. When Δn is zero, the value of k_p is
A. Greater than k_c
B. Less than k_c
C. Equal to k_c
D. Less than k_c by 1
Answer: C

73. For the reaction: $N_2 + O_2 \leftrightarrow 2NO$, the value of k_c is
    A. $\frac{4x^2}{[a-x][b-x]}$
    B. $\frac{4x^2}{[a-x][b+x]}$
    C. $\frac{2x^2}{[a-x][b-x]}$
    D. $\frac{4x^2}{[a+x][b+x]}$
    Answer: A

74. Phosphorus pentachloride dissociates on heating according to the equation $PCl_5 \leftrightarrow PCl_3 + Cl_2$. If the k_c for the reaction is 0.0326 $moldm^{-3}$, calculate the value of k_p in Pascal at 191^0C and R = 8.314J/molK is
    A. 152.67
    B. 125.69
    C. 125.76
    D. 127.56
    Answer: C

75. Factors affecting reactions in equilibrium are
    A. Catalyst, Light, Concentration, Pressure
    B. Catalyst, Temperature, Concentration, Pressure
    C. Catalyst, Light, Concentration, Surface Area
    D. Catalyst, Surface Area, Concentration, Pressure
    Answer: B

76. The shifting of the equilibrium position to annul the effect of changes to re-establish equilibrium is termed
    A. Pauli's Exclusion Principle
    B. Le-Chatelier Principle
    C. Aufbau Principle
    D. Exclusion Principle
    Answer: B

77. In an equilibrium reaction, pressure increase will favour the side with
    A. Lower Volume
    B. Equivalent Volume
    C. Higher Volume
    D. Volume
    Answer: A

78. In the reaction: $H_2 + I_2 \leftrightarrow 2HI$,
    A. Pressure has no effect
    B. Increase in pressure will cause equilibrium to shift to the right
    C. decrease in pressure will cause equilibrium to shift to the right
    D. decrease in pressure will cause equilibrium to shift to the left
    Answer: A

79. In the reaction: $PCl_5 \leftrightarrow PCl_3 + Cl_2$,
    A. Pressure has no effect
    B. Increase in pressure will cause equilibrium to shift to the right
    C. decrease in pressure will cause equilibrium to shift to the left
    D. No Answer

Answer: D

80. Increase in the concentration of products in a reaction will cause the equilibrium position to
    A. Shift to the left
    B. Shift to the right
    C. Will have no effect
    D. Shift to both right and left
    Answer: A

81. What is the effect of increase in concentration on the equilibrium constant of a reaction?
    A. The value of equilibrium constant increases
    B. The value of equilibrium constant decreases
    C. The value of equilibrium constant remains constant
    D. The value of equilibrium constant first increases, and later decreases
    Answer: C

82. Increase in temperature will
    A. Favour the forward reaction of an exothermic reaction
    B. Favour the reverse reaction of an exothermic reaction
    C. Favour both forward and reverse reaction of an exothermic reaction
    D. Have no effect
    Answer: B

83. Does temperature changes affect the equilibrium constant of a reaction?
    A. No, it doesn't
    B. Yes it does
    C. Yes, it doesn't
    D. No, it does
    E. Answer: B

84. Catalyst speeds up the rate of
    A. Forward reaction
    B. Reverse reaction
    C. Both forward and reverse reaction
    D. All reactions
    Answer: C

85. Catalyst speeds up the rate of
    A. Forward reaction
    B. Reverse reaction
    C. Both forward and reverse reaction
    D. All reactions
    Answer: C

86. Catalyst ..... the rate of reaction by ..... the activation energy
    A. decreases/raising
    B. decreases/lowering
    C. increases/raising
    D. increases/lowering
    Answer: D

87. Calculate the solubility in gdm-3 at 298K of calcium fluoride (CaF2) in a 0.1M NaF solution. $[K_{sp} = 3.9\ x\ 10^{14} mol^3 dm^{-9},\ Ca = 40,\ F = 19g]$
    A. $3.04\ x\ 10^{-9} gdm^{-3}$
    B. $3.04\ x\ 10^{-10} gdm^{-3}$
    C. $3.04\ x\ 10^{-8} gdm^{-3}$
    D. $3.04\ x\ 10^{-7} gdm^{-3}$
    Answer: A
88. The reducing and oxidizing agents respectively in the reaction $Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2$ are
    A. Fe_2O_3 and CO
    B. Fe and CO
    C. $CO\ and\ Fe_2O_3$
    D. CO_2 and NH_3
    Answer: C

