203143

Seat No.	

S.E. Electrical (Semester – I) Examination, 2014
ANALOG AND DIGITAL ELECTRONICS
(2012 Course)

Time : 2 Hours Max. Marks : 50

Instructions : *1) Answer Q. **1** or Q. **2**, Q. **3** or Q. **4**, Q. **5** or Q. **6**, Q. **7** or Q. **8**.*
*2) Neat diagrams must be drawn **whenever** necessary.*
*3) Figures to the **right** side indicate **full** marks.*
*4) **Use** of calculator is **allowed**.*
*5) Assume suitable data, **if necessary**.*

1. a) Explain Hexadeciamal numbering system with its application. **6**

   b) Explain in details different types of shift resisters along with data movements. **6**

   OR

2. a) Explain race around condition and also state the remedial action for it. **6**

   b) Subtract following numbers using I's complement a) +25, –23, b) +15, – 21. **6**

3. a) Draw the block diagram of OPAMP 741. For a practical OPAMP give the values of following parameter. **6**

   1) CMRR 2) Slew rate
   3) Bandwidth 4) PSRR
   5) Offset voltage 6) Output impedance.

   b) Draw the diagram of IC 555 configured in monostable mode. Draw necessary waveforms. Give the formula for T_{on}. **7**

   OR

4. a) Explain the grounded type voltage to current converter using OPAMP. **7**

   b) Draw the circuit of instrumentation amplifier using 3 OPAMPS and explain it. Give two application. **6**

5. a) Give comparison between BJT and FET. **6**

   b) Explain the operation transistorized transformer coupled CE amplifier with neat circuit diagram. **6**

   OR

6. a) Write a short note on push pull amplifier. **6**

   b) Draw and explain transfer characteristics and drain characteristics of FET. **6**

P.T.O.

7. a) The single phase full wave rectifier supplies very high inductive load. The turn ratio of transformer is unity. Determine the harmonic factor of the input current and the input power factor of the rectifier. **6**

   b) What are the advantages and disadvantages of three phase rectifier over single phase rectifier ? **7**

OR

8. a) The single phase half wave rectifier has purely with R load. Determine the **6**
   i) Efficienty
   ii) Form factor
   iii) Ripple factor
   iv) Transformer utilization factor
   v) Peak inverse voltage.

   b) A voltage of 220 sin ($100\pi t$) is applied to a half wave rectifier with a load resistance 10 K ohm. Calculate the maximum current, rms current, average current, ac power output and ripple factor. **7**

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