



13	Which transmission medium is usually used in a LAN? What is its maximum length and highest bit rate? Write the name of data at each layer of the TCP/IP model.	
14	Write a JavaScript function to validate an email.	
15	A Signal has a frequency range of 300 Hz to 3400 Hz. A Pulse Code Modulation (PCM) system is used to digitize the signal. The maximum quantization error is $\pm \Delta/2 = \pm 1\%$ of full scale and the signal voltage ranges from -1 V to +1 V. Determine the number of bits per sample (n) and the bit rate of the PCM system.	

01

BSCS -Recruitment 2020
Combine 2 Bank (SB &JB)
Name of position: Officer IT (Written)
Time:2 Hours Full Mark:200

SL	Questions	Page No
1	<p>1.কোভিড -১৯ এর ক্ষতিকর প্রভাব মোকাবেলায় তথ্য প্রযুক্তির প্রয়োগ ও ভূমিকার উপর সংক্ষিপ্ত রচনা লিখুন।</p> <p>2.Translate the following passage into English. করোনার টিকা বাজারে এলে দেশের সবার জন্য তা গ্রহণ করতে চায় সরকার।ধারণা করা হচ্ছে, সবার জন্য টিকা সংগ্রহে ১৭ হাজার কোটি টিকার প্রয়োজন হবে। এই অর্থ সংগ্রহে উন্নয়ন সহযোগীদের সহায়তা চাওয়ার সিদ্ধান্ত নিয়েছে সরকার।ধারণা করা হচ্ছে জনপ্রতি দুই ডোজ টিকার প্রয়োজন হতে পারে।এর দাম পড়তে পারে ১০ থেকে ২০ ডলার বা কমবেশি এক হাজার।পরিসংখ্যান ব্যুরোর (বিবিএস) তথ্য অনুযায়ী দেশের জনসংখ্যা এখন ১৬ কোটি ৫০ লাখ।সে হিসেবে মোট ১৭ হাজার ২০০ কোটি টাকার প্রয়োজন হবে।স্বাস্থ্য মন্ত্রণালয় থেকে প্রাথমিক এই হিসাব করা হয়েছে বলে ইআরডি সূত্র জানিয়েছে।এই অর্থের চাহিদা মাথায় রেখেই উন্নয়ন সহযোগীদের সহায়তা চাওয়া হচ্ছে।</p> <p>3.Translate the following passage into Bengali. Honoring three medical scientists with the Nobel Medicine Prize for their homing in on the Hepatitis C has been widely acclaimed as a landmark achievement on the part of the Nobel Assembly at Karolina Instituted. Awards like this will, undoubtedly, help the Nobel Committee regain a remarkable amount of its earlier prestige tainted by a couple of its decisions and internal scandals. The three Medicine award winners for this year are Americans Harvey Alter and Charles Rice along with Briton Michael Houghton. The world's medicinal research community has enough reasons to feel elated over the recognition extended to the trio. Their joint discovery had turned the page</p>	



	<p>on protracted efforts to find a remedy to Hepatitis C. It is probably the deadliest of the blood - borne hepatitis after Hepatitis A and B.</p> <p>4. Write a paragraph on "post -corona Green Recovery Plans and Progress in Bangladesh "in English.</p>	
2	<p>5. Answer the following questions from (A) through (I).</p> <p>(A) Testing is an activity that is performed to verify correct behavior of a program. Testing should be conducted in all the stages of program development. Describe different types of tests conducted in the implementation stage.</p>	
3	<p>(B) Inheritance is one of important issues for any object oriented programming language. The main advantage of Inheritance is the ability to reuse the code. Explain in brief different types of Inheritance.</p>	
4	<p>(C) Queue is an abstract data structure. A queue is open at both its ends. One end is always used to insert data (enqueue) and the other is used to remove data (dequeue). Write the steps of Enqueue Operation of Queue.</p>	
5	<p>(D) There are no well -defined standards for writing algorithms. Efficiency of an algorithm depends on several factors. Similarly, complexity of an algorithm also depends on several factors. Describe the algorithm complexity factors.</p>	
6	<p>(E) A transaction consists of a sequence of query and/or update statements. SQL statement must be required to end the transaction. List the SQL statements, required to end the transaction and also write their functions.</p>	
7	<p>(F) An employee's total weekly pay is calculated by multiplying the hourly wage and number of regular hours plus any overtime pay which in turn is calculated as total overtime hours multiplied by 1.5 times the hourly wage. Write a program that takes as inputs the hourly wage, Total regular hours, and total overtime hours and prints an employee's total weekly pay.</p>	
8	<p>(G) Usually, recursion involves a function Write a recursive algorithm to find the factorial of a number.</p>	
9	<p>(H) Operating System (OS) scheduling is the key concept of multiprogramming. List and briefly define the major types of OS scheduling.</p>	
10	<p>(I) Make a list of banking software used in Bangladesh. List the essential features for successful Banking Software and Apps.</p>	
11	<p>(J) RFID has huge applications in business, especially in supply chain management and toll collection system. Show the basic working principle of RFID in brief.</p>	
12	<p>(K) Make a list of LTE Network elements.</p>	



13	(L) Main components of SQL are DDL (Data definition Language), DML (Data Manipulation Language) and DCL (Data Control Language). Give some examples of DDL, DML and DCL commands.	
14	(M) There are different number systems. (i) Convert $(10010.101)_2 = (?)_{10}$ (ii) Convert $(543)_{10} = (?)_{16}$	
15	(N) Insertion sort is a simple sorting algorithm. Write a program to sort some given numbers using insertion sort algorithm.	
16	(O) The primary function of the Transmission control Protocol (TCP) is to turn an unreliable network into a reliable network that is free from lost and duplicate packets. What are the functions performed by TCP to make a network more reliable?	

02

BSCS – Combined 3 Banks

(1) Sonali Bank Limited (2) Bangladesh New Development Bank Limited

Post: Senior Officer (IT)

Total Mark:200; Total Time:2.00 Hours

Exam Date:03-11-2020

SL	Questions	Page No
1	When does a Deadlock occur and how do you prevent it in a database?	
2	What is the difference between packet sniffing (Snooping) and Packet spoofing?	
3	Classify the failure of Database Management.	
4	Write the different approaches of debugging a code.	
4	Why Heterogeneous Multicore Processor (HMP) gaining more popularity?	
5	Discuss Complexity factor of algorithm.	
6	Explain operation of Binary Search Tree.	
7	What is block and page? Draw simple block and page diagram in SSD (Solid State Drive).	
8	ARP used in TCP/IP for perform some operation, write the functions of ARP.	
9	What is GGSN? Write main function of GGSN.	
10	Describe Internet Exchange (IX) national and international level data communication function.	
11	Write are the parameters that are being used to evaluate the performance of memory?	
12	Write a program that check a number is Armstrong or not.	
13	Ergonomics is study of characteristics of iteration. How to measure quality of sitting good chair (ergonomics)	



14	Linear Search (Searching Algorithm) which is used to find whether a given number is present in an array and if it is present then at what location is occurs (Using any programming language). Or, Write Linear Search implementation program.	
15	Draw a Full Adder circuit using two half adders.	

03	Assistant Network Engineer (ANE) – JBL Date: 12.11.2020 (IT: 10*16 marks + Non IT: 2*20 marks - 200 marks)
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SL	Questions	Page No
1	<p>The figure shows synchronous TDM with a data stream for each input and one data stream for the output. The unit of data is 1 bit.</p>	
2	Simplify the following Boolean function using k-map and draw the logic circuit. $F=A'B'C' + AB'C' + AB'C + A'BC + ABC$	
3	<p>Assume we have the following application that models soccer teams, the games they play, and the players in each team. In the design, we want to capture the following:</p> <ul style="list-style-type: none"> We have a set of teams, each team has an ID (unique identifier), name, main stadium, and to which city this team belongs. 	



	<ul style="list-style-type: none">• Each team has many players, and each player belongs to one team. Each player has a number (unique identifier), name, DOB, start year, and shirt number that he uses.• Teams play matches, in each match there is a host team and a guest team. The match takes place in the stadium of the host team.• For each match we need to keep track of the following the date on which the game is played, the final result of the match and the players participated in the match. For each player, how many goals he scored, whether or not he took yellow card, and whether or not he took red card. <p>Design an ER diagram to capture the above requirements. Make sure cardinalities and primary keys are clear.</p>	
4	<p>In a network, an IP is 172.18.10.20/24, which needs 32 subnets. Now answer the following questions-</p> <ul style="list-style-type: none">(i) What is the subnet mask for the maximum number of hosts?(ii) How many hosts are available per subnet?(iii) What are the first and last addresses of subnet 1 and subnet 32?	



5	<p>Answer the following question based on the following table in DBMS-</p> <table border="1"> <tr> <td>Employee (emp_id, emp_name, street, emp_city, join_date)</td> </tr> <tr> <td>Works (emp_id, comp_name, leaves, salary, dept, man_id)</td> </tr> <tr> <td>Company (comp_id, comp_name, comp_city)</td> </tr> <tr> <td>Manager (man id, emp_id, man_name)</td> </tr> </table> <p>(i) Write a SQL query to find employee details from the employee table who's Salary is between 5000 and 8000.</p> <p>(ii) Find all employees who earn more than the average salary of all employees of that department.</p> <p>(iii) Calculate the number of leaves taken by an employee.</p> <p>(iv) List the managers and the number of employees working for those managers.</p>	Employee (emp_id, emp_name, street, emp_city, join_date)	Works (emp_id, comp_name, leaves, salary, dept, man_id)	Company (comp_id, comp_name, comp_city)	Manager (man id, emp_id, man_name)	
Employee (emp_id, emp_name, street, emp_city, join_date)						
Works (emp_id, comp_name, leaves, salary, dept, man_id)						
Company (comp_id, comp_name, comp_city)						
Manager (man id, emp_id, man_name)						
6	<p>Answer the following question –</p> <p>In-order: 10, 20, 40, 50, 60, 70, 90, 100</p> <p>Pre-order: 50, 20, 10, 40, 70, 60, 90, 100</p> <p>(i) Construct a BST from the following sequence.</p> <p>(ii) Write pseudocode the sum of all nodes.</p>					
7	<p>Encrypt the message "THIS IS A" using a shift cipher with a key of 20. Ignore the space between words. Decrypt the message to get the original plaintext.</p>					
8	<p>Write a C/C++ program to check balanced parenthesis in an Expression.</p>					
9	<p>জলবায়ু পরিবর্তন ও বাংলাদেশে এর প্রভাব</p>					
10	<p>Role of Information Technology (IT) in the Banking Sector.</p>					

04

**BSCS- Combined 3 Bank
(Sonali, Janata, Rakub)
Post: SO(Written) Date:16-11-2020**



SL	Questions	Page No																																								
Written																																										
1	<p>Just indicate which statement will be true/false.</p> <p>(i) A user requests a web page that consists of some text and three images. For this page, the client will send one request message and receive four response messages.</p> <p>(ii) two distinct web pages (for example, google.com and facebook.com) can be sent over the same persistent connection.</p> <p>(iii) With non-persistent connections between browser and origin server, it is possible for a single TCP segment to carry two distinct HTTP messages.</p> <p>(iv) HTTP response messages never have an empty message body.</p>																																									
2	<p>Find the sum of the digits of a number until the sum is reduced to a single digit.</p> <p>Sample input=12345</p> <p>Sample output=6</p>																																									
3	Draw 16*8 RAM using 16*4 RAM.																																									
4	Find the Vout of the opAmp (1=5volt,0=0volt)																																									
5	<p>Write those sql commands. Employees (ename,street,city), Works (ename, cname, salary, joindate), Company (cname,city), Manages (ename,mname).</p> <p>i) Find name, street, city, who work for first Corporation bank and earn more than 3000.</p> <p>ii) Find name of all employees, who live in the same city and company for which they works.</p> <p>iii) Give all employees of first Corporation bank 10 percent salary raise.</p> <p>iv) Find the company with payroll less then 100000.</p>																																									
6	<p>Draw and write the output equation for 8 *1 multiplexer:</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>E</th> <th>S2</th> <th>S1</th> <th>S0</th> <th>Output</th> </tr> </thead> <tbody> <tr> <td>L</td> <td>L</td> <td>L</td> <td>L</td> <td>0</td> </tr> <tr> <td>H</td> <td>H</td> <td>H</td> <td>H</td> <td>D7</td> </tr> <tr> <td>H</td> <td>H</td> <td>H</td> <td>L</td> <td>D6</td> </tr> <tr> <td>H</td> <td>H</td> <td>L</td> <td>H</td> <td>D5</td> </tr> <tr> <td>H</td> <td>H</td> <td>L</td> <td>L</td> <td>D4</td> </tr> <tr> <td>H</td> <td>L</td> <td>H</td> <td>H</td> <td>D3</td> </tr> <tr> <td>H</td> <td>L</td> <td>H</td> <td>L</td> <td>D2</td> </tr> </tbody> </table>	E	S2	S1	S0	Output	L	L	L	L	0	H	H	H	H	D7	H	H	H	L	D6	H	H	L	H	D5	H	H	L	L	D4	H	L	H	H	D3	H	L	H	L	D2	
E	S2	S1	S0	Output																																						
L	L	L	L	0																																						
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H	H	L	H	D5																																						
H	H	L	L	D4																																						
H	L	H	H	D3																																						
H	L	H	L	D2																																						



		H	L	L	H	D1			
		H	L	L	L	D0			
7	7 segment display, a segment consists of BCD code that represent by ABCD, a segment is on by 2,3,5,6,7,8,9. Write the Boolean expression in SOP form and simplify with Kmap.								

