Government General Degree College, Dantan-II

3rd Semester B. Sc (H) Internal Examination-2021

Subject: Chemistry **Paper: GE-3T**

F.M: 20 **Time: 1h**

Answer the following questions (*any five*) **5×4**

1. Derive van't Hoff's reaction isotherm.

2. Show that for adiabatic reversible process $PV^{\gamma} = constant$.

3. Obtain an expression for the efficiency of a reversible engine working between two temperature T_2 *and* T_1 $(T_2 > T_1)$.

4. State Le chatelier principle and explain the effect of temperature and pressure and addition of inert gas for the following equilibrium

$$A(g) + B(g) \rightarrow C(g)$$

5. Establish a relation between hydrolysis constant and degree of hydrolysis for the salt of weak acid and strong base and hence derive the expression for pH of the same solution.

6. Write short note on applications of solubility product principle.

7. Convert:

(i) methylmagnesiumbromide to acetone (ii) Benzene to ethyl benzene (iii) acetylene to benene (iv) methyl magnesiumbromide to propanol

8. (a) How would you distinguish among 1˚, 2˚ and 3˚ alcohol? (b) Aryl halides are less reactive than alkyl halides in substitution reaction. – Explain.

9. Write short note on (a) Reimer -Tiemann reaction and (b) Fries rearrangement

10. Give at least one example for the following reactions –

Wittig reaction, benzoin condensation, aldol condensation, Wolff- Kishner reduction