

ROYAL UNIVERSITY OF DHAKA

Program: B.Sc. (HON'S) in CSE/CSIT

Course Code & Title: CSIT 326 - System Analysis & Design (Day)**Course Teacher: Md. Nur-E-Arefin (01675025549, nur.arefin@royal.edu.bd)**

Assignment

Assignment Topic:

What is DFD? Draw level 0 and level 1 DFD for hostel mess billing system. Explain flow chart and draw traffic light controller flow chart. What is ER diagram? Draw an ER diagram for atm transaction.

Submission deadline: 25th August, 2021.

ROYAL UNIVERSITY OF DHAKA

Program: B.Sc. (HON'S) in CSE/CSIT

Course Code & Title: CSE 133 - Data Structure & Algorithm (Eve)**Course Teacher: Md. Nur-E-Arefin (01675025549, nur.arefin@royal.edu.bd)**

Assignment

Assignment Topic:

What is linked list? What are the types of linked list? Describe the operations on linked list. Explain tree and graph. Write short notes on push, pop, enqueue and dequeue.

Submission deadline: 25th August, 2021.

ROYAL UNIVERSITY OF DHAKA

Program: B.Sc. (HON'S) in CSE/CSIT

Course Code & Title: MS 601 - Distributed Database Query Optimization (Masters)**Course Teacher: Md. Nur-E-Arefin (01675025549, nur.arefin@royal.edu.bd)**

Assignment

Assignment Topic:

Explain the main layers of query processing. Normalize the following query: "Find the names of employees who have been working on project P1 for 12 or 24 months". Eliminate redundancy from the following query:

```
SELECT TITLE FROM EMPLOYEE
WHERE (NOT(TITLE="Programmer")
AND (TITLE="Programmer"
OR TITLE="Elect. Eng.")
AND NOT (TITLE="Elect. Eng.))
OR ENAME="J. Doe"
```

Submission deadline: 25th August, 2021.

ROYAL UNIVERSITY OF DHAKA

Program: B.Sc. (HON'S) in CSE/CSIT

Course Code & Title: MS 631 - Computer Networks (Masters)**Course Teacher: Md. Nur-E-Arefin (01675025549, nur.arefin@royal.edu.bd)**

Assignment

Assignment Topic:

Explain computer security. What are the goals of computer security? Describe computer security concepts. What is hacking? What are some common attacks?

Submission deadline: 25th August, 2021.

ROYAL UNIVERSITY OF DHAKA
Program: B.Sc. (HON'S) in CSE/CSIT

Course Code & Title: CSIT 221 - Microprocessor & Assembly Language (Eve)
Course Teacher: Kanti Bhusan Roy Kawshik (01924008069, kanti.kawshik@royal.edu.bd)
Assignment

Assignment Topic:

- What is Intel 8253 - Programmable Interval Timer? Write down the key point of Intel 8253 - Programmable Interval Timer with examples.
- Explain what is the operation mode of Intel 8253/54. Describe all the operation mode with example.

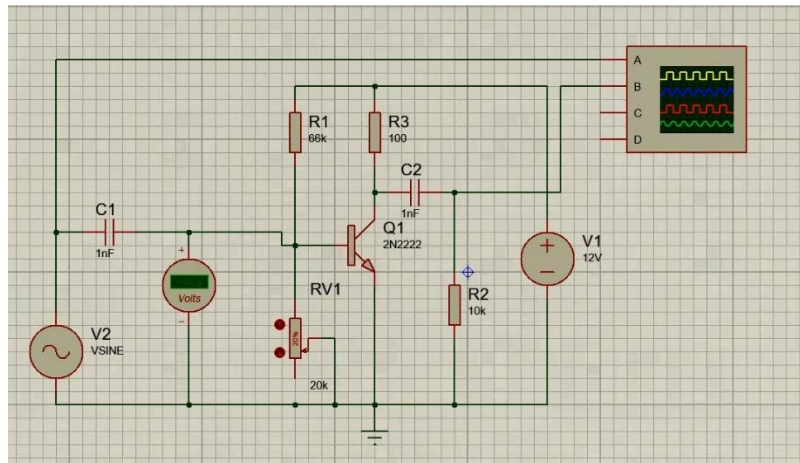
Submission deadline: 25th August, 2021.

ROYAL UNIVERSITY OF DHAKA
Program: B.Sc. (HON'S) in CSE/CSIT

Course Code & Title: EEE 103 - Electronics Engineering (Eve)
Course Teacher: Kanti Bhusan Roy Kawshik (01924008069, kanti.kawshik@royal.edu.bd)
Assignment

Assignment Topic:

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If $V_{cc} = 100 \text{ mV}$ and Frequency = 20 KHz , find out the r.m.s. Collector voltage, r.m.s. Collector current, r.m.s. Power delivered to the load (P_{ac}), The average power drawn from the supply (P_{dc}).

