2017

M.Sc. 2nd Semester Examination

ELECTRONICS

PAPER—ELC-204

Full Marks : 50

Time : 2 Hours

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

(Introduction to Electronics and Electronic Waste Management)

Answer Q. No. *1* and any *three* from the rest.

1. (a) Sketch the CE output characteristics of a transistor and indicate active, saturation and cutoff regions.

(b) What are the fundamental differences among class A, B, AB and C amplifiers ?

(c) The sum and differences of two binary numbers are 1110 and 10 respectively. Find the two numbers.

(d) Define WEEE/E - Waste.

(e) Mention the components of E-waste management.

2×5

2. (a) What do you mean by rectification ? Draw the circuit diagram of a full-wave rectifier.

   (b) Explain how the dc output voltage of a full-wave rectifier is improved when a capacitor filter is used. Draw waveforms of the load voltage and diode current.

   $(2+2)+(3+1\frac{1}{2}+1\frac{1}{2})$

3. (a) Explain the combinational and sequential circuits with examples.

   (b) Simplify the function $X = \overline{A}\overline{B}C + A\overline{B}C + \overline{A}B\overline{C}$ and draw a simplified logic circuit.

   (c) How can you implement a logic circuit that will enable any one of three switches to control a light independently of the states of the other two ? $(1\frac{1}{2}+1\frac{1}{2})+(2+1)+4$

4. (a) Describe the present scenario of E-waste production.

   (b) What are the major sources of E-waste in India ? Draw a general flow diagram for the E-waste generation. 5+(2+3)

5. Write down the environmental and health implications of E-Waste. 10

6. (a) What do you mean by E-Waste management strategies ?

   (b) What was the Basel convention ? Mention the policy level initiatives in India regarding E-Waste. 3+(2+5)

[Internal Assessment — 10 marks]

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