312309

23242

3 Hours / 70 Marks Seat No. | | | | | | | | |

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) Use of Non-programmable Electronic Pocket Calculator is permissible.

(6) 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 component. Give two examples.

b) Draw symbols of zener diode and photodiode.

c) List configuration of BJT.

d) Draw a neat sketch of Sinusoidal signal and label the following:

i) Time period

ii) Amplitude

iii) Peak to peak voltage

e) State relation between emitter current (IE), Base current (IB) and collector current (IC) of BJT.

f) State applications of Hartley Oscillator.

g) Define the term 'Load Regulation'.

Marks

2. Attempt any THREE of the following: **12**

a) Draw the block diagram of regulated power supply and state the function of each block.

b) In a common base configuration, current amplification factor is 0.7. If emitter current is 2mA, determine the value of base current. Also draw circuit diagram of CB configuration.

c) Differentiate active and passive electronic components on any four points.

d) Sketch circuit diagram and input, output waveform of full wave bridge rectifier. State its efficiency.

3. Attempt any THREE of the following: **12**

a) Explain the construction and working of OLED with help of diagram.

b) Compare Clipper and Clamper circuits with following parameters:

i) Definition

ii) Components are used

iii) Energy components are required

iv) Application

c) State type of feedback used for oscillator circuit.
Explain Barkhausen criteria.

d) Draw circuit diagram and describe the working of zener diode as voltage regulator.

4. Attempt any THREE of the following: **12**

a) Sketch circuit diagram of center tap rectifier with LC filter. State function of each component.

b) Explain following signal parameters:

i) Amplitude

ii) Cycle

iii) Time period

iv) Wavelength

c) List types of biasing. Explain with neat sketch voltage divider biasing.

d) Explain with neat sketch working principle of crystal oscillator.

e) Explain with neat sketch working principle of RC phase shift oscillator.

Marks

5. Attempt any TWO of the following: **12**

a) Write need of SMPS. Draw the block diagram of switched mode power supply and describe its working.

b) Describe the working of transistor as a switch with neat circuit diagram.

c) i) Compare Unipolar and Bipolar Devices

ii) Ideal and Non ideal voltage source.

6. Attempt any TWO of the following: **12**

a) Explain with diagram construction and working of N-channel Enhancement MOSFET.

b) Explain with circuit diagram Wein bridge oscillator. Write the equation for output frequency.

c) Explain RC integrator and RC differentiator circuit with following points:

i) Circuit Diagram

ii) Waveform