- Draw and explain Biasing of Transistor.

Submission deadline: 25th August, 2021.

ROYAL UNIVERSITY OF DHAKA
Program: B.Sc. (HON'S) in CSE/CSIT

Course Code & Title: CSE 337: Pattern Recognition (Self Study)
Course Teacher: Kanti Bhusan Roy Kawshik (01924008069, kanti.kawshik@royal.edu.bd)
Assignment

Assignment Topic:

Explain details about learning approaches in machine learning. What is probability, experiment and event? Describe axioms of probability. What is Mean, Variance and Standard deviation?

Submission deadline: 25th August, 2021.

ROYAL UNIVERSITY OF DHAKA

Program: B.Sc. (HON'S) in CSE/CSIT

Course Code & Title: EEE 105 - VLSI Design (Day)**Course Teacher: Kanti Bhusan Roy Kawshik (01924008069, kanti.kawshik@royal.edu.bd)**

Assignment

- Simulate the Nmos Inverter by microwind software and explain every part of it.
- Why Design for Low Power is needed? Explain it.

Submission deadline: 25th August, 2021.

ROYAL UNIVERSITY OF DHAKA

Program: B.Sc. (HON'S) in CSE/CSIT

Course Code: CSE-323, Course Name: Theory of Computing**Course Teacher: Md Khirul Islam Badal (01748864767, Khirul.badal@royal.edu.bd)****Assignment (Day)****Assignment Topic:**

- Write down the definition of Push Down Automata with a formal definition and explain the properties of Push Down Automata.
- What is Turing Machine? Write down the formal definition of Turing Machine with an appropriate example. Describe the different types of Turing Machine.

Submission deadline: 25th August, 2021.

ROYAL UNIVERSITY OF DHAKA

Program: B.Sc. (HON'S) in CSE/CSIT/HMT/BBA

Course Code: CSE-233, Course Name: Operating System**Course Teacher: Md Khirul Islam Badal (01748864767, Khirul.badal@royal.edu.bd)****Assignment for Final (EVE)****Assignment Topic:**

- What is paging and page replacement? Explain the FIFO page replacement algorithm with a diagram. Consider the set of 5 processes whose arrival time and burst time are given below-

Process Id	Arrival time	Burst time
P1	0	5
P2	1	3
P3	2	1
P4	3	2
P5	4	3

If the CPU scheduling policy is Round Robin with time quantum = 2 unit, calculate the average waiting time and average turn-around time.

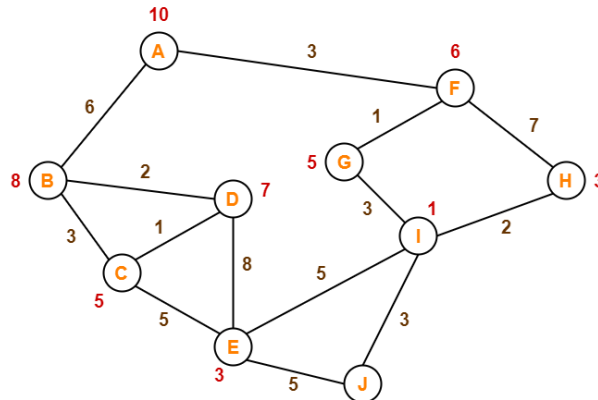
- What is Deadlock? Write down the condition of Deadlock in Operating System.

Submission deadline: 25th August, 2021.

ROYAL UNIVERSITY OF DHAKA
 Program: B.Sc. (HON'S) in CSE/CSIT
Course Code: CSE-315, Course Name: Artificial Intelligence
Course Teacher: Md Khirul Islam Badal (01748864767, Khirul.badal@royal.edu.bd)
Assignment for Final

Assignment Topic:

- a) What is an Agent in Artificial Intelligence? Describe the Intelligent Agent and Goal-based Agent with an appropriate example.
- b) Write down the difference between Greedy Best-First Search and A* Search algorithm. Consider the following graph –



The numbers written on edges represent the distance between the nodes. The numbers written on nodes represent the heuristic value. Find the most cost-effective path to reach from start state A to final state J using A* Algorithm.

Submission deadline: 25th August, 2021.

