M.E. Second Semester (Electrical (Electronics & Power) Engineering) (New - CGS)
13321 : Digital Instrumentation : 2 EEPME 2

P. Pages : 2

Time : Three Hours

AU - 3414

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) Categories the semiconductor components and explain them. Give examples of each. 7

   b) Explain various types of display devices and their technologies. 6

OR

2. a) What do you mean by S/H circuit? What is its necessity? 7

   b) Explain the following. 6
   i) Linearity with linearity specifications.
   ii) Threshold
   iii) Noise floor.

3. a) Explain the basic dual slope ADC technique used in digital multimeters with its diagram and measurement cycle. 7

   b) Describe interpolative and folding architecture. 7

OR

4. a) Explain in details the following ADC parameters. 10

   i) DNL   ii) INL

   iii) Offset & Gain error   iv) Figure of Merit

   v) ENOB.

   b) Give the classification of SHA with their architectures. 4

5. Explain the basic operation of an oscilloscope with necessary diagram for each section in details. 13

OR

6. Classify the signals. List out the primary and secondary parameters of various waveforms along with the instruments used for measuring them. Also explain various pulse parameters related to ideal pulse and practical pulse. 13

AU - 3414   1   P.T.O

SECTION – B

7. a) Enlist the different modes of operation of electronic counters and explain any two modes in detail. 9

b) Compare AWG and CWG. 4

OR

8. a) What are the key signal generator specifications? Explain them. 7

b) Explain frequency domain synthesis. Which technique fall into the category of frequency domain synthesis? 6

9. a) List the types of analysis with reference to logic analyser. Explain timing and state analysis in details. 7

b) Explain the various controls employed in modern spectrum analysis. 6

OR

10. a) Explain super heterodyne spectrum analyzer in details. 7

b) Compare Analog oscilloscope, Digital Oscilloscope and spectrum analyzer. On what basis, do we select oscilloscope or Logic analyzer for analysis? 6

11. a) Explain GPIB device communication and its interface functions. 7

b) Write a short note on VXI Bus. 7

OR

12. a) What is ADSL standard? Explain lab test set-up for testing an ADSL. 7

b) What is SCPI? Explain with the help of SCPI instrument model? 7

****