

Instructions:

- 1) Assume and clearly mention any missing value, where necessary.
- 2) Solve problems progressively, showing each step. State all relevant laws/rules when applying them.
- 3) Scientific calculators are allowed

Q.1 Find equivalent resistance of the network across the open terminals a-b. (5 Marks, 2.5 Marks for each circuit)

Q.2 Re-draw the following two circuits in your answer sheet and then clearly identify the nodes, loops, dependent loops and independent loops. Finally tabulate them neatly. (5 Marks, 2.5 Marks for each circuit)

Q.3 Find V_o in the first circuit and I_o in the second one. (5 Marks, 2.5 Marks for each circuit)

Q.4 Find $i_1, i_2, i_3, v_1, v_2, v_3$ by applying KVL on both independent loops and KCL on the middle node. (5 Marks)

NED University of Engineering and Technology
Computer and Information Systems Engineering
F.E. Computer Systems Engineering
Fall Semester 2018

Name: _____
Roll #: _____
This paper covers CLO-1, C2
Invigilator signature: _____

Marks Obtained: 17.5 / 20
CLO-1 Status: Passed / Failed
Time: 50 minutes
Examiner Signature: UA

10.5/12
4/4

Section A

1. Give the correct answer for each of the following:
- The oldest surviving abacus was used in 300 B.C. by the:
☐ Chinese ☐ Arabs ☒ Babylonians ☐ Africans
 - Logarithms were invented by:
☒ John Napier ☐ Charles Babbage ☐ Leonardo da Vinci ☐ Wilhelm Schickard
 - By 1822, Charles Babbage proposed a steam driven calculating machine, which he called the:
☐ Steam Engine ☒ Difference Engine ☐ Calculating Engine ☐ Speed Engine
 - Babbage called the two main parts of his punched-cards based machine:
☐ Gear and shaft ☐ Data and Program ☐ Cards and Loom ☒ Store and Mill
 - The first computer programmer was:
☐ Charles Babbage ☒ Ada Byron ☐ Wilhelm Leibniz ☐ Joseph Jacquard
 - In 1944, Harvard and IBM built the:
☐ Z1 ☐ IBM 360 ☒ Mark I ☐ Harvard I
 - In 1953, Grace Hopper invented the first high-level language:
☒ Flow-matic ☐ BASIC ☒ COBOL ☐ FORTRAN
 - The title of forefather of today's all-electronic digital computers is usually awarded to:
☐ JOHNNIAC ☐ ILLIAC ☐ EDVAC ☒ ENIAC
2. Give reason why you think each of the following statements is true or false:
- Dumb terminals are called dumb because they do not have output devices. 4
Dumb terminals are dumb because they do not have a processor of their own. They use the speed and storage capacity of the mainframes.
 - Initial designs of MIDs were for data communication only.
 - The address bus is unidirectional.

1.5/2

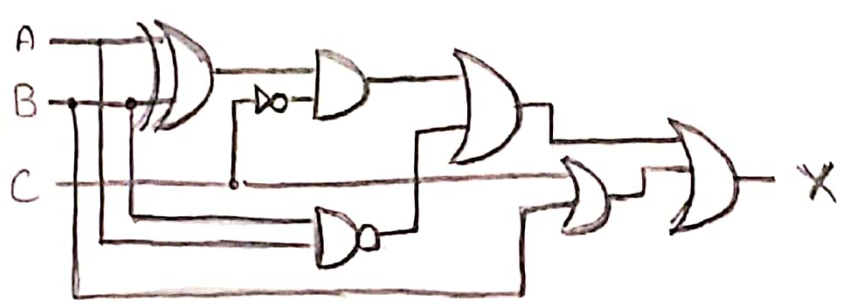
Yes, the address bus is unidirectional because it only carry location of data from memory to ~~processor~~ and processor to memory.

d. Calculators are designed according to the Von Neumann architecture.