ROYAL UNIVERSITY OF DHAKA
 Program: B.Sc. (HON'S) in CSE/CSIT
Course Code: MAT 106, Course Name: Numerical Method
Course Teacher: Md Khirul Islam Badal (01748864767, Khirul.badal@royal.edu.bd)
Assignment (EVE)

Assignment Topic:

- a) Given Some value –

x	1891	1901	1911	1921	1931
y	50	61	79	95	107

Find the value of 1899, using forward and backward difference method.

- b) Why False position method is better than bisection method? Find the best fit values of a and b so that $y = a + bx$ fits the given data in the table –

x	0	2	5	7
y	-1	5	12	20

Submission deadline: 25th August, 2021.

ROYAL UNIVERSITY OF DHAKA

Program: B.Sc. (HON'S) in CSE/CSIT

Course Code & Title: CSIT 107: Optical Fiber Communication (Eve)**Course Teacher: Ahmed Abdullah (01680076500, ahmed.abdullah@royal.edu.bd)**

Assignment

Assignment Topic:

Sketch the following equations:

I. $X(n) = U_r(n) - U_r(n-3) - 4U$

II. $X(n) = U(n) - U(n+4) + \partial(n-3)$

III. $X(n) = 2^n [U(n) - U(n-6)]$

Submission deadline: 25th August, 2021.

ROYAL UNIVERSITY OF DHAKA

Program: B.Sc. (HON'S) in CSE/CSIT

Course Code & Title: CSE 121: Structured Programming Language (Eve)**Course Teacher: Ahmed Abdullah 01680076500, ahmed.abdullah@royal.edu.bd**

Assignment

Assignment Topic:

Write C program for design a calculator using switch case.

Submission deadline: 25th August, 2021.

ROYAL UNIVERSITY OF DHAKA

Program: B.Sc. (HON'S) in CSE/CSIT

Course Code & Title: MS 571: Data Structure & Algorithm (M.Sc.)**Course Teacher: Ahmed Abdullah 01680076500, ahmed.abdullah@royal.edu.bd**

Assignment

Assignment Topic:

Describe the following dataset using any algorithm.

Dataset: <https://tinyurl.com/awcrx9xy>**Submission deadline: 25th August, 2021.**

ROYAL UNIVERSITY OF DHAKA

Program: B.Sc. (HON'S) in CSE/CSIT

Course Code & Title: MS 593: Discrete Mathematics (M.Sc.)**Course Teacher: Ahmed Abdullah 01680076500, ahmed.abdullah@royal.edu.bd**

Assignment

Assignment Topic:

Using truth tables to prove that $(p \rightarrow q)$ and $\neg p \vee q$ are logically equivalent, i.e.

$$(p \rightarrow q) \equiv \neg p \vee q$$

p	q	$\neg p$	$\neg p \vee q$	$p \rightarrow q$
T	T	F	T	T
T	F	F	F	F
F	T	T	T	T
F	F	T	T	T

Submission deadline: 25th August, 2021.

ROYAL UNIVERSITY OF DHAKA

Program: B.Sc. (HON'S) in CSE/CSIT

Course Code & Title: GED 102: Research Project Proposal**Course Teacher: Ahmed Abdullah 01680076500, ahmed.abdullah@royal.edu.bd**

Assignment

Assignment Topic:

Define research project proposal. Discuss the structure of a research proposal.

Submission deadline: 25 th August, 2021.

ROYAL UNIVERSITY OF DHAKA

Program: B.Sc. (HON'S) in CSE/CSIT

Course Code & Title: GED 501: Social Work in Life Cycle Problem Solving Process**Course Teacher: Ahmed Abdullah 01680076500, ahmed.abdullah@royal.edu.bd**

Assignment

Assignment Topic:

What are the basic methods of social work? How these methods solve the problems at the individual, group and community levels.

Submission deadline: 25 th August, 2021.

ROYAL UNIVERSITY OF DHAKA

Program: B.Sc. (HON'S) in CSE/CSIT

Course Code & Title: MAT 101 - Coordinate Geometry & Differential Equation (Day)**Course Teacher: Dr. Abu Saleh Abdun Noor (01712051947, dr.noor@royal.edu.bd)**

Assignment

Assignment Topic:

Define a Differential Equation. What is the difference between an Ordinary? Differential Equation and a Partial Differential Equation? Give some examples. Discuss some applications of Differential Equations.

Form the Differential Equation by eliminating a,b,c from $xy = ae^x + be^{-x} + c$ **Submission deadline: 25 th August, 2021.**

ROYAL UNIVERSITY OF DHAKA

Program: B.Sc. (HON'S) in CSE/CSIT

Course Code & Title: MAT 101 - Coordinate Geometry; Differential Equation (EVE)**Course Teacher: Dr. Abu Saleh Abdun Noor (01712051947, dr.noor@royal.edu.bd)**

Assignment

Assignment Topic:

Define Order and Degree of a Differential Equation with some examples. Discuss different types of solutions of Differential Equations. Also explain some applications of it.

