Daffodil International University
Department of CSE
Midterm Examination Semester: Spring 2019
Title: Computer Architecture and Organization
Course Code: CSE 322
Course Teachers: DAY All
Time: 1.5 Hours Full Marks: 25

Answer any FIVE of the following questions

Question 1

a. Define the term 'Computer Architecture and Organization'. 1
b. Discuss the similarities between computing processing system and human processing system? 2
c. What is integrated circuit (IC)? Classify different types of IC? 2

Question 2

a. What is the role of an input-output processor? 1
b. Draw the internal organization of IBM System/360 computer. 2
c. Write an IAS program to subtract two numbers stored in main memory. 2

Question 3

a. What is BIOS? 1
b. What are the major changes take place from first generation computer to second generation computer. 2
c. Draw the structure of Babbage's Analytical Engine. 2

Question 4

a. What is system design of a computer? Explain it with mathematical explanation. 2
b. Draw the flowchart for an iterative design process. 2
c. What do you mean by batch processing? 1

Question 5

a. Define the terms: ASCII & EBCDIC. 1
b. If the decimal value of A is 65, find out the both binary and octal values of D and F? 2
c. What is Ripple Carry Adder? Draw a ripple carry adder which could use to add two 6-bits binary numbers. 2

Question 6

a. Describe the following terms: 2
   i) Data Bus
   ii) Address Bus.
b. What is interrupt? 1
c. Classify following components according to three design levels: 2
   (i) Printer (ii) AND gate (iii) Address bus (iv) RAM (v) Flip-flop (vi) Counter

b. Azad and Rafiq are discussing about CPU Scheduling. They notice a topic named Starvation and Aging is a part of CPU Scheduling. Now try to help them to understand starvation and aging in operating system with example. 3.0

3 a. Consider the following set of processes with the length of the CPU burst time given in millisecond. 5.0

Process	Burst Time	Arrival Time
P3	4	3.0
P2	8	0.0
P1	1	10.0
P5	5	5.0
P4	6	2.0
P7	2	26.0
P6	2	26.0

Draw Gantt chart for the above processes using **SJF** (Preemptive) and Calculate individual processes turnaround time.

b. Describe Process State with appropriate diagram. 2.0

c. Describe different scheduling criteria of CPU scheduling algorithms. 2.0

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Faculty of Science & Information Technology

Mid Term Examination **Semester: Spring- 2019**
Course Code: CSE 323 **Course Title: Operating System**
Time: 1.5 hours **Full Marks: 25**
Section: All

[Answer all of the following questions. Figures in the right-hand margin indicate full marks.]

a. Write the difference between Timesharing and Multiprogrammed batch system. 2.0

b. If several jobs ready to run at the same time called _____. 1.0

c. Define context switching & swapping. *"Context switching time and swapping time should be as small as possible"*- Justify this sentence. 3.0

d. Bootstrap program is stored in _____ generally known as firmware. 1.0

2. a. In a particular time CPU is trying to execute six processes. Draw the gantt chart and find out the average waiting time and response time from following scenario using round Robin algorithm. Where process executing in a preemptive way and time quantum is :2 (TQ=2) 6.0

Process	Arrival Time	Burst Time	Priority
P1	2	7	5
P2	3	4	4
P3	7	2	3
P4	11	5	6
P5	12	8	2
P6	15	9	1

and make a boat,' said the tree.
'Then you can sail away...
and be happy.'
And so the boy cut down her trunk
and made a boat and sailed away.
And the tree was happy
... but not really.

And after a long time
the boy came back again.
'I am sorry, Boy,'
said the tree,' but I have nothing
left to give you -
My apples are gone.'
'My teeth are too weak
for apples,' said the boy.
'My branches are gone,'
said the tree. ' You
cannot swing on them - '
'I am too old to swing
on branches,' said the boy.
'My trunk is gone, ' said the tree.
'You cannot climb - '
'I am too tired to climb' said the boy.
'I am sorry,' sighed the tree.
'I wish that I could give you something....
but I have nothing left.
I am just an old stump.
I am sorry....'
'I don't need very much now,' said the boy.
'just a quiet place to sit and rest.
I am very tired.'
'Well,' said the tree, straightening
herself up as much as she could,
'well, an old stump is good for sitting and resting
Come, Boy, sit down. Sit down and rest.'
And the boy did.
And the tree was happy.

1. ***In your real life*** **who plays the role of the 'tree' which is mentioned in the poem? Please, explain with examples.**
2. **Please, prepare a story based on the theme of the poem above. (Not more than 150 words)**

Part B - 6 Marks
Answer from the following questions (Any One)

3. "I never encountered any crisis in life, because I solved my problems before they turned into crisis." - Amit Kalantri

   A. How will you use your skills to solve a problem? Please, explain with an example.

4. "Everything in the universe is within you. Ask all from yourself." -Jalal-al-Din Rumi

   The inner self is an individual's personal, internal identity - one that is distinct from identities defined by external, social forces and relationships. It is closely linked to a person's values, beliefs, goals, and motivations. The term also implies a level of authenticity not associated with external identities and labels; it is the "true self." Many refer to the inner self as the soul, particularly in spiritual contexts. In contrast to the outer self, the inner self is about what can't be seen: feelings, intuition, values, beliefs, personality, thoughts, emotions, fantasies, spirituality, desire, and purpose.

