

B.E. Fourth Semester (Elect. Engineering (Elect. & Power Elect.)) (CGS)
10544 : Analog & Digital Circuits : 4 EP 03 / 4 EL 03 / 4 EE 03

P. Pages : 2

AU - 2582

Time : Three Hours



Max. Marks : 80

- Notes :
1. Answer **three** question from Section A and **three** question from Section B.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Illustrate your answer necessary with the help of neat sketches.
 5. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION - A

1. a) Define the following parameters of OP- Amp and specify their values for IC 741. 8
- i) PSRR
 - ii) I/P bias current.
 - iii) Input offset voltage and currents.
 - iv) Thermal drift.
 - v) Slew rate.
 - vi) CMRR.
- b) Explain the open loop frequency response of an Op- Amp in a brief. Indicate the response of a typical practical Op-Amp IC741. 6

OR

2. a) Explain dominant pole frequency compensation technique in detail. 7
- b) Explain how overload protection can be achieved in supply using Op- Amp assembly. 7
3. a) Explain how transistor is used as a differential amplifier in Op-Amp. 7
- b) Draw the circuit for integrator and derive its O/P equation with waveforms. 6

OR

4. a) Draw the circuit of differentiator and derive its equation with waveforms. 6
- b) Explain in brief the operation of Astable Multivibrator. 7
5. a) Draw and explain IC 555 based mono-stable multivibrator to achieve the output pulse of 10ms with 9v amplitude. 7
- b) Explain the operation of series Op- Amp regulator with neat circuit diagram. 6

OR

6. a) Design a high voltage regulator using IC 723 for following specifications. 7
i) O/P voltage = 8 v Approx.
ii) O/P current = 90 mA Approx.
b) State the function of each pin of IC – 555. 6

SECTION – B

7. a) Explain ECL family in detail. 7
b) Explain how CMOS acts as a inverter. 6

OR

8. a) How NMOS can be used as a NOR gate. 6
b) Explain TTL logic family in detail. 7
9. a) Implement the expression using 8:1 MUX $f(A,B,C,D) = \sum m(2,5,8,11,12,15)$ 7
b) Implement 32:1 MUX using 8:1 MUX only. 6

OR

10. a) Explain BCD to decimal decoder with the help of Truth table. 6
b) Explain in detail the classification of RAM (Random Access memory). 7
11. a) Explain race around condition in JK FF. 7
b) Draw and explain negative edge triggered D and T Flip- Flop. 7

OR

12. a) Design a 4-bit shifter using D-FF. 7
b) Design a 2 bit decade up counter using JK FF. 7

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