

**Section A**

- ✓ 1. a) Distinguish between a Physical and Abstract system. 2
- ✓ b) What are the elements of a system? Can you have a viable system without feedback? Explain. 2.75
- ✓ c) Discuss the primary characteristics of open systems. In what way is a system entropic? 4
  
- ✓ 2. a) Write down the internal and external factors which initiate or influence the change in a system. Give examples where necessary. 2.75
- ✓ b) Write down the probable reasons your project may be terminated or become a failure. 3
- ✓ c) What are the considerations that act as important factors in deciding a candidate system? Discuss briefly. 3
  
- ✓ 3. a) What are the technical and interpersonal skills required of systems analysts? 3
- ✓ b) Draw a figure and explain which skill is favored over the other in the following stages and why: i. Analysis; ii. Design; iii. Implementation; iv. Maintenance. 2.75
- ✓ c) Discuss the role of the system analyst as a "Change Agent", "Psychologist" and "Motivator". 3
  
- 4. a) Assume as a user you noticed a problem or an area of improvement in the current system. What will be your steps in informing the authority about it and bring a change in the system? 3
- ✓ b) Discuss the problems of Human bias in data selection and use. 3.75
- ✓ c) Explain the expectancy theory of user motivation in your own words. 2

**Section B**

- ✓ 5. a) What is a structured analysis? State the disadvantages of traditional approach to system analysis. 2
- ✓ b) Discuss the concept and procedure used in constructing DFD with an example. 3.75
- ✓ c) Define data dictionary. How it overcomes the limitations of DFD? What are the disadvantages of data dictionary? 3
  
- ✓ 6. a) Suppose a group of 12 people including you who work on a system are scheduled for interviewing by an analyst. What would you expect from him while he conducts the interviewing process? 4.25
- ✓ b) Explain the difference between structured and unstructured interviewing. 2
- ✓ c) In which ways Questionnaire is a better information gathering tool than interviewing? 2.5
  
- 7. a) What are the three key questions of the feasibility study? 2
- ✓ b) What sections are contained in the feasibility report? Explain elaborately. 3.75
- ✓ c) What do you mean by data dictionary? Write down some advantages and disadvantages of data dictionary. 3
  
- ✓ 8. a) Discuss the concept of Structured design. 2.75
- ✓ b) Distinguish between logical and physical design. 3
- ✓ c) Define coupling, Module coupling and Module cohesion. 3

**Department of Computer Science and Engineering**

**University of Rajshahi**

**B.Sc.(Engg.) Part III (Odd semester) Examination 2021**

**Course Title; Database Management System**

**Full marks:52.5**

**Course code: CSE- 3121**

**Time: 3 Hours**

**[Answer three questions from each part]**

**Part A**

- |      |   |      |
|------|---|------|
| 1(a) | Explain, what are the difficulties you may face to manage students records in a <i>Microsoft Excel</i> sheet? | 2.5  |
| (b)  | Explain different Levels of <i>Abstraction</i> of a Databases Management System?                              | 3.75 |
| (c)  | What are <i>Instances</i> and <i>Schemas</i> of Databases Management System? Explain with examples.           | 2.5  |
| 2(a) | Do you find any problem with the relationship shown in Fig 2.1? Explain your answer.                          | 3    |
| (b)  | Replace the <i>Ternary</i> relationship shown in Fig 2.2 with <i>Binary</i> relationship. Explain your idea.  | 3    |

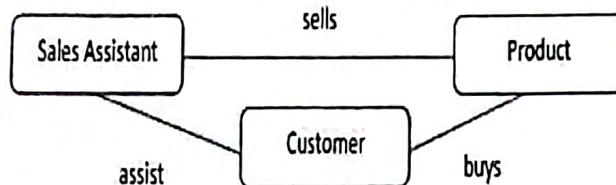


Fig 2.1

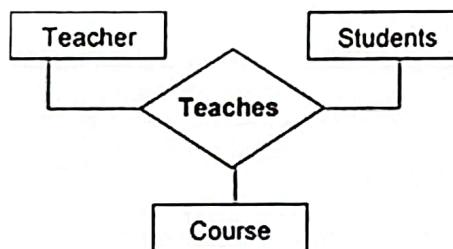


Fig 2.2

- |      |   |      |
|------|---|------|
| (c)  | What is <i>Strong Entity set</i> ? What are the problems of a <i>Weak Entity set</i> ?  | 2.75 |
| 3(a) | How can you form tables for <i>Entity set/Relationship set</i> from the following <i>ER diagram</i> (Fig 3.1 ~ Fig 3.4). Form the table(s) and explain your approaches. | 6    |

