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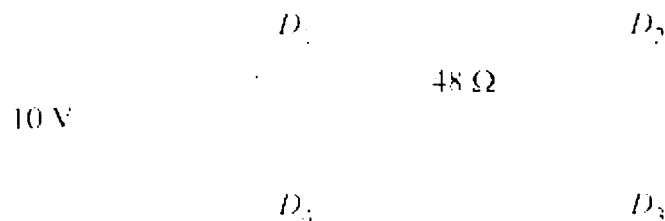
BACHELOR OF VOCATION
Automotive Manufacturing
Subject: Basics of Electronics
Subject Code: BEC-101
Semester: First
September 2020
Theory (External): 35 Marks
Time: 03 hours

INSTRUCTIONS TO THE STUDENTS

1. Read the questions carefully and write the answers in the answer sheets.
2. Wherever necessary, the diagram drawn should be neat and properly labelled.
3. This questions paper comprises of 6 questions out of which student need to attempt any 3 questions.
4. All questions carry equal marks.
5. The time allotted will be 3 hours for examinations including time of downloading of question paper to emailing of answer books to the concerned Dean/IC.

ESSAY TYPE QUESTIONS

1. What is the role of electronics in the current automobile industry? Explain.
2. What is a transducer? Explain different gauges present on the car dashboard.
3. A crystal diode having internal resistance $r_f = 20\Omega$ is used for half-wave rectification. If the applied voltage $v = 50 \sin \omega t$ and load resistance $R_L = 800 \Omega$, find :
 - i. I_m, I_{dc}, I_{rms}
 - ii. a.c. power input and d.c. power output
 - iii. d.c. output voltage
 - iv. efficiency of rectification.
4. Calculate the current through 48Ω resistor in the circuit shown in Fig(i). Assume the diodes to be of silicon and forward resistance of each diode is 1Ω .



5. In a common base connection, $\alpha = 0.95$. The voltage drop across $2\text{ k}\Omega$ resistance which is connected in the collector is 2 V . Find the base current as shown in Fig.(ii)

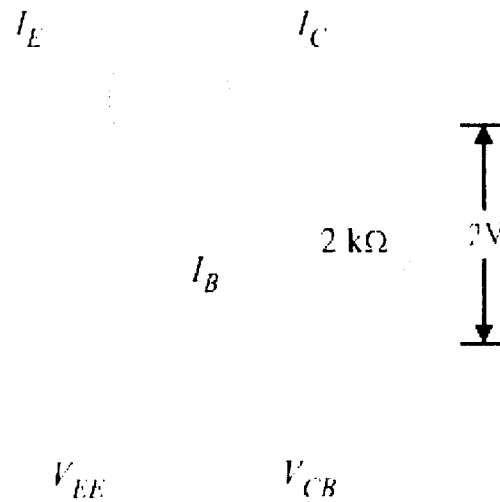


Fig.(ii)

6. Why common emitter amplifier is commonly used? With the help of necessary diagrams explain its amplifying action and V-I characteristics?

*****End of Paper*****