$\mathbf{R07}$ 

### I B.Tech Examinations, May 2011 BASIC ELECTRICAL AND ELECTRONICS ENGINEERING **Bio-Technology**

Time: 3 hours

Code No: R07A10201

Max Marks: 80

#### Answer any FIVE Questions All Questions carry equal marks \*\*\*\*

- 1. A Hartley oscillator is designed with  $L_1 = 2$ mH,  $L_2 = 20\mu$ H and a variable capacitance. Determine the range of capacitance values is the frequency of oscillation is varied from 2050 KHz to 3050 KHz. [16]
- 2. Draw the circuit diagram of single tuned class A power amplifier using NPN transistors and explain clearly its operation. [16]
- 3. Explain how UJT works as a relaxation oscillator.
- 4. (a) Simplify the function using Karnaugh map:  $f(A, B, C, D) = \Sigma (0, 2, 6, 10, 11, 12)$ f (Don't Care) =  $\Sigma$  (3, 5, 7, 8).
  - (b) Realize the following function using EX-OR and EX-NOR gates: f(A, B, C, D) = A B C + A B C + A C D + A C D.[16]
- 5. Obtain the relationship between currents and the relationship between voltages in a delta connected system. Hence derive the equation for power in such a system.

[16]

[16]

- 6. With the help of a neat sketch explain the construction and operation of attraction type moving iron instrument. [16]
- 7. Describe the constructional features of a dc machine with neat sketch. [16]
- 8. Explain the construction and working of an SCR with relavant graphs. [16]

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