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Total No. of Questions : 6] [Total No. of Printed Pages : 2

[4061]-111

F. E. Examination - 2011

BASIC ELECTRONICS ENGINEERING

(2008 Pattern)

Time : 2 Hours] **[Max. Marks : 50**

Instructions :

(1) Answer Q. 1 or Q. 2, Q. 3 or Q. 4 and Q. 5 or Q. 6

(2) Figures to the right indicate full marks.

(3) Neat diagrams must be drawn wherever required.

(4) Use of electronic pocket calculator is allowed.

(5) Assume suitable data, if necessary.

Q.1) (A) In a center tapped FWR; rms half secondary voltage is 10V. Assume ideal diodes. RL = 2Ω.

Find :

(a) Peak Current

(b) DC Load Voltage

(c) Rectifier Efficiency **[06]**

(B) Draw constructional details and explain operations and characteristics of n-channel MOSFET (enhancement type). **[08]**

(C) Write short note on : Seven Segment Display. **[04]**

OR

Q.2) (A) For Zener Voltage Regulator, if Iz min = 2 mA, Iz max = 20 mA, Vz = 4.7V. Determine the range of input voltage over which output voltage remains constant.

R_S = 1kΩ, R_L = 1kΩ, Z_Z = 0Ω. **[08]**

(B) What is DC Load Line ? Derive the equation of CE amplifier and explain criteria for selection of operating point. **[06]**

(C) Explain BJT as a Switch. **[04]**

Q.3) (A) Draw diagram of 8 : 1 MUX. What is relation between numbers of select lines and inputs ? **[04]**

(B) Draw and explain the functional block diagram of OP-AMP. **[04]**

(C) Draw neat circuit diagram of Ideal Integrator and explain its operation with input and output waveform. Give drawbacks of this circuit. How they are overcome in Practical Integrator ? **[08]**

OR

Q.4) (A) Draw and explain operation of CMOS NAND Gate with truth table. **[04]**

(B) Draw neat circuit diagram and explain closed loop non-inverting adder (Summing Amplifier) using OP-AMP. Derive the expression for V_O. **[06]**

(C) Draw and explain block diagram of Micro-controller. **[06]**

Q.5) (A) Write short notes : **(Any Two)** **[06]**

(a) Two Wire Transmitter

(b) PID Controller

(c) Data Logger

(d) PLC System

(B) Give comparison between AM with FM. **[04]**

(C) Draw constructional details of LVDT (Displacement Transducer). Explain its operation. State its advantages and disadvantages. **[06]**

OR

Q.6) (A) What is need of Modulation ? Explain. **[04]**

(B) Draw and explain block diagram of Mobile Communication System. Explain Concept of Cellular. **[06]**

(C) Draw block diagram of Electronic Weighing Machine and explain its operation. **[06]**