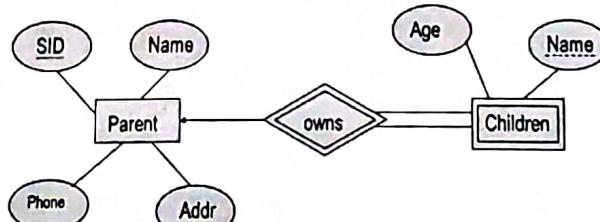


Fig 3.1

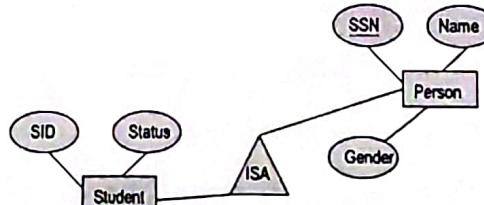


Fig 3.2

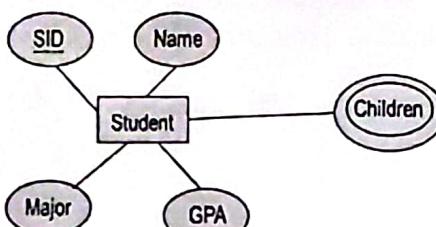


Fig 3.3

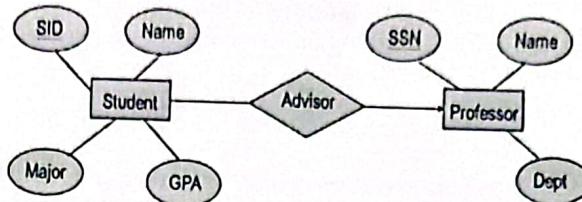


Fig 3.4

- (b) What are tests those must be made to preserve the following referential integrity constraint  $\Pi_K(r_1) \subseteq \Pi_K(r_2)$  for Insert and Update operations. 2.75

- 4(a) What will happen when Triggers are called in a cascading nature?  
 (b) What do you understand by the Authorization Graph shown in Fig. 4.1 1.25  
 1

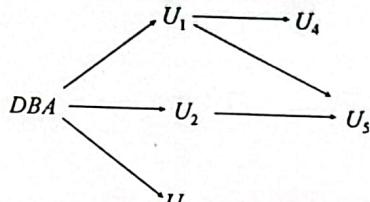


Fig. 4.1

- (c) Write an expression in relational algebra (consider the relations given below). 4.5  
 (i) to find the loan number for each loan of an amount greater than \$1200  
 (ii) to find out the customers of the bank who have a loan but not an account  
 (iii) to find the names of all customers who have a loan at the Perryridge branch.  
 (iv) to find the largest account balance in the bank
- (d) Write an expression in relational algebra to find out all customers who have an account at all the branches located in Brooklyn (consider the relations given below). 2

customer-name	loan-number	customer-name	account-number	account-number	branch-name	balance	loan-number	branch-name	amount
Adams	L-16	Hayes	A-102	A-101	Downtown	500	L-11	Round Hill	900
Curry	L-93	Johnson	A-101	A-102	Perryridge	400	L-14	Downtown	1500
Hayes	L-15	Johnson	A-201	A-201	Brighton	900	L-15	Perryridge	1500
Jackson	L-14	Jones	A-217	A-215	Mianus	700	L-16	Brighton	1300
Jones	L-17	Lindsay	A-222	A-217	Redwood	750	L-17	Mianus	2000
Smith	L-11	Smith	A-215	A-222	Round Hill	350	L-23	Redwood	500
Smith	L-23	Turner	A-305	A-305					
Williams	L-17								
borrower		depositor		account		loan			

✓

✓

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## Part B

- 5(a) Briefly discuss how '%', '\_' and 'like' be used in SQL statement to search for string data? Give example 2.75  
 (b) Consider the relations given below, and write SQL statements for the following queries. 6  
 (i) Find the names, streets and cities of residence of all employees who work for "Sonali" and earn more than 1,20,000 per annum.  
 (ii) Find all employees in the database who live in the same cities and on the same streets as do their managers.  
 (iii) Find those companies whose employees earn a higher salary, on average, than the average salary at "Agrani" Bank.  
 (iv) Give all managers a 10 percent salary raise unless salary becomes greater than 19,000; in such cases, give only a 3 percent salary raise.  
 (v) Show the 'works' relation instance after executing (iv).