05	Assistant Database Administrator (ADA) – SBL Date: 14.12.2020 (10*16 marks + 2*20 marks = 200)
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SL	Questions	Page No				
Written						
1	Construct Binary Search Tree (BST) for the following sequence of numbers-- 4, 7, 5, 1, 3, 9, 10, 8, 12 (Show all the steps 0. For reference, all nodes of left sub-tree is smaller than the root and all nodes of right sub-tree is bigger than root in BST.					
2	Find the Output of the below program-- <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> (i) Integer a = new Integer(33); Integer b = new Integer(33); If(a==b){ System.out.println(a+b+'a'); }else{ System.out.println(a+b+'a'); } </td> <td style="width: 50%; padding: 5px;"> (ii) int i=7; for(; i!=0; i--){ printf("x=%d", i--); } getchar(); </td> </tr> <tr> <td style="width: 50%; padding: 5px;"> (iii) int j=1; while(j++<50{ System.out.println(j+ ""); } </td> <td style="width: 50%; padding: 5px;"> (iv) unsigned int a=.1; unsigned int b=2; printf("%d", a<<a+b); </td> </tr> </table>	(i) Integer a = new Integer(33); Integer b = new Integer(33); If(a==b){ System.out.println(a+b+'a'); }else{ System.out.println(a+b+'a'); }	(ii) int i=7; for(; i!=0; i--){ printf("x=%d", i--); } getchar();	(iii) int j=1; while(j++<50{ System.out.println(j+ ""); }	(iv) unsigned int a=.1; unsigned int b=2; printf("%d", a<<a+b);	
(i) Integer a = new Integer(33); Integer b = new Integer(33); If(a==b){ System.out.println(a+b+'a'); }else{ System.out.println(a+b+'a'); }	(ii) int i=7; for(; i!=0; i--){ printf("x=%d", i--); } getchar();					
(iii) int j=1; while(j++<50{ System.out.println(j+ ""); }	(iv) unsigned int a=.1; unsigned int b=2; printf("%d", a<<a+b);					
3	Write a pseudocode to marge two sorted arrays into a new sorted array.					
4	Draw an ER Diagram for the following case--					



5	<p>Assume we have the following application that models soccer teams, the games they play, and the players in each team. In the design, we want to capture the following:</p> <ul style="list-style-type: none"> • We have a set of teams, each team has an ID (unique identifier), name, main stadium and to which city this team belongs. • Each team has many players and each player belongs to one team. Each player has a number (unique identifier), name, DoB, start year and shirt number that he uses. • Teams play matches in each match there is a host team and a guest team. The match takes place in the stadium of the host team. • For each match we need to keep track of the following: <ul style="list-style-type: none"> • The date on which the game is played, The final result of the match • The players participated in the match. For each player how many goals he scored, whether or not he took yellow card, and whether or not he took red card. • During the match, one player may substitute another player. We want to capture this substitution and the time at which it took place. • Each match has exactly three referees. For each referee we have an ID (unique identifier), name, DoB, years of experience. One referee is the main referee and the other two are assistant referee. <p>Design an ER diagram to capture the above requirements. State any assumptions you have that affects your design (use the back of the page if needed). Make sure cardinalities and primary keys are clear.</p>	
6	Program for nth Catalan number using DP.	
7	ভাসানচরে রোহিঙ্গা আশ্রয়	
8	Vaccine Diplomacy	

**06**

Assistant Network Engineer (ANE) – RBL
[ANE RBL 2021 CTI]
Date: 16.03.2021
(10*16 marks +2*20 marks = 200)

SL	Questions	Page No															
Written																	
1	<p>Consider a disk pack with the following specifications- 16 surfaces, 128 tracks per surface, 256 sectors per track and 512 bytes per sector. Answer the following questions-</p> <p>(i) What is the capacity of disk pack?</p> <p>(ii) What is the capacity of disk pack?</p> <p>(iii) If the format overhead is 32 bytes per sector, what is the formatted disk space?</p>																
2	<p>Process arrival time and execution time of Operating system tasks table is given-</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Process</th> <th>Arrival Time</th> <th>Execution Time</th> </tr> </thead> <tbody> <tr> <td>C</td> <td>5</td> <td>3</td> </tr> <tr> <td>D</td> <td>8</td> <td>5</td> </tr> <tr> <td>B</td> <td>3</td> <td>7</td> </tr> <tr> <td>A</td> <td>0</td> <td>10</td> </tr> </tbody> </table> <p>Find out average waiting time for FCFS, preemptive SJF, and Round Robin where time quantum is 3.</p>	Process	Arrival Time	Execution Time	C	5	3	D	8	5	B	3	7	A	0	10	
Process	Arrival Time	Execution Time															
C	5	3															
D	8	5															
B	3	7															
A	0	10															
3	<p>(i) Construct a binary tree from the following in order and preorder traversal.</p> <p>In-order Traversal: 4, 2, 1, 7, 5, 8, 3, 6</p> <p>Pre-order Traversal: 1, 2, 4, 3, 5, 7, 8, 6</p>																
4	Write a procedure sum Nodes (*root) to find out summation of all nodes of that tree.																
5	Write about 5G disadvantage using the following terms –																



	(i) Initial cost (ii) Battery drainage	
6	Given an IP4 address String, write C/C++/JAVA code to show the class the IP address belongs to. Sample Input: 192.168.0.1 Sample Input: 192.168.0.1	
7	Given an IP address, 172.16.0.0. Create 4 subnets with 4000, 2000, 4000 and 8000 hosts. Find out subnet mask, first IP address, last IP address and broadcast address of all 4 subnets.	
8	(i) Design 7 segment display decoder to find logic expression of sum of product for 2 bit binary input.	
9	(ii) Draw a logic circuit for 2-to-4 De-multiplexer.	
10	A football club has a name, a stadium with a playing ground, and a team made up of players. A player can play for only one club. Each team is managed by a manager, represented by his or her name. A player has a registration number, name, and age. A club manager also buys players. Each club plays against every other club in the league, and each match has a date, stadium venue, and score. Draw an ER diagram to represent the case just described.	
11	Below tables are given- Employee (employee_id, name, salary, department) Leave (employee_id, date, and reason) Holiday (date, description) (i) Write mapping cardinality between Employee' and 'Holiday' table (ii) Write query to show all employee's leave count.	
12	স্বল্পোন্নত থেকে উন্নয়নশীল দেশে উত্তরণে বাংলাদেশ	
13	Confront rumors of social media	

**07****Assistant System Administrator (ASA)-JBL****Date: 01.12.2021****(IT: 15*10 marks + Non - IT: 4*10 marks + GK: 2*5 marks)**

SL	Questions	Page No																		
Written																				
1	(a) Answer the following question for this network address 172.68.16.5/25. (i) What is the subnet mask for this network? (ii) What is the number of hosts for this address?																			
2	(b) Which broadcast address is used for network 10.31.70..0/3?																			
3	What is Deadlock? Explain two deadlock situations with system resources.																			
4	A system has four periodic events with periods of 50,100,200, and 250 msec each. Suppose that the four events require 35, 20, 10, and x msec of CPU time, respectively. What is the largest value of x for which the system is schedulable?																			
5	Let's assume $G - (V, E)$ be an undirected graph. Write an algorithm to find the minimum-cost spanning tree in G																			
6	Write down the role of System Administrator.																			
7	<p>Consider the set of 5 processes whose arrival time and burst time are given below –</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Process</th> <th>Arrival</th> <th>Execution Time</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>3</td> <td>1</td> </tr> <tr> <td>B</td> <td>1</td> <td>4</td> </tr> <tr> <td>C</td> <td>4</td> <td>2</td> </tr> <tr> <td>D</td> <td>0</td> <td>6</td> </tr> <tr> <td>E</td> <td>2</td> <td>3</td> </tr> </tbody> </table> <p>If the CPU scheduling algorithm is SJF, calculate the average waiting time. Note that the CPU swapping time is zero.</p>	Process	Arrival	Execution Time	A	3	1	B	1	4	C	4	2	D	0	6	E	2	3	
Process	Arrival	Execution Time																		
A	3	1																		
B	1	4																		
C	4	2																		
D	0	6																		
E	2	3																		



8	What is SQL injection? Give the two examples of SQL injection attack. How to prevent SQL injection attacks?	
9	Consider a disk pack with the following specifications - 32 surfaces, 128 tracks per surface, 256 sectors per track and 512 bytes per sector. If the format overhead is 64 bytes per sector, what is the formatted disk space?	
10	Using the shell script answer the following question. (i) Create a folder "A" with read-only permission. (ii) Copy the contents with the folder of "P" to the directory of a subfolder which folder name is the same as the current folder.	
11	Given five memory partitions of 100 KB, 500 KB, 200 KB, 300 KB, and 600 KB (in order), how would the first-fit and best-fit algorithms place processes of 212 KB, 417 KB, 112 KB, and 426 KB (in order)? Which algorithm makes the most efficient use of memory?	
12	Draw a DFA diagram to identify all the valid file names. Note that a file name can be a non- empty string starting with underscore or alphanumeric only.	
13	Provide SQL queries for the following statements. Note that a manager is also an employee. Employee (Empid, Lastname, FirstName, street, city) Works (Empid, deptName, company, salary) Manager (manid, name, deptName) (i) Show the no of employees in each department. (ii) Give 15% of the salary to the employee whose salary is greater than 20000.	
14	Write a java program for a cricket player. The program should accept the details from user: Player runs, no of innings played and no of times not out. Display the average runs of a single player.	
15	সামাজিক মূল্যবোধ এর জন্য দেশীয় সংস্কৃতি চর্চা।	
16	Climate change and concern of Bangladesh	
17	B2E – গত ৬০০ বছরের মধ্যে এত দীর্ঘ চন্দ্রগ্রহণ আর হয়নি	
19	Economic Development of Bangladesh	
20	City of Golden Gate is located in –	



Who invented small pox vaccination? Swift key is used in – 'Playing it my way' written by - Which organization helped in Rohingya Refugees?	
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09	The Security Printing Corporation (Bangladesh) Ltd Assistant Maintenance Engineer Exam Type: Written; Time:2 Hours Exam Taker: CTI; Exam Date: 08-12-2021
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SL	Questions	Page No
Written		
1	Write difference between microprocessor and microcontroller.	
2	Define the line coding techniques and also mention their categories.	
3	Write the difference between analog and digital circuits.	
4	Compare and contrast between OSI and TCP/IP model.	
5	What is Universal gate? Draw NAND as a universal gate.	
6	DBMS definition and why normalization in database?	
7	Write Short note about (a) circuit breaker,(b) Relay.	
8	Short note (a) Ransomware, (b) Trojan Horse, (c) worm	
9	Define primary key, foreign key,and unique key.	
10	What is Multiplexing? Describe multiplexing Techniques with example.	
	Explain Time Division multiplexing technique.	

08	BSCA- Sonali Bank Limited Officer IT Exam Type: Written; Marks:200 [Dept-150; non-50] Time:2 Hours; Exam Taker: CTI ; Exam Date: 11-12-2021
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SL	Questions	Page No
Written		
1	What Web caching, why use caching?	
2	What is VPN? Write some advantages of using VPN.	
3	Difference between distance vector with link algorithm.	
4	Write down firewalls role and browser cookies role.	



