Total No. of Questions—**8**] [Total No. of Printed Pages—**2**

Seat No.	

[5057]-2034

S.E. (Electrical) (First Semester) EXAMINATION, 2016

ANALOG AND DIGITAL ELECTRONICS

(2005 PATTERN)

Time : Two Hours **Maximum Marks : 50**

N.B. **:—** (*i*) Attempt *All* questions.

(*ii*) Figures to the right indicate full marks.

1. (*a*) Perform following arithmetic operations : [6]

(1) $(3A.2F)_{16}$ into decimal

(2) $(0.00011110101101)_2$ in hexadecimal

(3) $(0.BF85)_{16}$ into octal.

(*b*) Explain the operation of JK flip-flop with truth table. What do you mean by race round condition in JK flip-flop ? [6]

Or

2. (*a*) Represent the following four variable logic function using K map : [6]

$$F(A,B,C,D) = \sum m\ (0,1,2,3,5,7,8,9,11,14)$$

(*b*) What is the difference between asynchronous and synchronous counter ? [6]

3. (*a*) Explain the function of 78XX and 79XX voltage regulator. [6]

(*b*) Explain the working of OP-AMP as an instrumentation amplifier. State applications. [7]

P.T.O.

Or

4. (*a*) Explain the working of IC 555 as Monostable multivibrator. [6]

(*b*) Draw neat diagram and explain operation of OP-AMP as sine wave generator with output waveforms. [7]

5. (*a*) Derive equation for DC load line and show Q point on DC load line. [6]

(*b*) Describe operation of transformer coupled two stage amplifier with advantages and disadvantages. [7]

Or

6. (*a*) Write a short note on push-pull amplifier with waveforms. [7]

(*b*) Draw and explain JFET output characteristic. [6]

7. (*a*) Explain the working of single-phase full-wave bridge rectifier with RL load. [6]

(*b*) Draw a neat diagram of three-phase full-wave bridge rectifier with R load and explain its working. [6]

Or

8. (*a*) Draw and explain full-wave precision rectifier. [6]

(*b*) A single-phase full bridge diode rectifier is supplied from 230 V, 50 Hz source. The load consists of R = 10 Ω and a large inductance so as to keep load current constant, Determine :

(1) Average values of output voltage and current

(2) Average and rms value of diode current. [6]