Employee		
eName	Street	City
Arif	51 west	Rajshahi
Sumon	52 east	Moynamati
Sagor	Neemgachhi	Syltgong
Abdul	Binodpur	Rajshahi
Himesh	Nazrul ave	Dhaka
Amirul	Chawk bazar	Sylhet
Salib	99 north	Chittagong

Works		
eName	cName	salary
Sumon	Agrani	12000
Abdul	Sonali	13000
Himesh	Agrani	6000
Amirul	Sonali	20000
Sagor	Sonali	8000
Arif	Janata	18000

Manages	
eName	mName
Amirul	Amirul
Abdul	Amirul
Sagor	Amirul
Sumon	Sumon
Himesh	Sumon
Amirul	Arif

company	
cName	city
Agrani	Rajshahi
Sonali	Sylhet
Arif	Dhaka

- 6(a) What are the advantages, (i) RAID level 5 over RAID level 4 and (ii) RAID level 4 over RAID level 3? 2  
 (b) For the following two schedules shown in Fig. 6.1 and Fig. 6.2, by applying necessary swapping of non-conflicting instructions, prove that these are conflict equivalent. 3.5  
 (c) Is the schedule shown in Fig. 6.3 consistency preserving? Explain your answer. 3.25

$T_1$	$T_2$
read(A) write(A)	read(A) write(A)
read(B) write(B)	read(B) write(B)

Fig. 6.1

$T_1$	$T_2$
read(A) write(A) read(B) write(B)	read(A) write(A) read(B) write(B)

Fig. 6.2

$T_1$	$T_2$
read(A) $A := A - 50$	read(A) $temp := A * 0.1$ $A := A - temp$ write(A) read(B)

Fig. 6.3

- 7(a) For  $R = (A, B, C)$ ,  $F = \{A \rightarrow B, B \rightarrow C\}$ , if R is decomposed in (i)  $R_1 = (A, B)$ ,  $R_2 = (B, C)$  and (ii)  $R_1 = (A, B)$ ,  $R_2 = (A, C)$ , then explain whether they are Lossless-join decomposition or not. 2.5  
 (b) Let, set of Functional Dependencies  $F = \{A \rightarrow BC, CD \rightarrow E, E \rightarrow C, D \rightarrow AEH, ABH \rightarrow BD, DH \rightarrow BCA\}$ . Check if  $BCD \rightarrow H$  is true or not. 2  
 (c) Let,  $R = (A, B, C)$ ,  $F = \{A \rightarrow BC, B \rightarrow C, A \rightarrow B, B \rightarrow C\}$ . Find out Canonical Cover and then the Candidate key/Primary key. 4.25
- 8(a) For following relations as shown in Fig. 8.1 ~ Fig. 8.3, find set of Functional Dependencies for those three relations. If Fig. 8.2 and Fig. 8.3 are decomposed from Fig. 8.1, is the decomposition dependency preserving? Explain your answer. 3.5

A	B	C
1	1	1
2	1	2
3	2	1

Fig. 8.1

A	B
1	1
2	1
3	2

Fig. 8.2

B	C
1	1
1	2
2	1
2	2

Fig. 8.3

- (b) Let  $R = (ABCDE)$ , set of Functional Dependencies  $F = \{A \rightarrow B, B \rightarrow C, C \rightarrow D, D \rightarrow A\}$ . Let R is decomposed as  $R_1 = (ABC)$  and  $R_2 = (CDE)$ , prove that this decomposition is dependency preserving. 5.25

(Answer Six questions taking Three questions from each Section)

