

**B.TECH. SEM -I ELECTRONICS / BIO MEDICAL / E & TC) 2014**

**COURSE (CBCS) : WINTER - 2017**

**SUBJECT: ELEMENTS OF ELECTRONICS ENGINEERING**

Day **Saturday**  
Date **20/01/2018**

**W-2017-2003**

Time **10.00 AM TO 01.00 PM**  
Max.Marks:60

**N.B.**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Use of Non-programmable **CALCULATOR** is allowed.
- 4) Assume suitable data if necessary.

**Q.1** In a cathode ray tube, illustrate the electrostatic deflection with proper diagram and equations. (10)

**OR**

- a) What is the relation between field intensity and potential? (03)
- b) What is the effect of perpendicular electric and magnetic field on the motion of electrons? (07)

**Q.2** a) What is mobility and conductivity? What is the relation between average speed and mobility of electrons? (06)

b) Derive the equation for total current in semiconductor. (04)

**OR**

What is Hall effect? Derive the equation for Hall voltage. Also give applications of Hall effect. (10)

**Q.3** What is BJT? Draw the circuit diagrams of CE, CC, CB configurations and explain them in brief. (10)

**OR**

- a) How does Tunnel diode work? (05)
- b) What is resistance? What are the types of resistors available? (05)

**Q.4** a) With proper diagram, illustrate the construction and working of SCR. (08)

b) What is rectification? (02)

**OR**

a) How Bridge rectifiers work? Give the applications of rectifiers. (07)

b) What is LED? What are its types? (03)

**Q.5** a) What is digital system? Draw the symbol and truth tables of all logic gates. (08)

b) Convert  $(30)_{10}$  to  $( )_8$ . (02)

**OR**

a) What is binary subtraction? (02)

b) Convert  $(58)_{10}$  to  $( )_2$  and  $(30)_{10}$  to  $( )_{16}$  (08)

Then find the two's complement of both.

**Q.6** a) What are microwaves? Explain microwave oven in detail. (06)

b) What is the principle of digital camera? (04)

**OR**

a) With help of block diagram, explain personal computer. (05)

b) Write a note on MP3 player. (05)

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