

203142



Seat No.	
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S.E. Electrical (Semester –I) Examination, 2014
ANALOG AND DIGITAL ELECTRONICS
(2008 Course)

Time : 3 Hours

Max. Marks :100

Instructions : 1) Answers to the **two** Sections should be written in **separate** answer books.

2) Answer **any three** questions from **each** Section.

3) **Neat** diagrams must be drawn **wherever** necessary.

4) Figures to the **right** side indicate **full** marks.

5) **Use** of calculator is **allowed**.

6) Assume suitable data if **necessary**.

1. a) Compare with neat diagram Direct coupled, RC coupled & transformer coupled multistage BJT amplifier. 8
 b) Draw and explain transfer characteristics and drain characteristics of FET. 8

OR
2. a) Give comparison between BJT & FET. 8
 b) Write a short note on PUSH PULL amplifier. 8
3. a) List and explain ideal and practical parameters of OPAMP. 8
 b) Explain OPAMP as a : 8
 1. Integrator
 2. Precision rectifier

OR
4. a) Explain OPAMP as a : 8
 i) Zero crossing detector
 ii) V-I & I-V converter
 b) What is the basic requirement of Instrumentation Amplifier ? Draw and explain three Op-amp Instrumentation Amplifier. 8
5. a) Draw neat diagram and explain OPAMP as a Triangular wave generator. State applications. 9
 b) Draw and explain pin and block diagram of IC555. 9

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6. a) What is difference between fixed and variable regulator. Explain with neat circuit diagram IC-317 as a variable voltage regulator. Also derive formula for variable voltage available at the ouutput of IC LM 317 in terms of circuit parameters. **9**
- b) Draw and explain with circuit diagram frequency response of active Low pass filter. **9**

SECTION – II

7. a) Write steps to follow binary to gray and gray to binary conversion with example. **6**
- b) Convert following number in to specified number system. **4**
- 1) $(623.77)_8 = ()_{10}$
- 2) $(2AC5.D)_{16} = ()_8$
- c) Convert the following : **8**
- 1) $(10110110.001)_2 = ()_{BCD}$
- 2) $(630.4)_8 = ()_{10}$
- 3) Find BCD equivalent of $(25)_8$

OR

8. a) Simplify the following function using K-map and realize using logic gate. **9**
- $F(A, B, C, D) = \sum M(2, 9, 10, 12, 13) + d(15, 14).$
- b) Prove the following expressions. **9**
- 1) $\overline{(A + B + C)} D = \overline{A} \overline{B} \overline{C} + \overline{D}$ www.sppuonline.com
- 2) $\overline{A} \overline{B} + \overline{C} D + \overline{E} F = (\overline{A} + B). (C + \overline{D}). (\overline{E} + \overline{F})$
- 3) $\overline{A} \overline{B} + \overline{B} C + \overline{C} D = (\overline{A} + B). (B + \overline{C}). (\overline{C} + D)$

9. a) Explain two bit comparator using K-map. **8**
- b) With neat connection diagram explain operation of 3 bit ripple counter, draw timing diagram and write truth table. **8**

OR

10. a) Design and explain 8 : 1 multiplexer using 4 : 1 multiplexer. **8**
- b) Draw and explain working of 4 bit twisted ring counter. **8**
11. a) Explain operation of JK Flip Flop using D Flip Flop using NAND Gate. **8**
- b) Explain in details types of Shift registers with Truth tables. **8**

OR

12. a) Design a MOD-5 asynchronous counter with timing diagram. **8**
- b) Give classification of memories and explain RAM, ROM and EPROM memories. **8**

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