89. The oxidation numbers of hydrogen and oxygen are respectively +1 and -2 except in
    A. Peroxides and Halogens
    B. Peroxides and Metallic Halides
    C. Metallic hydrides and peroxides
    D. Peroxides
    Answer:
    C

90. In the reaction $MnO_4^- + Fe^{2+} + H^+ \rightarrow Mn^{2+} + Fe^{3+}$, the oxidation number of manganese changes from
    A. +5 to +2
    B. +7 to +2
    C. +2 to +3
    D. +6 to +2
    Answer: B

91. To balance a redox reaction in basic medium, H_2O is added to the side with
    A. Lesser number of oxygen atoms
    B. Lesser number of hydrogen atoms
    C. More oxygen atoms
    D. Equivalent number of oxygen atoms
    Answer: C

92. The values of w, x and g in the redox reaction: $IO_3^- + wCr^{3+} + xOH^- \rightarrow zI^- + 2CrO_4^{2-} + 5H_2O$ is
    A. 2,10, 1
    B. 2,1,10
    C. 10,1,2
    D. 10,2,1
    Answer: A

93. A reaction in which the same substance on the reactant side is being oxidized and reduced simultaneously is known as
    A. Combustion reaction
    B. Addition reaction
    C. Dispropornation reaction
    D. Substitution reaction
    Answer: C

94. Substances that dissolve in water to release hydroxonium ion is known as
    A. Base
    B. Salt
    C. Lewis Base
    D. Acid
    Answer: D

95. A substance that ionizes in solution to produce hydroxyl ion is
    A. Base
    B. Salt
    C. Acid
    D. Lewis Acid
    Answer: A

96. The definitions of Arrhenius emphasizes .....and..... in water
    A. IO_3^- & H^{2+}
    B. OH^- & H^+
    C. H^{2+} & $2OH^-$
    D. ${IO_3}^{3-}$ & H^{3+}
    Answer: B

97. The Arrhenius acid and base respectively in the reaction $NH_3 + H_2O \leftrightarrow {NH_4}^+ + OH^-$
    A. H_2O and NH_3
    B. NH_3 and H_2O
    C. OH^- and H_2O
    D. ${NH_4}^+$ and NH_3
    $Answer$: A

98. The conjugate base and acid respectively in question 97 above are
    A. H_2O and NH_3
    B. NH_3 and H_2O
    C. OH^- and H_2O
    D. ${NH_4}^+$ and NH_3
    $Answer$: A

99. Water is best described as
    A. Acid
    B. Base
    C. Amphiprotic
    D. Ampiteric
    Answer: C

100. In the dissociation of water: $H_2O \leftrightarrow H^+ + OH^-$, the value of k_w is
    A. $k_w = \frac{[OH^-][H^+]}{[H_3O]}$
    B. $k_w = \frac{[OH^-][H^+]}{[H_2O]}$
    C. $k_w = \frac{[H_2O]}{[OH^-][H^+]}$
    D. $k_w = \frac{[H_3O]}{[OH^-][H^+]}$
    Answer: B

101. The hydrogen ion concentration of pure water is
   A. $1\ x\ 10^{14}$
   B. $1\ x\ 10^{-14}$
   C. $1\ x\ 10^{-7}$
   D. $1\ x\ 10^{7}$
   Answer: C

102. The pH of pure water is
   A. 14
   B. -14
   C. -7
   D. 7
   Answer: D

103. What is the pH of a neutral solution at 25^0C?
   A. 14
   B. 3
   C. 7
   D. 1
   Answer: C

104. What is the pH of a basic solution whose hydroxyl ion concentration is 0.00001M?
   A. 9
   B. 5
   C. 1
   D. 4
   Answer: A

105. The pH of a 0.25M solution of acetic acid [$HC_2H_3O_2$] is found to be 2.68. What is the Ka for this solution and what percentage of the acid ionized?
   A. 1.76 x 10-5M and 0.74%
   B. 1.76 x 10-5M and 0.84%
   C. 6.17 x 10-5M and 0.64%
   D. 6.71 x 10-5M and 0.54%
   Answer: B

