

JK LAKSHMIPAT UNIVERSITY, JAIPUR

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination, May 2019

B. Tech. III Year Sixth Sem. (Common to all Branches)

Roll No.....

OPEN BOOK

COURSE CODE: EEE 610
Automation Projects

Time: 2 hours

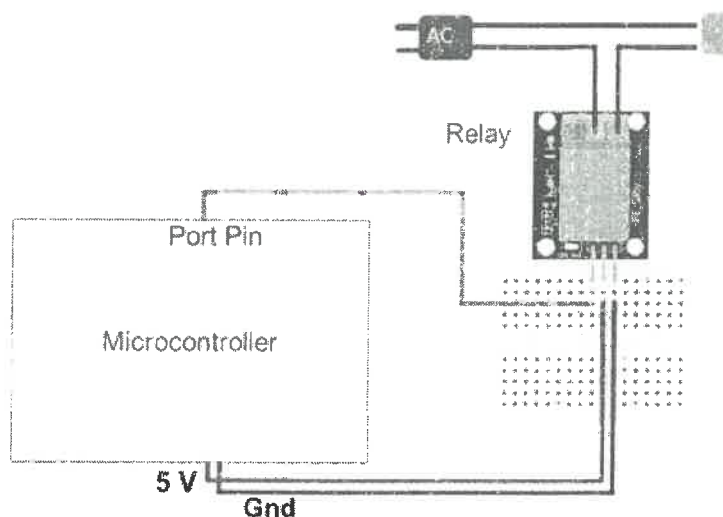
Max. Marks: 40

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.

Attempt any 4 questions out of 5

- Q.1 A DC motor is used to drive a conveyor belt system at different speeds. The 10
LO1 speed of the motor is to be controlled using PWM technique using a suitable
microcontroller. Draw the schematic diagram for the circuit and program/
flow chart for PWM generation. What modification will we make in the
hardware so as to enable change in direction of rotation?
- Q.2 A project requires to interface an analog linear sensor to a microcontroller so 10
LO2 as to read the voltage corresponding to any ambient parameter
(Temperature/ Humidity/ Light intensity). Recommend a suitable sensor
and draw the schematic diagram for interfacing the sensor to a suitable
microcontroller. Recommend suitable method to display the values read
from the sensor .
- Q.3 A relay is interfaced to a microcontroller so as to turn ON/OFF a bulb 10
LO3 connected to 230 V supply as shown in the schematic below. Write the
program / flow chart to switch the relay ON /OFF. What modification are
required so as to make it possible to control this action from a remote
application?



- Q. 4
LO3 Multiple sensor connected to an edge device upload data periodically at half hour intervals to a centralized server. The data from this server is fetched by multiple users at different instant of time. Recommend a suitable protocol and explain the in detail using schematic diagram as to how can this be achieved? What can be done to optimize the power consumption from battery? 10
- Q5.
L04 Design 5 V power supply (showing the schematic diagram with component ratings) for a IoT project so as to be able to supply power to microcontroller, sensors and wifi module, for continuous usage for 24 hrs. per day. What changes will you make to design if the project uses solar cell for supply, design the module(if required). 10