

## Govt. Polytechnic Diglipur

### DEMO TOPICS FOR GUEST FACULTY SELECTION PROCESS FOR THE SESSION 2023-24 (EVEN SEM)

S.NO.	DEPARTMENT	DEMO TOPIC	
		THEORY	PRACTICAL
1	MATHS (GL)	Differentiation of implicit function	
		Lagrange method of undetermined multipliers	
		Area by double integration and volume by triple integration	
		First order linear differential equations	
		Partial fraction of proper and improper fraction	
		Reduction of quadratic form into conical by orthogonal transformation	
		Expansion of periodic function into Fourier Series	
2	ENGLISH (GL)	Strategies of effective communication	
		Importance of public speaking	
		passahge in written & spoken form	
		comprehensive of technical & non technical materials	
		active & passive voice	
		importance of comprehension	
		Phonetics	
3	PHYSICS (GL)	Newton's laws of motion, and their applications.	Determination of acceleration due to gravity by using simple pendulum .
		Work, Power and energy	Determination of velocity of sound using resonance tube method.
		Sound waves, amplitude, frequency, time - period, wave-length and velocity of wave, relation between velocity, frequency and time - period of wave.	Measurements of dimensions of given object by Vernier caliper.
		Photo electric effect: threshold frequency, threshold wavelength, stopping potential, Work function, characteristics of photoelectric effect, Einstein's photoelectric equation	Determination of equivalent resistance in series connection of resistors
		Laser: properties, absorption, spontaneous and stimulated emission	Determination of resistance by Ohm's law.
4	CHEMISTRY (GL)	Chemical bonding: Electronic theory of valency: Assumptions , Chemical bonds: Types and characteristics of electrovalent bond, covalent bond, coordinate bond, hydrogen bond, metallic bond and Intermolecular forces of attraction.	Prepare Electrolyte Solution of CuSO 4 of known concentration (0.1 N , 500 ml)
		Corrosion: Definition and Types of corrosion Dry corrosion: Mechanism, Types of oxide film, Wet corrosion :Mechanism hydrogen evolution in acidic medium, oxygen absorption in neutral or alkaline medium ,Galvanic cell action by Daniel cell. Factors affecting the rate of corrosion.	Identify cation and anion in given ionic solutions by performing selective test.
		Polymer and Monomer : Classification on the basis of Molecular structure, on the basis of monomers (homo polymer and copolymer), based on Thermal behavior(Thermoplastics and Thermosetting).	Prepare corrosive solution (500 ml) of 0.1 N HCl or HNO3