

2028275(028)

Diploma In Engg. (Second Semester) Examination,

April-May 2021

NITTR

(New Scheme)

(ET & T Engg. Branch)

BASIC ELECTRONICS ENGINEERING

Time Allowed : Three hours

Maximum Marks : 70

Minimum Passing Marks : 25

Note : All questions are compulsory unless mentioned otherwise. In case of any doubt or dispute, English version question should be treated as final.

1. (a) The process of adding impurity in intrinsic semiconductor is called :

1

(i) Adding

(ii) Dopping

(iii) Constructing

(iv) None of the above

[2]

- (b) Define semiconductor and explain types of extrinsic semiconductor. 3
- (c) Explain the formation of depletion layer, working of pn junction diode and draw the equivalent circuit diagram. 10

Or

Explain barrier potential in pn junction diode and also explain VI characteristic of pn junction diode.

2. (a) The rectifier is a : 1
- (i) DC to AC converter
 - (ii) AC to DC converter
 - (iii) DC to DC converter
 - (iv) None of the above
- (b) Define following terms of rectifier : 3
- (i) Ripple Factor
 - (ii) Peak Inverse Voltage
 - (iii) Efficiency
- (c) Explain bridge rectifier in following terms : 10
- (i) Working
 - (ii) Circuit diagram and waveform

2028275(028)

[3]

- (iii) Applications
- (iv) Advantages and disadvantages

Or

Explain full wave rectifier with LC filter in following terms :

- (i) Working
 - (ii) Circuit diagram and waveform
 - (iii) Applications
 - (iv) Advantages and disadvantages
3. (a) The primary function of clamper circuit is : 1
- (i) Introduce a dc level in to an ac signal
 - (ii) Suppress variation in signal voltage
 - (iii) Clips both half of input signal
 - (iv) None of the above
- (b) Explain clipper and clamper circuit. 3
- (c) Explain Zener diode in following terms : 10
- (i) Working
 - (ii) Construction and symbol
 - (iii) Application

2028275(028)

PTO

[4]

4. (a) FET consist of: 1
- (i) Source
 - (ii) Drain
 - (iii) Gate
 - (iv) All of above
- (b) Explain α and β in transistor and also write relation between α and β . 3
- (c) Explain the CE configuration of transistor in following terms: 10
- (i) Circuit diagram
 - (ii) Working
 - (iii) Input and output characteristics
- Or**
- Explain JFET in following terms:
- (i) Circuit diagram
 - (ii) Working
 - (iii) Input and output characteristics
5. (a) The ideal opamp has the following characteristics: 1
- (i) $R_i = \infty, A = \infty, R_o = 0$
 - (ii) $R_i = 0, A = \infty, R_o = 0$

[5]

- (iii) $R_i = \infty, A = \infty, R_o = \infty$
 - (iv) None of the above
- (b) Define following parameters of opamp: 3
- (i) Slew rate
 - (ii) CMRR
 - (iii) Differential mode gain
- (c) Explain differential amplifier in following terms: 10
- (i) Working Principle
 - (ii) Circuit diagram
 - (iii) Application, advantage and disadvantages

Or

Explain following application of op amp :

- (i) As Integrator
- (ii) As differentiator