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## GIET UNIVERSITY, GUNUPUR – 765022

B. Tech ( Third Semester – Regular) Examinations, December – 2020

### BPCEC3030- ELECTRICAL AND ELECTRONIC MEASUREMENTS

(ECE)

Time: 2 hrs

Maximum: 50 Marks

**The figures in the right hand margin indicate marks.**

**PART – A: (Multiple Choice Questions)**

**(1 x 10 = 10 Marks)**

Q.1. Answer ALL questions

	[CO#]	[PO#]
a. The quality factor in Hay bridge is	CO1	PO1
(i) $Q > 10$		
(ii) $1 < Q < 10$		
(iii) $Q = 0$		
(iv) $Q = 1$		
b. Sensitivity is defined as _____	CO1	PO2
(i) amount of voltage per unit current		
(ii) amount of power per unit current		
(iii) amount of resistance per unit current		
(iv) amount of deflection per unit current		
c. A ..... device prevents the oscillation of the moving system and enables the latter to reach its final position quickly	CO2	PO10
(i) Deflecting		
(ii) Controlling		
(iii) Damping		
(iv) Any of the above		
d. When a current carrying coil is placed in the magnetic field?	CO2	PO1
(i) no force is exerted		
(ii) voltage is produced		
(iii) power is generated		
(iv) a force is exerted		
e. Magnetic field lines form _____ loops from pole to pole.	CO2	PO2
(i) Open		
(ii) Closed		
(iii) Branched		
(iv) Either closed or branched		
f. An ideal voltmeter functions as _____ circuit	CO2	PO4
(i) A short		
(ii) An open		
(iii) A power		
(iv) An infinite		
g. One-Wattmeter method is used to measure	CO3	PO1
(i) The power when load is balance in three phase circuit		
(ii) The power when load is unbalanced in three phase circuit		
(iii) Single phase power with balanced load		
(iv) None of the above		
h. Low power factor wattmeters are designed to _____	CO3	PO4
(i) have a low torque		
(ii) have a high torque		
(iii) have a medium torque		
(iv) have no torque		
i. The secondary winding of a C.T. has _____	CO4	PO1
(i) a large number of turns		
(ii) a few turns		
(iii) no turns at all		
(iv) intermediate number of turns		
j. If the fundamental frequency is 60 Hz then 7th harmonic frequency is _____	CO4	PO2
(i) 420		
(ii) 210		
(iii) 8.57		
(iv) 60		

**PART – B: (Short Answer Questions)****(2 x 5 = 10 Marks)**Q.2. Answer ALL questions

	[CO#]	[PO#]
a. What is the principle of Megger?.	CO1	PO1
b. Define Q factor	CO2	PO4
c. What are the types of Moving Instruments?	CO2	PO1
d. Define Power Factor.	CO3	PO4
e. Bring out the difference between CT & PT	CO4	PO2

**PART – C: (Long Answer Questions)****(6 x 5 = 30 Marks)**Answer ANY FIVE questions

	Marks	[CO#]	[PO#]
3. Explain the static characteristics of measurement system	(6)	CO1	PO1
4. Explain how Mutual Inductance is measured by Felici's Method.	(6)	CO1	PO2
5. Explain Construction, Theory, and Principle of operation of Vibration Galvanometer.	(6)	CO1	PO2
6. Explain Construction, Theory and Principle of operation of AC Potentiometer	(6)	CO1	PO4
7. Derive the torque equation for an electro dynamometer type of wattmeter.	(6)	CO1	PO10
8. The coil of an instrument has 38 turns. The mean width and axial length of the coil are 25mm and 20mm resp. If the flux density is $0.12 \text{ Wb/m}^2$ , calculate the torque on the moving coil for a current of 12 mA through the coil.	(6)	CO1	PO4
9. What are the basic principles of frequency counter, explain with neat diagrams.	(6)	CO1	PO2
10. Explain the construction, Theory, and Characteristics of PTs	(6)	CO1	PO1

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