# B.TECH SEM – V (2007 COURSE) (ELECTRONICS) : WINTER - 2017

## SUBJECT: ELECTRONIC INSTRUMENTS AND MEASUREMENTS SYSTEMS

Day : **Thursday**
Date : **18/01/2018**

Time : **02.30 PM TO 05.30 PM**
Max. Marks : 80

**W-2017-2467**

**N.B.:**

1) **Q. No. 1** and **Q. No. 5** are **COMPULSORY**. Out of remaining questions attempt **ANY TWO** questions from each section.
2) Answers to both the sections should be written in the **SEPARATE** answer books.
3) Figures to the right indicate **FULL** marks.
4) Draw neat and labeled sketch **WHEREVER** necessary.
5) Assume suitable data, if necessary.

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## SECTION - I

**Q. 1** **a)** State the principle and working of 'True RMS meter'. **(05)**

**b)** Describe the role of plug in units of frequency counter. **(05)**

**c)** List different features of IEEE 488 bus. **(04)**

**Q. 2** **a)** Draw and explain the operation of vector voltmeter. **(07)**

**b)** Draw the block diagram and discuss the operation of digital multimeter. **(06)**

**Q. 3** **a)** Explain with block diagram: **(07)**

**i)** TCXO **ii)** OCXO

**b)** Write note on time interval measurement in frequency counter. **(06)**

**Q. 4** **a)** With a neat block schematic, explain how radio receiver can be tested using computer. **(07)**

**b)** What is mean by 'virtual instrument'? Give one example. **(06)**

## SECTION - II

**Q. 5** **a)** What are the applications of spectrum analyzer? **(05)**

**b)** Explain the terms: **(05)**

**i)** Phase jitter **ii)** S/N ratio

**c)** Explain in brief horizontal deflection system. **(04)**

**P. T. O.**

**Q. 6** **a)** Explain logic analyzer with neat functional block diagram. **(07)**

**b)** Draw a functional block diagram of the heterodyne wave analyzer. Explain in detail. **(06)**

**Q. 7** **a)** Explain measurement of s-parameter using vector network analyzer. **(07)**

**b)** Differentiate between scalar and vector network analyzer. **(06)**

**Q. 8** **a)** Write a short note on various CRO probes and its applications. **(07)**

**b)** Describe DSO attachments: **(06)**

**i)** FFT **ii)** Math function

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