Calculators are not designed according to Von Neumann structure because his structure includes stored program computers and calculator is a Fixed program computer.

3. Change the given Boolean expression into equivalent circuit diagram and truth table: $X = \{(A \oplus B) \bar{C}\} + \bar{A} \bar{B} + BC$

4



A	B	C	$A \oplus B$	\bar{C}	$(A \oplus B) \bar{C}$	AB	$\bar{A} \bar{B}$	BC	X
0	0	0	0	1	0	0	1	0	1
0	0	1	0	0	0	0	1	0	1
0	1	0	1	1	1	0	1	0	1
0	1	1	1	0	0	0	1	1	1
1	0	0	1	1	1	0	0	0	1
1	0	1	1	0	0	0	1	0	1
1	1	0	0	1	0	1	0	0	1
1	1	1	0	0	0	1	0	1	0

Section B

7/8
2/2

Give the correct answer for each of the following:

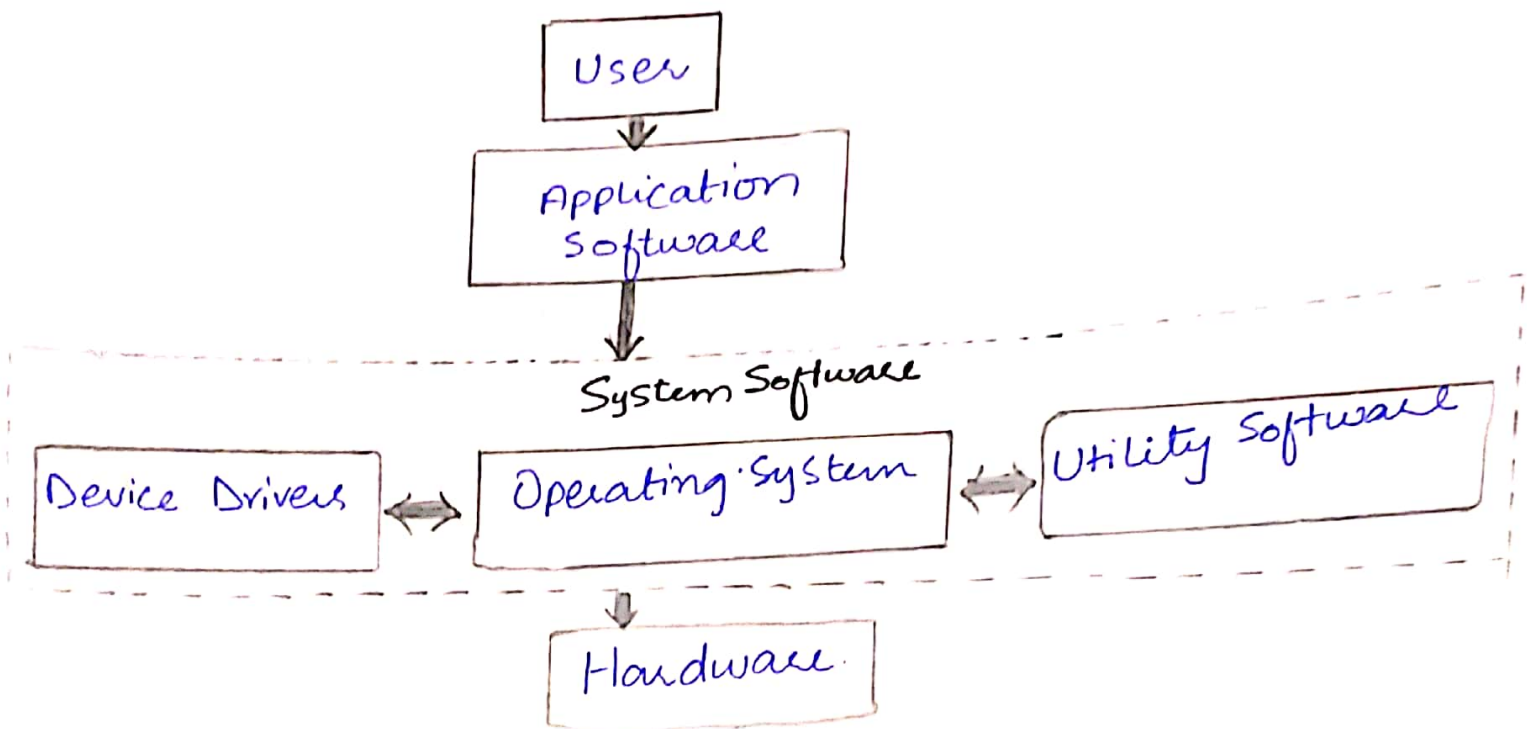
- a. RFID is a technology that uses _____ to communicate with a tag placed in or attached to an object, an animal, or a person.
•Thin wire •Pixels ✓•Radio signals •Light waves ✓
- b. Trojans are software program able to
•Self-generate ✓•Destroy computer data •Draw pictures •Provide security to computer ✓
- c. _____ allows professionals to modify a segment of a video, called a clip.
•Audio editing software •Computer-aided design (CAD) software •Document management software ✓•Video editing software ✓
- d. _____ is a type of system software that assists users with controlling or maintaining the operation of a computer, its devices, or its software.
•Open source software ✓•Utility Programs •Packaged software •Business software ✓
5. Summarize the role of operating system for CPU management.

