Daffodil International University
Department of Computer Science and Engineering
Faculty of Science & Information Technology
Final Examination, Fall 2020 @ DIU Blended Learning Center
Course Code: CSE321 (Day), Course Title: System Analysis and Design
Level: 3, Term: 2, Section: O4, O5, PC-A+UC-A
Instructor: AS, Modality: Open Book Exam
Date: Thursday, 17 December, 2020   Time: 09:00am-01:00pm
Four hours (4:00) to support online open/case study based assessment   Marks: 40

Directions:
- **Students need to go through the CASE STUDY shown in this exam paper.**
- **Analyze and answer specific sections based on your own thinking and work.**
- **Do not share as this will be treated as plagiarism by Blended Learning Center.**

Answer all 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. From the following schedule draw the network diagram, perform the Critical Path Method (CPM), and mark the Critical Path and Gantt chart. [8]

Activity	Dependency	Time Estimate(in weeks)		
		o	r	p
A	-	4	4	5
B	-	6	6	5
C	A	3	6	6
D	A, B	5	7	5
E	A, B	4	5	5
F	B	5	6	6
G	C, D	4	7	7
H	D, E	5	8	8
I	D, E, F	4	9	6
J	E	8	4	4
K	G, H, I	6	3	4
L	I, J	7	3	3
M	G, I	6	3	3
N	K	5	4	5

2. A hacker group has broken into at least 570 e-commerce stores in 55 countries, including in India,in the last three years, leaking information on more than 184,000 stolen credit cards and generated over $7 million (over Rs 52 crore) from selling compromised payment cards. Known as "Keeper, the group has been stealing information from these online stores which includes Mumbai-based online jewellery store ejohri.com that was allegedly compromised in February this year, according to the threat intelligence firm Gemini Advisory."Over 85% of the victim sites operated on the Magento CMS, which is known to be the top target for Magecart attacks and boasts over 250,000 users worldwide," said the Gemini report. The country hosting the largest selection of these victim e-commerce sites was the US, followed by the United Kingdom and the Netherlands.

In mid-2020, Magecart attacks have become a daily occurrence for small to medium-sized ecommerce businesses. Operating on an outdated content management system (CMS), utilizing unpatched add-ons, or having administrators' credentials compromised through SQL injections leaves e-commerce merchants vulnerable to a variety of different attack vectors. Over the past six months, the Gemini team has uncovered thousands of Magecart attacks ranging from simple dynamic injection of malicious code using a criminally hosted domain, to leveraging Google Cloud or GitHub storage services and using steganography to embed malicious payment card stealing code into an active domain's logos and images.

"The criminals behind this threat constantly evolve and improve their techniques to prey on unsuspecting victims who do not emphasize domain security," the security researchers noted.

a) Do you think that in this world each and every local ecommerce website like   food panda,   [4]
pathao, romomari.com ensure their 100% security to their users? Please justify your answer

b) In the above scenario you can see that SQL injection is a big threat for the user's payment   [4]
gateway system. What types of hacking techniques do you think are more dangerous in a payment gateway system for the ecommerce user except SQL Injection? Explain with an example.

3. You can see two same UI but if you look deeply you can find some errors.

a) Please design a test case for those UI.   [4]

b) Redesign, explain and correct it to ensure the user's satisfaction   [4]

4. **Bangladesh Agricultural Development Corporation** or BADC is an autonomous government body that manages the agricultural Inputs Supplier i.e., agricultural seeds, non-nitrogen fertilizer and Minor Irrigation facilitating to farmers of Bangladesh. The corporation distributes rice and other seeds to farmers. For this they rely on a country wide information system so that they can keep track of farmers and their agricultural output. There are two types of farmers, i.e., registered and non-registered and only registered farmers can get seeds. All non-registered farmers must have to go through the registration process to get a valid farmerID. For registration they need to provide their name, Age, Address and mobile number. BADC collects different types of seeds from different countries. While distributing, they keep track of whatever seeds are distributed to whom. For this each farmer's Id, name, date of distribution, distribution area, seed type, seed origin, quantity and total paid amount is noted. At the end of each season, agricultural output of each farmer is measured to identify the overall production.

a) For the registration process which type of data input method do you think is more applicable? Explain why? [4]

b) Design an input form to record seed distribution. Also design a file form to record sales information. [4]

5. Due to the COVID 19 situation, a business company especially (B2C) has fallen into profit diminution. Lots of foreign buyers have cancelled their deal due to transportation restriction. Many employees have been suffering from COVID 19. In this situation, the company cannot continue their business anymore. So, they decided to shut down their business for a temporary basis. But, the CEO of the company wants to run their business on a cluster basis. As a business analyst,

a) What should be your approach to resume their business? [2]

b) How can they recover their losses of previous months? [2]

c) How long do they need to recover their losses? Give a monthly basis profit chart based on your answer. [4]