

**BAHRIA UNIVERSITY (KARACHI CAMPUS**)

ASSIGNMENT # 3 – FALL SEMESTER – 2022

Computer Communication and Networks (CEN-223)

Class: **BSE-5B** Submission Deadline: **30/12/2022**

Course Instructor: **Engr. Mahawish**  Max Marks: **05 marks**

Question 1**:**

**Instructions: [CLO 6]**

**1. The activity is a Problem Based Learning and a group effort (Max. 4 members).**

**2. Write group member names and registration number under report title.**

**3. The report must be uploaded in LMS.**

Prepare a 15 - 20 report slides in MS power point that would propose a solution for a real-

world problem while employing the Internet of Things (IoT) paradigm. A list of suggested real-

world challenges are provided below from which the students may choose or bring their own

problem to solve. However, you can only work on the report topic after being approved by

the course instructor.

The group needs to present that how IoT can help in solving the problem at hand. While finding

a suitable solution, the learning process should require students to investigate and critically

analyze the communication technologies available under the umbrella of IoT. This exercise

would require group activity where collaboration and group discussions should be involved.

Architectural diagrams, system design, hardware/software requirements, deployment

requirements, communication technologies along with other technical details should be

addressed. The report content should be technical in nature, i.e. going with the general

patterns adopted in the relevant course, Data Communication & Networking.

Technical contents of the report can only be prepared after conducting a thorough

investigation regarding the concerned topic. Each member is required to present his/her part,

where the report will be followed by cross-questioning from the course instructor and

session guest (if any). All student should have knowledge regarding the complete contents within

the report rather than focusing of the contents of his/her part only. Report MUST be

self-made, where its emailed softcopy will be checked for plagiarism.

Note: one topic can only be taken by one group at a time.Scenario #1: IP Allocation in a MAN

You are tasked by your supervisor with assigning IP addresses for your new MAN

(Metropolitan Area Network), which consists of 8 different buildings, each building will have

255 workstations. Your supervisor tells you to only use as much of the 164.10.0.0 network

as you need. Your supervisor will assign the IP addresses to the serial interfaces using a

different network. You will need to determine the following four items for each of the eight

buildings:

A) Subnet masks

B) Network addresses

C) Broadcast address for each subnet

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Prepare a report in MS word that would propose a solution for a real-world problem while employing the Internet of Things (IoT) paradigm. A list of suggested real-world challenges are provided below from which the students may choose or bring their own problem to solve. However, you can only work on the report topic after being approved by the course instructor.

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Technical contents of the report can only be prepared after conducting a thorough investigation regarding the concerned topic. Each member is required to present his/her part, where the report will be followed by cross-questioning from the course instructor and session guest (if any). All student should have knowledge regarding the complete contents within the report rather than focusing of the contents of his/her part only. Report MUST be self-made, where its emailed softcopy will be checked for plagiarism.

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List of Suggested Real-World Problems:

1. Monitoring patients’ health remotely.

2. Monitoring surrounding environments for CO2 emission.

3. Monitoring electric consumptions within a house.

4. Monitoring the health of machines within a production plants.

5. Monitoring gas distribution pipelines for leakage and damages.

6. Monitoring agriculture fields for plants health.

7. Monitoring goods shipment, warehouse storage and logistics.

8. Monitoring health of bridges, buildings and other structures.

9. Monitoring forests for wildfire and other hazardous materials.

10. Improving safety for vehicles on the road.

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