**Section-A**

- |   |      |
|---|------|
| <span style="font-size: 2em;">✓</span> 1. a) Define digital signal processing. Discuss the advantages and limitations of digital signal processing.   | 2    |
| b) What is Nyquist rate? What is the Nyquist rate of the analog signal<br>$x_a(t) = 3\cos 50\omega t + 10\sin 300\omega t - \cos 100\omega t$   | 3    |
| c) What is the difference between unit sample and unit step sequences? Show the graphical presentation of the signal $x(-n)$ and $x(-n+2)$ , where $x(n)$ is a unit step sequence.  | 3.75 |
|   |      |
| <span style="font-size: 2em;">✓</span> 2. a) What is the significance of impulse response $h(n)$ of a system? Find the output $y(n)$ of the system if input $x(n) = \{1, 0, 1, 1\}$ and impulse response $h(n) = a^n u(n),  a  < 1$ .   | 3    |
| b) What is the difference between the cross-correlation and the convolution? Say $x(n) = \{1, 2, 3, 1\}$ , Show that at 0 lag correlation value is maximum.   | 3    |
| c) Show that convolution in one domain (e.g., time domain) equals point-wise multiplication in the other domain (e.g., frequency domain).   | 2.75 |
|   |      |
| <span style="font-size: 2em;">✓</span> 3. a) How Difference equations are used for characterizing the response of LSI systems- explain  | 3    |
| b) A Digital Filter is defined by the difference equation<br>$y(n) = 0.95 y(n-1) + x(n)$ , (i) determine the transfer function (ii) Would you classify it as Low Pass, Band Pass ... or what?   | 2.75 |
| c) A function $f(x)$ is periodic if for a constant $T > 0$ , $f(x+T) = f(x)$ . Express $f(x)$ as an infinite sum of sine and cosine functions. Find Fourier coefficients of the square wave function<br>$f(x)$ defined by $f(x) = \begin{cases} 0 & \text{if } -\pi \leq x < 0 \\ 1 & \text{if } 0 \leq x < \pi \end{cases} \quad \text{and } f(x+2\pi) = f(x)$ | 3    |
|   |      |
| <span style="font-size: 2em;">✓</span> 4. a) Why do we use Fourier transform? Find Fourier transform of $\delta(t)$ and draw the spectrum.  | 3    |
| b) Define Z-transform. Show that DTFT $[x(n)] = Z[x(n)]_{n=1}$  | 2.75 |
| c) The region of convergence (ROC) of $X(z)$ is the set of all values of $z$ for which $X(z)$ attains a finite value. Find ROC of the following expression<br>$x(n) = 0.5^n u(n) + 0.8^n u(-n-1)$   | 3    |

$20, -3\bar{j} - 2\sqrt{2} - \bar{j}\sqrt{2}, 10$

**Section-B**

- |  |      |
|--|------|
| <span style="font-size: 2em;">✓</span> 5. a) Define the symmetry and time shift properties of DFT with example   | 3    |
| b) Find the DFT of the following sequence, $x(n) = \begin{cases} 1 & \text{for } 0 \leq n < 2 \\ 0 & \text{otherwise} \end{cases}$<br>(i) For N=4 (ii) Plot $ X(K) $ and $\angle X(K)$                             | 3    |
| c) Define spectral leakage. How windowing can help reduce the bad effects of spectral leakage.   | 2.75 |
|  |      |
| <span style="font-size: 2em;">✓</span> 6. a) What are twiddle factors? Why do we use twiddle factors? Calculate the values of the following twiddle factors for a 4-point DFT: $W_4^0, W_4^1, W_4^2, W_4^3, W_4^4$ | 3.75 |
| b) Draw the DIT-FFT flow diagram for an 8 point FFT and obtain the FFT of the sequence $x(n) = [1, 2, 3, 4, 4, 3, 2, 1]$ .   | 5    |
|  |      |
| <span style="font-size: 2em;">✓</span> 7. a) What does the transfer function of a filter mean? Derive the transfer function of FIR and IIR filters.  | 3    |
| b) Show that the following expression presents a low pass FIR filter<br>$y(n) = x(n) + 2x(n-1) + x(n-2)$   | 3    |
| c) Determine the Direct form- I and Direct form- II realization for the following system<br>$y(n) = 0.5y(n-1) - 0.25y(n-2) + x(n) + 0.4x(n-1)$   | 2.75 |
|  |      |
| <span style="font-size: 2em;">✓</span> 8. a) What is aliasing effect? Why do we need anti-aliasing filter in signal processing?  | 2    |
| b) Consider the analog signal $x_a(t) = 10 \sin 350\pi t + 25 \cos 400\pi t - 15 \cos 450\pi t$ . Determine the sampling rate to avoid aliasing and maximum magnitude of the signal.                               | 2.25 |
| c) Consider a continuous-time system which has input of signal $x(t)$ and output $y(t) = x(t)u(t)$ . Is this system time invariant and linear? Justify your answer.  | 4.5  |

