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Reg. No. : | | | | | | | | | | | | |

Question Paper Code: R2404

B.E./B.Tech. DEGREE EXAMINATION, NOV 2024

Second Semester

Electronics and Communication Engineering

R21UEC204 BASIC ELECTRICAL AND INSTRUMENTATION ENGINEERING

(Regulations R2021)

Duration: Three hours | Maximum: 100 Marks

Answer All Questions

PART A - (5x 1 = 5 Marks)

1. The unit for inductance is___ CO1-U

   (a) Ohm (b) Henry (c) A/m (d) A/s

2. If field current is decreased in shunt dc motor, the speed of the motor. CO1-U

   (a) remains same. (b) Increases. (c) Decreases. (d) None of the above.

3. The desirable static characteristics of a measuring system are CO1-U

   (a) Accuracy and reproducibility (b) Accuracy, sensitivity and reproducibility

   (c) Drift and dead zone (d) Static error

4. The full range of audibility in audio frequency oscillator is CO2-U

   (a) 0 to 20Hz (b) 20 Hz to 2 kHz (c) 20 Hz to 20 kHz (d) 20 Hz to 20 MHz

5. The cathode of a C.R.O.is usually coated with CO2-U

   (a) Alkalimetals (b) Tungsten or thorium oxide

   (c) Copper oxide (d) Barium or strontium oxide

PART – B (5 x 3= 15 Marks)

6. Define the RLC circuit with AC current? CO1-U

7. State some advantages of Synchronous motors and differentiate Synchronous Motors and Asynchronous motors CO1-U

8. The full-scale deflection current of an ammeter is 4m A and its internal resistance is 400Ω.If this meter is to have a full deflection of 10A. Find the shunt resistance. CO3-App

9.		Draw block diagram of pulse generator.	CO2-U	
10.		Compare Analog and Digital Storage Oscilloscope.	CO2-U	

PART – C (5 x 16= 80 Marks)

11.	(a)	A 50Hz, alternating voltage of 150V(r.m.s) is applied in dependently to (i) Resistance of 10 Ω (ii) Inductance of 0.2H (iii) Capacitance of 50 μF. Find the expression for the instantaneous current in each case. Draw the phasor diagram in each case	CO3-App	(16)
		Or		
	(b)	Calculate the equation for the amount of power and current at any particular time, for both Capacitor and Inductor circuits.	CO3-App	(16)
12.	(a)	Illustrate the construction and working principle of synchronous motors.	CO1 -U	(16)
		Or		
	(b)	Illustrate the construction and Working Principles of Single phase Series Motor.	CO1 -U	(16)
13.	(a)	In a moving coil galvanometer, the deflection of the coil θ is related to the electrical current i. Discuss about the relation and Mention the factors affecting the sensitivity of Galvanometer.	CO3 -App	(16)
		Or		
	(b)	Explain the necessary ranges to resist the voltage in a voltmeter and how internal resistance deflects current.	CO3 -App	(16)
14.	(a)	Describe about the working of function generator in detail.	CO2-U	(16)
		Or		
	(b)	With a neat block diagram discuss about an AFO sine wave generator	CO2-U	(16)
15.	(a)	Describe the internal structure of Cathode Ray Oscilloscope with neat diagram.	CO2-U	(16)
		Or		
	(b)	Illustrate the purpose of vertical and horizontal deflection systems in CRO With necessary circuits.	CO2-U	(16)