

B.Sc. (Engineering) 3rd Year 1st Semester Final Examination-2022
 Dept. of Computer Science and Engineering
 Islamic University, Kushtia
 Course Code: MATH -3109
 Course Title: Complex Analysis, Laplace and Fourier Transforms

012-2018
 W2-W3
 W2-W3

Time- 04 hours

Full Marks-70

[Answer any five questions]

1. a) Define Deleted δ -neighbourhood. State and Prove the necessary condition of Cauchy-Riemann equations. 5
 b) If $f(z) = \frac{(x^3 - y^3) + i(x^3 + y^3)}{x^2 + y^2}$, $z \neq 0$, then show that $f(z)$ satisfies the Cauchy-Riemann equations. 4
 c) Define harmonic function. If $f(z) = u(x, y) + iv(x, y)$ is a analytic function in a region R and the derivative of u and v are continuous in R, then prove that u and v are harmonic in R. 5

2. a) Define Isolated singularity. Locate and name the singularities in the finite z plane of the function $f(z) = \sec(1/z)$ and determine whether they are isolated singularities or not. 5
 b) Define removable singularity. Prove that $f(z) = \frac{\sin \sqrt{z}}{\sqrt{z}}$ has a removable singularity at $z = 0$. 4
 c) If $f(z)$ is analytic in a region R and $f'(z) \neq 0$, then prove that $w = f(z)i$ is a conformal mapping in R. 5

3. a) Define bilinear transformation. Find a bilinear transformation which maps points z_1, z_2, z_3 of the z -plane into points w_1, w_2, w_3 of the w -plane respectively. 4
 b) Prove that $\int_C z dz = \frac{b^2 - a^2}{2}$ 3
 c) State and prove Cauchy Goursat theorem for the triangle. 7

4. a) What is the maximum modulus theorem? Prove the maximum modulus theorem. 6
 b) What is Rouché's theorem? 3
 c) Prove the Rouché's theorem. 5

5. a) Define Fourier series and evaluate the Fourier co-efficient of Fourier series. 5
 b) Expand in Fourier series of the function $f(x) = x, 0 < x < 4$ with period 4 and hence show that 5

$$\frac{\pi^2}{8} = 1 + \frac{1}{3^2} + \frac{1}{5^2} + \dots \infty$$

 c) Represent the Fourier series of the function $f(x) = \begin{cases} 0 & ; -\pi < x \leq 0 \\ \pi & ; 0 < x < \pi \end{cases}$ 4

6. a) What is Fourier transform? How does it extend the concept of Fourier series? 5
 b) Explain how the Fourier transform is utilized in signal processing. 4
 c) Find the Fourier transform of the function $f(x) = \begin{cases} 1 - x^2 & ; |x| < 1 \\ 0 & ; |x| > 1 \end{cases}$ 5

7. a) Define Laplace transformation. Find the Laplace transformation of $F(t) = e^{i\omega t}$ 5
 b) Find the Laplace transformation of $\frac{dy}{dt}$, $\frac{d^2y}{dt^2}$ and $\frac{d^3y}{dt^3}$ 4
 c) If $L\{F(t)\} = f(s)$ then prove that $L\left\{\frac{F(t)}{t}\right\} = \int_s^\infty f(s) ds$ 7

8. a) What is argument principle? 5
 b) How do you use the argument principle? 5
 c) What is contour integration? 5

3rd Year 1st Semester B.Sc.(Eng.) Examination 2021

Department of Computer Science and Engineering

Islamic University, Kushtia

Course No: MATH 3109

Course Title: Complex Analysis, Laplace and Fourier Transform

Time: 04 hours

[Answer any five questions]

Full Marks: 70

1. a) Define a complex number and complex function with example. Why do we need to use complex number? 4
b) Define single and multi-valued function. 4
c) Define Branch point. 2
d) Define Continuity and Differentiability of a function with example. 4
2. a) What is analytic function? Write its properties. 6
b) Let $f(z) = (x - iy)/(x^2 + y^2)$. Show that this function is analytic. 4
c) What is power series? Radius of convergence of a power series. 4
3. a) Define harmonic function? What is the condition of harmonic function? 4
b) What is mobious transformation? 4
c) How can we find mobious transformation? 4
d) What is region of convergence of a power series? 2
4. a) What is Holomorphic function? 3
b) Write the differences between simple function and holomorphic function. 4
c) What is integral formula? 2
d) Prove that Cauchy Integral Formula with example. 5
5. a) Describe the complex integration formula and explain the complex integration steps? 6
b) What are the "zeros" of the analytic function? Explain using an example? 3
c) Explain Laurent series. 5
6. a) What is Maximum modulus Theorem? Prove Maximum modulus Theorem. 6
b) What is Rouche's Theorem? 3
c) Prove Rouche's Theorem. 5
7. a) What is residue theorem? Write its uses. 7
b) Explain contour integration? 7
8. a) What is Fourier transform and why do we use it? 4
b) What is the inverse Fourier sine and cosine transform formula? Explain. 6
c) State the Convolution theorem. 4

B.Sc. (Engineering) 3rd Year 1st Semester Final Examination-2022
Dept. of Computer Science and Engineering
Islamic University, Kushtia
Course Code: CSE 3101, Course Title: Database Management System

Time- 04 hours

Full Marks-70

[Answer any five questions]

1. a) Explain atomicity problem of file processing system. 4
b) Define database instance and database schema. 3
c) Who are the database users? Classify them. 4
d) Explain the purpose of DML and DDL. 3
2. a) What do you mean by Entity set and Relationship set? 3
b) Describe major components of an E-R diagram. 4
c) Explain different types of attributes. How they represented in E-R diagram? 4
d) Define super key, candidate key and primary key 3
3. a) Define relational algebra. Discuss in detail the operations SELECT, PROJECT and UNION with suitable example. 6
b) What is view? How can it created? Explain with an example. 4
c) Explain your concept about natural join. 4
4. a) Explain different parts of SQL. 3
b) What are the default domain types of SQL standard? What is user defined domain types? 5
c) Define Aggregate functions. 3
d) Explain Nested Sub query with example in SQL. 3
5. a) Define indexing? 2
b) What do you mean by dense index and sparse index? 3
c) Why do we need Multilevel Indices? 4
d) Explain the structure of B⁺ tree. 5
6. a) Define Transaction. 2
b) Explain different states of transaction. 4
c) Explain why concurrency control is necessary? 5
d) Describe ACID properties. 3
7. a) Explain different type of database system architectures. 6
b) Draw and explain different architectural models for parallel machines. 5
c) What do you mean by data server and transaction server? 3
8. a) Differentiate between integrity and security with the example. 5
b) Create two table course(CID, Course, Dept) and HoD(Dept, Head) using SQL language with all constraints [Primary Key, Foreign Key and Referential Integrity]. Assume the types of attributes by our own. 5
c) Define database trigger. Explain the trigger mechanism with an example. 4