106. The change in the concentration of reactant or product per unit time is known as
   A. Rate Law
   B. Order of a reaction
   C. Rate of a reaction
   D. Molecularity of a reaction
   Answer: C

107. In a hypothetical reaction $A \rightarrow B$, the rate of the reaction is expressed as:
   A. $\frac{d[A]}{dt} = \frac{+d[B]}{dt}$
   B. $\frac{-d[A]}{dt} = \frac{-d[B]}{dt}$
   C. $\frac{\pm d[A]}{dt} = \frac{+d[B]}{dt}$
   D. $\frac{-d[A]}{dt} = \frac{+d[B]}{dt}$
   Answer: D

108. Rate of a reaction is measured in
   A. $mol\ lit^{-1}min^{-1}$
   B. $mol\ cm^{-1}sec^{-3}$
   C. $mol\ cm^{-3}sec^{-1}$
   D. $mol\ cm^{-1}hr^{-1}$
   $Answer:\ A$

109. The rate of a reaction is directly proportional to the concentration of reactants. This is referred to as
   A. Order of a Reaction
   B. Rate of a Reaction
   C. Overall order of a Reaction
   D. Molecularity of a Reaction
   Answer: B

110. The correct expression for the rate of the reaction: $A \rightarrow Products$ is
   A. $Rate = [A]^n$
   B. $Rate = [B]^n$
   C. $Rate = k[A]^n$
   D. $Rate \propto k[A]^n$
   Answer: C

111. The correct expression for the rate of the reaction: $2A + B \rightarrow Products$ is
   A. $Rate = k[A]^{2x}[B]^y$
   B. $Rate = [A]^x[B]^y$
   C. $Rate \propto [A]^x[B]^y$
   D. $Rate \propto [A]^{2x}[B]^y$
   Answer: C

112. An expression which shows how a reaction is related to concentration is termed
   A. Order of reaction
   B. Molecularity of reaction
   C. Equilibrium Law
   D. Rate Equation
   Answer: D

113. The powers to which the concentration of each reactant is raised to give a correct dependence of rate on concentration is termed
   A. Order of reaction
   B. Molecularity of reaction
   C. Equilibrium Law
   D. Rate Equation
   Answer: D

114. For a given reaction whose rate expression is given as: $Rate = k[A]^m[B]^n$, the order of reaction is
   A. m, n
   B. m+n
   C. m-n
   D. n-m
   Answer: A

115. The sum of all exponents of the reactants as contained in the experimentally determined rate law is known as
    A. Overall rate law
    B. Overall molecularity of reaction
    C. Overall order of reaction
    D. Overall equilibrium law
    Answer: C

116. Order of a given reaction can only be determined
    A. Experimentally
    B. From the Rate Equation
    C. From the Molecuarity of reaction
    D. From the chemical reaction
    Answer: A

117. The number of molecules/ions of the reactants present in the balanced stoichiometric equation is referred to as:
    A. Order of reaction
    B. Molecularity of reaction
    C. Equilibrium Law
    D. Rate Equation
    Answer: B

118. For a second order reaction $A + B \rightarrow Product$, the rate constant expression is
    A. $k_2 = \frac{2.303}{t} \log_{10} \frac{b(a-x)}{a(b-x)}$
    B. $k_2 = \frac{2.303}{t} \log_{10} \left(\frac{a}{a-x}\right)$
    C. $k_2 = \frac{1}{t} \log_{10} \frac{x}{a-x}$
    D. $k_2 = \frac{x}{t}$
    $Answer$: A

119. For a zero order reaction $A + B \rightarrow Product$, the rate constant expression is
    A. $k_0 = \frac{2.303}{t} \log_{10} \frac{b(a-x)}{a(b-x)}$
    B. $k_0 = \frac{2.303}{t} \log_{10} \left(\frac{a}{a-x}\right)$
    C. $k_0 = \frac{1}{t} \log_{10} \frac{x}{a-x}$
    D. $k_0 = \frac{x}{t}$
    Answer: D

120. For a first order reaction $A + B \rightarrow Product$, the rate constant expression is
    A. $k_0 = \frac{2.303}{t} \log_{10} \frac{b(a-x)}{a(b-x)}$
    B. $k_0 = \frac{2.303}{t} \log_{10} \left(\frac{a}{a-x}\right)$
    C. $k_0 = \frac{1}{t} \log_{10} \frac{x}{a-x}$
    D. $k_0 = \frac{x}{t}$
    Answer: B