   A. Do you know yourself properly? If yes, please describe your Inner Self. If no, please describe, which are the obstacles, you are facing to know your Inner Self.

Daffodil International University

Department of Computer Science and Engineering
Faculty of Science and Information Technology
Mid-term Examination Semester: Spring 2019
Course Title: Art of Living Course Code: GED 321
Course Facilitator: MSS, SMU, AS, EUR, SS, KI, RTM, MP

Exam Duration: 1 Hour 30 Minutes **Total Marks: 20**

Section A – (7 X 2 = 14 Marks)

Read the poem and answer the following questions

The Giving Tree
-Shel Silverstein

Once there was a tree....
and she loved a little boy.
And everyday the boy would come
and he would gather her leaves
and make them into crowns
and play king of the forest.
He would climb up her trunk
and swing from her branches
and eat apples.
And they would play hide-and-go-seek.
And when he was tired,
he would sleep in her shade.
And the boy loved the tree....
very much.
And the tree was happy.
But time went by.
And the boy grew older.
And the tree was often alone.
Then one day the boy came to the tree
and the tree said, 'Come, Boy, come and
climb up my trunk and swing from my
branches and eat apples and play in my
shade and be happy.'
'I am too big to climb and play' said
the boy.
'I want to buy things and have fun.
I want some money?'
'I'm sorry,' said the tree, 'but I
have no money.
I have only leaves and apples.
Take my apples, Boy, and sell them in
the city. Then you will have money and
you will be happy.'
And so the boy climbed up the
tree and gathered her apples
and carried them away.
And the tree was happy.
But the boy stayed away for a long time....
and the tree was sad.
And then one day the boy came back
and the tree shook with joy
and she said, 'Come, Boy, climb up my trunk
and swing from my branches and be happy.'
'I am too busy to climb trees,' said the boy.
'I want a house to keep me warm,' he said.
'I want a wife and I want children,
and so I need a house.
Can you give me a house?'
' I have no house,' said the tree.
'The forest is my house,
but you may cut off
my branches and build a
house. Then you will be happy.'

And so the boy cut off her branches
and carried them away
to build his house.
And the tree was happy.
But the boy stayed away for a long time.
And when he came back,
the tree was so happy
she could hardly speak.
'Come, Boy,' she whispered,
'come and play.'
'I am too old and sad to play,'
said the boy.
'I want a boat that will
take me far away from here.
Can you give me a boat?'
'Cut down my trunk

Daffodil International University

Department of Computer Science and Engineering
Faculty of Science & Information Technology
Midterm Examination, Semester: Spring 2019
Course Code: CSE 321 (DAY), Course Title: System Analysis and Design
Section: All, Course Teachers: All

Time: 1.5 hours **Marks: 25**

Answer any 3 of the following questions.

You must answer parts of a question sequentially. The figure in square brace at the right side of a question indicates the marks allocated to the questions.

1. a) Consider an Automobile and a Hospital as two systems. Identify the following as an input and/or output elements for each system.

i. X-ray Machine	ii. Information	iii. Batteries	iv. Doctors	[3]
v. Drivers performance	vi. Gasoline	vii. Motions	viii. Tires	
ix. Drugs	x. Cured Patients	xi. A Patient who died.		

b) Distinguish between physical and abstract system. [2]

c) Discuss the concept of MIS and DSS. How are they related and how do they differ? [2]

d) A system analyst should be an "Analytical Mind" explain it. [1.3]

2. a) What is system development life cycle? How does it relate to system analysis? [3]

b) Differentiate between system design and analysis. Is it possible to start designing without analysis? How? [3]

c) What additional information would you like to gather a second interview? [2.33]

3. a) If you were to interview a customer to obtain biographical information (age, education, years of experience on the job, and so forth) about the staff of 10 employees and you have only one hour to acquire the information. [2]
Which of the following methods would you use and why?
   i. Structured interviews using open-ended questions.
   ii. Unstructured interviews of five minutes each.
   iii. Self-administered questions.
   iv. Structured interview using closed questions.

b) What is technical feasibility, operational feasibility and economic feasibility? [3]

c) If an information system were to be designed for an online ecommerce website, what would be the strategic, tactical, statutory and operational information? [2.33]

d) You are promised 8, 00000/- BDT in 10 years' time. What is its Present Value at an interest rate of 6%? [1]

4. The 10 activities A to L which make up a project are subject to the following precedence relations.

Activity	Immediate Predecessor	Time(days)
A	---	10
B	---	9
C	---	8
D	C	11
E	B,D	8
F	A,E	12
G	B,D	11
H	B,D	10
I	C	9
J	H,I	15

a) Draw the Gantt/Bar Chart for the project. [2.0]

b) Construct network diagram for the project. [3.0]

c) Determine the critical path. [2.0]

d) Calculate the float time of each activity. [1.34]