3rd Year 1st Semester B.Sc.(Eng.) Examination 2021

Department of Computer Science and Engineering

Islamic University, Kushtia

Course No: CSE 3101

Course Title: Database Management Systems

Time: 04 hours

[Answer any five questions]

Full Marks: 70

1. a) Define DBMS. What is the main goal of it? (1) 4
 b) Explain the disadvantages of file processing system. (1) 4
 c) Describe different level of data abstraction. (1) 4
 d) Define Instance and Schema. (1) 2
2. a) What is data abstraction? (1) 3
 b) What do you mean by mapping cardinalities? Describe mapping cardinalities for binary relationship. (1) 4
 c) Define weak entity set and strong entity set. How they showed in E-R diagram. (2) 4
 d) Explain Participation Constraints of an entity set. (2) 3
3. a) Define data model. Give the names of some data model. (1) 3
 b) Explain different types of attributes and their representation in E-R diagram. (2) 4
 c) Explain *natural join* operation of relational algebra. (2) 4
 d) Consider the following schemas: 3
 employee (*person-name*, *street*, *city*)
 works (*person-name*, *company-name*, *salary*)
 company (*company-name*, *city*)
 manages (*person-name*, *manager-name*)
 Write the relational algebra expression to find the names of all managers and the number of employees' works under him.
4. a) Write the basic structure of SQL and explain each part. 4 4
 b) How can you create a relation using SQL? Explain with example. 4 3
 c) How can you i) INSERT ii) DELETE and iii) UPDATE tuples by SQL? 4 3
 d) Consider the database of the fig. 1 4
 employee (*employee_name*, *street*, *city*)
 works (*employee_name*, *company_name*, *salary*)
 company (*company_name*, *city*)
 Fig. 1
 i. Find all employees who earn more than the average salary of all employees of their company.
 ii. Assume that the companies may be located in several cities. Find all companies located in every city in which Small Bank Corporation is located.
5. a) What do you mean by indexing? 2
 b) Define primary index and secondary index. 3
 c) Describe the structure of a B⁺ tree. 6
 d) Explain insert operation on a B⁺ tree. 3
6. a) What is referential integrity? Explain the basic concept of it. 4
 b) Define database trigger. Explain the trigger mechanism. 6 5
 c) What is Database security? 3
 d) What is assertion? 6 2
7. a) Describe different type of database system architectures. 18 5
 b) Explain Client-Server systems. 18 5
 c) What do you mean by data server and transaction server? 18 3
 d) Define scaleup and speedup. 18 2
8. a) Explain different types of RAID organization. 6
 b) Describe the ACID properties. 15 4
 c) Explain state of Transaction. 15 4

Full Marks: 70

Time: 4 hours

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1. Explain security features of the processing system from the point of view of Database management system? → 5 page book

2. Define database engine and process security.

3. Explain different types of data devices.

4. Describe different types of database languages.

5. What is data model?

6. Explain concept of Entity Relationship model.

7. Describe any two types of data model.

8. Explain mapping and queries from a query language. How is query represented in SQL diagram?

9. Explain the basic syntax of relational data model.

10. Define relational algebra. What are the fundamental operations of relational algebra?

11. Consider the following sentences:
Employee (personnel, salary, position, age)
Company (company, name, city)
Manager (personnel, manager, salary)
Write the relational algebra expression to find the names of all employees who have the same city and whose salary exceeds the salary manager.

12. Explain the different parts of SQL.

13. Explain different declarative types of SQL queries.

14. Define aggregate functions. Explain the types of aggregate functions. How are they used in SQL?

15. Explain Nested and query with subqueries in SQL.

16. What do you mean by indexing?

17. Define primary index and secondary index.

18. Why do we need indices of indices?

19. Explain insert and delete operations in SQL. → 20

20. Define transaction.

21. Explain different states of transaction.

22. Describe ACID properties.

23. Explain implementation of atomicity. → Sheet

24. What are triggers and why are they used?

25. Describe the basic parts of a trigger and how the syntax for creating a trigger.

26. What is a cursor? Why are they are used in PL/SQL?

27. Explain your concept about 3NF and 4NF. → 18 chapter

Is DBMS? Explain concurrent Who are the

Nisha 17-18

Full Marks-75

Answer any five of the following

1. Define DBMS? What is the main goal of it? 3
2. Explain atomicity and security problem of file system. 5
3. Describe the functions of DBA. 4
4. Explain data abstraction. 3
5. Define entity set and relationship set. 3
6. Differentiate between primary key and foreign key. Give examples. 5
7. Describe the mapping cardinalities used in a binary relationship set. 4
8. Define the concept of aggregation. Using this concept write two examples. 3
9. Explain the basic structure of relational data model. 5
10. Define relational algebra. Describe the Fundamental Operations of relational algebra. 6
11. Explain natural join operation of relational algebra. 4
12. Write the basic structure of SQL and explain each part. 6
13. Consider the following schemas:
Account (account_number, branch_name, balance)
Borrower (customer_name, loan_number, amount)
Loan (branch_name, loan_number, amount)
Write SQL statements for the following:
i). To find the names of all customers who have a loan at the "Kushia" branch.
ii). To find the names of all customers who have a loan and find the amount of the loan
iii). To find the largest account balance.
Write with example how can you implement rename operation and Cartesian product operation in SQL. 5
14. Define integrity constraint. 5
15. What do you mean by domain constraint? 2
16. What is referential integrity? Explain the basic concept of it. 3
17. Define database trigger. Explain the trigger mechanism. 6
18. What is indexing? 2
19. What do you mean by dense index and sparse index? 4
20. Is it possible in general to have two primary indices on the same relation for different search keys? Explain your answer. 3
21. Briefly explain hash index. 6
22. What is meant by transaction? 15
23. What are the states that involve in transaction? Describe it with state diagram. 15
24. List the ACID properties of transaction. 4
25. Explain shadow copy scheme. 4
26. Describe different type of database system architectures. 5
27. Explain the structure of parallel database. 5
28. Define scaleup and speedup. 2
29. Explain disadvantages of Distributed database architecture. 3

