



Sanjay Ghodawat University, Kolhapur

2018-19

Established as State Private University under Govt. of Maharashtra. Act No XL, 2017

EXM/P/09/01

Year and Program: 2018-19

School of Technology

Department of S Y B.Tech

Course Code: EET207

Course Title: Measurements & Instrumentation

Semester – III

Day and Dat: Tuesday, 4/12/18

End Semester Examination (ESE)

Time: Max Marks: 100

2:30pm to 5:30pm

Instructions:

- 1) All questions are compulsory.
- 2) Assume suitable data wherever necessary.
- 3) Figures to the right indicate full marks.

Q.1	Solve the following	Marks	Bloom's Level	CO
a)	Differentiate between the spring control and gravity control.	07	L ₁	CO1
	OR			
a)	Explain D- Arsonaval galvanometer	07	L ₁	CO1
b)	A Maxwell's inductance comparison bridge is as given. Arm 'ab' consists of a coil with inductance L ₁ and resistance r ₁ in series with a non-inductive resistance R. Arm 'bc' and 'cd' are each a non-inductive resistance of 100Ω. Arm 'ad' consist of standard variable inductor L ₂ of resistance 32.7Ω. Balance is obtained when L ₂ = 47.8mH and R= 1.36Ω. Find the resistance and inductance of the coil in arm 'ab'.	08	L ₁	CO2
	OR			
b)	A Maxwell's capacitance bridge is used to measure an unknown inductance in comparison with capacitance. The various values at balance are, R ₂ = 400 Ω in arm 'ad', R ₃ = 600 Ω in arm 'bc', R ₄ = 1000 Ω in arm 'cd', C ₄ = 0.5 μF in arm 'cd'. Calculate the value of R1 and L1. Also calculate the value of Q factor of coil if frequency is 1000Hz	08	L ₁	CO2
Q.2	Solve the followings			
a)	Explain with neat diagram calibration of single phase energy meter.	07	L ₁	CO3
	OR			
a)	Explain construction and working of wattmeter.	07	L ₁	CO3

	b)	With a block diagram, explain the working of CRO	08	L ₂	CO4
		OR			
	b)	Explain low pressure measurement by Mc-Leod gauge	08	L ₂	CO4
Q.3		Solve any Two			
	a)	Explain construction and working principle of M.I. instruments	08	L ₁	CO1
	b)	State various DC bridges & explain Kelvin Double Bridge Circuit	08	L ₂	CO2
	c)	Explain Digital and Analog energy meter.	08	L ₂	CO3
	d)	Draw & explain Piezo-Electric Transducer.	08	L ₂	CO4
Q.4		Solve any Two			
	a)	What is the use of LVDT? Discuss its basic principle of operation.	09	L ₃	CO4
	b)	Explain construction & working of RVDT in details	09	L ₃	CO4
	c)	What are the types of strain gauge? Explain resistive wire strain gauge.	09	L ₃	CO4
Q.5		Solve any Two			
	a)	Discuss the theory of a C.T with phasor diagrams	09	L ₃	CO4
	b)	Discuss the theory of a P.T with phasor diagrams	09	L ₃	CO4
	c)	Differentiate between a C.T and P.T	09	L ₃	CO4
Q.6		Solve any Three			
	a)	State and explain selection criteria of strain gauge	06	L ₂	CO3
	b)	Explain construction & working of foil strain gauge. State advantages, disadvantages of it.	06	L ₂	CO3
	c)	State and explain various causes of errors in operation of CT.	06	L ₂	CO4
	d)	What are the steps to be taken for minimizing errors in PT?	06	L ₂	CO4
