BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)

CLASS: BTECH
BRANCH: ALL

SEMESTER: BACKLOG
SESSION: SP/2019

SUBJECT: EC101 BASICS OF ELECTRONICS & COMM. ENGG

TIME: 2 HOURS

FULL MARKS: 25

INSTRUCTIONS:
1. The total marks of the questions are 25.
2. Candidates may attempt for all 25 marks.
3. Before attempting the question paper, be sure that you have got the correct question paper.
4. The missing data, if any, may be assumed suitably.

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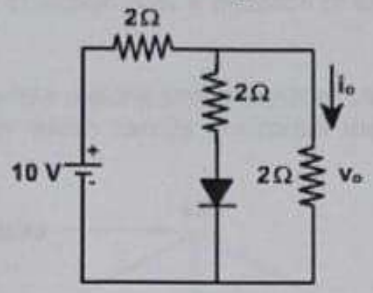
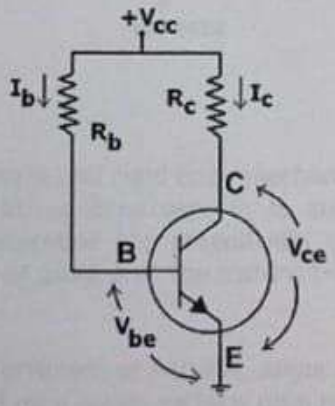
Q1 (a) What does a dc load line drawn on diode's characteristic represent? [2]
Q1 (b) Explain the working of a PN junction diode? [3]

Q2 (a) What is the PIV for a half-wave rectifier? [2]
Q2 (b) Determine $V_o$ and $I_o$ for the network shown in figure [3]




Q3 (a) Explain the working of an NPN transistor? [2]
Q3 (b) For the network shown in figure determine (1) $I_{bQ}$ (2) $I_{cQ}$ (3) $V_{ceQ}$ where $R_b$= 240 k ohm, $R_c$= 2.2 k ohm, $V_{cc}$= +12V and Beta=50 [3]




Q4 (a) What are the two main types of field-effect transistors? What are the advantages of the FET over a conventional transistor? [2]
Q4 (b) Give basic construction, symbol, characteristic curves for the N-Channel depletion type MOSFET and explain its operation. [3]

Q5 (a) What are the conditions required for a circuit to Oscillate? [2]
Q5 (b) Explain Hartley Oscillator with neat diagram? [3]

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