1. DBMS? State some applications of DBMS. - 4 Marks
2. Explain concurrent access anomalies of file system. - 4 Marks
3. Describe the functions of DBA. - 4 Marks
4. Who are the database users? Classify them. - 4 Marks

5. Define database instance and database schema. 3
6. Explain different type database language. 4
7. Define super key, candidate key and primary key. 4
8. Explain Participation Constraints of an entity set. 4

9. Define data model. Give the names of some data model. 4
10. Describe major components of an E-R diagram. 4
11. Explain natural join operation of relational algebra. 4

12. Consider the following schemas:
- employee (person-name, street, city)
works (company-name, company-name, salary)
company (company-name, city)
manages (person-name, manager-name)
Write the relational algebra expression to find the names of all manager and the number of employees works under him. 3

13. Explain the different parts of SQL. 3
14. Explain Default domain types of SQL standard. 4
15. Define view. Give an SQL statement to create a view. 4
16. Define the following terms: 4
17. i) Specialization and ii) Generalization. 4

18. Define DDL and DML. 3
19. Describe the uses of triggers. 5
20. What built-in domain types are supported by standard SQL? 2
21. Explain your concept about referential integrity constraints. 5

22. Name the several forms of authorization of the database. 3
23. Define access time, seek time and rotational latency time. 6
24. Narrate sequential file organization. 6

25. Define transaction. 2
26. List the ACID properties. 3
27. List all possible sequences of states through which a transaction may pass. Explain why each state transaction may occur. 5
28. Explain shadow copy scheme. 5

8. Write short notes on (i) RAID organization (ii) Deadlock and (iii) Data Fragmentation. 15

Time: 04 hours

[Answer any five questions]

Full Mark

1. What is DBMS? What is the main goal of it? 3
2. Mention the advantages and disadvantages of file system. 4
3. Describe different level of data abstraction. 4
4. What is data independency? Explain physical and logical data independency. 4
5. Define entity set and relationship set. 3
6. Explain different types of attributes and their representation in E-R diagram. 4
7. Define weak entity set and strong entity set. How they showed in E-R diagram? 4
8. Explain mapping cardinalities for binary relationship. 4
9. Explain the basic concepts of relational data model. 4
10. What is query language? Classify them. 3
11. Explain Cartesian product operation of relational algebra. 4
12. Consider the following schemas: 4
 employee (person-name, street, city)
 works (person-name, company-name, salary)
 company (company-name, city)
 manages (person-name, manager-name)

Write the relational algebra expression to find the names of all employees who live in the same city and on the same street and do as a manager.

13. (a) Define Transaction. 2
 (b) Explain different states of transaction. 5
14. (c) Explain why concurrency control is necessary? 4
 (d) Describe ACID properties. 4

15. (a) Describe following topics of SQL 6
 (i) Modification of the database
 (ii) Domain type in database → ch-sheet
 (iii) Schema definition in SQL

16. (b) Consider the following relational database 3×3
 employee (Person_name, Street, City)
 works (Person_name, Company_name, Salary)
 Company (Company_name, City)

Give an expression in the relational algebra for each request.

- (i) Find the names of all employees who live in the city of 'Dhaka' and also find their company name and city, where "Dhaka" is one of the cities in the table of employee and company.
(ii) Modify the database so that the company 'BRB' moves their factory from 'Kushtia' to 'Chittagong'.
(iii) Find the staffs and their addresses who work in the company 'MRS' and who does not live in the city 'Kushtia'.

17. (a) Describe different types of database system architectures. 5
 (b) Explain client-server systems. 5
 (c) What do you mean by data server and transaction server? 3
 (d) Define scaleup and speedup. 2

18. (a) What do you mean by domain and domain constraints? 3
 (b) What are the differences between a primary index and secondary index? Explain multilevel indices. 3+3
 (c) Explain and compare different index update techniques. 6

19. (a) What are triggers and why they are used? 5
 (b) Describe the basic parts of trigger and show the syntax for creating a trigger. 6
 (c) What is a cursor? Why they are used in PL/SQL? 4

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[Answer any five of the following questions. Figures in the right margin indicate marks]

1. a) What is meant by frequency distribution? What are the graphs used in representing frequency distributions? Briefly describe. 6
- b) What are the various measures of location of a distribution and to what purpose are they used? 3
- c) Define mean, median and mode. Write down the merits and demerits of mode. 5
- d) Define Population, Sample, Parameter and Statistics with examples 5
- e) Differentiate between Sample and Population 5

8-10

2. Explain whether each of the following constitutes a population or a sample. 4
- a) Number of fish caught by all participants in a fishing trip. -4
- b) Yield of sweet potatoes per acre for 10 pieces of land. -4
- c) Ages of all players in a rugby team. -4
- d) Number of traffic offences by 200 drivers in Vanuatu. -4
3. What do you understand by measures of Central tendency? 3
- a) In each of the following statements, tell whether descriptive or inferential statistics have been used. 4
- b) In the year 2020, 20000 students will be enrolled at USP. -4
- c) Income for the cane farmers in Fiji were 1.2 million in 2017. -4
- d) Research stated that the shape of a person's ears is related to the person's aggression. -4
- e) The national average annual medicine expenditure per person is \$1052. -4

4. Indicate which of the following variables are quantitative and which are qualitative. Classify the quantitative variables as discrete or continuous and classify the qualitative variables as nominal or ordinal. 7
- a) Number of road accidents in a year. -d
- b) Time a student takes to walk to school. -e
- c) Religion of people in Fiji. -e
- d) Length of jump by athletes in long jump event. -e
- e) Number of errors on each page of a book. -d
- f) Grades of students at USP (A+, A, B+, B, etc.). -d
- g) Shoe size of a person. -e
- h) Location level of a sugarcane farmer. -d
5. What is the Scale of Measurement? Explain four types of Scales with Examples 4
- a) Explain Three types of Average- Mean, Median and Mode. 3
- b) Indicate the appropriate mode types of the followings: 5
- i. 0.2, 3.3, 4 -d
- ii. 0.2, 3.3, 4 -d
- iii. 0.2, 2.3, 4.4 -d
- iv. 0.2, 2.3, 4.4, 0 -d
- v. 0.2, 3.3, 4.4, 0.0 -d

6. Differentiate Between Desires and Percentiles 2
- a) Define correlation and regression. Prove that correlation coefficient is independent of change of origin and scale. 5
- b) Define partial correlation and multiple correlations. Define their coefficients. 4
- c) Calculate the coefficient of correlation and obtain the lines of regression for the following data: 5