**University of Rajshahi**  
**Department of Computer Science and Engineering**  
**B.Sc. Engg, Part-III, Odd Semester, Examination-2021**  
**Course: CSE3141 (Compiler Design)**  
**Full Marks-52.5 Time: 3 hours**

[N.B. Answer any SIX questions taking THREE from each of the sections]

**Section-A**

- |    |   |      |
|----|---|------|
| 1. | a) What is the difference between a compiler and interpreter?   | 2    |
|    | b) Suppose a source program contains the assignment statement,<br>$\text{position} = \text{initial} + \text{rate} * 60$   | 5    |
|    | Explain how this statement is processed and finally translated at different phases of a traditional compiler.   |      |
|    | c) Distinguish between single-pass and multi-pass compiler.   | 1.75 |
| 2. | a) Define token and lexeme. What are the functions of lexical analyzer?   | 3    |
|    | b) Explain the necessity of regular expression and context-free grammar in designing of a compiler.   | 2    |
|    | c) Construct a lexical analyzer ( <i>i.e.</i> DFA) for the regular expression: $(a b)^*b(a b)$ .  | 3.75 |
| 3. | a) Write down formal definition of grammar. Discuss Chomsky hierarchy of formal grammars.   | 3.75 |
|    | b) Define normal Chomsky Form (CNF). Convert following CFG into Chomsky Normal Form :<br><br>i) $S \rightarrow ASABA$ ii) $A \rightarrow B S$ iii) $B \rightarrow b \epsilon$ | 5    |
| 4. | a) Define ambiguity of context-free grammar. Using disambiguation rule make the grammar unambiguous:<br>$E \rightarrow (E)   E-E   E^*E   E+E   id$                           | 2.5  |
|    | b) Define LL (1) grammar. Convert the above grammar into LL (1). Construct a predictive parsing table using the grammar.  | 6.25 |

**Section-B**

- |    |  |      |
|----|--|------|
| 5. | a) What is compiler? Define the types of compilers.  | 3    |
|    | b) Briefly discuss the functional components of a compiler.  | 3.5  |
|    | c) What is front end and back end of a compiler? Why the compilers' functional components (phases) should be divided?  | 2.25 |
| 6. | a) What is bottom-up parsing? How it is implemented?   | 1.5  |
|    | b) Construct an operator relation table for operator precedence parser for the following grammar:<br>$E \rightarrow EAE   -E   id, A \rightarrow +   *$ .  | 2.25 |
|    | c) Check following grammar SLR(1) or not: $S \rightarrow T, T \rightarrow T^*F   F, F \rightarrow id$ .  | 5    |
| 7. | a) Explain syntax-directed translation (SDT) scheme.   | 2    |
|    | b) Write down SDT for following CFG:<br>$S \rightarrow id = E, E \rightarrow E-T   T, T \rightarrow T/F   F, F \rightarrow id$<br>using the required SDT produce three-address code for the statement " $x=a-b/c$ ". | 4.5  |
|    | c) Write down a postfix notation for the infix statement "if $a$ then if $c-d$ then $a+c$ else $a*c$ else $a+b$ ".   | 2.25 |
| 8. | a) Define code optimization. What are the principal sources of optimization? Explain in detail.  | 3.75 |
|    | b) What do you mean by local and global optimization? Shortly discuss these two phases of optimization.  | 5    |

**SECTION A****ANSWER ANY THREE OF THE FOLLOWING**

- 1.(a) What is Computer Network? How is it useful for business users? [2½]  
(b) Can you clarify the mechanism of the client-server model in the context of a computer network? [02]  
(c) Distinguish between LAN and MAN. [02]  
(d) Define protocol and protocol stack. In the context of network architecture, what is known as Peer? [02]
- 2.(a) Describe the ARPANET structure. [3½]  
(b) What do you know about the primary concern of the Physical Layer? [02]  
(c) It is said that there exist three concepts that are considered to be the center of the OSI model. What do you know about those concepts? [03]
- 3.(a) In the context of the Data link layer, what is known as framing? [02]  
(b) What is meant by the term CSMA? Can you explain the working principle of the 1-Persistent CSMA protocol? [02]  
(c) Explain the token ring as a collision-free protocol. [3½]  
(d) Elaborate MAC. Define the role of this sublayer in short. [01]
- 4.(a) Why do we use public and private addresses? [2½]  
(b) How can you find out root bridge for a VLAN? [02]  
(c) How can you configure a network address translator (NAT) device? [2½]  
(d) What are the differences between NAT and PAT? [02]