5	Write a program to find summation for a number until it's become single digit	
6	Comparison and Contrast between and NoSQL Database.	
7	Find the output of the following program.	
8	An analog signal has a bit rate of 8000 bps and a baud rate of 1000 baud. How many rate elements are carried by each single element? How many signal elements are need?	
9	Explain Three - Way Handshaking in TCP Protocol.	
10	Draw a E-R Diagram about Railway Reservations System. Where has a passengers, Terminal, Train, Seat schemas and different attribute?	
11	Finding Shortest Spanning tree using Kruskal's Algorithm from the following graph.	
12	Explain DDOS and SQL injection attack.	
13	Database Query: Four table is given. (table missing).	
14	Write a query for find the publisher name which location is 'Dhaka' and which book is published after 1980 year.	
15	Write a query to change the type of Book name 'Science' to 'Computer Science' which branch name is 'Dhaka' city.	

10

Assistant Hardware Engineer (AHE) - SBL, JBL, RBL
[AHE SBL, JBL, RBL 2021 CTI]
Date: 24.12.2021
(IT: 15*10 marks + Non IT: 4*10 marks + GK: 2*5 marks)

SL	Questions	Page No
Written		
1	Given an IP address of 105.38.89.234/20, answer the following questions (i) What is the network id and host id? (ii) What is the network address and broadcast address? (iii) What is the size of the network? (iv) If classfull addressing is used then what will be the class of this address?	



2	Consider the following processes whose arrival time and burst time are given below. If the CPU scheduling policy is Round Robin with time quantum 3 unit, calculate the average waiting time.	
3	How swapping and virtual memory helps in memory management system.	
4	What is NAT? Why NAT is used and how NAT translate the IP address?	
5	Simplify the following Boolean function using k-map. $F(A, B, C, D) = \sum (3,4,5,7,9,13,14,15)$	
6	Difference between Object Oriented Programming and Procedural Oriented Programming.	
7	How long does it take to send a file of 500,000 bits from host A to host B over a circuit- switched network where all links are 1.536 Mbps, each link uses TDM with 32 slots/sec and 800 msec to establish end-to-end circuit.	
8	Given a sorted array of X (n no of elements) and Y (m no of elements) and the new array of Z. (n+m no of elements) that is already sorted. Now write the merge (int n, int m) function that can sort the array of Z. Note that you can't sort the new array after merge.	
9	Difference between Impact and Non-Impact Printers.	
10	A paging scheme uses SSD. The RAM access takes is 20 ns and the SSD access takes is 10 ns for each instruction. If the hit ratio is 75%, then what is the total access time?	
11	Explain method overloading and method overriding,	
12	The following ER diagram captures important information of a company. Now convert the ER diagram into a relational database schema (you must maintain the primary key properly).	



13	Write down the different types of e-commerce.	
14	আন্তর্জাতিক জুনিয়র অলিম্পিয়াড ও বাংলাদেশ	
15	Golden Jubilee of Bangladesh	
16	B2E - ১৯৭১ সালের ১৬ ডিসেম্বরের কথা আজকের এই ১৬ ডিসেম্বর মনে পরে..	
17	E2B John Donne 17th Century	
18	5*2 marks World Economic Forum is located at –	

11	<p>The Security Printing Corporation (Bangladesh) Ltd -2022 Post: Sub – Assistant Engineer; Total Mark:200; Time:2 Hours; Exam Date: 15-01-2022</p>
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SL	Questions	Page No
Written		
1	What is Blacklist and Whitelist? Write down the Difference between Black list and white list.	
2	What is difference between exception and Error in java? TAKSAL - 2022-SAPro.	
3	What is exception handling? Write with an example.	
4	What is SQL injection? How to prevent it?	



5	What is Cross site script (XSS) and how can fix it?	
6	What is DBMS? Write short note on Virtual memory and cash memory.	
7	Describe Dynamic memory allocation in programming in C.	
8	Difference between data and information?	
9	Difference between High level language low level languages with some example?	
10	Difference LIFO and FIFO in data structure?	
11	What is kernel? Write down objectives of kernel.	
12	What is nested structure in C programming? Explain with example.	

12	The Security Printing Corporation (Bangladesh) Ltd. -2022 Total Mark:200; Time:2 Hours; Post: Sub – Assistant Maintenance Engineer; Exam Date: 15-01-2022 Technical Marks : 150 Marks [MCQ:25 , Written: 125] Non-Technical:50
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SL	Questions	Page No
Written		
1	What is OSI model? Describe briefly about OSI model layer? Difference between OSI and TCP IP layer?	
2	What is subnet mask and Localhost IP address?	
3	Difference between TCP and UDP, HTTP and HTTPS.	
4	Write short note: NAT, Ransomware, and Firewall.	
5	What is IPv6? Why IPv6 needed?	
6	What is multiplexing? Describe different type of multiplexing?	
7	Write connection type? i) Router to Router ii) Router to switch iii) Computer to Computer. iv) Hub to switch v) Computer console port to switch	
8	A network administrator is connecting hosts A and B directly through their Ethernet interfaces, as shown in the illustration. Ping attempts between the hosts are unsuccessful. What can be done to provide connectivity between the hosts? Write some reason how the problem will identify?	
9	An administrator installed a utility in his pc. But the utility does not open automatically when computer start. What will be the solution for the problem?	
10	Write shortcut command for following work?	



13	Assistant Network Engineer (ANE)-JBL Date: 24.01.2022 Exam taker: CTI (IT: 15*10 marks + Non IT: 4*10marks + GK: 2*5 marks = 200 marks)
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SL	Questions	Page No
Written		
1	Find the shortest path from A to all nodes using the Dijkstra algorithm?	
2	Differences between Hub, Switch, and Router?	
3	Difference between waterfall model and Spiral model. Which model is preferable in software development and why?	
4	Write C/C++/Java program to reverse digit in a number? Sample input: 220 Sample output: 022	
5	Construct FA on {0, 1} which accepts even number of 1's and even number of 0's?	
6	Explain OOP concepts with proper examples?	
7	Find the minimum spanning tree of the following graph using Prim's algorithm?	
8	In a network, an IP is 202.11.2.0 and use class C subnet mask, which needs 30 subnets?	
9	Now answer the following questions- 10. What is the subnet mask for the maximum number of hosts? 11. How many hosts are available per subnet? 12. What is 3 rd host on 2 nd subnet?	
10	Explain these terms and also mention the layer: Framing, Flow control, Error control, Reliability?	



	<p>Suppose, there are a 10 Mbps microwave link between a geostationary satellite and its base station on Earth. Every minute the satellite takes a digital photo and sends it to the base station. Assume a propagation speed of 1.4×10^8 meters/sec.</p> <ol style="list-style-type: none"> What is the propagation delay of the link? What is the bandwidth-delay product, $R \cdot d_{prop}$? Let x denote the size of the photo. What is the minimum Value of x for the microwave link to be continuously transmitting? 	
	<p>Explain the different data transferring mode that is used on the internet and give a practical example. (this question was duplicated)</p>	
	<p>TV channel, reality show, user, producer, and user eating. Create an ER Diagram using the following terms. Answer the following question based on the following table in DBMS.</p> <p>Actor (actor_id, name, age...) Play (play_id, writer...) Role (play_id, actor_id...)</p> <ol style="list-style-type: none"> Count the number of actors who plays role in the 3 or more time that is written by “Shakespeare”. Show the actor name who played the role that is written by “Chekhov” but never played roles that are written by “Shakespeare”. 	
	ফাইভ-জি মহাসড়কে বাংলাদেশ	
	Impact of Social Media.	
	B2E – Google chrome security issue....	
	E2B – SDG goal 3, health security	
	<p>General knowledge-</p> <ol style="list-style-type: none"> Head of ECNEC- “BurjKhalifa” is located at- Place of “Biri Shiri”- 	



14	Assistant Network Administrator (ANA) – JBL Date: 25.01.2022 Exam taker: CTI (IT: 15*10 marks + Non IT: 4*10 marks + GK: 2*5 marks=200 marks)
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SL	Questions	Page No
Written		
1	<p>Employee (id,first _ name, last _ name...) Primary key: id.</p> <p>City (city – id, city – name ...) Primary key: city _ id.</p> <p>PH_ Employee (id, reportsTo, authors, date_of_join, start_date..) Primary key: id. Reference key: id (Relation of Employee table) Reference key: reports To (Relation of City table)</p> <p>(i) Now write a DDL query to create PH_ Employee table, Also, maintain the reference key.</p> <p>(ii) Write query to get the employee _id, last_name, city who has reports To one or more times to him/her.</p>	
2	Write the adjacency matrix and adjacency list for the following graph, Also, calculate the in-degree and out-degrees of all vertices in the graph.	
3	Write properties that are suited to you for me the divide and conquer whether dynamic programming is preferable. Explain this using merge sort and Fibonacci problem.	
4	Differences between Hub, Switch, and router.	



5	Suppose, company A in Dhaka wants to communicate with a video conference to company B in Chittagong. So admin in company A set an IP on end-device to 202.50.14.3 and request to the company B and get a response of IP is 192.168.40.3. Is it possible or not to communicate video conference on this line? Explain your answer.	
6	Write a C/C++/Java program to identify the class of an IP address.	
7	What are the properties of a firewall and show the diagram where the firewall should be placed?	
8	In network security define these terms- Confidentiality, Non-repudiation, Authenticity, integrity, available.	
9	Host A sends data (3, 9, 7, 12, 4) in 8 bit binary to host B using checksum. What is the actual data sent?	
10	Explain the effect to increasing the size of these terms for the system performance – RAM, CPU cache memory, BUS width.	
	Write down the commands based on the properties – (i) Check the local host for connectivity and verify the interface status. (ii) Show the packet following the part from your location to www.google.com Show the DNS-related information for www.google.com	
	Difference between link-state and distance vector using this terms: message complexity, Convergence, Robustness.	
	The Advanced Mobile phone System (AMPS) uses two bands. The fast band of 824 to 849 MHz is used for sending, and 869 to 894 MHz is used for receiving. Each user has a bandwidth of 30 kHz in each direction. How many people can use their cell phones simultaneously?	
	Explain the additive increase and multiplicative decrease methods used in TCP for congestion control.	
	A multiprogramming operating system uses an apportioning scheme and divides the 60 MB of available memory into four partitions of 10 MB, 12 MB, a 18 MB and 20 MB. The first program to be run needs 17 MB and occupies the third partition.	



	The third program needs 10.5 MB and occupies the second partition. Finally, the fourth program needs 20 MB and occupies the fourth partition. What is the total memory unit?	
	<p>চতুর্থ শিল্পবিপ্লব ও বাংলাদেশ</p> <p>One road one belt (OROB) and Bangladesh</p> <p>B2E – Corona pandemic...</p> <p>E2B – free trade agreement ...</p> <p>General knowledge-</p> <p>(i) Which country initiate “QUAD”-</p> <p>(ii) 11 no downing street-</p> <p>(iii) What is “Amal Mater”</p>	

15	<p>[Senior Officer (IT)-SBL, BDBL 2022 CTI]</p> <p>Date: 31.01.2022</p> <p>Exam taker: CTI</p> <p>5*10 marks + Non IT: 4*10 marks + GK: 2*5 marks = 200 marks)</p>
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SL	Questions	Page No
Written		
1	<p>Give SQL for the following queries -</p> <p>Worker (worker-id, worker-name, hourly-rate, skill-type, supervisor-id) Assignment (worker-id, building-id, start-date, num-days)</p> <p>Building (building-id, address, building-type)</p> <p>a) What are the skill types of workers assigned to building 'B02' (building-id)?</p> <p>b) List the name of the workers assigned to 'warehouse' (building-type) buildings.</p> <p>c) Find the no. of workers for each building where more than 5 workers are working for it.</p> <p>d) Give 5% hourly wage increment for the workers working for 'hospital' buildings</p>	



2	Write a recursive function that returns a Boolean after taking a string as parameter to check if it's a palindrome or not.	
3	Explain the problems with possible solutions - Session hijacking and SQL injection.	
4	Consider a disk pack with the following specifications- 16 surfaces, 128 tracks per surface, 256 sectors per track and 512 bytes per sector. Answer the following questions- a) What is the capacity of disk pack? b) What is the number of bits required to address the sector? c) If the format overhead is 32 bytes per sector, what is the formatted disk space? d) If the format overhead is 64 bytes per sector, how much amount of memory is lost due to formatting?	
5	How HTTP works? How many HTTP requests would be needed for a given situation?	
6	What is web-caching? Is it available for every user request? Why or why not?	
7	Determine the time complexity of a given function (nested loop). for (11; 1 < π/2; 1++){ for(j=1;j<n; j++){ // Some code } }	
8	An organization has an IP address of 15.13.0.0/8 and wants to create 32 subnets. What is the first and last IP address of the last subnet?	
9	ER diagram from the given information. (Unable to collect this question)	
10	Construct a binary tree from the given preorder and post-order sequence. Preorder traversal {1, 2, 4, 5, 3, 6, 8, 9, 7} Postorder traversal: {4, 5, 2, 8, 9, 6, 7, 3, 1}	
11	How many 8 bit characters can be transmitted per second over a 9600 baud serial communication link using asynchronous mode of transmission with one start bit, eight data bits, two stop bits and one parity bit?	