X	1	2	3	4	5	6	7	8	9
Y	9	8	10	12	11	13	14	16	15

7. Differentiate between raw moment and central moment 4
- a) What do you mean by skewness? Discuss different types of skewness with necessary graph. 5
- b) The mean, Karl Pearson's Co-efficient of skewness and co-efficient of variation of a distribution are 50, 0.4 and 40% respectively. Find the standard deviation, mode, and median of the distribution. 5
8. Define Binomial Distribution? Write the conditions of Binomial Distribution. 5
- a) The mean and variance of a binomial distribution are 4 and 4/5 respectively. Find i) Probability Function ii) $P(X=0)$ iii) $P(X=1)$ 5
- b) Explain the Probability mass function of binomial distribution 4
- c) A random variable X has a Poisson distribution with parameter 2, such that $P(X=1)=(0.2)$ 5
- d) $P(X=2)$ Find $P(X=0)$ 5
- e) What is the relationship between Poisson distribution and binomial distribution? 2
- f) Explain Chi-square distribution. Write its properties. 2
- g) Write the application of Chi-Square Distribution 2

B. Sc. (Engineering) 2nd Year 2nd Semester Final Examinations-2021

Department of Computer Science and Technology

Islamic University, Kushtia

Course No. CSE 2201

Course Title: Computer Organization and Architecture

Full Marks: 70

Time: 4 hours

Answer any five questions

1. (a) Explain the difference between computer architecture and computer organization. 5
(b) What is Bus? What are different types of buses used in computer system? 1+3
(c) Explain Instruction cycle state diagram with interrupt. 5
2. (a) Define instruction format. What are the different types of fields that are part of instruction? 2+2
(b) Define three address instruction and two address instruction with example. 4+3
(c) Evaluate the arithmetic statement $A = (A * B) / C$ using zero address instruction.
(d) How many 128 x 8 RAM chips are needed to provide a memory capacity of 4096x16? 3
3. (a) Describe the internal organization of a CPU. 5
(b) What is addressing mode? Describe implied, immediate, register direct and indexed addressing mode with example. 1+6
(c) Consider the binary number 10110011. Find the values of left arithmetic shift and right arithmetic shift. 2
(d) $(A * B) * C$
4. (a) What is normalized floating point number? 2
(b) Write the basic rules of floating point arithmetic. 3
(c) Describe the Booth's algorithm for two's complement multiplication with example. 6
(d) Draw the hardware for addition and subtraction. 3
5. (a) What do you mean by memory hierarchy? Explain the factors which affect memory hierarchy. 4
(b) Explain the organization and operations of cache memory. 5
(c) What is Dynamic memory? Discuss a typical dynamic memory circuit. 5
6. (a) Compare hardware control unit and micro-programmed control unit. 3
(b) Discuss design methods of Hardwired control unit. 5
(c) Explain basic concepts of micro-programmed control unit. What is multiplier control unit? 4+2
7. (a) Describe the several physical forms that are available for establishing an interconnection network. 6
(b) Explain the characteristics of multiprocessors. 4
(c) What is DMA? Explain. 4
8. Write short notes on the followings:
(i) RISC processor 5
(ii) Status register 4
(iii) 8255 PPI 5

Answer any five questions

- (a) Define computer architecture and computer organization. 4
(b) Describe the internal register of a computer. 4
(c) Draw and explain the instruction cycle state diagram. 6

7. Write a program to evaluate arithmetic statement:
$$X = \frac{G + H * K}{A - B + C * (D * E - F)}$$
 9

8. Using a general register computer with three-operand instructions.
i. Using a general register computer with two-operand instructions.
ii. Using a general register computer with one-operand instructions.

9. What are the different types of flags in 8085 microprocessor? 6
Explain.

10. Describe the main structural components of a processor. 5
(a) How many 512x 8 RAM chips are needed to provide a memory capacity of 2048 bytes? 3
(c) What do you mean by addressing mode? Write the difference between direct and indirect addressing modes. 6

11. Explain the IEEE 754 standardization of 32-bit representation of floating point number with an example. 4
(b) What is normalized floating point number? Write the basic rules of floating point arithmetic. 2 + 4
(c) Design a 4 bit arithmetic circuit which performs the basic arithmetic operations. 4

12. What do you mean by memory hierarchy? Explain the factors which affect memory hierarchy. 4
(b) Explain the organization and operations of cache memory. 5
(c) What is Dynamic memory? Discuss a typical dynamic memory circuit. 5

13. Write the difference between hardware control unit and microprogram control unit. 6
(b) Describe different types of micro-programmed control unit. 6
(c) Define micro-instruction and control memory. 2

14. What is bus arbitration? Write the name of various bus arbitration techniques. 5
(b) What is interrupt? Discuss the steps when CPU responds to an interrupt request. 5
(c) Distinguish between DMA and interrupt with the help of instruction cycle. 4

15. What do you mean by peripheral device? Explain the block diagram of peripheral device. 5
(b) Explain the structure of I/O module. 6
(c) Define Isolated I/O and Memory Mapped I/O. 3

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B. Sc. (Engg.) 2nd Year 2nd Semester Final Examination-2019
Department of Computer Science and Engineering
Islamic University, Kusthila
Course No.: CSE 2201
Course Title: Computer Architecture and Organization

Full Marks: 70

Time: 4 hours

Answer any five questions.

Introduction

- Explain the difference between computer architecture and computer organization. 4
- Explain different functional units of a computer. 6
- What is Bus? Describe different types of buses in computer architecture. 4

2. Arithmetic

- Write a program to evaluate arithmetic statement:
 $X = (A+B) * (C+D)$ 8

CPU

- Using a general register computer with three-operand instructions.
 - Using a general register computer with two-operand instructions.
 - Using a general register computer with one-operand instructions.
 - Using a stack organized computer with zero address instructions (stack instructions).
- Describe addressing modes. 6

3. Memory

- Draw and explain the block diagram of an ALU. 6
- How many 64 x 8 RAM chips are needed to provide a memory capacity of 2048 bytes? 2
- Write down the function of control unit. 4
- What do you mean by Microinstruction Format? 2

4. Floating-point

- Explain the working principle of CPU with flowchart. 4
- Explain floating-point representation of data with an example. What are the advantages of floating-point number representation? 4
- Explain 2's complement method for represents signed number. 3
- What do you mean by normalization of a floating-point number? 3

5. Microcomputer

- What do you mean by seek time and latency time? 3
- What is microcomputer memory. Write the characteristics of memory systems. 4
- Briefly explain how cash memory works. 5
- What is virtual memory? 2

6. Control

- Write the difference between hardware control unit and microprogram control unit. 6
- Describe different types of micro-programmed control Unit. 6
- Define micro-instruction and control memory. 2

7. Peripheral

- What do you mean by peripheral device? Explain the block diagram of peripheral device. 5
- What is I/O module? Explain the functions of I/O module. 6
- Distinguish between Isolated I/O versus Memory Mapped I/O. 3

8. DMA

- What are the advantages of DMA system over the programmed I/O method? 5
- Describe how data are transferred in DMA system. 4
- Explain how CPU responds to an interrupt. 5

Time: 04 Hours

Answer any five questions.