121. The half-life of a first order reaction depends on
    A. Initial concentration of the reactions
    B. Concentration of the reactant left

C. Concentration of product
D. Rate constant
Answer: D

122. The half-life of a first order reaction depends on
A. Initial concentration of the reactants
B. Concentration of the reactant left
C. Concentration of product
D. Rate constant
Answer: A

123. The unit of rate constant, K, in a first order reaction is
A. $mollitre^{-1}sec^{-1}$
B. sec^{-1}
C. $litremol^{-1}sec^{-1}$
D. $seclitre^{-1}mol^{-1}$
Answer: B

124. Photolytic reactions take place in the presence of
A. Pressure
B. Light
C. Catalyst
D. Heat
Answer: B

125. The unit of rate constant, K, in a first order reaction is
A. $mollitre^{-1}sec^{-1}$
B. sec^{-1}
C. $litremol^{-1}sec^{-1}$
D. $seclitre^{-1}mol^{-1}$
Answer: A

OBJECTIVE CBT QUESTIONS ON SET THEORY (MTH 101)

1. If A is a subset of a universal set U, the compliment of set A is given as:
A. U
B. U - A
C. U + B
D. U - B
Answer: B

2. The set statement $(A \cup B) \cap C = A \cup (B \cap)C$ is relevant to
A. Associative Law
B. Cummulative lowa
C. Distributibe Law
D. Closure
Answer: A

3. If *U = (Integers* $\leq$ *20); D = {multiples of 4}; E = {multiples of 3},* the element of $D' \cap E$ are
A. {1,2}

B. {3,6,9,15,18}
C. {4,8,16,20}
D. {3,6,9,.12,15,18}
Answer: B

4. The notation $A - B$ is equivalent to
A. $A \cup B^c$
B. $A \cup B$
C. $A \cap B$
D. $A \cap B^c$
$Answer: D$

5. The notation $(A \cup B)^{/}$ is equivalent to
A. $A^c \cap B^c$
B. $A^c - B^c$
C. $A \cup B$
D. $A \cap B^c$
$Answer: A$

6. The number of distinct elements found in a given set is called
A. Power set of a set
B. Order of a set
C. Power of a cardinality
D. Cardinality of a power set
Answer: B

7. If two sets A and B are subsets of a universal set, then the notation $n(A \cup B)$ is equal to
A. $n(A) + n(B)$
B. $n(A) + n(C) - n(A \cup B)$
C. $n(A) + n(B) + n(A \cup B)$
D. $n(A) + n(B) - n(A \cap B)$
Answer: D

In a survey of 60 students, 60 study botany, 50 zoology and 48 biology. If 38 students study botany, zoology and biology,
Use the information above to answer questions 8 & 9

8. How many study only zoology?
A. 12
B. 10
C. 0
D. 5
Answer: C

9. How many study non of the three courses?
A. 12
B. 10
C. 0
D. 5
Answer: C

10. How many study the Zoology and Botany?
A. 12
B. 10
C. 0
D. 5
Answer: A

In a particular group of students during a school's sports competition, 15 play lawn tennis, 11 swim, 9 play lawn tennis and swim and 3 none of the sport activities

11. How many students swim only?

A. 6
B. 2
C. 9
D. 20
Answer: B

12. How many students play lawn tennis only?
A. 6
B. 2
C. 9
D. 20
Answer: A

13. How many students are in the group?
A. 6
B. 2
C. 9
D. 20
Answer: D

14. In a group of 40students, 22 study Maths, 18 study physics, 14 study statistics, 9 study both Maths and Physics, 7 study both Maths and Statistics, 5 study both Physics and Statistics and 2 study all the subjects. How many study none of the subjects?
A. 4
B. 5
C. 6
D. 7
Answer: B

15. Simplify $\frac{1}{2-\sqrt{3}} + \frac{5}{\sqrt{3}+2} - \frac{1}{\sqrt{3}-\sqrt{2}}$
A. $12 - 5\sqrt{3} - \sqrt{2}$
B. $12 - 5\sqrt{3} + \sqrt{2}$
C. $12 + 5\sqrt{3} + \sqrt{2}$
D. $12 + 5\sqrt{3} - \sqrt{2}$
Answer: D

