



B.Sc. (With Credits)-Regular-Semester 2012 Sem IV

B.Sc.24132 Electronics-II

(Digital Electronics - II)

Paper - II

P. Pages : 4

Time : Three Hours

Max. Marks : 50

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- Notes :
1. All questions are compulsory.
 2. Each questions carry equal marks.
 3. Draw neat diagram wherever necessary.
 4. Use of log table / calculator is allowed.

1. Either :

- a) Explain the working of 3-bit serial-in - **5+5**
serial -out shift register. Give its truth table
and timing diagram.
Draw a logic diagram of 4-bit parallel in
parallel out shift register and explain its
working.

OR

- b) What is ROM? State different types of **5+5**
ROM and explain.
How will you expand word size in
semiconductor memories? Explain with
suitable example.

2. Either :

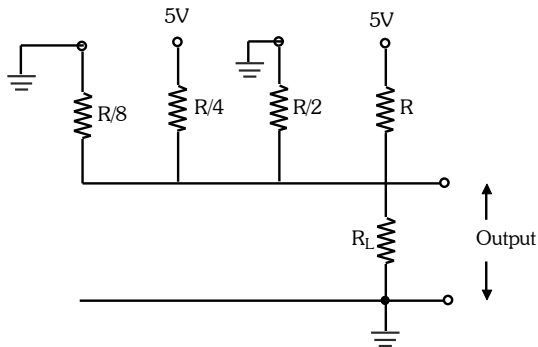
- a) With necessary circuit diagram, explain the working of diode ROM. **5+5**
What is the advantage of on chip decoding? Explain with suitable example.

OR

- b) Explain the construction and working of bipolar RAM cell. **6+4**
Explain in brief, construction of CCD devices.

3. Either :

- a) What is D/A converter? **7+3**
Explain the construction and working of 4-bit R-2R ladder type D/A converter.
Find output of the following circuit.



OR

- b) Explain the working of a weighted resistor type D/A converter. **10**
State its drawbacks.
How can it be improved by using Op-Amp?

4. Either :

- a) Draw the logic diagram of counter type A/D converter and explain its working. State its advantages and drawback. **7+3**
Calculate maximum conversion time for counter type A/D converter which produces 6 bit binary output. The clock frequency is 250KHz.

OR

- b) With the help of Schematic diagram, explain the working of a dual slope A/D converter. Derive necessary formula and comment upon its speed and accuracy. **10**
- 5.** a) Define volatile and non volatile memory. **2½**
Give one example of each.

- b) Explain difference between static and **2½** dynamic RAM cell.
- c) Explain need of ADC and DAC in **2½** electronic instrumentation system.
- d) Explain the use of latch in a digital **2½** frequency meter.