12	Minimize the boolean expression using the K-map, $F = Y-A'B'CA'BC + A'BC'D + ABC'D + ABCD' + AB'C'D'$	
13	How stop and wait ARQ is used for reliable data transfer?	
14	Draw DFA of a string with at least two b's.	
15	সামগ্রিক প্রবৃদ্ধিতে বহুমুখি অর্থনীতির ভূমিকা Bangladesh and UN Peace-keeping B2E E2B General Knowledge: (i) Bangabandhu satellite launch date (ii) Location of Niagara Falls (ii iii) Golden crescent countries (vi) One city two towns in BD (v) Ibn Battuta was m which country	

16	[ADA-SBL, JBL 2022 CTI] Date: 01.03.2022 Exam taker: CTI (IT: 15*10 marks + Non IT: 4*10 marks + GK: 2*5 marks = 200 marks)
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SL	Questions	Page No
Written		
1	Four queries (table's client, salesman, sale, order etc.) (Unable to collect this question)	
2	Draw an ER diagram of BPL (Team, Player, Game, Captain)	
3	What is trigger? When it is used? Write down some advantages of trigger.	
4	Is Bellman ford a greedy algorithm? Can all pair shortest paths (with negative cycles) be done in $O(V^3)$?	
5	RAID related question	
6	Functional dependencies were given, optimize and show candidate/primary keys. (Unable to collect this question)	



7	Write a reverse string without using extra memory, reverse in place	
8	Write a short notes on ACID properties of database.	
9	What is the distributed database system? What is the responsibilities of a database administrator?	
10	Some marks are given in MARKS(id, mark) table, write a query to show the grades(F.A.C etc.) according to the marks, and write another query to show the number of students who got a particular grade	
11	BCNF related question	
12	UNIX CLI related question(how to show hidden files in a directory)	
13	Weak entity type VS strong entity type, show example in a ER diagram.	
14	How hashing is done for a particular set of numbers with the hashing function $f(x)=x \text{ mod } 10$, show the process in diagrams and the resulting hashing table.	
15	বাংলা ফোকাস- প্রযুক্তির অপব্যবহার এবং নৈতিক অবক্ষয় English Focus- Drug abuse and its remedy B2E-Covid-19 and the situation.... E2B-International Mother Language day..... GK-(Who gifted Eiffel Tower to USA)	

1	Combined 5 Bank Date: 03.02.2023 Exam taker: BIBM Exam Type: 80 MCQ (IT:75 + Math+GK: 25) (Written: (IT Question (150) + Math 4(20) + Focus(10)+B/E(20)=200 marks)
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SL	Questions	Page No		
1	Max Heap [a-j] shows after each operation. Also, show which value will be returned when the root is extracted. <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Insert 5</td> <td>Insert 6</td> </tr> </table>	Insert 5	Insert 6	
Insert 5	Insert 6			



	<table border="1"> <tr> <td>Insert 8</td> <td>Extract -Root</td> </tr> <tr> <td>Insert 4</td> <td>Insert 11</td> </tr> <tr> <td>Extract -Root</td> <td>Insert 7</td> </tr> <tr> <td>Extract -Root</td> <td>Extract -Root</td> </tr> </table>	Insert 8	Extract -Root	Insert 4	Insert 11	Extract -Root	Insert 7	Extract -Root	Extract -Root					
Insert 8	Extract -Root													
Insert 4	Insert 11													
Extract -Root	Insert 7													
Extract -Root	Extract -Root													
2	<p>Suppose we have a relational database with five tables.</p> <table border="1"> <thead> <tr> <th>Table</th> <th>Primary Key</th> </tr> </thead> <tbody> <tr> <td>S (sid, A)</td> <td>sid</td> </tr> <tr> <td>T (tid, B)</td> <td>tid</td> </tr> <tr> <td>U (uid, C)</td> <td>uid</td> </tr> <tr> <td>R (sid, tid, D)</td> <td>sid, tid</td> </tr> <tr> <td>Q (tid, uid, E)</td> <td>tid, uid</td> </tr> </tbody> </table> <p>Here R implements a many-to-many relationship between the entities implemented with tables sand T, and Q implements a many-to-many relationship between the entities implemented with tables T and U. Write an SQL query that returns all records of the form Sid, uid where Sid is the key of an S-record and uid is the key of a U-record and these two records are related through the relations R and Q. Use SELECT and not SELECT DISTINCT in your query.</p>	Table	Primary Key	S (sid, A)	sid	T (tid, B)	tid	U (uid, C)	uid	R (sid, tid, D)	sid, tid	Q (tid, uid, E)	tid, uid	
Table	Primary Key													
S (sid, A)	sid													
T (tid, B)	tid													
U (uid, C)	uid													
R (sid, tid, D)	sid, tid													
Q (tid, uid, E)	tid, uid													
3	<p>Draw a class diagram representing a book defined by the following statement: A book is composed of several parts, which in turn are composed of several chapters. Chapters are composed of sections.</p> <ul style="list-style-type: none"> • a book includes a publisher, publication data, and an ISBN. • a part includes a title and a number. • a chapter includes a title, a number, and an abstract. • a section includes a title and a number. 													
4	<p>A Software project estimates the unadjusted function point as 180, the value-added factor as 0.87, and performance factor as 4. Find what required effort in person dose. Write a function to find the smallest value in a array. Consider that the array is passed to the function as a parameter.</p>													
5	<p>Suppose an attacker steals the private key of a website that uses transport layer security and remains undetected. What can the attacker do using the private key?</p>													



	In cyclic redundancy check (CRC), we have chosen the generator 11101010111, what is the probability of detecting a burst error of length 10?	
6	Consider two stander representations of a directed graph, the adjacency list solved more efficiently adjacency than in the adjacency matrix representations and another problem that can be solved more efficiently in the adjacency matrix representations than in the adjacency list representations?	
7	Suppose A&B are two frames in a browser loaded from different origins. Why is it a reasonable security policy to allow A to navigate B to another origin based only on whether the display area of A contains of B and A has the control over rea? Consider pages reference string 12342341211314, three frames using LRU-find page faults.	

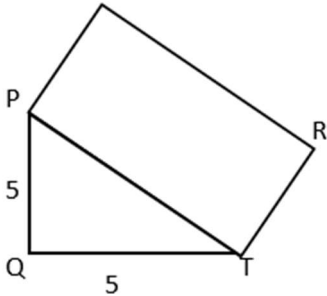
2	<p>Bangladesh Bank Assistant Programmer Exam Taker: BIBM Exam Time: 1+2 hour Exam date: 03.02.2023 Exam type: 80 MCQ (1 Hour) Written: 9 Subjective Question (150) +Math 4(20) +Focus (10) +B/E (20)</p>
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SL	Questions	Page No						
1	Consider a hash table of size 13 string entities with integer keys. Suppose the hash function is $h(k) = k \text{ mod } 13$, insert in the given order, the keys 10,3,5,6,16,17,19 into the hash table using linear probing to resolve collisions. Show all the work.							
2	Give an adjacency-list representation for a complete binary tree on 7 vertices. Give an equivalent adjacency-matrix representation. Assume that vertices are numbered from 1 to 7 as in a binary heap.							
3	Given two integers, A and B as input. Write a program to compute LCN of A and B.							
4	Write a SQL query return the number of movies which are romantic comedies. Suppose that we have a relational database with the following tables. <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Table</th> <th>Primary Key</th> </tr> </thead> <tbody> <tr> <td>Movies (mid, title, year</td> <td>mid</td> </tr> <tr> <td>People (pid, name)</td> <td>pid</td> </tr> </tbody> </table>	Table	Primary Key	Movies (mid, title, year	mid	People (pid, name)	pid	
Table	Primary Key							
Movies (mid, title, year	mid							
People (pid, name)	pid							



	<p>Genres (gid, genre) ActsIn (pid, mid) HasRole (pid, mid, role) HasGenre (gid, mid)</p>	<p>gid pid, mid pid, mid, role gid, mid</p>	
	<p>In tables ActsIn and HasRole, pid is a foreign key into people and mid is a foreign key into movies. In table HasGenre, mid is a foreign key into movies and gid is a foreign key into Genres.</p>		
4	<p>Draw A Class Diagram. A token-ring based local-area-network (LAN) is a network consisting of nodes, in which network packets are sent around. Every node has a unique name within the network, and refers to its next node. Different kinds of nodes exist: workstations are originators of messages; servers and printers are network nodes that can receive messages. Packets contain an originator, a destination and content, and are sent around one a network. A LAN is a circular configuration of nodes.</p>		
5	<p>Determine overloading method, overridden method and hide super class method?</p>		
6	<pre>public class A { public void m1 () {} public void m2 () {} public void m3 (int i) {} public void m4 (string i) {} } public class B extends a { public static void m1 () {} public void m2 () {} public void m3 (int i) {} public static void m4 (string i) {} }</pre>		
7	<p>Question about CIA. In order to prevent that the company decided to add end to end encryption techniques which layer of the OSI model is suitable to work in considering parameters like development time, software maintainability and development cost, Give reasons for your concepts.</p>		
8	<p>Describe a Man-in-middle attack on the Diffie-Hellman key exchange protocol in which the adversary generators two public key pairs for the attack.</p>		
9	<p>Growing use to technology in the Financial Service Industry.</p>		
10	<p>Translation English to Bangla.</p>		



	Global economic turbulence is strongly felt in the banking and financial industry throughout the global. The visible transformations are taking place in terms of embracing the new recovery efforts by adopting newer technology. The business.	
11	Translation Bangla to English.	
12	If x is an Integer and $x+1/x=17/4$ then value of $x-1/x=?$	
13	A basketball team has won 15 games and lost 9. If these games represent 163% 3% of the games to be played, then how many more games must the team win to average 75% for the season?	
14	Students of a class are made to stand in rows. If students are extra in each row, then there would be 2 rows less. If four students are less in each row, then there would be 4 more rows. What is the number of students in the class?	
15	Find the area of the following square PSRT. 	

03	<p>Bangladesh Bank Assistant Maintenance Engineer Exam Taker: BIBM Exam Time: 1+2 hour Exam date: 04.02.2023 Exam type: 80 MCQ (1 Hour) Written: 9 Subjective Question (150) +Math 4(20) +Focus (10) +B/E (20)</p>
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SL	Questions	Page No
1	Suppose we have a 16 KB of data in a direct mapped cache with 4 blocks. Determine the size of the tag, index and offset fields if we are using a 32-bit architecture.	



2	Describe cut off, saturation and active region of operation of a transistor with diagram. Explain the working principal of an n-channel JFET with various values of V_{as} and V_{ds}	
3	Explain parity method for error detection. Write down the bit strings of "Delta" using ASCII.	
4	Suppose that a digitized TV picture is to be transmitted from a source that uses a matrix of 480 times 500 picture elements (pixels), where each pixel can take on one of 32 intensity values. Assume that 30 pictures are sent per second. (This digital source is roughly equivalent to broadcast TV standards that have been adopted.) Find the source rate R (bps).	
5	One of the drawbacks of a small packet size is that a large fraction of link bandwidth is consumed by overhead bytes. To this end, suppose that the packet consists of P bytes and 5 bytes of header. Consider sending a digitally encoded voice source directly. Suppose the source is encoded at a constant rate of 128 kbps. Assume each packet is entirely filled before the source sends the packet into the network. The time required to fill a packet is the packetization delay. Determine the packetization delay for length $L = 1500$ bytes (roughly corresponding to maximum-sized Ethernet packet).	
6	Explain IaaS, PaaS, and SaaS with respect to cloud computing.	
7	Define a virtual machine with a neat diagram, explain the working of VM. What are the benefits of a VM?	
8	What are the challenges in optimizing energy efficiency of data centers? Explain!	
9	A bank has association with two different service providers as their payment gateways. The bank hires Mr. X to audit the payment gateway based on risk and threat detection. Which possible scenarios Mr. X will face?	
10		
11	Verification and validation are two process areas at CMMI level 3. For both of these areas provide a) definition b) a description of how you can fulfill these areas in your software testing activities.	
12	$\frac{4(\sqrt{6}+\sqrt{2})}{\sqrt{6}-\sqrt{2}} - \frac{2+\sqrt{3}}{2-\sqrt{3}} = ?$	
13	A father has divided his property between his two sons A and B. A invests the amount at a compound profit of 8% p.a. B invests the amount of 10% p.a. simple profit. At the end of 2 years, the profit received by B is Taka 1336 more than the interest received by A. Find A's share in the father's property of Taka 25000.	
14	The percentage profit earned by selling an article for Taka 1920 is equal to the percentage loss incurred by selling the same article for Taka 1280. At what price should the article be sold to make a 25% profit ?	



