

## DIAGNOSTIC TEST

**SET-4**

**NAME:**

**STREAM:**

**ROLL NO:**

**Please tick (✓) the right answer only.**

**Time: 1 hour.**

### SUBJECT: CHEMISTRY

1. Aqua regia is a mixture of  
i.  $\text{HNO}_3$  &  $\text{HCl}$     ii.  $\text{HNO}_3$  &  $\text{H}_2\text{SO}_4$     iii.  $\text{H}_2\text{SO}_4$  &  $\text{HCl}$     iv. None of these
2. Which of the following is coloured i.  $\text{NO}$     ii.  $\text{NO}_2$     iii.  $\text{N}_2\text{O}$     iv. None of these.
3. Among the various allotropes of carbon  
i. Diamond is hardest and graphite is softest, ii. Diamond is hardest and coke is softest  
iii. Diamond is hardest and lamp black is softest, iv. None of these.
4. Water gas is a mixture of i. excess of  $\text{CO}$  and  $\text{H}_2$ , ii. excess  $\text{H}_2$  and  $\text{CO}$     iii. equal  $\text{CO}$  and  $\text{H}_2$ ,    iv. None of these.
5. Hydrogen Sulphide exhibits i. strong acidic properties,    ii. oxidizing properties  
iii. reducing properties,    iv. None of these.
6. Which of the following gas is used for glass etching i.  $\text{HF}$ ,    ii.  $\text{HCl}$ ,    iii.  $\text{HNO}_3$ ,    iv. None of these .
7. Which of the halogens is the most electronegative? i. Fluorine,    ii. Chlorine,    iii. Bromine,    iv. Iodine.
8.  $\text{NH}_3$  produces white fumes in contact with i.  $\text{HF}$ ,    ii.  $\text{HCl}$ ,    iii.  $\text{HNO}_3$ ,    iv. None of these
9. Hardness of water is expressed with respect to i.  $\text{CaCO}_3$ ,    ii.  $\text{MgCO}_3$ ,    iii.  $\text{Na}_2\text{CO}_3$ ,    iv.  $\text{NaHCO}_3$ .
10. Hardness of water is expressed in units i.  $\text{gm/l}$ ,    ii.  $\text{ppm}$ ,    iii.  $\text{lbs/l}$ ,    iv.  $\text{mg/ml}$ .

### SUBJECT: PHYSICS

1. When we apply a reverse bias to a pn junction diode each  
(a) lowers the potential barrier                      (b) raises the potential barrier  
© increases the majority carrier current    (d) increase the minority carrier current
2. Zener diode works on  
(a) zero bias    (b) reverse bias    (c) forward bias    (d) infinite bias
3. In the depletion region of an unbiased pn junction diode, there are  
(a) only electron    (b) only hole    (c) both electrons and holes    (d) only fixed ions
4. Holes are majority carriers in  
(a) intrinsic semiconductor    (b) ionic solids    (c) p type semiconductors    (d) metals
5. Which of the following when added as an impurity into the silicon produces n-type semiconductor  
(a) P    (b) Al    (c) B    (d) Mg
6. The expected energy of the electron at absolute zero is called  
(a) fermi energy    (b) emission energy    (c) work function    (d) potential energy
7. X-rays were discovered by  
(a) Newton    (b) Roentgen    (c) Curie    (d) Einstein
8. For production of X-rays the anti cathode should be bombarded with fast moving  
(a) electrons    (b) protons    (c) neutrons    (d) alpha particles
9. Which of the following transition emits the photon of highest frequency  
(a)  $n = 2$  to  $6$     (b)  $n = 6$  to  $2$     (c)  $n = 2$  to  $1$     (d)  $n = 1$  to  $2$
10.  $\text{NaCl}$  has  
(a) fcc structure    (b) sc structure    (c) bcc structure    (d) hexagonal structure

**SUBJECT: MATHEMATICS**

1. The surface area of a cube is  $6\text{cm}^2$ . The length of its diagonal is  
(a)  $\frac{10}{\sqrt{3}}$  cm, (b)  $\frac{10}{\sqrt{2}}$  cm, (c)  $10\sqrt{3}$  cm, (d)  $10\sqrt{2}$  cm.
2. Ten percent of twenty + twenty percent of ten equals  
(a) 4 (b) 2 (c) 3 (d) none
3. Average age of 10 players of cricket team is 30 years. Once age of the captain is added, average is raised by one year. Age of captain is  
(a) 40 years (b) 42 years (c) 41 years (d) 43 years
4. If the operation 'v' is defined by the equation  $xvy=2x+y$ , what is the value of 'a' in  $2va=av3$  ?  
(a) 0 (b) 1 (c) -1 (d) 4
5. If a group of 15, 7 have studied Latin and 8 have studied Greek and 3 have not studied either. How many of these studied both Latin and Greek ?  
(a) 0 (b) 3 (c) 4 (d) 5
6. If  $13=13w/(1-w)$ , then  $(2w)(2w)=$  ?  
(a)  $\frac{1}{4}$  (b)  $\frac{1}{2}$  (c) 1 (d) 2
7. M men agree to purchase a gift for Rs. D. If three men drop out, how much more will each have to contribute towards the purchase of the gift:  
(a)  $D/(M-3)$  (b)  $MD/3$  (c)  $M/(D-3)$  (d)  $3D/(M.M-3M)$
8. A company contracts to paint 3 houses. Mr. Brown can paint a house in 6 days while Mr. Black would take 8 days and Mr. Blue 12 days. After 8 days, Mr. Brown goes on vacation and Mr. Black begins to work for a period of 6 days. How many days will it take Mr. Blue to complete the contract ?  
(a) 7 (b) 8 (c) 11 (d) 12
9. The price of a product is reduced by 30%. By what percentage should it be increased to make it 100% ?  
(a) 42.857% (b) 36.25% (c) 58.14% (d) 42.25%
10. A worker is paid Rs. 20 for a full days work. He works  $1\frac{1}{3}, 2\frac{2}{3}, 1\frac{1}{8}, 3\frac{3}{4}$  days in a week. What is the total amount paid for that worker ?  
(a) Rs. 57.50 (b) Rs. 65.20 (c) Rs. 24.23 (d) Rs. 78.50

**SUBJECT: ENGLISH**

Choose correct word

1. Rishav lives \_\_\_\_\_ Ahmedabad Ans. i/ on ii/ in iii/ above iv/ upon
2. I \_\_\_\_\_ finished my lunch before my class i/ did ii/ will iii/ have iv/ shall
3. If I \_\_\_\_\_ at your place, I would have gone to the fair i/ were ii/ was iii/ has iv/ have
4. Rita and Tushar, both \_\_\_\_\_ attended the class i/ are ii/ have iii/ am iv/ all
5. We set up slide shows in a computer by means of \_\_\_\_\_ i/ MS Word ii/ Power point  
iii/ Printer iv/ Scanner
6. Mr. Ghosh tried to cope up \_\_\_\_\_ his financial crisis i/ by ii/ for iii/ with iv/ along
7. He is \_\_\_\_\_ to learn English. i/ try ii/ trying iii/ will have tried iv/ tried
8. The Earth \_\_\_\_\_ around the sun i/ revolving ii/ revolved iii/ have revolved iv/ revolves
9. India is very rich \_\_\_\_\_ natural resources i/ on ii/ upon iii/ in iv/ across
10. We should raise our voices \_\_\_\_\_ dowry system i/ in ii/ against iii/ from iv/ above