16. Find the square root of $7 - \sqrt{13}$
A. 0.8424
B. 1.8424
C. 1.8244
D. 0.8244
Answer: B

17. Find the roots of the equation: $x^3 + 5x^2 - 2x - 24$
A. -4,3,2
B. -4,-3,-2
C. -4,-3,2
D. 4,3,-2
Answer: C

18. Find the roots of the equation $2x^3 + 11x^2 - 17x - 6$
A. d
B. d
C. d
D. d
Answer:

19. Solve the equation $2x^2 - 5x + 7 = 0$

A. $\frac{5\pm\sqrt{31}}{4}$

B. $\frac{5\pm i\sqrt{31}}{4}$

C. $\frac{5\pm i\sqrt{31}}{2}$

D. $\frac{5\pm\sqrt{31}}{2}$

Answer: B

20. In the expression $\frac{2}{y^2+2y+1}=\frac{1}{y^2+2y-2}+\frac{3}{y^2+2y+3}$, determine the value of y^2+2y+1

A. $\frac{5\pm\sqrt{71}}{4}$

B. $\frac{5\pm i\sqrt{-71}}{2}$

C. $\frac{5\pm i\sqrt{71}}{4}$

D. $\frac{5\pm i\sqrt{71}}{2}$

Answer: C

21. The value of k in $\sqrt{k-1}+5\sqrt{k-9}=4\sqrt{k-6}$ is

A. 9

B. 10

C. 11

D. 12

Answer: B

22. If $5g^4+9g^3-12g^2-9g+5=0$, find the value of R where R is a positive integer and $R=g-\frac{1}{g}$

A. 2

B. 1

C. 1/5

D. -2

Answer: C

23. The values of x, y in the equations $x+2y=3$ & $x^2+2y^2=6$ are

A. $1+\sqrt{2}$, $\frac{2-\sqrt{2}}{2}$

B. $1+\sqrt{2}$, $\frac{2+\sqrt{2}}{2}$

C. $1-\sqrt{2}$, $\frac{2-\sqrt{2}}{2}$

D. $1-\sqrt{2}$, $\frac{2+\sqrt{2}}{2}$

Answer: A

24. a, b & c respectively in the equations $2ab=a+b,\ 5ac=6c-2a$ & $3bc=3b+4c$ are

