M.E. Second Semester (Electrical (Electronics & Power) Engineering) (New-CGS)

13321 : Digital Instrumentation : 2 EEPME 2

P. Pages : 2 | **AW - 3854**

Time : Three Hours | Max. Marks : 80

Notes : 1. Due credit will be given to neatness and adequate Dimensions.
2. Assume suitable data wherever necessary.
3. Illustrate your answer necessary with the help of neat sketches.

SECTION – A

1. a) Explain the different types of measurement errors. What is SPC? Give its applications. **7**

b) Explain: **6**
i) Quantum hall effect
ii) Josephson effect
iii) Von Klitzing constant

OR

2. What do you mean by standard? What is the significance of standard? Also explain the various international standards. **13**

3. a) Discuss the open loop and closed loop SHA architecture. **6**

b) Discuss the D to A converter architectures based on Resistor ladders. Also define various DAC performance parameters. **8**

OR

4. Explain the basic SHA operation with the help of its four mode specifications & necessary diagrams. **14**

5. What is TDR? Explain TDR applications and its different types. **13**

OR

6. a) Explain the basic dual slope ADC technique used in digital multimeters with its diagram and measurement cycle. **8**

b) Explain the following parameter for amplitude measurements: **5**
i) Average value
ii) RMS value
iii) Mean absolute deviation
iv) Crest factor
v) Form factor

SECTION – B

7. a) Explain frequency measurement and frequency ratio measurement with reference to electronic counters. **7**

b) Explain the working of AWG based on direct digital synthesis. **6**

OR

8. a) Draw and explain block diagram of modulation analyzer. **7**

b) Explain down conversion techniques. **6**

9. a) Compare analog oscilloscope, digital oscilloscope and spectrum analyzer. On what basis, do we select logic analyzer or oscilloscope for analysis. **8**

b) Explain dynamic signal analysis with the help of dynamic signal analyser. **5**

OR

10. a) Explain implementation and working of swept tuned spectrum analyzer. **7**

b) Explain the three common techniques used to make frequency domain measurements. **6**

11. a) Explain briefly IEEE 488 BUS. **7**

b) Explain in detail VXI Bus. **7**

OR

12. a) Explain RS232 serial bus standard with DCE and DTE interfaces. **8**

b) What is VLSI testing? Explain in brief with Automatic Test Equipment (ATE). **6**

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