Exercise 1: *(5 points)* 3,75

Suppose a large project related to "University Education System" has to be developed. After analyzing the requirements, the system has three major subsystems A, B and C. For the subsystem A, the reusable components are available in the market. These components can be purchased and integrated to develop this subsystem. For subsystem B, requirements are well known. For subsystem C, requirements are not well known and something working is required to show the customer to explore the requirements. ~~All subsystems can be developed in parallel. After developing and integrating the subsystems, the full system can be delivered to customer.~~

Suggest the most appropriate software process model(s) that might be used as a basis for managing the development of the system. Give reasons for your choice based on the type of system being developed.

Answer:

For the whole system, we should ~~be~~ use incremental ~~del~~ delivery, because the customer wants to use each subsystem as soon as it is finished.
For subsystem A, we should use Reuse model because the reusable components are already available in the market.
For subsystem B, we should use water fall model because the requirements are well known.
For subsystem C, we should use incremental development because the require ments are not well known.

Exercise 2: *(3 points)* 3

Hassan works in a Software Company. The company assigned the task to develop a Gun Fighting game to Hassan. The management explained the complexity of the task and informed Hassan that the task needs to be finished within a month otherwise there is big chance of Project Failure. While working on the project, Hassan came to know that the game has some user actions and scenes that can create arrogance and intolerance in kids that will play the game. Instead of informing to the higher management, he kept quiet and continued his work.

Read the above situation carefully and answer if there is a violation of the Software Engineering Code of Ethics and Professional Practice? Give the Software Engineering ***Code of Ethics*** *to justify your answer* ***along with the reason. Choose violation(s) from the following list to solve exercise.***

a. Provide service in their areas of competence, being honest and forthright about any limitations of their experience and education.
b. Not knowingly use software that is obtained or retained either illegally or unethically.

c. Use the property of a client or employer only in ways properly authorized, and with the client's or employer's knowledge and consent.

(d.) Disclose to appropriate persons or authorities any actual or potential danger to the user, the public, or the environment, that they reasonably believe to be associated with software or related documents.

e. Accept no outside work detrimental to the work they perform for their primary employer.

Answer:

Hassan Violated ~~the~~ principle (d) of the code of ethics. Because ~~he~~ his ~~decision~~ action of not informing higher management of the dangers of the problematic parts of the game, which could harm the users of the game. Hassan should inform higher management and ask them to agree with the customer ~~about~~ about the removal of the harmful parts of the game, and if they refuse he should inform the authorities.

Exercice 3: *(3 points)*

A. Below are the generic activities for the requirements engineering process Except .....

a. Feasibility study
b. Requirements elicitation and analysis
c. Requirements specification
d. Requirements validation
(e.) Requirement evolution

B. Below are the advantages of Incremental delivery process model Except:

a. Customer value can be delivered with each increment so system functionality is available earlier.
b. Early increments act as a prototype to help elicit requirements for later increments.
(c.) Improved system usability.
d. Lower risk of overall project failure.

C. Select the most appropriate option to fill in the blanks: is a or may be a
plan-driven model/ plan-driven or agile model/ agile model

a. The waterfall model is a... Plan-driven ~~mode~~ model.
b. Incremental development may be a Plan-driven or agile model.
c. Reuse-oriented software engineering may be a Plan-driven or agile model.

D. Functional requirements capture the intended behavior of the system.

(a.) True
b. False

Exercise 4: *(4 points)*

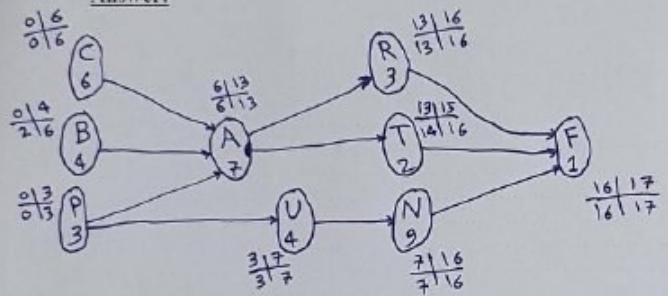
Consider a project with the following activities. Times are given in weeks.

Activity	Preceding	Time (week)
C	--	6
B	--	4
P	--	3
A	B, C, P	7
U	P	4
T	A	2
R	A	3
N	U	9
F	T, R, N	1

1. Draw the network activity diagram and find the earliest and the latest start/finish time for each activity?
2. Identify critical path(s).
3. What is the slack on activity T.
4. What is the impact to the project if activity B takes three weeks longer than planned.

Answer:

1)



2) 1- C → A → R → F , 2- P → A → R → F
3. P → U → N → F

3) Activity T has one week of slack.

4) Activity B has only two weeks of slack, so, if it is delayed by three week, the project will be delayed by one week.