

312309

12425

03 Hours / 70 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Answer each next main Question on a new page.
- (3) Illustrate your answers with neat sketches wherever necessary.
- (4) Figures to the right indicate full marks.
- (5) Assume suitable data, if necessary.
- (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
- (7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. **Attempt any FIVE of the following :** **10**
- a) Define Active and Passive component.
 - b) Draw symbol of Zener diode and LED.
 - c) State any two application of BJT.
 - d) State any four specification of capacitor.
 - e) State need of biasing for transistor.
 - f) Compare positive feedback and negative feedback on the basis of –
 - i) Overall phase shift
 - ii) Application
 - g) State name of regulator IC for fixed voltage +12V and –5V.

P.T.O.

- 2. Attempt any THREE of the following :** **12**
- a) State any four features of the IC 723.
 - b) Draw output, input characteristics of CE configuration.
 - c) Compare voltage source and current source on the basis of –
 - i) Definition
 - ii) Types
 - iii) Circuit Diagram
 - iv) V.I. Characteristics
 - d) Explain working principle of zener diode with neat diagram.
- 3. Attempt any THREE of the following :** **12**
- a) Draw circuit diagram of full wave center tapped rectifier. Also sketch input and output voltage waveform.
 - b) Define filter. Give it's type and Draw π type filter.
 - c) Compare RC oscillator and LC oscillator on the basis of –
 - i) Frequency of oscillator
 - ii) Frequency stability
 - iii) Types
 - iv) Application
 - d) Draw block diagram of regulated DC power supply. State the function of each block.
- 4. Attempt any THREE of the following :** **12**
- a) Explain operation of RC Integrator circuit with neat diagrams.
 - b) List application of Resistor and Inductor.
 - c) Draw symbol's of the following devices.
 - i) BJT
 - ii) JFET
 - iii) MOSFET – enhancement type
 - iv) MOSFET – Depletion type

- d) Explain working operation of Hartley oscillator with neat circuit diagram.
- e) Define oscillator. State Barkhausens Criterion for oscillator.

5. Attempt any TWO of the following :

12

- a) Draw block diagram of SMPS. Also state function of each block of SMPS.
- b) Compare of transistor configuration of CB, CE, CC on the basis of –
 - i) Input Resistance
 - ii) Output Resistance
 - iii) Voltage gain
 - iv) Current gain
- c) Calculate the value of Resistor using color code method.
 - i) Red Orange Blue Gold
 - ii) Orange Orange Red Silver
 - iii) Blue Grey Orange Gold

6. Attempt any TWO of the following :

12

- a) Define α , β and γ of transistor and derive expression of relationship between α and β of transistor.
 - b) Explain working principle of RC phase shift oscillator with neat circuit diagram. Also state it's any three application.
 - c) Define the following parameters of rectifier –
 - i) Average DC voltage
 - ii) Average DC current
 - iii) Ripple factor
 - iv) PIV of diode
 - v) TUF
 - vi) Efficiency
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