**SECTION B****ANSWER ANY THREE OF THE FOLLOWING**

- 5.(a) Assume that the sender and receiver agreed with a common CRC generator binary sequence as 1011. The sender wants to send a message with a binary sequence: 1110011. Now generate the data that's to be sent with CRC bits and show the calculation of checking successful transmission at the receiver end. [3½]  
(b) "Errors can be of three types" – what are they? [02]  
(c) Can you explain the two-dimensional parity check mechanism with a suitable example? [03]
- 6.(a) Explain the "Simple Stop and Wait ARQ" protocols' working principle. [03]  
(b) Can you distinguish between Go back N ARQ and Selective Reject ARQ? [2½]  
(c) Give us some idea about the HDLC frame structure. [03]
- 7.(a) What is meant by address space? [02]  
(b) How can we find the class of an IPv4 address? What is the default mask of class A, B, and, C networks? [2½]  
(c) Assume that a company is granted the site address 106.33.64.0 (class C). The company needs eight subnets. Design the subnets. [02]  
(d) What do you know about ARP and RARP? [02]
- 8.(a) Discuss flag bits with bit stuffing framing method. [03]  
(b) How many bits are used to represent physical address, logical address and port address? [02]  
(c) What is the problem of flooding? How can we prevent this problem? [3½]

**Department of Computer Science and Engineering**  
**University of Rajshahi**  
**Database Management Systems Lab**  
**Course ID: CSE 3122**  
**Set-C**

1. Create the following table with values (a) Name of the table is *Table1* (b) the Primary key is *Roll* (c) Rename the table as *Science* (D) Show the average balance of the students of each department (E) Increase the Balance with 10%.

Roll	Name	Department	Balance	Grade
10101	Bikash	CSE	220.25	A
10201	Josh	ICE	340.70	B+
10301	Kevin	EEE	360.00	B-
10401	Ben	ICE	560.16	C
10102	Karim	CSE	255.98	B

2. Create the following two tables (a) Name of left table is *Account*, means respective customer has an account (b) Name of the right table is *Borrower*, means respective customer has a loan (c) Find the names of all customers who have a loan, an account, or both, from the bank.

Account_id	Name
17	Bikash
21	Josh
25	Kevin
78	Ben
96	Karim

Loan_id	Name
103	Karim
106	Badol
112	Jamal
110	Bikash
109	Rahim

3. If a record is updated in table *Science* when the *Balance* becomes higher than 1000, keep the whole record of that student in a separate table *Attention*.

*functions.*

**Set-III**

[Answer the following two questions. Any built-in function in Matlab is not allowed]

**1. Auto Correlation & Cross-Correlation**

- a. Write a Matlab program for generating the following signals:
  - i. Signal  $x[n]$ . The parameters include a signal frequency of 4 KHz with an amplitude of 20 dB, and the signal length is 50 in samples.
  - ii. Signal  $y[n]$  with a signal frequency of 8 kHz, and amplitude of 30 dB. The signal length should also be limited to 50 samples.
  - iii. Signal  $s[n]$  as,  $s[n] = x[n] + y[n]$
- b. Find the cross-correlation sequence between  $x[n]$  and  $y[n]$  and plot it.
- c. Add white noise  $n[n]$  (50 point random numbers) with the generated signal  $s[n]$  as  $z[n] = s[n] + n[n]$ . You can simply use '**rand**' function in Matlab to generate the white noise.
- d. Find the auto-correlation sequence for  $z[n]$  and plot it.

**2. DFT of Sequence**

- a. Write a Matlab program to find the 8-point DFT of the sequence {7, 3, 5, 2, 6, 1, 11, 9}:
- b. Write another program to demonstrate the shifting property of the DFT signal in a.
- c. Write a program to find the IDFT of the signal in b.
- d. Plot the original sequence, DFT sequence, shifted signal, and IDFT signal in c.

