Total No. of Questions : 10] [Total No. of Printed Pages : 2

Roll No. .....

EX–405(N)

B. E. (Fourth Semester) EXAMINATION, Dec., 2010

(New Scheme)

(Electrical & Electronics Engg. Branch)

ELECTRONICS DEVICES AND CIRCUITS – II

[EX – 405(N)]

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 35

Note : Attempt *one* question from each Unit. All questions carry equal marks. Assume suitable data if missing.

Unit – I

1. What is an op-amp. ? List *four* basic building blocks of an op-amp. and explain them.

Or

2. Design a differentiator to differentiate an input signal that varies in frequency from 10 Hz to about 1 kHz. If a size wave of 1 volt peak at 1000 Hz is applied to the above designed differentiator, draw its output waveform.

Unit – II

3. Design a resonant RLC bandpass filter of figure shown below, with f_o = 160 Hz, 3-dB bandwidth, B = 16 Hz and the minimum input resistance seen by the voltage source V_s of 1 k Ω. Is this a practical circuit ?

P. T. O.

Or

4. Draw the circuit diagram of a voltage to frequency converter using 555 timer and explain its working.

Unit – III

5. What do you understand by woofer, squawker and tweeter speakers ? Explain the necessity of cross-over networks.

Or

6. Describe the construction and principle of operation of the following :
   (i) Carbon microphone
   (ii) Moving coil loudspeakers

Unit – IV

7. Explain in detail the construction and operation of a two cavity klystron amplifier with the help of neat diagrams.

Or

8. Using energy band diagram, explain the tunnel diode characteristics point to point. Also list its applications.

Unit – V

9. Explain with neat diagrams the difference between TTL and DTL family.

Or

10. Write short notes on any *two* of the following :
    (i) CMOS inverter
    (ii) Interfacing BIT and CMOS gates
    (iii) FET and MOS switches