15	<p>AD is the longest side of the triangle ABD shown in the figure, what is the length of longest side of $\triangle ABC$?</p>	
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04	<p>Officer IT- Combined Bank Date: 14.10.2023 Job ID: 10152 Exam taker: BIBM (IT: 150 marks + Non IT: 40 marks + GK: 10 marks = 200 marks)</p>
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SL	Questions	Page No		
Written				
1	<p>Analysis of following code: SELECT department-name, AVG(salary) as average-salary FROM employees e JOIN department d ON e. department-id = d. department-id Where salary > (SELECT AVG(salary) FROM employees) GROUP BY department-name HAVING COUNT(*) > 2 ORDER BY average-salary desc ;</p>			
2	<p>Find the complexity and output of the following code:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> <pre>Int F(n) { If n == 0 return 0; if n == 1 return 1; return F(n-2) + F(n-1); }</pre> </td> <td style="width: 50%; padding: 5px;"> <pre>Int main () { result (5); }</pre> </td> </tr> </table>	<pre>Int F(n) { If n == 0 return 0; if n == 1 return 1; return F(n-2) + F(n-1); }</pre>	<pre>Int main () { result (5); }</pre>	
<pre>Int F(n) { If n == 0 return 0; if n == 1 return 1; return F(n-2) + F(n-1); }</pre>	<pre>Int main () { result (5); }</pre>			
3	<p>Write a paragraph for the following sequence & analyze the complexity of the program: 1,2,2,3,3,3,.....100 (100times)</p>			



10	Difference between Digital Banking System and Traditional Banking System.	
11	Write a program in any language that takes two Matrix A & B as input. Ensure your code handles matrices of different dimensions. a. Find a matrix C that is multiplication of A and B b. Average from matrix. c. Max from matrix C	
12	What is platform-independent software? Give an example.	
13	Batch Processing based question.	
14	Business Intelligence Model based question.	

06	RAKUB ANSE (2 post) 2023 Exam date: 03.11.2023 Exam taker: BIBM Marks: Focus, GK (15+15+10) + IT (15×10)
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SL	Questions	Page No
Written		
1	What is BIOS	
2	What is Packet Switching, Circuit Switching, and Differentiate between them? Which is better. Given Real life Example of its.	
3	What is CRC, Parity bit, which is better for error detect?	
4	What is Optical cable, satellite transmission? Differentiate between them. Bangladesh submarine cable name?	
5	Write difference between Router and Bridge.	
6	Write about Hypervisor.	
7	Write difference between Synchronous and Asynchronous transmission.	
8	What is NAT? How it works?	
9	What is OSI Layer? Write about OSI layer, Packet, Frame, Bit, Segment with its protocol name. Difference between OSI layer and TCP/IP layer.	
10	What is SMTP, SNMP, HTTP, and HTTPS?	
11	What is digital signature? Write About CIA. Draw a diagram of public key encryption (asymmetric).	
12	What is VLAN, Types of VLAN (static and dynamic), and Draw LVAN. Write Difference between IPV4 and IPV6.	



13	What is TDM, FDM, and WDM Difference among them? Write about synchronous and statistical TDM.	
14	Given a python code, find its output with complexity.	
15	Given a SQL query, write what is the Question for this query.	

07	RUPALI BANK ANA (5 Post) 2023 Job ID: 10166 Exam date: 04.11.2023 Exam taker: BIBM Marks: Focus + GK (15+15+10) + IT (15×10)
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SL	Questions	Page No
Written		
1	What is Network Topology? Distinguish between Bus, Ring, Tree and star topology. Discuss how the Bus topology work.	
2	What is the main benefit of broadband transmission system compared to baseband?	
3	What is the attenuation of transmission media? Distinguish between twisted pair, co-axial cable and fiber optics in tabular form.	
4	Differentiate between OSI model and TCP/IP Model. Draw the diagram of 4 Layer of TCP/IP Model including the main function of each layer and related protocols, List some basic functions performed at MAC layer.	
5		
6	Draw a diagram of LAN including network Firewall. Why is firewall important in network security? List major types of network firewalls. Differentiate between Traditional Firewall and next generation Firewall.	
7	Distinguish between Symmetric Encryption and asymmetric Encryption. Give some example of encryption algorithm. What are the difference types of ciphers in cryptography? What are the factors to be considered for cryptographic strength?	
8	Write down the basic difference of the following: <ul style="list-style-type: none"> i. Public vs Private IP address ii. L2 vs L3 Switch 	



9	Differentiate between Domain and Broadcast Domain in computer network. What is the function of DNS and DHCP?																				
10	Do you prefer packet switching compared to circuit switching in communication network? IF yes, why? How does packet switching work step by step? What applications use packet switching?																				
11	What do you mean by subnet and subnet Mask? The network address of 172.10.0.0/19 provides how many subnets and hosts? What is the function of OSPF?																				
12	Convert the decimal IP address 192.18.101.5 into binary IP address. Fill-up the following in tabular form: <table border="1" style="margin: 10px auto; width: 80%;"> <thead> <tr> <th>Address Class</th> <th>First Octet Decimal range</th> <th>Example of IP address</th> <th>Network ID</th> <th>Host ID</th> </tr> </thead> <tbody> <tr> <td>Class A</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Class B</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Class C</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Address Class	First Octet Decimal range	Example of IP address	Network ID	Host ID	Class A					Class B					Class C				
Address Class	First Octet Decimal range	Example of IP address	Network ID	Host ID																	
Class A																					
Class B																					
Class C																					
13	In the context of data management, what are the primary difference between data replication and data backup? Provide real-world example of ashen each is employed effectively.																				
14	What are the key hardware components that makes up a typical server, and how do they contributes to its overall performance and functionality?																				
15	Analyze the output of the following SQL. <pre style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 80%;"> Select department_name, AVG(salary) As average_salary From employee e JOIN department d ON e.department_id = d.department_id Where salary > (SELECT AVG(salary) From employee where department_id= d.department_id) GROUP BY department_name HAVING COUNT ()>2 ORDER BY average_salary DESC; </pre>																				
16	Discuss Server maintenance best practices, including routine tasks like clearing, monitoring, and applying security patches. How do these practices contributes to serve longevity and performance?																				
17	Discuss the factors that affects the speed of CPU.																				
19	Find out output, analyze time and space complexity? <pre style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 80%;"> int main() { int n; </pre>																				



	<pre> cout<<"Enter value of n:"; cin>>n; int first = 0; int secnd = 1; int next, I; if (n >=1) { cout<<first<<" "; } else if(n <= 2){ Cout<<secnd<<" "; } for (i = 2; i <n; i++) { next = first + secnd; cout<<next<<" "; first = secnd; secnd = next; } return 0; } </pre>	
20	<p>Write an essay on “Women’s Empowerment and Gender Quality in Bangladesh” within 200+ words</p> <p>N.B:For Question No: 10</p> <p>Class A IP Range is 1-126. Why not 0 and 127?</p> <ul style="list-style-type: none"> • 0.0.0.0 is reserved as the default network. • 127.0.0.0 to 127.255.255.255 is reserved for loopback addresses, used for internal testing on a local machine. 	

08	<p>Senior Officer (AHE/AME) Job ID: 10165 (5 post) Total Marks-200 Exam Date: 24.11.2023 Time: 02 Hours (10:30 am-12:30 pm)</p>
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SL	Questions	Page No
Written		
1	Differentiate between physical memory and virtual memory, also describe the advantages and disadvantages of virtual memory.	



2	What is multiplexing in data communication? Mention types of multiplexing and describe on type of multiplexing in details.	
3	Describe the importance of DMZ in computer networking, especially in the light of hosting a digital banking system in your organization.	
4	What is digital banking and how does it differ from traditional banking? How can digital banking promote financial inclusion?	
5	In banking applications data should not be lost or destroyed. How can disk redundancy and RAID technology help you to do active that? What are the different levels or RAID configuration?	
6	Describe the important characteristics of digital ICs (Integrated Circuits).	
7	How encryption and decryption are related to cybersecurity? Describe the RSA algorithm for public key encryption and the math behind RSA. Example: In a RSA cryptosystem, a participant A uses two prime numbers $p=13$ and $q=17$ to generate her public and private keys. If the public key of A is 35, then the private key of A is _____.	
8	What do you mean by memory organization? What are the main physical and operational differences between SRAM and DRAM.?	
9	You want to host a new banking solution for your organization in data center. Describe the most important factors you consider when making a purchasing decision for the data center.	
10	Describe the typical web application deployment architecture, and explain how they interact with each other during the deployment process.	
11	For a digital banking solution, describe the steps one should take to comply information system audit and control politics?	
12	An aero plane started 30 minutes later than the schedule time from a place 1500km away from its destination to reach the destination at the schedule time the pilot had to increase the speed by 250km/hr what was the speed of the aero plane per hour during the journey?	
13	A man could buy a certain number of notebooks for Rs.300. If each notebook cost Rs5 more, he could have bought 10 notebooks less for the same amount. Find the price of each notebook?	
14	Two sides of a plot measure 32m and 24m and the angle between them a perfect right angle. The other two sides measure 25m each and the other three angles are not right angles. What is the area of the plot?	



15	Translate Bangle to English	
16	Translate English to Bangla:	
17	Focus Writing in English: Metro Rail Equal Opportunity	

09	<p>Combined 5 bank (10198) SBL, BKB, KB, ICB Assistant programmer 2024 Exam Taker: BIBM Exam Time: 1+2 hour Exam Date: 09.02.2024 Exam Type: 80 MCQ (IT:50 + Math+gk: 20) Written 10 Subjective Question (150) + Math 4(20) + Focus(20) + Letter(10)</p>
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SL	Questions	Page No
Written		
1	Write a c/java program that show prime number between 1 to n. n is given by user input.	
2	Write a e/java program that calculate the given series sum: 1+2+4+7+11+.....+ n_{th} term.	
3	Write a program in C/java to print Floyd's Triangle. N is given by user input the Floyd's tringle is as below n=5 : 1 01 101 0101 10101	
4	Find out the output of the following program: <pre>#include<stdio.h> int fun (int i){</pre>	



	<pre> if(I<=0) return; Printf(“%d, “, i--); fun(--i); printf(“%d, “, i); } int main(){ fun(5); } </pre>	
5	Given two table Department and Employee:	
6	<pre> Create table Department (DeptCode int, DeptName Varchar (20), Location varchar (20)) </pre>	<pre> Create table Employee (EmpCode int, EmpFname Varchar (20), Salary int, Commission int DeptCode varchar (20),) </pre>
	<p>a) Select all EmpFname with total salary (total salary is sum of salary and commission).</p> <p>b) Select all EmpFname, Location which salary is greater than avg salary in order by EmpFname.</p> <p>c) Select EmpFname and count employee number and order by employee number ascending.</p>	
7	Difference between stack and queue also writes its two uses.	
8	What is polymorphism? Describe different types or polymorphism.	
9	Describe different types of relation in DBMS.	
10	About real life software project which you build. What problems/challenges have you faced during that time and how to solve this?	

