



R18 Regulation

Subject code:2P6BB

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VI Semester Supplementary Examinations, December 2024

ELECTRICAL MEASUREMENTS & INSTRUMENTATION
(EEE)

Maximum Marks: 70

Date:30.12.2024

Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X2M=20) Marks)		CO	Bloom Tx
1	Why scales of the gravity control instruments are not uniform but are crowded?	1	L1
2	Why eddy current damping cannot be used for moving iron instrument?	1	L1
3	Why the secondary of a CT is never left open circuited?	2	L1
4	What is the ratios of instrument transformers	2	L1
5	What are the advantages of induction type energy meter	3	L1
6	Explain overload compensation of induction type energy meter	3	L1
7	Write short notes on Owen's bridge	4	L1
8	Explain Advantages of maxwell bridge	4	L1
9	Write short notes on Thermo couple	5	L1
10	Write short notes on Peizo-Electric Transducers	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		CO	Bloom Tx
11	A) Design and explain the working of PMMC instrument. [5M] B) Write the advantages of using PMMC instrument. [5M]	1	L2
OR			
12	A) What do you think are the permissible Errors in Ammeters and Voltmeters? [5M] B) An electrostatic voltmeter consists of two attracted plates (movable and fixed provided with guard rings). When a potential difference of 10 KV is applied between the plates, there is a pull of 5×10^{-3} N on the movable plate. Find the change in capacitance produced due to the change in the position of the movable plate by 1mm. Diameter of the movable plate is 100mm. [5M]	1	L2
13	Explain the principle and operation of basic slide wire D.C potentiometer. What is standardization of D.C potentiometer. [10M]	2	L2
OR			
14	Explain the briefly Drysdale type A.C potentiometer and explain measurement of self reactance of coil. [10M]	2	L2

15	Explain extension of range of wattmeter using instrument transformer. [10M]	3	L2
	OR		
16	A dynamometer- type watt meter has a field system which may be considered long compared with its moving coils. The flux density is 0.012T. The mean diameter of the moving coil is 5cm and the moving coil turns are 600. The current through the coil is 0.06A and the power factor of the circuit of which the power is measured, is 0.866. Estimate the torque when the axis of the field and moving coil is 600. [10M]	3	L2
17	Design the circuit diagram of Schering Bridge. Derive the conditions for balancing the bridge and draw the phasor diagram during balanced condition. [10M]	4	L2
	OR		
18	Discuss the theory and method of measurement of low resistance using Kelvin's double Bridge. How the effect of thermo – electric emf is taken into account during measurement? [10M]	4	L2
19	Explain Strain gauge and its principle of operation. [10M]	5	L2
	OR		
20	Explain photovoltaic and photo conductive cells. [10M]	5	L2