1. (a) What is register? Explain how the bits of status register are set or reset as a result of an operation. 6
 (b) Describe the interaction between hardware and software in a computer system. 3
 (c) What do you mean when any one describe about a computer as "It is core 13.2 GHz, 512 MB RAM, 80GB HDD with 933MHz Intel chipset?" 3
 (d) Define Throughput and Response Time. 3
2. (a) Define with example of floating-point representation. Describe about floating point arithmetic with proper examples. 4
 (b) Explain in details about fraction and real numbers. 4
 (c) Show the complete step-by-step multiplication process for two sample numbers $X = 1011$ and $Y = 1101$. 7
3. (a) What are the functions of ALU? 2
 (b) Explain the design of 32-bit ALU in detail. 6
 (c) Describe the working of a carry-look ahead adder. 7
4. (a) Explain the need for having a hierarchical memory organization and explain the hierarchy in detail with a block diagram. 4
 (b) Design a 2048-8 bit memory chip. 3
 (c) Why is SRAM faster than DRAM? 3
 (d) Briefly explain cache organization with cache addressing scheme. 5
5. (a) What is pipeline processor? Describe the data and control path techniques in pipelining. 7
 (b) Distinguish between hardware control and microprogram control. What are the advantages and disadvantages of each method? 5
 (c) Write the control word for the following micro instruction: (i) $R_4 \leftarrow R_1 - R_2$ (ii) $R_6 \leftarrow \text{input}$ (iii) $R_3 \leftarrow \text{shr } R_2$. 3
6. (a) Write IEEE standard for floating point format. Explain the floating point addition and subtraction. 6
 (b) How many addressing modes are available in computer system? Describe in detail the different types of addressing modes with an example. 6
 (c) Represent 010111001.0110 using 32-bit in normalized and biased exponent form (assume 8-bit for exponent). 3
7. (a) What are the functions of DMA? Write some merits and demerits of DMA. 4
 (b) Briefly explain the working principle of a DMA controller. 7
 (c) Comparisons between memory-mapped I/O and I/O mapped I/O. 4
8. (a) What is bus? Discuss the bus organization of a computer. 6
 (b) Describe internal organization of RISC processor. 6
 (c) Compare the RISC and CISC architecture. 3

- 15-18
- 3 a) Define and explain your concept about Data and Information. ✓
 - 3 b) What do you mean by stored program computer? ✓
 - 6 c) Write some characteristics of second-generation computers. ✓
 - 3 d) Explain pipelined instruction processing.
 - 7 a) What do you mean by computer and computer architecture? Draw and describe the basic architecture of a computer. ✓
 - 4 b) Briefly discuss the implementation of a floating point operation. ✓
 - 4 c) What do you mean by normalization of a floating point number? ✓
 - 5 a) Explain the working principle of CPU with flowchart.
 - 5 b) What do you mean by normalization of floating point numbers? Explain the IEEE 754 standardization of 32-bit representation of floating numbers with an example. ✓
 - 5 c) Give the basic format of an instruction. How many types of instructions are available? ✓
 - 8 a) Design and draw a n-bit arithmetic circuit which performs the basic arithmetic operations. ✓
 - 5 b) What modification is necessary if we want to get logic operation from this circuit? ✓
 - 2 c) What is meant by bit slice ALU?
 - 4 a) Describe the interaction between data and control unit and the signals used for their interaction.
 - 5 b) Define control word and micro-instruction. Write the control word for the following micro-instructions:
i) $R1 \leftarrow R1 - R2$ ii) $R6 \leftarrow \text{input}$ iii) $R3 \leftarrow \text{shr} R2$
 - 6 c) What is pipeline processor? Explain the operation of pipeline microprogram control unit.
 - 5 a) Define the term i) Control word ii) Micro program iii) Microinstruction
 - 5 b) What steps involved in designing hardware controlled system?
 - 5 c) Write a Micro program, which count the total number of 1's in a given character. Let the character is stored in Register R7.
 - 5 a) What do you mean by Cache memory? What are the reasons for using Cache memory?
 - 5 b) What do you mean by Memory Hierarchy? Explain the factors, which affect Memory Hierarchy.
 - 5 c) Explain first fit and best fit method.
 - 5 a) Explain memory mapped I/O and I/O mapped I/O.
 - 5 b) Describe the internal organization of RISC processor.
 - 2+3 c) What is interrupt? Discuss the steps when the CPU responds to an interrupt request.

2nd Year final Examination 2016

Department of Computer Science and Engineering (CSE)
Islamic University, Bangladesh.

Course Code: CSE 207

Course Title: Computer Architecture and Organization

Full Marks: 75

Answer any five questions.

Time: 04 Hours

Explain your concept about computer architecture and organization? Draw and describe the basic architecture of a computer. 7

Differentiate between computer architecture and computer organization. 3

Briefly explain computer structure and functions with flow diagram. 5

Explain the design process of an accumulator. 5

Explain IEEE standard floating point format with proper examples. 4

Show the complete step-by-step multiplication process for two sample numbers $X = 1011$ and $Y = 1101$. 6

What do you mean by central processing unit? 2

Draw and discuss the internal bus organization of a processor unit. 6

Explain the operation: $R_1 \leftarrow R_2 + R_3$. 4

Give block representation of a typical fixed point ALU. 3

What do you mean by memory hierarchy? Explain the factors which affect memory hierarchy. 4

Design a 1024×8 bit memory chip. 4

Differentiate between SRAM and DRAM. 4

Why and where is used cache memory in computer system? 3

What is pipeline processor? Discuss merits and demerits of pipeline processor. 5

Distinguish between hardware control and microprogram control. What are the advantages and disadvantages of each method? 7

