C   **Reg. No. :** ⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚

Question Paper Code: U2404

B.E./B.Tech. DEGREE EXAMINATION, MAY 2022

Second Semester

Electronics and Communication Engineering

21UEC204- Basic Electrical and Instrumentation Engineering

(Regulations 2021)

Duration: Three hours   Maximum: 100 Marks

Answer All Questions

PART A - (5x 1 = 5 Marks)

1. At very low frequencies a series R-C circuit behaves as almost   CO1- U
   purely............ circuit

   (a) Resistive   (b) Inductive   (c) Capacitive   (d) None of the above

2. A stepper motor may be considered as a ……………… converter.   CO2- U

   (a) dc to dc   (b) ac to dc   (c) dc to ac   (d) digital-to-analog

3. The full-scale deflection current of an ammeter is 4 mA and its internal   CO3- App
   resistance is 400Ω. If this meter is to have a full deflection of 10 A,
   what is the value of the shunt resistance to be used?

   (a) 49.99 Ω   (b) 0.16 Ω   (c) 1.5 Ω   (d) 2.6 Ω

4. In a Wien-bridge oscillator for obtaining 160Hz frequency output what   CO4- App
   will be the capacitor value if resistance is selected as 1KΩ?

   (a) 10 μF   (b)1 μF   (c) I. 1 nF   (d) 10 nF

5. The light emitted by the zinc silicate coated fluorescent screen of cathode ray   CO5- U
   tube is usually of

   (a) Green color   (b)Yellow color   (c) Blue color   (d) White color

PART – B (5 x 3= 15 Marks)

6. Show that current through pure resistance is in phase with the applied   CO1- U
   voltage.

7. Mention the purpose of three main parts in stator of induction motor.   CO2- U

8. Why the PMMC instrument is not used for a.c measurements? CO3- U

9. Define sweep CO5- U

10. What are the modes of operation in dual trace CRO with two channels A and B? CO5- U

PART – C (5 x 16= 80Marks)

11. (a) Discuss in detail about the Auto transformers and also explain the losses of a transformer. CO1-U (16)

Or

(b) Explain the types of Transformer and derive the emf equation of transformer CO1-U (16)

12. (a) Explain in detail the principle of operations of single phase induction motor. CO2-U (16)

Or

(b) Why single phase induction motor is not self-starting? Explain the methods available to start the motor. CO2-U (16)

13. (a) Discuss in detail about the types of ohmmeter with neat diagram. CO3-U (16)

Or

(b) Explain the working Principle of Permanent magnet moving coil mechanism CO3-U (16)

14. (a) Explain the two operating modes employed in the working of frequency synthesized signal generators with neat diagram. CO4-U (16)

Or

(b) Discuss the working principles of sweep frequency generator with neat diagram. CO4-U (16)

15. (a) Describe the internal structure of Cathode Ray Oscilloscope with neat diagram. CO5-U (16)

Or

(b) Detail on different types of oscilloscope probes and transducers with the necessary circuits. CO5-U (16)

U2404