



New Arts, Commerce & Science College, Wardha

★ Approved by Government of Maharashtra.

★ Affiliated to Rashtrasanta Tukdoji Maharaj Nagpur University, Nagpur.

★ Recognised by U.G.C. New Delhi Under section 2(f) & 12 (b) of UGC act 1956.

Batchelor Road, Nalwadi Wardha - 442 001. (Maharashtra)

☎ : (07152) - 253093, 240152, Fax : 07152-240152

Class : BSc 1 semester 2019

Subject : Physical chemistry

Paper 2

Unit 1

1. Discuss Maxwell- Boltzmann distribution of molecular velocities.
2. Explain graphically how the velocities change with temperature
3. Describe Andrew experiment for critical phenomenon
4. State Graham's law of diffusion and deduce it from kinetic gas equation
5. Calculate the root mean square of nitrogen molecule at 0°C
6. What is an ideal gas ? Discuss the deviation of real gases from ideal behaviour
7. For a gas obeying van der Waal's equation prove that $\frac{8}{3}P_cV_c=RT_c$
8. State Avogadro's law
9. Define mean free path
10. Write Van der Waal's equation for n moles

Unit 2

1. Explain law of constancy of interfacial angles
2. State law of rationality of indices
3. What do you mean by crystal lattice? Sketch simple cubic structure
4. What are Miller indices
5. Calculate the Miller indices for crystal plane having intercepts 2a, b and 3c where a, b and c are unit cell dimensions
6. Sketch three types of Bravais lattice of cubic system
7. Describe powder method for determination of crystal structure
8. What are liquid crystals ? Discuss the structure of nematic liquid crystal
9. What are smectic liquid crystal
10. Explain coefficient of viscosity. What is the effect of temperature on viscosity of a liquid



New Arts, Commerce & Science College, Wardha

- ★ Approved by Government of Maharashtra.
- ★ Affiliated to Rashtrasanta Tukdoji Maharaj Nagpur University, Nagpur.
- ★ Recognised by U.G.C. New Delhi Under section 2(f) & 12 (b) of UGC act 1956.

Batchelor Road, Nalwadi Wardha - 442 001. (Maharashtra)

☎ : (07152) - 253093, 240152, Fax : 07152-240152

Unit 3

1. Write a note on seven segment cell
2. What is dipole dipole interaction
3. What is parachor? Give its applications
4. Calculate refractive index of acetic acid at 298K
5. Why the liquid drop is spherical in shape
6. What is reduced viscosity
7. Give two applications of liquid crystal
8. Define induced dipole induced dipole interaction
9. Define viscosity and give its SI & CGS units
10. How chemical constitution affects molar refraction

Unit 4

1. What do you understand by adsorption isotherm? Explain Freundlich adsorption isotherm
2. Define autocatalysis
3. Explain the term catalytic poisoning
4. What are adsorbates and adsorbents
5. Write any five general characteristics of catalyst
6. Describe any five applications of adsorption
7. How is BET equation can be used in the determination of surface area of the adsorbent
8. Discuss Langmuir adsorption isotherm
9. Describe kinetics of enzyme catalyzed reactions as proposed by Michaelis Menten
10. What is crystallography