CPU (Central Processing Unit) is generally referred as the brain of the computer that do all the processing of data in the computer. It is the hub of all processing activities. A user can input data by any input device but he cannot get the output before it is processed by the CPU. Without CPU no any computer can work or perform task. For CPU, operating system do manage all the programs step by step to enter the processor. OS manages all the jobs that buffers in the queue to enter the processor to get executed. Without OS, CPU cannot manage all the processing activities.

6. Discuss input and output options for physically challenged users.

Many Input and output devices are made specially for physically challenged users so that they can also access the computer. Large Keys Keyboard are made for the users so that they can properly see the keys and input the data into the computer. Voice Recognition is also a advance input technology so that the user can input data by only speaking. Tongue Joysticks are also made for the paralysed users so that can move the pointer by using their tongue. A lot more devices are made just for the ease of these physically challenged users.

2/2
7. Elaborate on components of system software with the help of a diagram.



Operating System:

Operating system is a system software that is necessary to run a computer without which a computer can not work.

Device Drivers:

Device drivers are necessary for the interaction of an input/output device with a user.

Utility Software:

Utility software are not always necessary to run a computer but in some certain cases it is necessary. for Example: Anti-virus.

NED UNIVERSITY OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF MATHEMATICS

CALCULUS (MT- 114)

DATE: 13-12-2018

TIME: 1 hour

Note: Attempt all question.

✓ Q 01: Solve the inequalities: (5)

✓ (i) $X^2 + X - 8 \leq -6$ [-2, 1]

✓ (ii) Put the complex number in $\left(\frac{2+i}{3-i}\right)^2$ into polar form. $\frac{1}{2} \text{cis}(\pi/4)$

✓ Q 02: Find Domain and Range of the function: (5)

(i) $f(x) = \begin{cases} -x^2 + 2 & \text{if } x < 1 \\ x^2 & \text{if } x \geq 2 \end{cases}$ D: $(-\infty, 1) \cup [2, \infty)$

(ii) $f(x) = \begin{cases} x + 4 & \text{if } x < -4 \\ 2x + 5 & \text{if } -4 \leq x \leq 1 \\ -x + 3 & \text{if } x > 1 \end{cases}$ D: $(-\infty, -4) \cup (1, \infty)$
R: $[-3, 7]$ (5)

✓ Q 03: Prove that:

$$\sin^4 \theta = \frac{1}{8} [\cos 4\theta - 4\cos 2\theta + 3]$$

Q 04: Prove that: (5)