Solve: $3e^x \tan y dx + (1 + e^x) \sec^2 y dy = 0$, given that $y = \frac{\pi}{4}$ when $x = 0$ **Submission deadline: 25 th August, 2021.**

ROYAL UNIVERSITY OF DHAKA

Program: B.Sc. (HON'S) in CSE/CSIT

Course Code & Title: MAT 102 – Integral Calculus & Differential Calculus (EVE)

Course Teacher: Dr. Abu Saleh Abdun Noor (01712051947, dr.noor@royal.edu.bd)

Assignment

Assignment Topic:

Define a Homogeneous function. State Euler's theorem.

Verify Euler's theorem for $u(x, y) = \sin \frac{x^2+y^2}{xy}$

Evaluate $\int \left(\frac{3x-x^3}{1-3x^2} \right) dx$

Submission deadline: 25 th August, 2021.

ROYAL UNIVERSITY OF DHAKA

Program: B.Sc. (HON'S) in CSE/CSIT

Course Code & Title: CSE 315 – Artificial Intelligence (day)

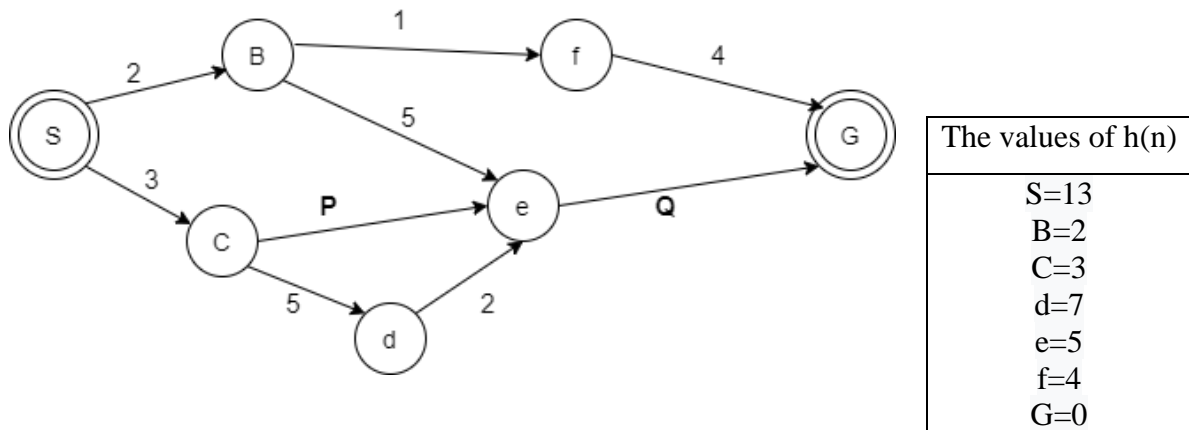
Course Teacher: Nazia Nuzhat (01705829945, nazia.nuzhat@royal.edu.bd)

Assignment

Assignment Topic:

What is an Expert System? What are the steps in the expert system development process?

Do the A* Search where the start node is **S** and the destination node is **G**.



Where, **P**= 8th digit of your class roll.

Q= addition of the 10th and 5th digit of your class roll.

Submission deadline: 25th August, 2021.

ROYAL UNIVERSITY OF DHAKA
 Program: B.Sc. (HON'S) in CSE/CSIT
Course Code & Title: CSE 311 – Database Management System (eve)
Course Teacher: Nazia Nuzhat (01705829945, nazia.nuzhat@royal.edu.bd)
 Assignment

Assignment Topic:

What is Normalization in Database? Why do we have to Normalization?

Do the First (1NF) and Second (2NF) Normal Form for given dataset.

empNum	lastName	firstName	deptName	deptCity	deptCountry
1001	Andrews	Jack	Accounts	New York	United States
1002	Schwartz	Mike	Admin, Technology	New York	United States
1009	Beker	Harry	HR	Berlin	Germany
1007	Harvey	Parker	Admin, HR	London	United Kingdom

Submission deadline: 25th August, 2021.

ROYAL UNIVERSITY OF DHAKA
 Program: B.Sc. (HON'S) in CSE/CSIT
Course Code & Title: CSIT 215 – Computer Organization and Architecture (eve)
Course Teacher: Nazia Nuzhat (01705829945, nazia.nuzhat@royal.edu.bd)
 Assignment

Assignment Topic:

What is pipelining? Describe about RAM.

