Total No. of Questions : 10] [Total No. of Printed Pages : 3

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EX–405

B. E. (Fourth Semester)
EXAMINATION, June, 2012

(Grading/Non-Grading)

(Electrical & Electronics Engg. Branch)

ELECTRONICS DEVICES AND CIRCUITS – II

(EX – 405)

Time : Three Hours

Maximum Marks : $\begin{cases} GS : 70 \\ NGS : 100 \end{cases}$

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

Unit – I

1. Draw the circuit of an emitter coupled differential amplifier. Explain why the CMRR $\rightarrow \infty$ for a symmetrical circuit with Re $\rightarrow \infty$.

Or

2. Why is Re in an emitter coupled replaced by a constant current source ? Draw such a circuit. Explain why the network replacing Re acts as an approximately constant current I_0.

Unit – II

3. What are the advantages of active filters over passive filters ? Design a low pass filter at a cutoff frequency of 1 kHz with

P. T. O.

a pass band gain of 2. Plot the frequency response of the above filter.

Or

4. Sketch the idealized characteristics for the following types and explain each *one* of them :
   (i) Loss pass
   (ii) High pass
   (iii) Band pass
   (iv) Band rejection
   (v) All pass

Unit–III

5. Write short notes on the following :
   (i) Tape and tape materials
   (ii) Recording playback and Erase heads
   (iii) Dolby system of noise reduction

Or

6. Define reverberation time. Explain the importance of reverberation. Write down the Sabine's equation for reverberation times and define the terms used.

Unit–IV

7. Give the construction of a magnetron oscillator. Discuss its properties.

Or

8. What are the limitations of conventional tubes at microwave frequencies ?

Unit–V

9. Explain the following terms in the context of digitals IC's :
   (i) Fan in

(ii) Fan out

(iii) Static power dissipation

(iv) Dynamic power dissipation

Or

10. Discuss the various variants of the basic TTL series of ICs. How are the drawbacks of the 74 XX series overcome in these variants ? Explain.