NAME: STREAM: **ROLL NO:**

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

SUBJECT: CHEMISTRY

1. Which of the following is NOT aromatic?
    A. Benzene B. Napthalene C. Cyclooctatetraene   D. Cyclopentadienyl anion
2. A carbon atom in ethylene is of what hybridization? A.sp^2 B. sp^3 C. sp^3d D. sp.
3. Which of the following is a ortho- and para- directing deactivator in Electrophilic Aromatic Substitution? A. CHO B.$NHCOCH_3$ C. OH   D. NH_2
4. Grignard reagents react with ketones to give:
    A. Secondary alcohols B. Primary alcohols C. Tertiary alcohols D. Esters
5. Which of the following is not made from crude oil?
    A. Aircraft fuel B. Diesel Oil C. Furniture Polish D. Margarine
6. Which of the following is most basic?   A. NH_3B. CH_3NH_2 C. $(CH_3)_2NH$ D. $(CH_3)_3N$
7. How many π bonds are present in p-nitroaniline? A. 3 B. 4 C.5   D.6
8. The ozonolysis of an olefin gives only propanone. The olefin is:
    A. Propene B. But-1-ene C. But-2-ene D. 2,3 –dimethyl-but-2-ene
9. Which of the following can be used as a buffer solution?
    A. A solution containing sodium chloride and sodium hydroxide
    B. A solution containing sodium chloride and ammonia
    C. A solution containing sodium acetate
    D. A solution containing ammonium acetate & NH_4OH.
10. Hydroiodic acid is a much stronger acid than hydrofluoric acid in aqueoussolution. The major factor contributing to this is: A. The higher bond energy of HF B. The higher hydration energy of F- ion C. The higher electron affinity of Fluorine D. The lower hydration energy of I- ion

SUBJECT: PHYSICS

1. Coefficient of self induction of a circuit of a straight wire is
        (a) Zero   (b) infinite   (c) finite   (d) none of these
2. Presence of a soft iron core inside a coil results in a change in its coefficient of self inductance, it
        (a) increases   (b) decreases   (c) remains constant   (d) none of these
    3. Which of the following is greatest in case of alternating current
        (a) mean value (b) rms value   (c) average value   (d) none of these
    4. In case of AC, which one is zero (a) mean value (b) rms value (c) average value (d) none of these
    5. Orbital velocity of electron (a) smaller in outer orbits (b) greater in outer orbits © equal in all orbits   (e) none of these
 6. Radius of Bohr orbit varies as (a) r α n (b)r α n^2 (c) r α $1/n^2$ (d) none of these

7. Emission of electrons is possible by (a) thermionic emission (b) photoelectric effect (c) both (d) Compton effect
8. Photoelectrons are emitted when a zinc plate is
        (a) heated (b) hammered (c) irradiated with light (d) subjected to a very high pressure

9. A primary cell has e.m.f. 1.5V when short circuited it gives the current of 3A, the internal resistance of the cell is (a) 4.5ohm (b) 2ohm   (c) 0.5 ohm   (d) 1/ 4.5 ohm

10. A cell of e. m. f. E volt and internal resistance r ohm is connected to a load of r ohm, the potential difference across the terminal of the cell is (a) E/2 (b) 2E (c) 4E (d) E/4

SUBJECT: MATHEMATICS

1. The LCM of two numbers is 2079 and their HCF is 27. If one of the numbers is 189, the other number is
   (a) 296 (b) 297 (c) 298 (d) 299
2. If $x=2^{1/3}-2^{-1/3}$, find the value of $2x^3+6x$
   (a) 3, (b) 1, (c) 2, (d) 5.

3. The average salary of the entire staff in a office is Rs. 120 per month. The average salary of officers is Rs. 460 and that of non-officers is Rs. 110. If the number of officers is 15, then find the number of non-officers in the office.
   (a) 510 (b) 501 (c) 500 (d) 511
4. If p and q are the roots of the equaion $ax^2+bx+c=0$, the value of $1/p^2+1/q^2$ is
   (a) b^2-4ac, (b) $(b^2-4ac)/2a$, (c) $(b^2-2ac)/c^2$, (d) $(b^2-4ac)/c^2$.

5. A man sells a book at a profit of 20%. If he had bought it at 20% less and sold it for Rs. 18 less, he would have gained 25%. Find the cost price of the book.
   (a) Rs. 90 (b) Rs. 80 (c) Rs. 85 (d) Rs. 95
6. If the wages of 6 men for 15 days be Rs. 2100, then find the wages of 9 men for 12 days.
   (a) Rs. 2050 (b) Rs. 2520 (c) Rs. 2750 (d) None
7. The digit in the unit place in $(1038)^{67}$ is (a) 2 (b)4 (c) 1 (d) 6
8. Find the binary equivalent of 30
   (a) $(11110)_2$ (b) $(1110)_2$ (c) $(11101)_2$ (d) $(1101)_2$
9. The perimeter of an isoceles triangle is 100 cms. If the base is 36 cms, find the length of equal sides (a) 31 cm (b)32 cm (c) 30 cm (d) none
10. The circumference of a circle is 44 meters. Find the area of the circle
    (a) 152 m^2 (b) 150m^2 (c) 154 m^2 (d) 156 m^2

SUBJECT: ENGLISH

Q.1 to 5: In these questions, each word is followed by four options. For each of the given words, choose the option that is the best meaning of the given word.

1. Allusion -a) Fantasy b) Reference c) Mirage d) Endurance

2. Conviction -a) heinous crime b) Invalid assumption c) Strong belief d) Absolute arrogance

3. Didactic -a) Pedagogic b) Asymmetric c) Symptomatic d) Axiomatic

4. Reticent -a) Manipulative b) Occult c) Unrevealing d) Effervescent

5. Gregarious -a) Intemperate b) Reasonable c) Marvelous d) Sociable

In these questions, each word is followed by four options. For each of the given words, choose the option that is the best ANTONYM of the given word.

6. Abstinence -a) Celerity b) Conviviality c) Impertinence d) Indulgence

7. Fortification -a) Syncopation b) Enervation c) Trepidation d) Subsistence

8. Antediluvian a) Current b) Arid c) Futuristic d) Recondite

9. Indefatigable-a) Corporal b) Lethargic c) Bucolic d) Stressful

10. Surfeit -a) Chivalry b) Continuance c) Restriction d) Dearth