Show the three-segment instruction pipeline timing table for following equation:

$P/Q * A - M + C$

Submission deadline: 25th August, 2021.

ROYAL UNIVERSITY OF DHAKA
 Program: B.Sc. (HON'S) in CSE/CSIT
Course Code & Title: CSIT 326 – System Analysis & Design (eve)
Course Teacher: Nazia Nuzhat (01705829945, nazia.nuzhat@royal.edu.bd)
 Assignment

Assignment Topic:

What do you mean by Cyber Crime?

Draw Data Flow Diagram (DFD-0 & DFD-2) for the following scenario:

Customers buy products in an online store. The store employee delivers the product according to the customer's order. At the beginning of this process the employee-1 checks whether the product is in the store as per the customer's order. If the product is available, the employee-2 will take the customer's order. Otherwise, the order will be canceled.

In the process of receiving the order, employee-2 takes the name, address, mobile number of the customer and saves that data to their computer.

The customer can cancel or confirm the order. If the customer requests to cancel the order, then it will be canceled by employee-1. On the other hand customer has to pay to confirm the order. Payment is taken by employee-3. After the payment method the employee-3 will deliver the product to the customer through the delivery man.

Submission deadline: 25th August, 2021.

ROYAL UNIVERSITY OF DHAKA

Program: B.Sc. (HON'S) in CSE/CSIT

Course Code & Title: CSE 231: Computer Algorithm (Eve)

Course Teacher: Hasan Abdullah (01681523656, hasan.abdullah@royal.edu.bd)

Assignment

Assignment Topic:

What is directed graph and simple graph. Explain the handshaking lemma theorem and proof it. What is spanning tree & Minimum spanning tree? Briefly explain Kruskal algorithm using a graph and find the minimum spanning value.

Submission deadline: 25th August, 2021.

ROYAL UNIVERSITY OF DHAKA

Program: B.Sc. (HON'S) in CSE/CSIT

Course Code & Title: CSE 311: Database Management System (Day)

Course Teacher: Hasan Abdullah (01681523656, hasan.abdullah@royal.edu.bd)

Assignment

Assignment Topic:

Briefly explain the different keys in database management system. What is database normalization? Write a short note on i) 1st normal form and ii) 2nd normal form.

Submission deadline: 25th August, 2021.

ROYAL UNIVERSITY OF DHAKA

Program: B.Sc. (HON'S) in CSE/CSIT

Course Code: CSE-111, Course Name: Computer Fundamentals

Course Teacher: Shaikh Afnan Birahim (01711027668, afnan.birahim@royal.edu.bd)

Assignment for Final-Term

Assignment Topic:

What is an operating system? What are the two primary objectives of operating system? Briefly describe those objectives. What is bandwidth? Explain the term modulation and demodulation. What is WWW? Write full form of: (a) FTP (b) HTTP

Submission deadline: 25th August, 2021.

ROYAL UNIVERSITY OF DHAKA
Program: B.Sc. (HON'S) in CSE/CSIT
Course Code: CSIT-211, Course Name: Digital Logic Design
Course Teacher: Shaikh Afnan Birahim (01711027668, afnan.birahim@royal.edu.bd)
Assignment for Final-Term

Assignment Topic:

What is edge triggered flip flop and decoder? Draw logic symbol for positive and negative edge triggered flip flop and draw a truth table for an edge triggered flip flop.

Submission deadline: 25th August, 2021.

ROYAL UNIVERSITY OF DHAKA
Program: B.Sc. (HON'S) in CSE/CSIT
Course Code: CSIT-225, Course Name: Data Communication (Day+Evening)
Course Teacher: Shaikh Afnan Birahim (01711027668, afnan.birahim@royal.edu.bd)
Assignment for Final-Term

Assignment Topic:

Name the 3 causes of transmission impairment and describe them. What are the 3 techniques of digital-to-digital techniques? Describe them. How many categories can we divide line coding scheme? Describe them.

Submission deadline: 25th August, 2021.

ROYAL UNIVERSITY OF DHAKA
Program: B.Sc. (HON'S) in CSE/CSIT
Course Code: MAT-105, Course Name: Statistics and Probability
Course Teacher: Shaikh Afnan Birahim (01711027668, afnan.birahim@royal.edu.bd)
Assignment for Final-Term

Assignment Topic:

Explain moment and kurtosis. Why Coefficient of variation (CV) is the best measure of dispersion? What do you mean by complementary event?

Find Q_3 , D_4 , P_{80} using the following data from graph.

Class Interval	5-10	10-15	15-20	20-25	25-30
Frequency	5	10	18	12	8

Submission deadline: 25th August, 2021.