(i) $\text{Log}(1+i) = \frac{1}{2} \ln 2 + \frac{\pi}{4} i$

(ii) If $\sigma, \omega, \tau \in R$, Find real and imaginary part of $e^{(\sigma+i\omega\tau)}$

NED UNIVERSITY OF ENGINEERING & TECHNOLOGY
FIRST YEAR (COMPUTER & INFORMATION SYSTEMS ENGINEERING)
MID SEMESTER EXAMINATION 2018 (CS-115)

Time: 60min

Max.Marks:20

Date: 05-12-2018

Instructions:

- Keep answers logical and precise
- Make 'logical' assumptions where necessary and mention them properly
- Explain properly 'built-in function' if used in any program
- Avoid using any built-in function that provides final result directly

1. Calculate factorial of a number given input by the user fulfilling following conditions:

[C2-CLO-1][6]

- a. Use while loop
- b. If user enters a zero or one then factorial should be printed without any calculation
- c. If user enters a negative number then output should be "please enter positive integer"
- d. If user enters positive integer then output should be generated

Hint: If user enter 6 then factorial of 6 = $(6*5*4*3*2*1=720)$

2. Identify errors in following code segments (use maximum 2 lines for each part): [2]

a- \$spam=2 print(\$spam)	b- for x in range(3) print(x)	c- x={1:'a',2:'b',2:'c'} print(x)	d- X='SPAM' print(x)
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3. Compute the output of following programs: [C3-CLO-2] [1+1]

A. s='computerProgramming' print(s[7::-2])	B. credit_hours={} credit_hours[2]='CP' credit_hours[2]='FCE' print('credit_hours')
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4. Develop a program that takes input your full name from you through input function and generates the table of number (equal to letters in your full name excluding spaces). Don't use built-in length function. [6]
5. Develop a program that takes input (numbers) from user and print the largest number among them. [4]

Chaffa

Mid-Term Examinations, Fall 2018, FE CIS, Subject: Pakistan Studies, Duration: One hour

Total Marks=20

Roll No CS-40

Name: Maheen Saleh

Q.1. Separate the fact from opinion (CLO-2)

1) The second martial law was imposed in the country in March 1969. The developments from 1969-1971 perhaps increased the tensions between two wings of the country.

Fact The second martial law was imposed in the country in March 1969

Opinion The developments from 1969 - 1971 perhaps increased the tensions between two wings of the country.

2) The visions of regional connectivity would become reality. However, this scenario is highly unlikely until after the 2019 Indian elections.

Fact: However, this scenario is highly unlikely until after the 2019 Indian elections.

Opinion: The vision of regional connectivity would become reality.

3) Senate's role is quite important in a Federation; Senate is also known as upper house.

Fact: Senate is also known as upper house.

Opinion: Senate's role is quite important in a federation.

4) Pakistan's scenic beauty is a great attraction for tourists around the world. The Karakoram mass of mountains was pierced in 1970s to create a Silk Road.

Fact: The Karakoram mass of mountains was pierced in 1970s to create a Silk Road.

Opinion: Pakistan's scenic beauty is a great attraction for tourists around the world.

5) Mr. Jinnah's speech served as the basic guideline for framing the Constitution. However, the first Constituent Assembly of Pakistan was dissolved on 24 October 1954.

Fact: However, the first Constituent Assembly of Pakistan was dissolved on 24th Oct 1954.

Opinion Mr. Jinnah's speech served as the basic guidelines for framing the Constitution.

Q.2. Examining the issues: What could be described as the basic characteristics of democracy? (CLO-3)

a) In what ways the Constitution of 1973 does strengthen the idea of fundamental rights for the citizens of the country.

Constitution of 1973 strengthens the idea of fundamental rights because it guarantees basic rights and opportunities to all the citizens with equality. These fundamental rights include freedom of speech, freedom of religion, freedom of education, right to own a property, freedom of movement, freedom of association, etc. The constitution provides protection of fundamental rights through the judiciary which has an "appellate jurisdiction".

b) How does the Constitution of 1973 provide for a federal structure and ensures its essence?

