Code No.: EC743PE/EC724OE | R20 | H.T.No. | | | 8 | R | | | | | |

CMR ENGINEERING COLLEGE: : HYDERABAD
UGC AUTONOMOUS
IV–B.TECH–I–Semester End Examinations (Regular) - November- 2024
ELECTRONIC MEASUREMENTS AND INSTRUMENTATION
(Common for ECE, CSE)

[Time: 3 Hours] **[Max. Marks: 70]**

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

PART-A **(20 Marks)**

1. a) Define the terms Sensitivity and Resolution. [2M]
   b) Explain about the range extension of AC voltmeters. [2M]
   c) Explain about the function of heterodyne wave analyzer. [2M]
   d) Describe the operating principle of a function generator? [2M]
   e) List the features of CRT. [2M]
   f) What is the comparison between analog and digital storage oscilloscope? [2M]
   g) Write applications of LVDT. [2M]
   h) Discuss about Variable capacitance transducer. [2M]
   i) Distinguish between AC Bridges and DC Bridges. [2M]
   j) Explain briefly how do you measure moisture. [2M]

PART-B **(50 Marks)**

2. Explain the following terms in detail [3+3+4 M]
   (i) speed of response (ii) Fidelity (iii) Lag and Dynamic error.

OR

3. Construct the series type Ohmmeter and obtain expression for the current limiting resistor. [10M]

4. What is AF oscillator? Explain its operation along with circuit diagram. [10M]

OR

5. Illustrate the working of a function generator with a neat block diagram. [10M]

6. Discuss in detail the measurement of frequency by Lissajous method. [10M]

OR

7. Explain with block diagram and waveforms of dual trace CRO. [10M]

8. Derive the expression for gauge factor of a strain gauge. Also, explain about the thermocouples. [10M]

OR

9. Discuss about temperature transducers and RTD. [10M]

10. Find the unknown resistance using wheat stone bridge with following component values, R1=3.1 KΩ, R2=25 KΩ & R4=100 KΩ that causes bridge balanced. [10M]

OR

11. With neat sketch explain the measurement of Velocity? [10M]

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