**UNIVERSITY OF RAJSHAHI**  
**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**  
B.Sc. Engineering Part III Odd Semester Exam -2021

**Compiler Design Lab (CSE3142)**

**Set-3**

- 1.** Write a program to build a lexical analyzer implementing the following regular expressions. It takes a text as input from a file (e.g., input.txt) and display output in console mode:

Character variable = ch\_(a-z|A-Z|0-9)(a-z|A-Z|0-9)\*

Integer variable = (i-n|I-N)\_(a-z|A-Z|0-9)(a-z|A-Z|0-9)\*

Binary Number = 0(0|1)(0|1)\*

Integer Number = (1-9) (1-9)\*

Invalid Input or Undefined = Otherwise

Sample Input: "ch\_string1, n\_10, 00101, 011000, 100 and 1200"

Sample Output:

ch_string1	Character variable
n_10	Integer variable
00101	Binary Number
011000	Binary Number
100	Integer Number
1200	Integer Number
and	Undefined
,	Undefined

- 2.** Write a program which checks a validity of C++ expression derived by the following grammar:

$E \rightarrow E A E \mid (E) \mid ID$

$A \rightarrow + \mid - \mid * \mid /$

$ID \rightarrow \text{any valid identifier} \mid \text{any valid integer}$

**RESULT:**

***Input:*** Enter a string : 2

***Output:*** VALID

***Input:*** Enter a string : sum+1

***Output:*** VALID

***Input:*** Enter a string : 2+3\*5

***Output:*** VALID

***Input:*** Enter a string : 2+\*3\*5

***Output:*** INVALID

**UNIVERSITY OF RAJSHAHİ**  
**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**  
**(FOR AFFILIATED COLLEGES)**

B.Sc. Engineering Part III Odd Semester Exam -2021  
CSE 3152: Computer Network Lab

Set-C

**Roll No:**

**Time: 03 Hours**

[Solve any two]

1. a) Building Ethernet cable (straight) and testing.  
b) Find the IP Address of your PC.  
c) Set IP address of PC1: 192.168.5.1 and PC2: 192.168.5.2 – ping from PC1 to PC2.  
d) Share a folder in PC1 and access it from PC2.
2. Write a client-server program to implement the following protocol:

<u>PC1 (Client)</u>	<u>PC2 (Server)</u>
Hi	Hello
Date	Server Date
Time	Server Time
IP	Server IP

3. Assume that you have two manageable switches and a router. In both switches, port 1-5 belongs to VLAN 101 and 6-10 belongs to VLAN 102. Now, use the given router to achieve inter-VLAN routing. Simulate the situation in the Cisco packet tracer.

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**University of Rajshahi**  
**Department of Computer Science and Engineering**  
**For Affiliated Colleges**

B.Sc. Engineering Part III, Odd Semester Examination - 2021

CSE3162: Software Development Lab III (Session 2018-19)

CSE3162: Mobile Apps Development Lab (Old Batch)

**Q1.** Design and Develop a Simple Weather Application using Java or Kotlin or Dart (Flutter) and Build for Android.

### Version Control

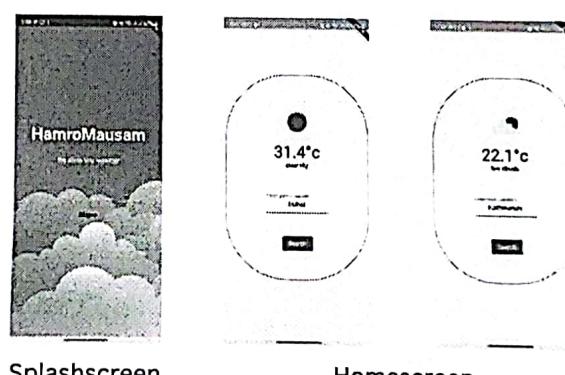
Please use git as a version control tool from the beginning of your project and work on a separate branch for each individual and independent task and merge them to the master branch before moving to the next task. You can use git's default command line tool (git bash) or any visual git (i.e. smartgit, sourcetree, gitkraken, etc.)

### App's Features:

- Today weather info
- Forecast for today
- 7-day forecast
- Dynamic temperature color change based on temperature

### Data Source

Call appropriate api from <https://www.weatherapi.com/docs/> and parse them to show on your app (Mobile)



Sample Mobile App Screen