A. $\frac{3}{2},\frac{1}{2},-1$

B. $\frac{1}{2},\frac{3}{2},-1$

C. $-\frac{1}{2},-\frac{3}{2},-1$

D. $\frac{1}{2},\frac{3}{2},1$

Answer: *B*

25. Solve for x in the equation $16^{3x}=\frac{1}{4}(32)^{x-1}$

A. 1

B. 2

C. -2

D. -1

Answer: D

26. Simplify $(216)^{-1/3}\times(0.16)^{-1/2}$

A. 12/17
B. 5/13
C. 12/15
D. 5/12
Answer: D

27. Given that $y = 3x,\ and\ 3^{x-y} = \frac{1}{81},$ find x
A. 2
B. 3
C. 4
D. 5
Answer: A

28. If $8^{x/2} = 2^{3/8} \times 4^{3/4}$, find the value of $4x$
A. 4
B. 5
C. 6
D. 7
Answer: 5

29. Solve for x in $3^{2x+1} - 18(3^x) - 81 = 0$
A. -1
B. 3
C. -3
D. 2
Answer: D

30. Solve for x in $26(5^{x-1}) = 5^{2x} + 1$
A. -1,-2
B. -1,1
C. -1,2
D. 2,-2
Answer: B

31. Evaluate $log_a 256 = 4$
A. 2
B. 3
C. 4
D. 5
Answer: 4

32. Given that $log_2 64 = k$, find $4klog_{16} 32$
A. 60
B. 50
C. 40
D. 30
Answer: D

33. The value of x in $log_3 x - 3log_x 3 = 2$ is
A. -1/3
B. -27
C. 27
D. 3
Answer: C

34. What is the positive value of y in $3log_8 y = log_4(y + 4)$?
A. -2,3
B. -2,-3
C. 2,-3
D. 2,3

Answer: A

35. If $25^{x+1} = 64\left(\frac{5}{2}\right)^6,\ find\ x$

A. -1
B. 1
C. -2
D. 2

Answer: D

36. Simplify $\left(\frac{8}{27}\right)^{1/3} - \left(\frac{4}{9}\right)^{1/2}$

A. 0
B. 1
C. 2
D. 3

Answer: A

37. Simplify $\frac{6^{2n+2} \times 9^n \times 4^{2n-1}}{18^{n+1} \times 2^{n-1} \times 12^{2n+1}}$

A. 6
B. 12
C. 1/6
D. 1/12

Answer: D

38. If $|x| < p,\ then$

A. $p < x < -p$
B. $-p < x < p$
C. $-p > x < p$
D. $-p < x > p$

Answer: B

39. The value of x in $\frac{5x-1}{3} - \frac{1-2x}{5} < 8 + x$

A. $x < 8$
B. $x < -8$
C. $x > 8$
D. $x > -8$

Answer: A

40. Find the range of x for which $12 + x - x^2 < 0$

A. $x < 3\ or\ x < -4$
B. $x < -3\ or\ x < 4$
C. $-3 < x < 4$
D. $3 < x < -4$

Answer: C

41. The equivalent of $(a + b)\left(\frac{1}{a} + \frac{1}{b}\right)\left(\frac{a^2}{b^2} + \frac{b^2}{a^2}\right)$ is

A. $16\sqrt{ab}$
B. 16
C. $8\sqrt{ab}$
D. 8

Answer: D

42. The equivalent of $(a + b)\left(\frac{1}{a^2} + \frac{1}{b^2}\right)\left(\frac{a^4}{b^2} + \frac{b^4}{a^2}\right)$

A. $16\sqrt{ab}$
B. 16

C. $8\sqrt{ab}$
D. 8
Answer: C

43. If $\frac{x}{(x-1)^2(x+3)} = \frac{P}{16(x-1)} + \frac{G}{4(x-1)^2} + \frac{H}{16(x+3)}$, the value of P + G + H is
A. 3
B. 1
C. 7
D. 10
Answer: B

44. The first 3 terms of the sequence given by $T_n = \frac{n+1}{3n+2}$ respectively are
A. 3/8, 4/11, 5/14
B. 4/11, 5/14, 6/17
C. 2/5, 3/8, 4/11
D. 3/8, 4/11, 6/17
Answer: C

45. Given the nth term of a sequence $log_{16}(n+3)$, what is the difference between the 13th and first terms?
A. ½
B. 2
C. 1
D. -1
Answer: A

46. The sum of the terms of a sequence is known as
A. Series
B. Arithmetic sequence
C. Geometric sequence
D. Sequence
Answer: A

47. The type of sequence in which the next term differs from the preceding term by a difference is termed
A. Arithmetic Sequence
B. Geometric sequence
C. Geometric Infinity
D. Infinite series
Answer: A

48. The correct expression for the common difference in an A.P. is
A. $T - T_n$
B. $T_n - T_{n+1}$
C. $T_n - T_{n-1}$
D. $T_n - T_{n+2}$
$Answer: C$

49. The common difference in the series $K,\ K+3,\ K+6, \ldots..$ is
A. 2
B. 3
C. 4
D. -4
Answer: B

50. If the first 3 terms of an A.P. are $y,\ 3y+1,\ 7y-4,$ find the 10th term of the sequence
A. 66
B. 55
C. 44
D. 33

Answer: A

51. The 6^{th} and 13^{th} term of an A.P. are 0 and 14 respectively, find the 20^{th} term
A. 18
B. -18
C. 28
D. -28
Answer C

52. If P = {prime factors of 84} and Q = {prime factors of 315}, the elements of $P \cup Q$ & $P \cap Q$ are respectively
A. {3,4,5,7,9 & {3,7}
B. {3,4,5,7} & {5,7}
C. {2,3,5,7} & {3,7}
D. {2,3,5,7} & {2,7}
Answer: C

53. In a class of 100 students, 40 students study botany, 32 study microbiology while 44 study zoology. The number of students that study botany and microbiology is 24, botany and zoology is 24, while 20 study microbiology and zoology. If 20 students study all the three subjects, how many study none of the three courses
A. 32
B. 42
C. 68
D. 24
Answer: A

