Open Ended Lab -14

EE - 221, Digital Logic Design

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BETE 56 ABCD

Fall 2020

Problem Statement 1

Design a system having four users and a host. Host will ask a question and a timer of 15 sec will get start. All the users will have a buzzer button to reply to that question. The moment any first user reply, counter will stop, and no other user can reply. A 7-segment display will show the user number and a green led will gets on. If counter overflows and users failed to reply in the allocated duration, a red light will glow with a buzzer. Students are required to **demonstrate** the complete **working** of design and submit a detailed lab report.

Problem Statement 2

Design a digital system to calculate checksum of the input data. You need to study in detail what is checksum technique and its role in data communication. Your circuit should take some input bytes, then calculate the checksum from the input bytes and display its every bit on output. Students are required to **demonstrate** the complete **working** of design and submit a detailed lab report.

Deliverables:

1- Hardware Design
2- A well elaborated lab report having system block diagram, I/O resources, system cost, applications and references.
3- Design pictures and a working video

Submission:

25-29 Jan 2021 (In Respective lab)

Evaluation Criteria

1. Hardware **BT Level P3**
2. Viva **BT Level A3**
3. Report **BT Level A3**

LAB RUBRICS (Practical Implementation of Digital Circuit)

Criteria	Unacceptable (Marks =0)	Substandard (Marks =1)	Adequate (Marks =2)	Proficient (Marks =3)
R1 Components Identification	Student has failed to identify and differentiate the required components	Student has identified only few components with lack of knowledge	Students has identified the components but not clear about proper use	Student has properly identify exactly required components with their proper use
R2 Demonstration	The student failed to demonstrate a clear understanding of the assigned task	The student has basic knowledge of understanding, but asked questions were not answered.	The student has moderate knowledge of understanding. Answer to the question are basic	The student has demonstrated on accurate understanding of the lab objective and concepts. All the questions are answered completely and correctly
R3 Design Implementation	Design is not proper	Design has much redundancies	Design has few redundancies	Design is Proper and optimized
R4 Completeness and Accuracy	The system failed to produce the right accurate result	The system execution let to inaccurate or incomplete results. It was not correctly functional or not all the features were implemented	The system was correctly functional and most of the features were implemented	The system was correctly functional, and all the features were implemented
R5 Contribution/ Group participation	Shows little commitment to group goals and fails to perform assigned roles	Demonstrates commitment to group goals, but has difficulty performing assigned roles	Demonstrates commitment to group goals and carries out assigned roles effectively	Actively helps to identify group goals and works effectively to meet them in all roles assumed

LAB RUBRICS (Design presentation and viva)

Criteria	Unacceptable (Marks =0)	Substandard (Marks =1)	Adequate (Marks =2)	Proficient (Marks =3)
R1 Demonstration	The student failed to demonstrate a clear understanding of the assigned task	The student has basic knowledge of understanding, but asked questions were not answered.	The student has moderate knowledge of understanding. Answer to the question are basic	The student has demonstrated on accurate understanding of the task objectives and concepts. All the questions are answered completely and correctly
R2 Able to effectively communicate design result	Not able to effectively communicate design result	Able to effectively communicate some results	Able to effectively communicate inadequate design result	Able to effectively communicate the complete design result.
R3 Able to answer the viva questions with confidence	Not able to correctly answer the viva questions	Able to correctly answer few questions with lack of confidence	Able to correctly answer some viva questions with confidence	Able to correctly answer all the viva questions with full confidence
R4 Contribution/ Group participation	Shows little commitment to group goals and fails to perform assigned roles	Demonstrates commitment to group goals, but has difficulty performing assigned roles	Demonstrates commitment to group goals and carries out assigned roles effectively	Actively helps to identify group goals and works effectively to meet them in all roles assumed