The Constitution of 1973 declares Pakistan as a Federation i.e. a political entity with semi-self governing units having well-defined boundaries (territories). In the structure of federation of Pakistan, there is a Central government which is controlled by the President and Prime Minister, and there are provincial governments which are controlled by the Chief Ministers and the Governors. The 1973 Constitution ensures the essence of federation by establishing a strong central government and giving autonomy to the provincial governments within prescribed limits. The constitution also establishes a balance between the Central and Provincial Government.

c) Why the idea of a Bicameral legislature gets significant in countries with diverse interests?

A country with diverse interests and versatile political issues cannot be governed by a presidential form of government with a single legislature where all the powers are concentrated in a single unit. It requires a bicameral legislature where the powers and law making authority is divided among different units. For example, in our country the two houses of the parliament are National Assembly where the seats are based upon population, and we have Senate which has the responsibility of preserving the rights of minorities.

Q.3. Read the passage given below and try to interpret the events regarding their significance in the diagram below (CLO-3)

"SEVERAL FACTORS LED TO THE DISMEMBERMENT OF THE original Pakistan on December 16 1971. One of these factors has received far less attention in public discourse than deserved. This factor is the disregard for a fundamental dimension of the Constitution making role of the National Assembly elected in December 1970 as expressed in the formulation of the Legal Framework order (LFO) under which the assembly was elected for its primary purpose."

A federal structure does allow for accommodation of different political groups, however, at the same time it does expect from the federating units total loyalty. The presidential form of government often results in concentration of powers in one hand, perhaps for this reason there had been a continuous demand for a parliamentary form of government from east Pakistan again, however, the problems could have been resolved from all sides through political means. Though some issues may have been genuine enough, however, not showing flexibility and setting a parallel government was not the answer. On the other hand, not respecting the will of the majority of population and going for delays and non-political means was not the proper response. Both the options dealt a serious blow to the country's unity and integrity. Internal instability at times could produce very dangerous results when there does exist a chance of external intervention by a neighboring country which already had failed to accept the independence of its neighbor. These points do suggest that dismemberment on 16 December 1971 may have been avoided if both sides in the internal conflict had paid attention to the basic principles of federation.

Interpretation

One of the major factors that led to the severance of East Pakistan was the delay of the 1st session of the National Assembly formed under the 1970 General Elections.

Central Event

There was an imbalance of powers between the central and provincial governments due to which East Pakistan violated the idea of federation as they moved beyond the limits of provincial autonomy.

