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S.E. (Electrical) (II Sem.) EXAMINATION, 2010

ANALOG AND DIGITAL ELECTRONICS

(OLD 2003 COURSE)

Time : Three Hours

Maximum Marks : 100

- N.B. :— (i) Answer 3 questions from Section I and 3 questions from Section II.
- (ii) Answers to the two Sections should be written in separate answer-books.
- (iii) Neat diagrams must be drawn wherever necessary.
- (iv) Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.

SECTION I

1. (a) Draw and explain working of any *one* type of multistage amplifier with frequency response. [8]
- (b) Explain the working of Common Emitter type amplifier. [8]
- Or
2. (a) Explain working of Emitter Coupled amplifier. [10]
- (b) Compare BJT and FET as an amplifier. [6]

P.T.O.

3. (a) Draw pin diagram of Op-Amp (IC 741) and explain the function of each pin. [8]

(b) Explain how Op-Amp works as non-inverting amplifier. Draw neat waveforms. Also derive gain of the Op-Amp for the same. [10]

Or

4. (a) Explain operation of IC 555 as Monostable Multivibrator. [8]

(b) Draw a neat circuit diagram of sine wave generator using Op-Amp. Also explain its operation with waveforms. [10]

5. (a) With the help of neat diagrams explain over-voltage protection circuit used for Voltage Regulators. [8]

(b) Explain the working of any *one* type of Analog to Digital converter. [8]

Or

6. (a) Explain the working of any *one* type of Digital to Analog converter. [8]

(b) Explain the function of LM 337 as a voltage regulator. [8]

SECTION II

7. (a) Explain the operation of J-K flip-flop with truth table. [8]
(b) What is the use of PRESET and CLEAR in flip-flop ? [8]

Or

8. (a) Enlist the different triggering methods used in flip-flop. Explain any *one* of them. [8]
(b) Explain the operation of D flip-flop with truth table. [8]

9. (a) Explain the working of any *one* type of synchronous counter with waveforms. [10]

- (b) Explain the working of SISO type of shift register. [8]

10. (a) Explain the difference between Synchronous and Asynchronous Counter. [8]

- (b) Draw and explain working of Johnson's ring counter. [10]

11. (a) Explain the different types of memories. [8]

- (b) Explain the operation of 1 : 4 De-Multiplexer (DE-MUX) with truth table. [8]

Or

12. Write short notes on the following :

[16]

- (i) Opto-Isolator
- (ii) LED display system
- (iii) Opto-Encoder
- (iv) Multiplexer (MUX).