



US – 411

VI Semester B.Sc. Examination, May 2017  
(NS) (2013-14 and Onwards) (Prior to 2016-17) (Repeaters)  
**ELECTRONICS – VIII**  
**Electronic Instrumentation and Verilog**

Time : 3 Hours

Max. Marks : 70

**Instruction :** Answer **any five** questions from Part – A, **four** from Part – B and **five** from Part – C.

PART – A

Answer **any five** questions :

(5×8=40)

1. a) Define the following terms with respect to measurement systems :
  - i) Speed of response
  - ii) Fidelity
  - iii) Lag and
  - iv) Dynamic Error.
- b) Explain the principles of resistive and capacitive transducers. (4+4)
2. Explain the construction and working of LVDT. Mention its applications. 8
3. a) With a block diagram explain the working of carrier amplifier.
- b) Why isolator is needed in signal conditioning circuit ? (4+4)
4. With a block diagram explain the operation of EEG system. 8
5. With an example, explain structural and behavioral style of verilog. 8
6. With an example, explain arithmetic, logical concatenation and conditional operators in Verilog. 8
7. What is continuous assignment ? Write a code in dataflow style to implement full adder. 8
8. With an example explain different types of loop statements in verilog. (2+6)

P.T.O.



## PART - B

Answer **any four** questions :

(4×5=20)

9. The expected value of the voltage across a resistor is 46 V. However, the measurement gives a value of 45.25 V. Calculate absolute error, percentage error, relative accuracy, percentage accuracy.
10. Write a note on origin of bio-electric signals.
11. Draw the block diagram of ECG and explain the function of filter section.
12. Write a Verilog code for 8 : 1 multiplexer.
13. Write a Verilog code for half adder and half subtractor.
14. Write a Verilog code for binary to gray and gray to binary converter.

## PART - C

Answer **any five** sub-questions :

(5×2=10)

15.
    - a) Define gauge factor of strain gauge.
    - b) List the applications of thermistors.
    - c) What are resting and action potentials ?
    - d) List the electrodes for EMG.
    - e) What is the bit pattern for the number in Verilog 3' O572 ?
    - f) Draw a waveform upon execution of following statement :  
always  
#10 clk = ~ clk;
    - g) Write syntax for blocking and non-blocking assignment statements.
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