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Question Paper Code: U3405

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

Fourth Semester

Electrical and Electronics Engineering

21UEE405-ELECTRICAL MEASUREMENTS AND INSTRUMENTATION

(Regulations 2021)

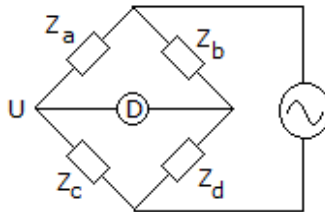
Duration: Three hours

Maximum: 100 Marks

Answer All Questions

PART A - (10 x 2 = 20 Marks)

1. Classify the types of calibration methodologies. CO1- U
2. State the need for calibration CO1- U
3. Outline the block diagram of Radial vane type Moving Iron instruments. CO1- U
4. List out the errors that occurs in PMMC instruments. CO1- U
5. In figure, $Z_a = 100\angle 50^\circ$, $Z_b = 300\angle -90^\circ$ and $Z_c = 200\angle 0^\circ$. For balanced condition, Z_d will be CO3- App



6. A Wheatstone bridge consists of the following parameters. $R_1=12K\Omega$, $R_2 = 16K\Omega$ and $R_3 = 42K\Omega$. Find the unknown resistance R_4 . CO3- App
7. Classify the different methods of magnetic tape recording. CO1- U
8. Enumerate the merits and demerits of pulse width modulation recording. CO1- U
9. A basic step of a 9 bit is 10.4mV. If 000000000 represents 0V, What output is produced if the output is 101101111? CO4-App
10. List the different types of Transducer. CO1- U

PART – B (5 x 16= 80 Marks)

11. (a) Explain the Functional elements of measurement system with a neat sketch. CO1- U (16)
- Or
- (b) Explain the static &dynamic characteristics of a measurement system. CO1- U (16)
12. (a) Illustrate the construction and working of single phase energy meter. CO1- U (16)
- Or
- (b) With a neat diagram explain the construction and working of electrodynamicometer type instruments. CO1- U (16)
13. (a) Illustrate the construction and working of laboratory type DC potentiometer with a neat sketch. CO1- U (16)
- Or
- (b) Illustrate the construction and working of Dual range DC potentiometer with a neat sketch. CO1- U (16)
14. (a) Explain the in detail about Direct recording method used in magnetic tape with a neat sketch. CO1- U (16)
- Or
- (b) Categorize the different types of printing methodology used for printing the documents onto the paper. CO1- U (16)
15. (a) Explain the in detail about types of transducers and selection of transducers for any applications. CO1- U (16)
- Or
- (b) Explain the construction and working of RTD with a neat sketch. CO1- U (16)