Write the control word for the following micro instruction: i) $R1 \leftarrow R1 - R2$ ii) $R6 \leftarrow \text{input}$ iii) $R3 \leftarrow \text{shr } R2$. 3

Write down the various types of interface used in communication between CPU and I/O devices. 4

What is the need for interrupt? Discuss different steps when CPU responds to an interrupt request. 6

Compare between RISC and CISC processors. Describe the register set of RISC processor. 5

Define addressing mode? Describe in detail the different kinds of addressing modes with an example. What are the functions of accumulator? Draw the block diagram of an accumulator based microprocessor unit. 7
8

Write short notes any three :

- Memory paging
- Input-Output interface
- BUS
- DMA

3×5
=15

2nd Year B.Sc. (Hon's) Final Examination-2015

Dept. of Computer Science and Engineering

Islamic University, Kushtia

CSE 207: Computer Architecture and Organization

Full Marks: 75

Time: 4 hours

Answer any five questions

(Figures in the right margin indicate marks)

1. (a) Explain your concept about computer architecture? Draw and describe the basic architecture of a computer. 7
- (b) What do you mean by normalization of floating point numbers? 3
- (c) Briefly discuss the implementation of floating point operation. 5
2. (a) Explain the design process of an accumulator. 5
- (b) Explain IEEE standard floating point format with proper examples. 4
- (c) Show the complete step-by-step multiplication process for two sample numbers $X = 1011$ and $Y = 1101$. 6
3. (a) What are the functions of ALU? 2
- (b) Draw and describe the block diagram of ALU. 6
- (c) Draw a 4-bit accumulator showing the internal connection between the stages. 7
4. (a) What do you mean by memory hierarchy? Explain the factors which affect memory hierarchy. 4
- (b) Design a 1024×8 bit memory chip. 4
- (c) Differentiate between SRAM and DRAM. 4
- (d) Why and where is used cache memory in computer system? 3
5. (a) What is pipeline processor? Explain the operation of pipeline micro program control unit. 7
- (b) Distinguish between hardware control and microprogram control. What are the advantages and disadvantages of each method? 5
- (c) Write the control word for the following micro instruction: 3
- i) $R1 \leftarrow R1 - R2$
- ii) $R6 \leftarrow \text{input}$
- iii) $R3 \leftarrow \text{shr } R2$
6. (a) What do you mean by DMA? Explain the working principle of a DMA controller. 6
- (b) What are the usual definition of the terms CISC and RISC? Describe internal organization of CISC. 7
- (c) Write some merits using DMA. 2
7. (a) Define addressing mode? Describe in detail the different kinds of addressing modes with an example. 7
- (b) What are the functions of accumulator? Draw the block diagram of an accumulator based microprocessor unit. 8
8. (a) Write short note on any ^{three} two of the followings 3*5=15
- i) Memory Paging
- ii) Cache Memory
- iii) Interrupt
- iv) Virtual Memory

2nd Year B.Sc. (honors) Final Examination-2014
Department of Computer Science and Engineering (CSE)
Islamic University, Kushtia

Course Code: CSE 207
Time: 04 Hours

Course Title: Computer Architecture and Organization
Full Marks: 75

Answer any five questions

1. a) Explain your concept about computer architecture? Draw and describe the basic Architecture of a computer. ✓ 8
- b) Describe the interaction between hardware and software in a computer system. ✓ 3
- c) Write some characteristics of fifth generation computer. ✓ 4
2. a) Define with example of floating-point representation. Describe about floating point arithmetic. ✓ 4
- b) Explain IEEE standard floating point format with proper examples. ✓ 4
- c) Show the complete step-by-step multiplication process for two sample numbers $X = 1011$ and $Y = 1101$. ✓ 7
3. a) Explain the need for having a hierarchical memory organization and explain the hierarchy in detail with a block diagram. 4
- b) Design a 1024×8 bit memory chip. 4
- c) Differentiate between SRAM and DRAM. ✓ 4
- d) Why and where is used cache memory in computer system? 3
4. a) Describe the interaction between data and control unit and the signal used for their interaction. 4
- b) Define control word and micro instruction. Write the control word for the following micro instruction:
i) $R1 \leftarrow R1 - R2$ ii) $R6 \leftarrow \text{input}$ iii) $R3 \leftarrow \text{shr} R2$. 5
- c) What is pipeline processor? Explain the operation of pipeline microprogram control unit. 6
5. a) What is DMA? How a DMA controller transfer data from memory to I/O device. 7
- b) Describe the internal organization of a RISC processor. 5
- c) Distinguish between RISC and CISC processors. 3
6. a) Define Access time, Seek time, Volatile memory and Rotational delay. 4
- b) Explain the design process of an accumulator. 5
- c) Design a Carry-Look ahead Adder and explain its operation. 6
7. a) Define addressing mode? Describe in detail the different kinds of addressing modes with example. 7
- b) What are the functions of accumulator? Draw the block diagram of an accumulator based microprocessor unit. 8
8. Write short on any three of the followings :
- Status register
 - Virtual memory
 - Bus Organization
 - Cache memory
 - Interrupt.

0100
1100
0000
0100
0000
3x5

Full Marks: 70

Answer any five questions

Time: 4 hours

2. a) Why do we use the numerical methods and analysis? 3
 b) Define round off error and Truncation error? 3
 c) Describe the bisection method to determine the roots of a non-linear equation. 3
 d) Define i) algebraic ii) Transcendental equation with example. 3

3. a) What are the characteristics of polynomial equations? 2
 b) Explain the method of False position for determine the roots of a equation. 4
 c) Solve the equation using method of false position: $x^2 - x - 1 = 0$ 5
 d) Write the Merits and demerits of false position method. 3

3. a) Define Interpolation and Extrapolation with example. Why is interpolation needed? 5
 b) Express $\Delta^4 y_0$ in term of ordinates. 4
 Find $f(2.75)$ using newton forward interpolation 5

X	1.5	2	2.5	3	3.5	4
Y	3.375	7	13.625	24	38.875	59

4. a) Define Divided differences. State any two properties of divided difference 4
 b) State Newton's divided difference interpolation formula. 3
 c) Find the divided differences of $f(x) = x^3 + x + 2 = 0$ for the arguments 1, 5, 9, 11 4
 d) Write Lagrange interpolation formula. 3