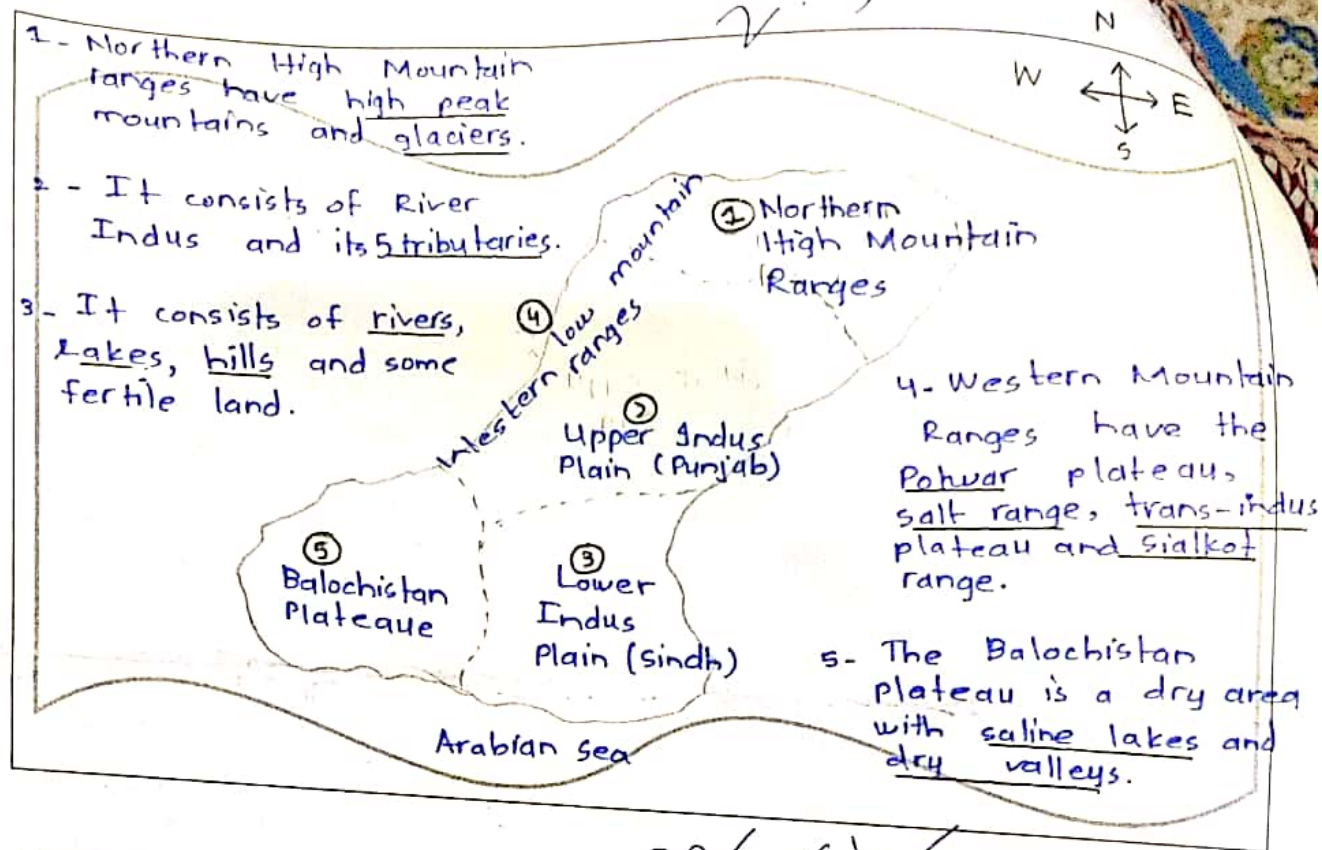
Interpretation

The vivisection of East Pakistan could have been prevented if East Pakistan was given due rights and autonomy as it is given in a federation.

Unjust division of powers, inadequate representation and continuous discrimination by the west Pakistan were major factors which created serious conflicts in the East Pakistan.

India started intervening in the affairs of Pakistan. Indira Gandhi provided shelter to the Awami League leaders and military support to fight against West Pakistan.

Q.4.a Draw a map which helps in understanding the physical geography of Pakistan?(CLO-1)



Q.4.b. With the help of two documents, The new Cold War and View from abroad; highlight the facts, analysis, interpretation, synthesis and conclusion with regard to geo-political and strategic importance of Pakistan in space below.(CLO-3)

Facts	Analysis	Interpretation	Synthesis	Conclusion
The Belt and Road Initiative (BRI) is a multi-billion dollar project which is upparallel in its vision and scope. The New Cold War between USA and China will have great impact of global politics but China will create its domination.	The Belt and Road initiative is an infrastructure project designed to connect China with different parts of the world. Moreover in the Sino-US war, US is accusing China of many illegal acts but all these conflicts will prove to be futile and China will get the global economy.	China is making efforts to link itself with Asia, Europe and Africa. This regional connectivity plan has created a risk for the US economic domination.	The new Cold war is playing a sensitive role in the global politics. The China US affairs are also affecting other nations such as Russia, India, Pakistan, etc.	The new cold war and the BRI project will cast great impacts on our economy. The BRI will be highly prolific for our future security and socio-economic development.