10	Combined 3 Bank (10200) Assistant Database Administrator 2024 Exam Taker: BIBM Exam Time: 2 hour Exam date: 23.02.2024 Written: subjective (150) + Math (20) + Focus (10) + B/E + E/B
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SL	Questions	Page No
Written		
1	Section-A: প্রকাশনার মান উন্নয়নের সু-সম্পাদিত পাড়ুলিপির ভূমিকা লিখুন।	



	<p>Section-B: Roadside tree plantation in reducing noise pollution.</p> <p>Section-C: (Bangla to English) বিদ্যালয়ের সৃজনশীলতা নিয়ে অনুবাদ।</p> <p>Section-D: (English to Bangla) সর্বিক অর্থনিতি, মূল্যস্ফীতি সংক্রান্ত।</p>									
2	<p>Section-E: (General Knowledge) What is GI? What is the difference between a Green Economy and a Blue Economy? Concept of Westminster Government? Explain the concept of ECG and ECHO. Brief the work functionality of ECNEC</p>									
3	Section-F: (Departmental Question [10-24])									
4	Justify “Invention of Transistor changed the world.”									
5	Truth Table from the following circuit:									
6	How ensure secure communication between a client application and the database server. [Combined Bank ADA 2024]									
7	Database Data Loss based case study type question. [Combined Bank ADA 2024]									
8	<p>Normalized a database, used containers if needed, draw an ERD Diagram. [Combined Bank ADA 2024]</p> <table border="1"> <tr> <td>Proj_ Budg et</td> <td>Proj_ co De</td> <td>Proj_ manag er</td> <td>Emp_ co de</td> <td>Emp_ na me</td> <td>Dept_ co de</td> <td>Dept_ na Me</td> <td>Sa lar y</td> </tr> </table>	Proj_ Budg et	Proj_ co De	Proj_ manag er	Emp_ co de	Emp_ na me	Dept_ co de	Dept_ na Me	Sa lar y	
Proj_ Budg et	Proj_ co De	Proj_ manag er	Emp_ co de	Emp_ na me	Dept_ co de	Dept_ na Me	Sa lar y			
9	Logic Circuit of Olean algebra: $Q = C + AB + BC(B+C)$; Where output Q and input $(A, B, C) = (0, 0, 10)$ [Combined Bank ADA 2024]									
10	What is the primary motivation for class full IP address to classless IP addressing? [Combined Bank ADA 2024]									
11	Write a program from the following series: $e^x = 1 + x/1 + x^2/2! + x^3/3! + \dots$ [Combined Bank ADA 2024]									
12	Difference between MS Access and MS FoxPro in SQL or Oracle. [Combined Bank ADA 2024]									
13	What should be checked before buying servers? [Combined Bank ADA 2024]									
14	During Critical banking transaction, Which RAID level is best? And why? [Combined Bank ADA 2024]									
15	Given a Case study about Database problem. (which solve is done by : ACID Properties). [Combined Bank ADA 2024]									



16	<p>Database program with base and high-level language (SQL) to find out the interest rate from the given database table. If the first two letters of the column in the account of the rate table are the same, then the rate of all those accounts will be the same in the EMP table. [Combined Bank ADA 2024]</p> <p>EMP table:</p> <table border="1" style="display: inline-table; margin-right: 20px;"> <thead> <tr> <th>id</th> <th>Acc</th> <th>Name</th> <th>salary</th> </tr> </thead> <tbody> <tr> <td>1001</td> <td>Sb0090</td> <td>XXX</td> <td>10000</td> </tr> <tr> <td>1002</td> <td>Dp0022</td> <td>Firoz</td> <td>25900</td> </tr> <tr> <td>1003</td> <td>Ac0057</td> <td>Atul</td> <td>40000</td> </tr> <tr> <td>1005</td> <td>CC0023</td> <td>Sumon</td> <td>35000</td> </tr> </tbody> </table> <table border="1" style="display: inline-table;"> <thead> <tr> <th>Acc</th> <th>Rate</th> </tr> </thead> <tbody> <tr> <td>Sb0290</td> <td>10</td> </tr> <tr> <td>Dp0262</td> <td>12</td> </tr> <tr> <td>CC00273</td> <td>9</td> </tr> <tr> <td>Ac0092</td> <td>5</td> </tr> </tbody> </table>	id	Acc	Name	salary	1001	Sb0090	XXX	10000	1002	Dp0022	Firoz	25900	1003	Ac0057	Atul	40000	1005	CC0023	Sumon	35000	Acc	Rate	Sb0290	10	Dp0262	12	CC00273	9	Ac0092	5	
id	Acc	Name	salary																													
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Sb0290	10																															
Dp0262	12																															
CC00273	9																															
Ac0092	5																															
17	Difference between incremental backup and differential backup. Which is more suitable for the banking system? [Combined Bank ADA 2024]																															
18	Write appropriate program for client in any language which is using database and client can login a page using ID and password. (Something like this). [Combined Bank ADA 2024]																															

11	<p>Combined 3 Bank (10199) Assistant Maintenance engineer/Assistant Engineer IT 2024 Exam Taker: BIBM Exam Time: 1+2 hour Exam date: 24.02.2024 Exam Type: 80 MCQ (IT: 50 + Math+GK: 20) Written: Subjective (150) + Math (20) + Focus (10) + B/E+E/B</p>
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Differentiate the following terms: [Combined 3 Bank AME 24]

SL	Questions	Page No
Written		
1	Difference between Multi computer system and multi computer processor. What I pipelining? Explain 4 stages of the pipeline. Describe PPI.	
2	Differentiate the following terms:	
3	Tabular representation of TCP/IP model, function of each layer, protocols related to each layer, device and software's. Different types of network firewall. Advantage of NGFW over traditional firewall.	



4	Define socket, kernel, process, program, multiprogramming, context switching. Discuss LRU and NRU Page Replacement Algorithms. Illustrate Preemptive Priority scheduling.	
5	Describe the transformative power of ICT with ten innovative for the online banking system.	
6	To maintain a data center cooling system sometimes we need a generator. Which type of generator you prefer according to fuel, cost, energy, and budget.	
7	Your bank has an online banking system and this process is performed by sending OTP in mobile or OTP in mail when a customer transfers money from mobile banking app or online. This is a secured policy. Without this biometric policy how you can more secure your online banking. Explain your strategy.	
8	Draw logic circuit for the Boolean Expression $Q = (A'B + BC(B+C))'$ and find value of Q when $(A, B, C) = (1, 0, 1)$.	
9	Your bank wants to transform your full data center into a cloud. Now sketch your strategy and plan to implicate this procedure.	
10	Your bank wants to secure an e-banking online system and wants to configure a web server in your data center. What kind of tools and technology you use for this?	
11	What is policy, guideline and procedure? Why should the auditor maintain control as policy? Explain different types of audit risks that the auditor should follow when he will audit.	
12	In the figure, ABCD is a rectangle. The area of quadrilateral EDFD is one-half the area of the rectangle ABCD. Which one of the following is the value of AD?	
13		



	In the figure, ABCD is a rectangle. The area of quadrilateral EDFD is one-half the area of the rectangle ABCD. Which one of the following is the value of AD?	
14	12-16. 4 questions: Math.	
15	Bengali to English translation:	
16	Focus: Effect of air pollution on human health.	
17	English to Bengali translation:	

11	Combined 3 Bank (10185) Senior Officer IT 2024 Exam Taker: BIBM Exam Time: 1+2 hour Exam date: 17.05.2024 Exam Type: 80 MCQ (IT: 50 + Math+GK: 20) Written: Subjective (150) + Math (20) + Focus (10) + B/E+E/B
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SL	Questions	Page No
Written		
1	Section-A: Focus Writing in Bangla পীর তাপপ্রবাহ হ্রাসে পরিবেশ সুরক্ষার গুরুত্ব এর উপর একটি রচনা লিখুন ১৫০ (৬/- ১০%) শব্দের মধ্যে।	
2	Section-B: Focus Writing in English Write an essay on Modern Technology and Its Effect on Student Academic Achievements 150(+10%) words	
3	Section-C: Translation: Bangla to English	
4	বাংলাদেশে ব্যবসা প্রতিষ্ঠান বাসাবাড়ি ও বিভিন্ন প্রকল্পে সৌরবিদ্যুৎ তথা সোলার প্যানেলের ব্যবহার দিন দিন বাড়ছে। সূর্য যেতে সোলার প্যানেল আংলা শোষণ করে বৈদ্যুতিক প্রবাহ তৈরি করে, যা দিয়ে পরবর্তী সময়ে লাইট, ফ্যান প্রভৃতি চালানো যায় সরকারের টেকসই উন্নয়ন লক্ষ্যমাত্রায় ২০৩০ সালের মধ্যে ৪ হাজার ১০০ মেগাওয়াট বিদ্যুৎ নবায়নযোগ্য উৎস থেকে উৎপাদনের পরিকল্পনা নেয়া হয়েছে। ফলে নীতিগত ও ব্যবহারিক উত্তয় দিক দিয়ে দেশে সৌরবিদ্যুৎ খাতের বেশ সম্ভাবনা চায়েছে। সোলার প্যানেলের মাধ্যমে বিদ্যুৎ উৎপাদন মূলত একটি পরিবেশবান্ধব প্রক্রিয়া এবং এ প্রক্রিয়ায় বিদ্যুৎ উৎপাদন করে মা জাতীয় গ্রিডে যুক্ত করা গেলে বিদ্যুৎ খরচ ২০ শতাংশ কমবে।	
5	Section-D: Translation English to Bangla	
6	Earth Day inspires green innovation through participatory and collective action and encourages the adoption of sustainable practices across the financial system. It, therefore, serves as an opportunity for financial institutions to engage with their stakeholders and demonstrates their commitment to sustainable practices. Thus, Earth Day carries a deep significance in promoting sustainable and responsible financing which is an example of environmentally conscious investment practices. Positive environmental outcomes will be easily achieved if all financial sectors, stakeholders and	



	investors alike are part of a long-term plan to improve the environmental health of this planet, along with the financial and human health We celebrate Earth Day around the world, let us reaffirm our commitment towards building a greener, more tolerant, liveable and sustainable future for our next generations.	
7	Section-E: General Knowledge (Qs. 5-9)	
8	What is Padma Shri Award? Mention the name of Renowned Bangladeshi singer who has recently got the Padma Shri Award. What is BIMSTEC? Mention the day and month of celebration of International Mother's Day Who will host the T20 World Cup 2024? Mention the name of the First Governor of Bangladesh Bank.	
9	Section-F: Subject Related Questions (Qs. 10-24) 15*10= 150	
10	What exactly is a microcontroller? What distinguishes a microprocessor from a microcontroller? Mention the differences between RISC and RISC microprocessors. [Combined 3 Bank SO(IT) 24]	
11	Assume that an office has three departments and each department has 50 to 70 employees who are using computers with Windows operating systems. The office space is designed in such a way that an employee can use any computer within a department. Once an employee logs in from a computer, he/she will get access to his files from the server. Let you are planning for network and server setup for this company. 4. What is Active Directory? Do you need an Active Directory for such an office? If yes, briefly explain its use under this circumstance. [Combined 3 Bank SO(IT) 24]	
12	What is a subnet? What benefits will you get using subnets for this office? [Combined 3 Bank SO(IT) 24]	
13	Briefly describe the following network devices: Repeater, hub, Bridge, Switch and Router. [Combined 3 Bank SO(IT) 24]	
14	What are the different types of transmission media used for data communication? Explain their advantages and disadvantages. [Combined 3 Bank SO(IT) 24].	
15	What is Saas and multi-tenant architecture? How are they related? What are the advantages and disadvantages of multi-tenancy? For a multi-vendor e-commerce application, you can choose a database architecture where you can put all the vendors in a single database or each vendor in a separate database. Which architecture will you follow and why? [Combined 3 Bank SO(IT) 24]	
16	What do you understand about software quality assurance (SQA) ? While purchasing a software system for your company, as a SQA team leader what aspects will you look into for a quality software. [Combined 3 Bank SO(IT) 24]	



