

# ADC . 1

## Model Question Paper

TED (15) 3031  
(Revision 2015)

Reg. No. \_\_\_\_\_

Signature \_\_\_\_\_

Third Semester Diploma Examination in Electrical and Electronics Engineering

### **Analog Devices and Circuits**

[Time : 3 Hours]

(Maximum Marks : 100)

Marks

#### PART - A

(Answer all questions in one or two sentences. Each question carries 2 marks)

- I ✓ 1. Define passive components. Give examples.
2. List the different classes of power amplifier.
  3. State Barkhausen criteria for sustained oscillation.
  4. Differentiate between LTP and UTP.
  5. Draw a zero crossing detector using op-amp.

(5 x 2 = 10)

#### PART - B

(Answer any five questions. Each question carries 6 marks)

- II 1. Write the working of
- (a) positive series diode clipper
  - (b) negative series diode clipper
2. Describe the operation of a shunt capacitor filter.
  3. Explain the working of a common base transistor amplifier with diagram.
  4. Outline the importance of impedance matching in power amplifier.
  5. Discuss the applications of different multivibrator circuits.
  6. Explain the concept of virtual ground in an op-amp.
  7. Describe the working principle of a fullwave precision rectifier.

(5 x 6 = 30)

#### PART - C

(Answer one full question from each unit. Each question carries 15 marks)

##### Unit - I

- III 1. Explain the working of clamping circuits. (8)
2. Draw and explain the working of a centre-tap fullwave rectifier. (7)

Or

- IV 1. Interpret the application of a zener diode as voltage regulator (8)
2. Explain the filtering action in a  $\pi$  filter circuit. (7)

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Unit - II

- V 1. Describe positive and negative feedback . (8)
- 2. Explain the working of push-pull power amplifier . (7)

Or

- VI 1. Describe the working of transformer coupled amplifier with diagram. (8)
- 2. Explain the working of a class B power amplifier. (7)

Unit - III

- VII 1. Draw and explain the working of a crystal oscillator. (8)
- 2. Describe the working of a bistable multivibrator circuit using transistors. (7)

Or

- VIII 1. Draw and explain tuned collector oscillator. (8)
- 2. Describe the working of a Schmitt trigger circuit. (7)

Unit - IV

- IX 1. Explain inverting and non-inverting amplifiers using op-amp. (8)
- 2. Explain level detector circuit using op-amp. (7)

Or

- X 1. Describe the characteristics of an ideal op-amp. (8)
- 2. Explain the working of an adder and subtractor circuits using op-amp. (7)