DIAGNOSTIC TEST   SET-1

NAME: STREAM: ROLL NO:

Please tick (√) the right answer only.   **Time: 1 hour.**

SUBJECT: CHEMISTRY

1. What is the unit of specific conductance?
    (a) mho (b) mho cm^{-1} (c) mho cm^{-1} / g-eqv. (d) none of the above.
2. Equivalent conductance – (a) increases, (b) decreases, (c) remains same (d) increases sharply with increasing concentration.
3.   Which kind of coal has the highest calorific value? (a)Anthracite (b) Bituminous (c) Lignite (d) Peat.
4. Which of the following would be classified as a strong electrolyte? (a) benzoic acid (b) KCl (c) H_2O (d) HF .
5. Which of the following is a Lewis acid? (a) NH_3 (b) BF_3 (c) HCl (d) PMe_3.
6. Which of the following carbocation will be the most stable?
(a) Ph_3C^+ , (b) $H_3C-CH_2^+$, (c) $H_2C=CH-CH_2^+$, (d) Me_2CH^+ .
7. The number of σ & π in allene is – (a) 6σ & 2 π , (b) 5σ & 2π , (c) 2σ & 2π ,(d) 4σ & 2π.
8. The order of electronegativity of O-, O, O+ is-
    (a) O->O>O+ , (b) O->O+>O , (c) O>O+>O- ,(d) O+>O>O-.
9. Which one of the following has tetrahedral shape – SiH_4 , (b) XeF_4 , (c) SF_4 , (d) SO_3 .
10. Which of the following is not a complexing agent –
(a) Acetyl acetone (b) EDTA (c) ortho-phenanthroline , (d) carbon tetra chloride.

SUBJECT: PHYSICS

1. In SHM
    (a) Acceleration is directly proportional to displacement.
    (b) Velocity is directly proportional to displacement.
    (c) Energy is directly proportional to velocity.
    (d) None of these.
2. In interference of light the Energy is   (a) Scattered (b) redistributed (c) reflected (d) absorbed
3. Laser is an acronym of (a) Light Amplification of Radiation (b) Light Amplification
    (a) Light Amplification by Stimulated Emission of Radiation
    (b) Light Amplification by Spontaneous Emission of Radiation
    (c) Light Amplification by Scattered Emission of Radiation
4. Light (a) is a wave (b)is an array of particles (c) is an array of phonons (d) has dual nature
5. The unit of free space permittivity is (a) $C^2N^{-1}m^{-2}$ (b) $CN^{-1}m^{-2}$ (c) $C^2N^{-2}m^{-2}$ (d) $C^2N^{-1}m^{-1}$

6. Photoelectric effect shows the a) wave character of light   (b) particle nature of light   (c) dual nature of light   (e) none of these.

7. The capacity of a parallel plate capacitor is equal to (a) $\varepsilon_0 A$ / d   (b) σA/d (c) $2\varepsilon_0 A$ / d (d) $\varepsilon_0 A$ / 2d

8. A parallel plate air capacitor is connected to a battery. The quantities charge, voltage, electric field and energy associated with capacitor are given by Q_0, V_0, E_0 and U_0 resp. Dieletric slab is now introduced to fill the space between the plates with battery still in connection. The corresponding quantities now given by Q, V, E and U are related to the previous ones are   Q > Q_0 (b) V > V_0 (c) E > E_0 (d) U > U_0

9. Two thin lenses – one convex and the other concave of focal lengths 20 cm each, respectively are put in contact. The effective focal length, in cm a) 40 cm   (b) 20 cm   (c) 0 cm   (d) infinity

10 . Weber is the unit of a) Magnetic intensity   (b) electric intensity (c) Electric potential (d) magnetic flux

SUBJECT: MATHEMATICS

1. The sum of five numbers is 290. The average of the first two numbers is 48.5 and the average of the last two numbers is 53.5. What is the third number?   (a) 86 (b) 96 (c) 72 (d) 76
2. Which number should replace both the question marks in the following questions?
   /576 = 256/ : (a) 374 (b) 384 (c) 392 (d) 396
3. What would be the compound interest obtained on an amount of Rs. 20,000 at the rate of 15% p.a. after 4 years?   (a) Rs. 12,980.125 (b) Rs. 13,980 (c) Rs. 14,980 (d) Rs. 15,980.25
4. In a mixture of milk & water, the proportion of water was 75%. If in 60 lit. of mixture, 15 lit. Water was added, what would be the percentage of water?
   (a) 75% (b) 80% (c) 85% (d) 88%
5. The difference between ¾ of 4/5 of a number & 1/6 of 2/5 of the same number is 648. What is the number?   (a) 1110 (b) 1115 (c) 1205 (d) 1215

Directions (6 to 15): What should come in place of question mark in the following questions?
6. (7.9% of 134)(7.9% of 34)=? Ans. (a) 8.1 (b) 7.8   (c) 8.6   (d) None of these

7. (?)(?)+(123)(123)=(246)(246)-(99)(99)-2462   Ans. (a) 180 (b) 182 (c) 184 (d) 186
8. 74+12x0.75-6=?   (a) 67   (b) 72   (c) 77   (d) 82
9. 414x?x7=127512 (a) 44 (b) 42 (c) 40 (d) 38
10. 24.424+5.656+1.131+0.089=? (a) 31.003 (b) 31.3 (c) 31.03 (d) 31.0003

SUBJECT: ENGLISH

Exercise 1: **Please mark the correct statement from the pairs given below:**
Pair 1 a) Repeated occurrences cannot be ignored   b) Repeated occurences cannot be ignored
Pair 2 a) We need to get a consensus on the decision   b) We need to get a concensus on the decision
Pair 3 a) Only authority personnel are allowed in this area b) Only authorized personnel are allowed in this area.
Pair 4 a) The actress decided to sue the sleazy tabloid for deformation of her character b)   The   actress decided to sue the sleazy tabloid for defamation of her character.
Pair 5 a) Everyone knows that Hogwarts in the Harry Potter series is a mythical school   b)   Everyone   knows that Hogwarts in the Harry Potter series is a legendary school

Exercise 2:   **Select the best word/phrase/line to complete each sentence in the most appropriate manner**
6) 'Reema's bad-mouthing Peter only because she is jealous of him.' Means_____
a) Peter really is a nice person   b) Peter really is a mean person c) Peter really is a difficult person d) Peter really is a tough person.
7) If someone is "gung ho", they are_____   a) stupid   b) Childish   c) Enthusiastic d) Loud
8) Mr. Hughes has been asked to_____ this difficult project because of his experience working for many years in Iran a) undergo   b) understand   c) undervalue   d) undertake
9) 'Stop talking to those angry men, you are just adding fuel to the fire' is the same as_____
a) Stop talking to those angry men, you are just coming in the way   b) Stop talking to those angry men, you are just making it worse   c) Stop talking to those angry men, you are just adding to the noise   d) Stop talking to those angry men, you are just talking too much.
10) 'Sudhir's work is behind schedule – I think he bit more than he could chew' is the same as_____
a) Sudhir has taken too much of work   b) Sudhir takes very long breaks c) Sudhir does not know how to do the work   d) Sudhir is a lazy person