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RAN-1903000202030091

F.Y.B.Sc. (Sem. II) Examination April - 2023

Electronics : Paper I - Semiconductor Devices

[Total Marks: 50

સૂચના : / Instructions

(૧) **નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.**
Fill up strictly the details of ☛ signs on your answer book

Name of the Examination:

☛ **F.Y.B.Sc. (Sem. II)**

Name of the Subject :

☛ **Electronics : Paper I - Semiconductor Devices**

Subject Code No.: **1903000202030091**

Seat No.: ☐☐☐☐☐☐

Student's Signature

(2) Figure on the right indicates full marks
(3) All symbols and abbreviations have their usual meaning.
(4) Non-programmable calculators are allowed.
(5) Assume data if necessary.

Q-l **Answer in short:** **08**

(a) Why collector is made larger than emitter and base?

(b) Define: frequency

(c) What is full form of LED and LCD?

(d) Draw the symbol of (i) FET (ii) UJT

Q-2 (a) Discuss the construction and working of Clamper circuit. **10**

(b) Draw the sin wave and show the peak voltage, peak-peak voltage, time period. **04**

OR

Q-2 (a) What is transistor? Discuss the constructional details of a transistor. **10**

(b) Derive: $1-\alpha = 1 / (1 + \beta)$ **04**

Q-3 (a) Explain the construction and working of a UJT. **10**

(b) The intrinsic stand- off ratio for a silicon UJT is determined to be 0.6 and V_{BB} = 12V. Find the value of V_A and V_P? **04**

OR

Q-3 (a) Give full form of LED. Discuss the construction and working of LED. **10**

(b) Give some applications of LED. **04**

Q-4 **Write short note on (Any TWO)** **14**

(a) Clipper circuits
(b) N-channel JFET
(c) Load line
(d) Depletion mode MOSFET