

**2019**

**MSc**

**2<sup>nd</sup> Semester Examination**

**ELECTRONICS**

**PAPER – ELC-204**

**Full Marks: 50**

**Time: 2 Hours**

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their

own words as far as practicable.

Illustrate the answers wherever necessary.

1. Answer any **04(FOUR)** questions. Each question carries **02(TWO)** marks.

- i) What do you understand by electronic materials?
- ii) Draw the circuit diagram of forward and reverse biased P – N junction diode.
- iii) Why are the junction transistors are called bipolar devices?
- iv) Determine the binary equivalent of 13.875.
- v) What is an e – waste?
- vi) Write the components of e – waste management.
- vii) What are the sources of e – waste in India?
- viii) Mention the top ten states with volume of production of e – waste in India.

2. Answer any **04 (FOUR)** questions. Each question carries **04(FOUR)** marks.

- i) Discuss the operation of a P – N junction diode. 4
- ii) Explain how a transistor can be used as a current amplifier. 4
- iii) What are the fundamental differences among class A, class B, class AB and class C amplifiers? 4
- iv) What are analog and digital circuits?  
What are the advantages of digital circuits? 2+2
- v) Describe the effect of e –waste on the environment. 4
- vi) Explain how e – waste affects on human health. 4
- vii) Describe e – waste management strategies in India. 4
- viii) Explain the extended producer responsibility. 4

3. Answer any **02(TWO)** questions. Each question carries **08(EIGHT)** marks.

- i) Illustrate the different modes of operation by drawing the circuit diagrams for an  $n - p - n$  transistor. Explain the term transistor biasing. What are the factors that affect the bias stability of a transistor? 3+3+2
- ii) Why a digital circuit called a logic gate?  
What is a truth table?  
Explain combinational and sequential circuits with examples. 2+2+2+2
- iii) Discuss major issues related to e – waste in India. 8
- iv) What do you understand by the e – waste (Management and Handling) rules, 2011? Describe the salient features of the rules. 2+6

**(Internal Assessment – 10 marks)**