<p>17</p>	<p>Write a program in any language to find the sum of rows and columns of in x it matrix, where in and n is taken input from the user, Give the output in the following format: Sample input Matrix 1 3 4 2 2 4 5 3 3 2 2 1 Sample output: 1 3 4 2 10 2 4 5 3 14 3 2 2 1 8 [Combined 3 Bank SO(IT) 24]</p>													
	<p>Write a program in any language-to find the prime numbers between 1 to n, where a is taken as user input. sample input: Enter value of n: 20 Sample Output: Prime Numbers: 2, 3, 5, 7, 11, 13, 17, 19, [Combined 3 Bank SO(IT) 24]</p>													
	<p>Let you procure a microfinance application and host it in your office's data center. What kind of cyber-security threats should you be aware of and what steps would you take to mitigate the threats? Types of cyber threats my institution should be aware of include: [Combined 3 Bank SO(IT) 24]</p>													
	<p>What do you understand about the IT disaster recovery plan? Describe your approach to disaster recovery and business continuity' and planning for the data center of your office. [Combined 3 Bank SO(IT) 24]</p>													
	<p>Let a database has two tables, Customers and Orders. The following figure shows the partial data of these two tables. Based on this partial data, explain Inner, Left, Right and Full join. Show the result set of each join operation. Table: Customers Table: Orders. [Combined 3 Bank SO(IT) 24]</p> <table border="1" data-bbox="305 1255 667 1467"> <thead> <tr> <th>Customer id</th> <th>First name</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Rahim</td> </tr> <tr> <td>2</td> <td>Karim</td> </tr> <tr> <td>3</td> <td>Belal</td> </tr> <tr> <td>4</td> <td>Rony</td> </tr> <tr> <td>5</td> <td>Helal</td> </tr> </tbody> </table>	Customer id	First name	1	Rahim	2	Karim	3	Belal	4	Rony	5	Helal	
Customer id	First name													
1	Rahim													
2	Karim													
3	Belal													
4	Rony													
5	Helal													
	<p>Briefly describe primary key, foreign key and index in relational database and their relationship. Do you think database indexing always makes applications faster? Explain your answer. [Combined 3 Bank SO(IT) 24]</p>													
	<p>How many types of modes are used in data transferring through networks? Briefly explain those modes. Differentiate between TCP vs UDP. [Combined 3 Bank SO(IT) 24]</p>													



	You are asked to lead a team of software engineers to develop an application software system for your company and deploy it as fast as possible. You need to gather user requirements, design, develop, test and then deploy the system. Between Waterfall Approach and Incremental Approach, which software development approach will you take for your software project? Explain your answer. [Combined 3 Bank SO(IT) 24]	
	What is machine learning? Difference between supervised vs unsupervised vs reinforce. [Combined 3 Bank SO(IT) 24]	

12	Combined 2 Bank (10184) Officer IT 2024 Exam Taker: BIBM Exam Time: 1+2 hour Exam date: 04.10.2024 Exam Type: 80 MCQ (IT: 50 + Math+GK: 20) Written: Subjective (150) + Math (20) + Focus (10) + B/E+E/B
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SL	Questions	Page No
Written		
1	You are required to convert a 32 bit digital number to an analogue voltage over the voltage range of 0 to 3.3V with a Digital to Analogue converter (DAC). What is the resolution of the analogue output ?	
2	Find the sets X and Y If $X \cup Y = \{1,2,3,5,6,8,9,10\}$, $X \cap Y = \{1,5\}$, $Y - X = \{2,6,9,10\}$	
3	Convert the infix expression $P = 12/(7-3)+2$ to postfix expression and evaluate it.	
4	Explain how encapsulation and inheritance are advantageous in Object Oriented Programming?	
5	If you throw two unbiased dice (each with six sides) together, what is the probability that sum of two upward faces will be 7? Explain your answer.	
6	How many total bits are required of a Direct-Mapped cache with 16 KB of data and 4-word blocks, assuming a 32-bit address (word addressable) and 32-bit words? [BUET MSC 21] [Officer IT'24] [B.B AME'2023]	
7	Give the necessary condition for deadlock occur. Is it possible to have deadlock involving only a single process? Explain your answer?	
8	Consider the following buy a product description. Customer browses catalog, selects items to buy and then goes to check out. Customer fills in shipping information (address, receive time). System presents full pricing information and customer fills in credit card information. System authorizes purchase,	



	confirms sale and sends confirming email to customer. Draw a use case diagram for the above system.	
9	Suppose we want to develop software for a graphic package and we are given the task to implement circle class. The circle class has to be translatable from its origin. And it should also be able to give perimeter and area of the circle. Identify the data and method requirements for the class and give the data flow of translation method.	
10	Using an explanation of the difference between flow-control and congestion control, Discuss the impact of a stable end-to-end latency.	
11	Explain the difference between a singly linked list and a doubly linked list.	
12	Describe and estimate the costs of procedure to insert a new item into an existing binary max heap.	
13	What is the worst-case time and space complexity of quicksort algorithm. Explain how this worst case behavior can occur?	
14	Write a function which receives an array of integers as parameter and print the numbers divisible by 3 in the array.	
15	Consider you are given a database of a pet society with the following relations: Animals (ID: integer, Name: string, PrevOwner: string, DateAdmitted: date, Type: string) Adopter (PSIN: integer, Name: string, Address: string, OtherAnimals: integer) Adoption(AnimalID: integer, PSIN: integer, AdoptDate: date, chipNo: integer) Give a sql query that list total number of adoptions on June 30, 2024 for each animal type	
16	Section-B: General Knowledge and Language Proficiency Answer the following questions (i-x) 1×10-10 i. Which organization was created as a result of the language movement? ii. UNDP works in different countries and territories to eradicate poverty while protecting the planet. The headquarters of UNDP is located in which country? iii. 11 On 17 November 2015. UNESCO declared International Day for Universal Access to Information Which day is observed as International Information Day? iv. In which year did the first coal-fired Ultra Super Critical Thermal Power Plant start the commercial power supply to the national grid of Bangladesh? v. What is the name of the first Bangladeshi film at the Oscars?	



	<p>vi. Which campaign works toward building an international consensus and a sustained global movement of leaders and citizens to eliminate nuclear weapons?</p> <p>vii. American poet and activist Allen Ginsberg wrote a poem, inspired by the plight of the East Bengali refugees from the 1971 Bangladesh Liberation War. What is the name of the poem?</p> <p>viii. How many priority sector(s) fall under the Blue Economy for Bangladesh?</p> <p>What is the hardest substance available on earth?</p> <p>As per the declaration of the government, Bangladesh will turn into 'Smart Bangladesh' by which year?</p> <p>Translation [English to Bangla]</p> <p>Capacity development in banking is crucial as the industry faces evolving challenges and opportunities in a rapidly changing landscape. It encompasses enhancing the knowledge, skills, and capabilities of banking professionals to effectively navigate complex financial environments. This includes training in areas such as financial literacy, risk management, regulatory compliance, and technological proficiency. As banks integrate advanced technologies, and digital banking solutions, there is a growing need for specialized expertise to harness these tools for operational efficiency and customer service enhancement. Capacity development initiatives also focus on leadership development, fostering strategic thinking and decision-making abilities among senior executives to steer banks through economic uncertainties and competitive pressures,</p>	
17.	<p>Translation [Bangla to English] 10</p> <p>তীব্র তাপপ্রবাহ হ্রাসে পরিবেশ সুরক্ষার গুরুত্ব -এর উপর একটি</p> <p>Section-B: Focus</p> <p>মুক্তিযুদ্ধের মূল চার নীতির ভিত্তিতে ব্যাংক খাতের প্রতিষ্ঠানসমূহ জাতীয়করণ করা হয় ১৯৭২ সালে। এ সময়ের ব্যাংক খাতের প্রতিষ্ঠা ও বিকাশকে বর্ণনা করতে গেলে সার্বিকভাবে অর্থনীতির মৌলিক প্রয়োজনের দিকগুলোকে বিবেচনা করা প্রয়োজন। যুদ্ধ পরবর্তী বাংলাদেশের অর্থনীতির পূর্ণগঠনে সাধারণ মানুষের মৌলিক চাহিদাগুলো পূরণ করাই ছিল সরকারের মূল লক্ষ্য। পাশাপাশি দীর্ঘমেয়াদী উন্নয়নের লক্ষ্যে কৃষি ও শিল্পখাতের উন্নয়নকেও যথাযথভাবে গুরুত্ব না দেয়ার অবকাশ ছিল না। তৎকালীন সময়ে বড় বড় অবকাঠামো সরকারীকরণ অত্যন্ত যুক্তিযুক্ত ছিল।</p> <p>19. Focus Writing in Bangla 10: কৃত্রিম বুদ্ধিমত্তা ও ভবিষ্যতের শ্রমবাজার</p> <p>20. Focus Writing in English 10 Technology and Banking Sector of Bangladesh</p>	

13	<p>Combined Bank</p> <p>Date: 17.10.2025</p>
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<p>Officer (IT) Exam taker: BIBM Exam Type: 80 MCQ (IT:75 + Math+GK: 25) (Written: (IT Question (150) + Math 4(20) + Focus(10)+B/E(20)=200 marks) [Write all your answers within the space provided in the separate answer script]</p>
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SL	Questions	
1	<p>1. Focus Writing in Bangla (10 Marks)</p> <p>বাংলাদেশের ব্যাংকিং খাতে কুত্রিব বুদ্ধিমত্তার প্রয়োগ কীভাবে কার্যক্রমের দক্ষতা ও নিরাপত্তা বৃদ্ধি করতে পারে? একই সঙ্গে, এর সম্ভাব্য ঝুঁকি ও নৈতিক চ্যালেঞ্জসমূহ বিশেষণ করুন।</p>	
2	<p>2. Focus Writing in English (10 Marks)</p> <p>Why are data privacy and regulatory compliance (such as AML, KYC, and international data-protection standards) vital for the stability and credibility of the banking sector in Bangladesh? Discuss with examples and practical recommendations.</p>	
3	<p>3 Translation Bangla to English (10 Marks)</p> <p>বাংলাদেশের তরুণ জনগোষ্ঠীর একটি বড় অংশ বর্তমানে শিক্ষা কর্মসংস্থান বা প্রশিক্ষণ-এই তিনটির কোনো ক্ষেত্রেই সক্রিয় নয়। এই শ্রেণির তরুণ-তরুণীরা না পড়াশোনায় যুক্ত, না কোনো আয়মূলক কাজে নিয়োজিত, আবার কোনো প্রশিক্ষণমূলক কর্মসূচিতেও অংশ নিচ্ছে না। ফলে দেশের বিপুল জনশক্তির একটি অংশ অকেজো থেকে যাচ্ছে, যা অর্থনৈতিক ও সামাজিক উভয় ক্ষেত্রেই উদ্বেগজনক। এই সমস্যার প্রধান কারণ হলো শিক্ষার সঙ্গে কর্মক্ষেত্রের প্রয়োজনের সানগুনহীনতা, দক্ষতার ঘাটতি, কর্মসংস্থানের অভাব সামান্দিক বাধ্য এবং মানসিক অনুপ্রেরণার অভাব। বিশেষ করে নারী ও গ্রামীণ এলাকার তত্ত্বাদের মধ্যে এই সমস্যা বেশি লক্ষ করা যায়।</p>	
4	<p>14. Translation English to Bangla (10 Marks)</p> <p>The ongoing war in Gaza has created a serious humanitarian crisis. Continuous bombing and fighting have destroyed thousands of houses, hospitals, and schools. Many innocent people have lost their homes and are living without enough food, clean water, or medicine. Children and women are suffering the most because they have no protection and very little help. Aid workers say that the situation in Gaza is getting worse every day and people may soon face starvation and disease. The Gaza war has become a tragedy that affects the whole world. It shows how war destroys not only buildings but also hope and humanity.</p>	
5	<p>15. Writing on General Knowledge (10 Marks)</p> <p>Evaluate the challenges and prospects of managing the Rohingya refugee crisis in Bangladesh. How important is international cooperation, and what reforms or support mechanisms should be prioritized?</p>	
6	<p>Subject Related Questions (150 Marks)</p>	



7	Determine whether the following pair of graphs are isomorphic, and justify your answer in one sentence (10 Marks) [Combined Bank Officer (IT) 25]	
8	Explain the Quick Sort algorithm with a suitable example. Under what conditions does Quick Sort exhibit its worst-case time complexity, and why does this situation occur? [Combined Bank Officer (IT) 25] (10 Marks)	
9	Consider a logical address space of 512 pages, each of 2-KB page size, mapped onto a physical memory containing 128 frames. [Combined Bank Officer (IT) 25] (10 Marks) a. How many bus are required in the logical address? b. How many bits are required in the physical address?	
10	Why does the Domain Name System (DNS) primarily use UDP as its transport layer protocol instead of TCP? Describe the sequence of events that take place during the DNS name resolution process when a user enters www.companybd.com into a web browser and presses Enter. [Combined Bank Officer (IT) 25] (10 Marks)	
11	Explain the concept of thrashing in an operating system, describing how it occurs in a demand-paged virtual memory system and how it impacts CPU utilization and overall system performance. [Combined Bank Officer (IT) 25] . (10 Marks)	
12	Write a structured program (in C or Python) that takes an integer input n and prints the sum of all even numbers from 1 to n. [Combined Bank Officer (IT) 25] (10 Marks)	
15	Write a program using any object-oriented language (eg, C++/Java/ Python) represent a Bank Account. Your program should include. [Combined Bank Officer (IT) 25] (10 Marks) A class Bank Account with data members for second holder name, account number, and balance. Member functions to deposit) money, withdraw money ensuring sufficient balance), and display() account details Demonstrate the concept of encapsulation by keeping data members private and providing appropriate public methods for accessing and modifying them	
16	Explain the difference between direct, immediate, and register addressing modes the 12th microprocessor. [Combined Bank Officer (IT) 25] (10 Marks)	



