



College of Engineering, Science and Technology  
School of Electrical and Electronics Engineering

**Trade Diploma in Electrical Engineering  
(Electronic & Telecommunication)**

## **EEE503–ANALOG ELECTRONICS**

Semester 1, 2016

Date: 10<sup>th</sup> June 2016 Time: 9am-12:10pm Venue: As per Timetable  
Duration – 3 h 10 min (Including 10 min reading time)

Total Marks – 100

### **Instructions to candidates:**

- 1) You are allowed 10 minutes extra reading time during which you are NOT allowed to write.
- 2) Begin each answer on a fresh page and use both sides of the sheet.
- 3) Write your candidate number at the top of each attached sheet.
- 4) Insert all written full-scape, graph paper, drawing paper etc. in their correct sequence and secure with string.
- 5) For all sheets of paper on which rough/ draft work has been done, cross it through and you must attach all of them to your answer scripts.
- 6) Write clearly the number(s) of the questions(s) attempted on the top of each sheet.
- 7) There are two sections – both are compulsory.
- 8) There are alternative sub-questions within some questions.
- 9) Start your answer for a new question on new page.
- 10) Use of mobile phones or other programmable electronic gadget/storage device is NOT ALLOWED

- *Total Number of pages – 03 (Three) including this cover page*

## SECTION A – SHORT ANSWER QUESTIONS

[Section A - Total 50 Marks]

Note: All questions in this section are compulsory.

- Q.1. Define the following Op-amp terms in detail. [5 Marks]
- i) CMRR
  - ii) Slew rate
  - iii) Gain
  - iv) Offset current
  - v) Input impedance
- Q.2. Distinguish between Analog and Digital measurement devices. [5 Marks]
- Q.3. Explain the effect of negative feedback on frequency response. [5 Marks]
- Q.4. What is the need of power amplification? Enlist five applications. [5 Marks]
- Q.5. Describe Heat sinks in brief. [5 Marks]
- Q.6. State principle of Opto-electronics. State the list of photo-devices with its applications. [5 Marks]
- Q.7. Explain Harmonics and Noise. State its causes and effects. [5 Marks]
- Q.8. Draw LED circuit diagram and its characteristics curve. [5 Marks]
- Q.9. What are different types of oscillators? State the concept of oscillators [5 Marks]
- Q.10. Why IC555 is called Timer? Draw the IC555 circuit and pin diagram. [5 Marks]

\*\*\* End of Section A \*\*\*

## SECTION B – LONG ANSWER QUESTIONS

[Section B - Total 50 Marks]

Note: Attempt any FIVE out of the following SEVEN questions from this section.

- Q.11. With the help of circuit diagram and output response explain RC phase shift single stage oscillator with  $60^\circ$  phase shift.  
[10 Marks]
- Q.12. State different types of Power amplifiers? Design an amplifier with gain 'A=10'. Explain circuit operation in detail.  
[10 Marks]
- Q.13. Draw and explain an Opto-isolator OR coupler application circuit for switch -control operation.  
[10 Marks]
- Q.14. What are the Thyristor family devices? Draw and explain phase control circuit using any thyristors.  
[10 Marks]
- Q.15. Draw and explain operation of Relaxation oscillator with 125Khz output frequency.  
[10 Marks]
- Q.16. Describe basic functional blocks of cathode ray oscilloscope. State the types of circuit parameters which can be measured using CRO.  
[10 Marks]
- Q.17. What is the need of IC technology? Discuss the process of PCB implementation.  
[10Marks]

\*\*\* End of Section B \*\*\*

\*\*\*\*\* End of Question Paper \*\*\*\*\*