KIITEE MBBS / BDS / B.Sc. Nursing / Biotech – Dual Degree Exam Paper

Kalinga Institute of Industrial Technology Entrance Examination

PHYSICS

1.   Dimensional formula for magnetic dipole moment is

(A) $[L^2 T^{-2}]$ (B) $[L T A]$ (C) $[L^2 A]$ (D) $[L^2 T^2 A^{-1}]$

2.   The percentage error in the determination of g from a simple pendulum experiment when effective length and time periods are measured with errors 4% and 3% respectively. Then the percentage error in g is

(A) 7   (B) 10   (C) 2   (D) 1

3.   A car travels half the distance at a speed 40 kmph and the rest half at a speed 60 kmph. The average speed of the car is

(A) 60 kmph   (B) 52 kmph

(C) 48 kmph   (D) 40 kmph

4.   An aeroplane flying horizontally at a speed of 98 ms^{-1} releases an object which reaches the ground in 10 s. The angle made by the velocity of the object with the horizontal at the time of hitting the ground is

(A) 30^0 (B) 45^0 (C) 60^0 (D) 75^0

5.   Water flows in a horizontal capillary tube. The flow velocity is

(A) same throughout the cross-section of the tube

(B) maximum near the cylindrical wall of the tube and minimum at the middle of the cross-section

(C) same throughout the cross-section except at the middle

(D) zero at the cylindrical wall maximum at the middle

3

SPACE FOR ROUGH WORK

CHEMISTRY

51. Two oxides of a metal contain 50% and 40% metal (M) respectively. If the formula of first oxide is MO_2, the formula of second oxide will be

    (A) M_2O_5 (B) M_2O (C) MO_3 (D) MO_2

52. The hydrogen atoms confined at the same pressure and volume as the same number of atoms of He, will move faster by a factor of

    (A) 1.713   (B) 2.0   (C) 1.414   (D) 4.0

53. Among the following possible transitions in Bohr hydrogen atom which one emits light of longest wave length?

    (A) n=4 to n=3   (B) n=1 to n=2

    (C) n=2 to n=3   (D) n=2 to n=5

54. The orbital angular momentum (in units of $h/2\pi$) of an electron in the 3d orbital is

    (A) 3   (B) 2   (C) $\sqrt{6}$ (D) $\sqrt{2}$

55. The wave length of light emitted when electron falls from n=50 to n=49 orbit of hydrogen atom is

    (A) 55nm   (B) 0.55cm   (C) $0.55\ ^0A$ (D) 55m

56. The correct order of ionic radii for the ions S^{2-}, Cl^-, P^{3-}, Ca^{2+} is

    (A) $Ca^{2+} > Cl^- > S^{2-} > P^{3-}$

    (B) $S^{2-} > P^{3-} > Cl^- > Ca^{2+}$

    (C) $P^{3-} < S^{2-} < Cl^- < Ca^{2+}$

    (D) $Ca^{2+} < Cl^- < S^{2-} < P^{3-}$

13

SPACE FOR ROUGH WORK

BIOLOGY

101. Which one of the following is not true about lichens?

(A) Some form food for reindeer in arctic regions

(B) Some species can be used as pollution indicators

(C) These grow very fast at the rate of about 2 cm per year

(D) Their body is composed of both algal and fungal cells

102. Which cell organelles reduces the number of other organelles?

(A) Oxysome   (B) Mitochondria

(C) Lysosome   (D) None of these

103. In banana, the edible part is

(A) fleshy epicarp

(B) rudimentary mesocarp and fleshy endocarp

(C) pericarp

(D) rudimentary endocarp and fleshy mesocarp

104. Pollination occurring in a closed flower is

(A) Dicliny   (B) Protogyny

(C) Allogamy   (D) Cleistogamy

105. Which of the following is not a producer?

(A) Spirogyra   (B) Agaricus   (C) Volvox   (D) Nostoc

106. In tissue culture, single germinating pollen grain will form a plant that is

(A) diploid   (B) haploid   (C) triploid   (D) tetraploid

107. Edaphic factor refers to

(A) water   (B) soil

(C) relative humidity   (D) altitude