54. The union of the set A and B denoted by A ∪ B denoted by A ∪ B, is the set of elements which belong to
A. either A nor B nor both
B. either A or B or both
C. neither A nor B or both
D. neither A or B nor both
Answer: B

55. The word "Infinity" is
A. a real number
B. a complex number
C. an integer number
D. constant
Answer: C

56. In a class, 220 students offer Mathematics or Chemistry or both. 125 offer Mathematics and 110 offer Chemistry. How many offer Chemistry but not Mathematics? (a) 80 (b) 110 (c) 125 (d) 95
A. 80
B. 110
C. 125
D. 95
Answer: D

57. The universal set U contains only elements of the sets A, B, C where A = {3,q,r}, B = {a,2,c} and C = {1,3,4,b}. what are the elements in $[(A - B) \cap \{C - (A \cap C)'\}]$
A. {3,q,r}
B. {q,r}
C. {3}
D. {3,1}
Answer: C

58. If R = $\{x: x^2 = 16, x > 5\}$, then R is equal to
A. 0

B. {0}
C. ø
D. {ø}
Answer: C

59. In a certain class, 22 pupils take one or more of Chemistry, Economics and Government. 12 take Economics €, 8 take Government (G) and 7 take Chemistry (C). Nobody takes Economics and Chemistry and 4 pupils take Economics and Government. How many pupils take both Chemistry and Government?
A. 1
B. 2
C. 3
D. 4
Answer: A

60. The universal set U has subsets M and N such that $M \subseteq N$. The set of $M \cap (M \cap N)^{/}$ is
A. M
B. ∅
C. N
D. U
Answer: B

61. Given the universal set U = {2,3,4,5,6,7,8,9} and subsets P = {2,4,6,8} and Q = {x: $x^2 < 50$, $x\ is\ odd$}, find $(P \cap Q)^{/}$
A. {9}
B. {0}
C. ∅
D. U
Answer: U

62. Simplify $\sqrt[3]{(729y^{-6})^{1/2}}$
A. $\frac{1}{3y}$
B. $3y$
C. $\frac{y}{3}$
D. $\frac{3}{y}$
Answer: D

63. Evaluate $\sqrt[3]{\frac{0.0024\ x\ 35000}{0.0105}}$, leaving your answer in standard form
A. $2\ x\ 10^1$
B. $2\ x\ 10^2$
C. $1\ x\ 10^2$
D. $1\ x\ 10^1$
Answer: A

64. The square root of $3 - \sqrt{2}$ is
A. $\frac{1-\sqrt{2}}{2}$
B. $\frac{2-\sqrt{2}}{2}$
C. $\frac{1+2\sqrt{2}}{4}$
D. $\frac{1-2\sqrt{2}}{2}$
Answer: D

65. If a & b are positive numbers, evaluate $4(a+b)\left(\frac{1}{a^2}+\frac{1}{b^2}\right)\left(\frac{a^4}{b^2}+\frac{b^4}{a^4}\right)$
A. 32

B. $32\sqrt{ab}$
C. 16
D. $16\sqrt{ab}$
Answer: B

66. In the equation $5x^4 + 9x^3 - 12x^2 - 9x + 5 = 0$, find the value of $x - {}^1/_x$
A. $^{-1}/_5, 2$
B. $^1/_2, 5$
C. $^1/_5, -2$
D. 5, 2
Answer: C

67. Determine the square of the remainder when $3x^4 - 2x^3 - 10x - 5$ is divided by $x - 4$
A. 595
B. 475
C. 354025
D. 225625
Answer: C

68. In resolving $\frac{1}{x(x^2-1)}$ into partial fraction, what are the values of the constants A, B & C?
A. -2, $^1/_2$, $^1/_2$,
B. -1, $^1/_2$, ½
C. -1, $^1/_2$, $-1^1/_2$
Answer: B

69. Find the range of the validity of x in the equation $\frac{2x-1}{x} > 1$
A. $x < 1$ or $x > 0$
B. $x < 0$ or $x < 1$
C. $x < 0$ or $x < 1$
D. $x > 0$ or $x > 1$
Answer: D