5. a) What do you mean by numerical differentiation? 3
 b) Write down the formula the first derivative using Newton's forward difference at $x = x_0$ 3
 c) Find the first derivative of the function tabulated below, at the point $x = 2.5$; 8

x	0	1	2	3	4	5	6
f(x)	2	3	10	29	66	127	218

6. a) What do you mean by numerical integration? Discuss the principle of integration method. 4
 b) What is the local error term in Trapezoidal formula? Write the order of the errors of trapezoidal rule. 5
 c) Evaluate $\int_0^1 \frac{1}{(1+x)^2} dx$, correct to three decimal places using trapezoidal rule with $h = 0.25$. 5

7. a) What are Differential Equations? Explain Various Types of Differential Equations. 5
 b) How we solve First order linear differential equation? 3
 c) What is initial value problem and boundary value problem? 3
 d) Solve $(2x^3 + 4y)dx + (4x + y - 1)dy$ 3

8. a) Solve $(2x^2 + y^2 + x)dx + xydy = 0$. 3
 b) Explain Taylor series method for solving ODE. 4
 c) Use the Runge-Kutta second and fourth-order method to find $y(0.1)$ and $y(0.2)$; given $\frac{dy}{dx} = y - x$ where $y(0) = 2$ 7

Answer any five questions

1. (a) What are the advantages of numerical method? 2
 (b) What is algebraic and transcendental equation? Give an example. 4
 (c) Derive an expression for determining the root of equation using the method of false position. 3
 (d) Use the method of false position to find a real root of the equation $x^3 - 2x - 5 = 0$ 4

2. (a) State the condition for convergence of iterative method. 3
 (b) Describe the bisection method for determining the root of a non-linear equation. 5
 (c) Find the root of $x^3 - x - 1 = 0$ using bisection method. 6

3. (a) Explain Newton-Raphson method for solving a non-linear equation. 5
 (b) Use Newton-Raphson method to find a root of $x^3 - 5x + 3 = 0$ 5
 (c) Write the criteria for convergence of this method. 2
 (d) Point out the limitation of this method. 2

4. (a) Write the principle of integration method. 3
 (b) Describe the trapezoidal rule for computing integral. 6
 (c) Evaluate $\int_0^{\pi/2} \cos x dx$ correct to three decimal places using trapezoidal rule with $h=0.25$. 5

5. (a) Deduce Simpson's 1/3 rule and 3/8 rules of determining the numerical integration. 8
 (b) Evaluate $I = \int_0^1 (1+x)^2 dx$ taking $h = 0.25$. 6
 Using i) Analytically ii) Single application of Simpson's 1/3 rule

6. (a) What do you mean by degree and order of differential equation? 3
 (b) Explain how to use Taylor series to solve differential equations. 6
 (c) Use Taylor series to solve the following equation: $\frac{dy}{dx} = xy$ with $y(1) = 5$, for $x=2$ and 3 . 5

7. (a) Distinguish between interpolation and extrapolation? 3
 (b) Derive Lagrange interpolation formula. 6
 (c) Evaluate y for $x=1.2$ from the following data: 5

x	0	1	2	3	4
y	1	0	1	10	33

8. (a) Explain second order Runge-Kutta method for solving Ordinary differential equation. Given $\frac{dy}{dx} = y - x$ with $y(0) = 2$. Find $y(0.1)$ and $y(0.2)$ using Runge-Kutta fourth order method. 6
 (b) What is meant by an r-order Runge-Kutta method? 2

ANALYTICAL AND NUMERIC METHOD AND ERROR	
1.	What is a numerical method? What is the difference between analytical and numerical methods?
2.	What is convergence in numerical methods?
3.	Why are numerical methods used? Write some applications of numerical method.
4.	What are the different types of numerical solutions in numerical math?
5.	What's the difference between axioms and postulates?
6.	Write some merit and demerit of analytical solution and numerical solution.
7.	Why do we use the numerical methods and analysis?
8.	Define round off error and Truncation error?
9.	What are two types of errors involving in Numerical computations?
10.	What are the sources of errors in the numerical method by using an example?
11.	
12.	ROOTS OF EQUATIONS
13.	Define i) algebraic ii) Transcendental and iii) Polynomial equation with example.
14.	What are the characteristics of polynomial equations? Classify polynomial equation.
15.	Describe the bisection method to determine the roots of a non-linear equation.
16.	Calculate a real root of the following function using bisection method correct upto 3 significant figures. $x^2 - e^x = 3$
17.	$f(x) = x^2 - 2 = 0$. Solve using bisection method ($1.3 \leq x \leq 1.5$). Ans: 1.414213562373095
18.	Explain the method of False position for determine the roots of polynomials and transcendental
19.	Write the Merits and demerits of false position method.
20.	Using false position Correct 4 decimal points for the function $x^2 - 4x - 9 = 0$. (Ans: -2.7065)
21.	Deduce the Newton-Raphson Method to find the solution of the equation $f(x) = 0$.
22.	Write down the condition and rate for convergence of Newton Raphson of the equation $f(x) = 0$
23.	Discuss advantages and disadvantages Newton Raphson method.
24.	$f(x) = x^3 - 15x + 10 = 0$. Solve using Newton Raphson Method. Take $x_0 = 2.25$. Ans: 3.482612919322588
25.	Use Newton-Raphson method to find a root of $x^3 - 2x - 5 = 0$.
26.	
27.	INTERPOLATION
28.	Define Interpolation and Extrapolation with example. Why is interpolation needed?
29.	What are the different methods of interpolation? What are the uses of interpolation?
30.	When to use Newton's forward interpolation and when to use Newton's backward interpolation
31.	State Gregory-Newton forward difference interpolation formula.
32.	Express $\Delta^4 y_0$ in term of ordinates.
33.	Discuss the Newton's forward difference formula for Interpolation.
34.	Define Divided differences. State any two properties of divided difference
35.	State Newton's divided difference interpolation formula.
36.	Derive Lagrange interpolation formula and state its uses.
37.	Write some advantages and disadvantages of Lagrange's Interpolation formula
38.	Given $f(0) = -1$, $f(1) = 1$, $f(2) = 4$, find the Newton's interpolating polynomial equation.
39.	Find the divided differences of $f(x) = x^3 + x + 2$ for the arguments 1, 3, 6, 11
40.	Find the polynomial through (0, 0), (1, 1) and (2, 20) using Lagrange's method.
41.	Write the polynomial $f(x)$ and hence find $f(5)$. Using Lagrange's method, x: 1 3 4 6 y: -3 0 30 132
42.	
43.	NUMERICAL DIFFERENTIATION
44.	What do you mean by numerical differentiation.
45.	Write down the formula the first derivative using Newton's forward difference at $x = x_0$