17	Consider the following relation: [Combined Bank Officer (IT) 25] (10 Marks) Sales(sales id, salesman, region, sale amount, sale date) Write as SQL query to display the region, average sale amount, total number of sales for each region where. The average sale amount exceeds BDT 50183) and the total number of sales in that region is at least 5. (10 Marks)	
18	Explain the concept of ACID properties in a database transaction. each property Atomicity. Consistency Isolation, and Durability ensures the reliability and integrity of a database system. Describe how. [Combined Bank Officer (IT) 25] (10 Marks)	
19	What are SOAP and RESTful APIs in web services? State one main difference between SOAP and REST in terms of how they exchange data. [Combined Bank Officer (IT) 25] (10 Marks)	
20	Explain the concepts of Reinforcement Learning (RL), Deep Learning (DL), and Federated Learning (FL) in the context of Machine Learning Briefly describe how each approach differs in its learning mechanism, data usage, and real-world applications. [Combined Bank Officer (IT) 25] (10 Marks)	
21	Imagine a government agency is developing an AI-based citizen service chatbot that can automatically generate responses, summarize documents, and provide policy information to citizens. Explain how Generative AI can be used to power such a system, and how Explainable AI (XAI) techniques can ensure that its response are transparent, reliable, and accountable [Combined Bank Officer (IT) 25] (10 Marks)	
22	Describe how the principles of Confidentiality, Integrity, and Availability work together to protect organizational data, and provide one real-world example of a security breach where one or more of these principles were compromised. [Combined Bank Officer (IT) 25] (10 Marks)	
23	A banking application requires users to enter a 4-digit PIN for login. Explain how you would test this input field to ensure that it accepts only valid 4-digit numbers and rejects in id inputs. Mention a few test cases you would include and explain why such testing is important for system security and reliability. [Combined Bank Officer (IT) 25] (10 Marks)	

14	BSCS (Sonali & Janata Bank PLC) Assistant Programmer Officer (IT) – 03/01/2026 Time: 09-12 Written: 200 Marks [Write all your answers within the space provided in the separate answer script]
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SL	Questions	Page No
1	Non-Tech	
2	<p>1. Write an Essay in Bangla: দুর্নীতিমুক্ত দেশ গঠনে যুবসমাজের ভূমিকা</p> <p>2. Write an Essay in English : Online Banking</p> <p>3. Translate into English: বর্তমান ডিজিটাল যুগে গুগল ড্রাইভ এখন শুধু একটি ফাইল সংরক্ষণের জায়গা নয়, বরং। বরং এটি পড়াশোনা, অফিসের কাজ ও ব্যক্তিগত নথি ব্যবস্থাপনার একটি গুরুত্বপূর্ণ ডিজিটাল মাধ্যম। প্রতিদিনই কোটি কোটি মানুষ এ ক্লাউড স্টোরেজ সেবার ওপর নির্ভর করছে। তবে নিয়মিত ব্যবহার করলেও অনেকেই জানেন না, গুগল ড্রাইভে এমন কিছু লুকানো ফিচার রয়েছে, যা ব্যবহারকারীর কাজকে আরো সহজ, দ্রুততর ও কার্যকর করে তুলতে পারে। ই-মেইলে বড় ফাইল পাঠানোর ক্ষেত্রে অ্যাটাচমেন্ট সাইজ একটি বড় সমস্যা। তবে জিমেইল ব্যবহারকারীরা গুগল ড্রাইভ থেকে সরাসরি ফাইল যুক্ত করে সহজেই বড় ফাইল পাঠাতে পারেন।</p> <p>4. Translate into Bangla: From the Aman paddy season to the current winter vegetable cultivation, farmers in many districts have been unable to purchase fertilizers at government-fixed prices. Farmers and government officials allege that dishonest traders are exploiting an "artificial crisis, particularly for non-urea fertilizers, making extra. Potato farmers in northern districts are among the worst affected. In many districts, farmers reported paying Tk 200-Tk 600 more per 50kg-sack than the government rates for non-urea fertilizers. In response, local administration seized around 12,000 sacks of illegally stockpiled fertilizer.</p> <p>5. General Knowledge (Write only the correct answer, Do not write the whole sentence:) Where was the first earthquake observation centre established in Bangladesh? What is the full form of "WIPO"? In which year 'Value Added Tax' were introduced in Bangladesh? What is the name of the first bank owned by Bengali Entrepreneurs? Where is the CIRDAP situated? Who was invented dynamite? Which country's national won the Men's singles in ITTF world championship 2025? How many layers are available in OSI network model? What is the meaning of "Terracotta"? Which international organization offered GSP+7</p>	
3	Subject Related (Question 6 to 20)	
4	Mention the layers of the OSI Model and the function of each layer. [BSCS AP (SB & Janata Bank) 26]10	
5	Compare TCP and UDP protocols with examples. [BSCS AP (SB & Janata Bank) 26] 10	



6	Explain the difference between compiler and interpreter. [BSCS AP (SB & Janata Bank) 26]10	
7	What is cloud computing? Mention its service models. [BSCS AP (SB & Janata Bank) 26] 10	
8	What is the difference between functional and non-functional requirements? What is requirement validation? [BSCS AP (SB & Janata Bank) 26]10	
9	What is authentication and authorization? What is the CIA triad in cyber security? [BSCS AP (SB & Janata Bank) 26] 10	
10	What is social engineering? What is hashing? How is it different from encryption? What is vulnerability assessment? [BSCS AP (SB & Janata Bank) 26] 10	
11	Critically analyze the limitations of the Waterfall model and explain how Agile methodologies address those limitations. [BSCS AP (SB & Janata Bank) 26]10	
12	Define Virtualization. Explain the role of the Hypervisor and the difference between a Virtual Machine (VM) and a container. [BSCS AP (SB & Janata Bank) 26] 10	
13	A new employee joins the bank Describe the process of creating a new user account for them, focusing on security best practices (e.g., password policies) [BSCS AP (SB & Janata Bank) 26]10	
14	Construct a Truth table for a system that triggers an alarm (Output 1) (Motion is Detected AND it is Night time) OR (Panic Button is pressed) [BSCS AP (SB & Janata Bank) 26]. 10	
15	A new employee joins the bank. Describe je, password policies). [BSCS AP (SB & Janata Bank) 26] 10	
16	Construct a Truth Table for a system that triggers an Alarm (Output 1) if (Motion is Detected AND it is Night Time) C (Panic Button is Pressed). [BSCS AP (SB & Janata Bank) 26]. 10	
17	Based on the information given below, Can User X write so Folder 17 Explain the precedence logic (Explicit Deny vs Explicit Allow) Access logic: [BSCS AP (SB & Janata Bank) 26] 10 User X belongs to Group A and Group B. Folder grants "Read" to Group A Folder 1 has an "Explicit Deny Write for Group B Folder 1 grants "Write" to User X Individually	
18	You have 4 Hard Drives of 2TB each. [BSCS AP (SB & Janata Bank) 26] 10 Calculate usable storage for RAID 0 Calculate usable storage for RAID S Calculate usable storage for RAID 10	



19	Arrange the following in the correct chronological order of a computer's boot process new line: (OS Kernel Load, BIOS/UEFI POST MSR/GPT Lookup, User Login, Driver Initialization) [BSCS AP (SB & Janata Bank) 26] 10	
20	You have table EMPLOYEES (ID, Name, DeptID) and table DEPARTMENTS (Dept, DeptName). Write the logical steps for pseudo SQL logic) to get a list of Employee Names who work in "IT". [BSCS AP (SB & Janata Bank) 26] 10	

15	<p>Sonali Bank PLC Assistant Database Administrator Written Exam Question Exam date: 09/01/2026</p> <p>[Write all your answers within the space provided in the separate answer script]</p>
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SL	Questions	
1	Given iP address 192.168.1.0 and divided four subnets in equal size find the new subnet mask (CIDR) find out first usable host address of subnetting [SBPLC ADA 26]	
2	You friend device is slow performing so what should you take step in you task manager. [SBPLC ADA 26]	
3	Suppose you workstation affect ransomware attack so what five step you take to metegrate this problem. [SBPLC ADA 26]	
4	What is Dyanamic programming? dynamic programming property's.... [SBPLC ADA 26]	
5	What is Phishing? Describe different type of phissing attack. [SBPLC ADA 26]	
6	What is programming? Give 4 example. Difference between structured and OOP programming. [SBPLC ADA 26]	
7	What is firewall? Difference between stateful inspection and new technology firewall (NTFW). [SBPLC ADA 26]	
8	ATM pin code flow chart (user input define). decision take (successful, failure). [SBPLC ADA 26]	
9	Define software testing Level. show that unit, integration, system and user accepting testing. How these are complemented of each other. [SBPLC ADA 26]	
10	firewall rules Rules 1: A source destain B port is 89. Rules 2: A source destain B less than 443; Rules 3: A source destain B port is 443. So when a packet	



	come form 443 is it accept or rejected the procedure “First inspection rules” explain it. [SBPLC ADA 26]	
11	What is DNS? How DNS work? [SBPLC ADA 26]	
	Bangla focus: নারী উদ্যোক্তা উন্নয়নে সামাজিক যোগাযোগ মাধ্যমের ভূমিকা। English focus: Earthquake Risk management and mitigation Bangla to ish:... English to Bangla:...	

16	[BSCS AP 26] Assistant Programmer Date: 17.01.2026 Exam taker: BIBM/CTI Exam Type: 80 MCQ (IT:75 + Math+GK: 25) (Written: (IT Question (150) + Math 4(20) + Focus(10)+B/E(20)=200 marks)
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SL	Questions
1	Subject Related (Questions 1 to 15)
2	Explain the concept of inheritance in Object-Oriented Programming Name and briefly describe three common types of inheritance used in OOP. [BSCS AP 26] [OOP]
3	Explain the concept of the Software Development Life Cycle (SDLC) and describe its main phases. [BSCS AP 26] [SE]
4	Apply the concept of IP addressing and routing to explain how packets are delivered across networks using Open Shortest Path First (OSPF) at the network layer. [BSCS AP 26] [Networking]
5	What is a Universal Gate? Prove that the NAND Gate is a Universal Gate. [BSCS AP 26] [DLD]
6	Explain the fundamental difference between a Process and a Thread Provide two distinct advantages of using threads over processes. [BSCS AP 26] [OS]
7	What is Version Control (e.g., Git)? Explain the specific difference between "Committing" code and "Pushing" code . [BSCS AP 26] [DevOps]
8	Describe step-by-step how Binary Search locates a target value in a sorted array Why does it fail if the array is unsorted? [BSCS AP 26] [DS]
9	You have two stacks. Explain the logic required to implement a Queue (FIFO) using only these two stacks. [BSCS AP 26] [DS]



10	Explain the logic of "Bubble Sort". Why is it considered inefficient for large datasets compared to Merge Sort? [BSCS AP 26] [DS]
11	Draw or describe a Flowchart to determine the largest of three distinct numbers (A, B, C) [BSCS AP 26] [DS]
12	Explain the "Producer-Consumer" problem in operating systems. What specific synchronization issue must be solved? [BSCS AP 26] [OS]
13	You are designing a database for a Library Explain the relationship between a "Book" table and a "Borrower" table. Is it 1-to-1, 1-to-Many, or Many-to-Many? Justify your answer. [BSCS AP 26] [DB]
14	Construct a logical argument explaining why a heuristic (like A* search) might be faster than a blind search (like BFS), even if it doesn't guarantee the absolute perfect path in all cases. [BSCS AP 26] [AI]
15	Explain the logic of a "Checksum". How is it used to verify data integrity during file transfer? [BSCS AP 26] [Data Comm]
16	Compare and contrast the three fundamental paradigms of Machine Learning; Supervised Learning Unsupervised Learning and Reinforcement Learning. [BSCS AP 26] [ML]