70. What is the remainder when $x^3 + 3x^2 - 13x - 10$ is divided by $(x - 3)$?
A. 4
B. $4^1/_4$
C. 6
D. 5
Answer: D

71. Given that $-2 = A(x - 1)^2 + B(x - 1)(x - 2) + C(x - 2)$, find the value of C
A. 2
B. -2
C. 1
D. -1
Answer: A

72. Resolve into partial fraction $\frac{x^3-x^2-5x+15}{(x+1)(x-2)^2}$ & give the values of A, B, C respectively
A. 2,3,4
B. 2,3,0
C. 2,0,3
D. 2, -2, 3
Answer: D

73. Determine the range of values of x for which $\frac{x^2+x-2}{x^2+4} > \frac{1}{2}$
A. $x > -4$ or $x > 2$
B. $x < -4$ or $x < 2$
C. $x < 4$ or $x > 2$
D. $x < -4$ or $x > 2$

Answer: A

74. In the equation $5x^4 - x^3 + 9x^2 - x + 5 = 0$, find the value of $\left(x + \frac{1}{x}\right)$

A. $\frac{1 \mp \sqrt{21}}{10}$
B. $\frac{1 \pm \sqrt{21}}{5}$
C. $\frac{1 \pm \sqrt{21}}{15}$
D. $\frac{1 \pm \sqrt{21}}{10}$

Answer: D

75. Determine the values of p & q if $(x - 1)$ & $(x + 2)$ are factors of $2x^3 + px^2 - x + q$

A. p = -5, q = -6
B. p = 5, q = 6
C. p = 5, q = -6
D. p = -6, q = -5

Answer: C

76. Find the value of the constant k if $4x^3 + kx^2 + 7x - 23$ has a remainder 7 when divided by $2x - 5$

A. 8
B. -16
C. -8
D. 16

Answer: C

77. Expresses $\frac{3x^2+x+1}{x(x+1)^2}$ in partial fractions and find the value of A + B – C

A. -3
B. 2
C. 6
D. 7

Answer: C

78. Solve the inequality $\left|\frac{y-4}{y+4}\right| > 1$

A. -4 < y < 0
B. 4 < y < 0
C. 0 > y > -4
D. 0 < y < 4

Answer: A

79. The sum of the square of three positive numbers in arithmetic progression is 165. If the sum of the number is 21, find the sum of cubes of each of the numbers?

A. 4
B. 1400
C. 1407
D. 104

Answer: C

80. The sum of the first n terms of an AP whose difference is not zero equals half the sum of its subsequent n members. Find the ratio of the sum of the first 3n terms and the sum of the first …terms

A. 6
B. 4
C. 8
D. 3

Answer: A

81. Given the following series: $\ln x$, $\ln x^2$, $\ln x^4$, $\ln x^8$, find the 21st term

A. $20 \ln x$

B. $2^{20} \ln x$
C. $20^2 \ln x$
D. $20 \ln x^2$
$Answer: B$

82. Find the 8th term and the sum of the first 8 terms of the GP sequence: $\frac{1}{2}, -1, 2, -4, \ldots .?$
A. $-64, -42.5$
B. -64, 42.5
C. 64, 42.5
D. -64, 45.4
Answer: A

83. The sum of the first eight terms of the AP: $\ln x$, lnx^2, $\ln x^3$ ..... is
A. $\ln x^8$
B. $\ln x^9$
C. $\ln x^{36}$
D. $\ln x^{72}$
Answer: C

84. Don Mike places a sum of money on a savings account in the bank. On each succeeding birthday, he deposits two times more than on the previous birthday. His total sum of the first eleven deposits is N20,480. How much was his first deposit?
A. N20
B. N25
C. N10
D. N12.50
Answer: C

85. The fourth term and the seventh term of an AP are in the ratio 5:8. Find the ratio of the 3rd and 6th term.
A. 4:5
B. 6:5
C. 4:6
D. 4:7
Answer: D

86. The second term of an AP is four times the first term, the last term is 13 times the first term and the sum of the series is 70. Find the first three terms of the progression
A. 2,4,6
B. 2,8,14
C. 2,4,8
D. 8,12,14
Answer: B

87. A polygon has 25sides, the length of which starting from the smallest side are in AP. If the perimeter of the polygon is 1100cm, and the length of the largest side is ten times that of the smallest, find the length of the smallest side
A. 5cm
B. 6cm
C. 7cm
D. 8cm
Answer: D