46.	Write down the first two derivatives of Newton's forward difference formula at the point $x = x_0$	
47.	Find the first derivative of the function tabulated below, at the point $x = 2.5$: $\begin{array}{cccccccc} x & : & 0 & 1 & 2 & 3 & 4 & 5 & 6 \\ f(x) & : & 2 & 3 & 10 & 29 & 66 & 127 & 218 \end{array}$	2021
48.		
49.	NUMERICAL INTEGRATION	
50.	What do you mean by numerical integration? Discuss the principle of integration method.	2021 20
51.	Write down the Newton-cote's formula for the equidistant ordinates.	
52.	What is the local error term in Trapezoidal formula. Write the order of the errors of trapezoidal rule.	2021
53.	State the formula for trapezoidal rule of integration.	20
54.	When does Trapezoidal rule gives exact result.	
55.	Evaluate $\int_0^1 \frac{1}{(1+x)} dx$, correct to three decimal places using trapezoidal rule with $h = 0.25$.	2021 20
56.		
57.	Write down the order of the errors of Simpson's one third rule.	
58.	When do you apply Simpson's 1/3 rule? When does Simpson rule gives exact result?	
59.	How Simpson's 1/3 rule differs from Trapezoidal rule? Drive the formula for Simson's 1/3 rule.	
60.	Write down the Simpson's 1/3 - Rule in numerical integration.	
61.	Compare trapezoidal rule and Simpson's one third rule.	
62.	State Simpson's three eight rule. On what type of intervals, simpson;s three-eight rule can be applied.	
63.	Compare Simpson's 3/8 rule and Simpson's one third rule.	
64.	Evaluate $\int_1^3 \frac{1}{x} dx$ by Simpson's rule with 4 strips. Determine the error by direct integration.	
65.	Evaluate the integral $\int_0^{\pi} (5 + 2 \sin x) dx$ i) Analytically ii) Multiple application of Simpson's $\frac{1}{3}$ rule with $n = 4$.	
66.		
67.	DIFFERENTIAL EQUATIONS	
68.	What are Differential Equations? Explain Various Types of Differential Equations.	2021
69.	Define order and degree of Differential Equation	20
70.	How we solve First order linear differential equation?	2021
71.	What is initial value problem and boundary value problem?	2021
72.	Solve $(x^2 + y^2)dx - 2xydy = 0$, Solve $(2x^3 + 4y)dx + (4x + y - 1)dy = 0$.	2021
73.	Solve $(2x^2 + y^2 + x)dx + xydy = 0$, Solve $(x^3 + y^3)dx - xy^2dy = 0$	
74.	Explain Taylor series method for solving ODE.	2021
75.	From Taylor series for $y(x)$, find $y(0.1)$, if $y(x)$ satisfies $y' = x - y^2$ and $y(0) = 1$	
76.	Let $y' = -y$ with the condition $y(0) = 1$. Solve using Euler Method.	
77.	Deduce second order Runge-Kutta method for solving Ordinary differential equation.	20
78.	Discuss Range-Kutta fourth order method for solving ordinary differential equations	
79.	Use the Runge-Kutta second and fourth-order method to find $y(0.2)$ and $y(0.3)$; given $\frac{dy}{dx} = 1 + y^2$, where $y = 0$ when $x = 0$.	2021

B.Sc. (Engineering) 2nd Year 2nd Semester Final Examination-2021
Department of Computer Science and Engineering
Islamic University, Kushtia

Course no: HUM 2211

Course Title: Business and Communication Law

Full Marks: 70

Answer any five questions

Time: 4 hours

1. a) Narrate the different senses of Engineering Ethics. 4
b) What are the essential roles exhibited by the Engineer's Code of Ethics? Are there any limitations of this code? 5+5
2. a) Mention the categories of civic virtues. 4
b) Write down the must-have characteristics of a leader to practice 'Empathy' in the workplace. 5
c) "Honesty is a virtue, and it is exhibited in truthfulness and trustworthiness." - Explain the statement. 5
3. a) As a citizen of Bangladesh which fundamental rights are guaranteed in the constitution for you? Should freedom of speech be an absolute right? -8+6
4. a) Describe the laws regarding cyber terrorism and causing damage to any computer systems. Will it be considered a crime to spread rumors by hurting religious sentiments through social media? 6+4
b) State the provisions of the Digital Security Act, 2018 in this regard. 4
5. a) Define the Negotiable Instrument with its characteristics. 4
b) How many kinds of Negotiable Instruments are there? - Discuss. 6
c) What are the differences between Bill of Exchange and Cheque? 4
6. a) Is Drug addiction an ethical failing? How do professional ethics and values come into play with regard to drug addiction? 4+4
b) What are the punishments of drug offenses prescribed under the "Mādrakroho Niontron Ain, 2018"? 6
7. a) Define fundamental rights. What are the differences between fundamental rights and human rights? 2+4
b) State in brief the fundamental rights as stipulated in the Constitution of Bangladesh. 8
8. a) What is intellectual property? What are the exclusive rights enjoyed by the copyright holder? 5
b) Write down the restrictions to the registration of similar or deceptively similar trademarks under the Trade Marks Act, 2009. 5

25

people on internet

prod

[Answer any five questions]

Full Marks: 70

- 4 a) Do you have any idea about critical information infrastructure? Mention the punishment for illegal access to any critical information infrastructure.

b) Is the modification of computer source code an offense? Explain with reference to the punishment for it.

c) Describe the laws regarding illegal damage to computers, computer systems, and digital devices

2. What do you mean by company? Discuss the salient features of private and public company. "Directors are trustees for their company." – Discuss. 14

(3) (a) Write down the penal provisions of offenses related to the State under the Digital

Security Act, 2018.

b) State the offense and punishment for committing cyber terrorism under the above-mentioned Act.

c) Mr. 'X' Publishes and broadcasts some information on the website in an electronic format that hurts the religious values or sentiments of a group of citizens in Bangladesh. What is the saying of the Digital Security Act, 2018 in this circumstance?

4 State what is meant by wages according to payment of wages Act. Who is responsible for payment and time of wages under the act? 14

b) What are the remedies for the breach of contract?

6 c) State the rules regarding compensation for loss or damage caused by the breach of contract.

5. a) What is intellectual property? Write down the contribution of intellectual property to the sustainable development of the country.

of copyright be made to the successor of the copyright holder?