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COURSE NAME: SOFTWARE DESIGN AND ARCHITECTURE

QUESTION NO 1

MCQs

1: UML activity diagrams are useful in representing which analysis model elements?

a: Behavioral elements

b: Class based elements

c: Flow based elements

d: Scenario based elements

ANSWER: **Scenario based elements (d)**

2: Unified Modeling Language(UML) is a graphical language for

a: visualization

b: specifying

c: none

d: both a and b

ANSWER: **both a and b (d)**

3: To support this module view which UML diagrams are used?

a: package diagram

b: component diagram

c: both a and b

d: activity diagram

ANSWER: **activity diagram (d)**

4: Which of the following are the design concerns is design model?

a: Data

b: Interfaces

c: Architecture

d: a , b and c

ANSWER: **a , b and c (d)**

5: Which of these are characteristics of good design?

a: exhibits strong coupling between its modules

b: implements all requirements in the analysis model

c: provides complete picture of the software

d: b and c

ANSWER: **b and c (d)**

6: Which of the following is used to represent the architectural design of a software

a: Dynamic models

b: Functional models

c: Structural models

d: All of above

ANSWER: **All of above (d)**

7: Since modularity is an important design goal it is not possible to have too many modules in a proposed design

a: True

b:False

ANSWER: **False (b)**

8: All architecture is design , not all design is architecture

a: True

b: False

ANSWER: **True (a)**

9: Reusability of software modules refers to

a: the easiness of maintaining a software system

b: that its components can be easily reused in the development of other software system

c: that can be easily transported from one hardware/software platform to another

d: that a system perform user required functionality correctly

ANSWER: **that its components can be easily reused in the development of other software system (b)**

10: Cohesion is a qualitative indication of the degree to which a module

a: can be written more compactly

b: focuses on just one thing

c: is able to complete its functionality on time

d: measures the interconnection among modules in a software structure

ANSWER: **focuses on just one thing (b)**

11: Coupling is qualitative indication of the degree to which a module

a: can be written more compactly

b: focuses on just one thing

c: is able to completeits functionality on time

d: measures the interconnection among modules in a software structure

ANSWER: **measures the interconnection among modules in a software structure (d)**

12: Information hiding is a qualitative indication of the degree to which a module

a: can be written more compactly

b: focuses on just one thing

c: is accessible to other modules

d:measures the interconnection among modules in the software structure

ANSWER: **is inaccessible to other modules (c)**

13: Data oriented design is useful for systems that

a: process lots of data

b: process intensive system

c: is used for the large systems that can be modularized

d: uses mathematical notation

ANSWER: **process lots of data (a)**

14: Formal methods are useful for systems that

a: process lots of data

b: process intensive systems

c: is used for the large systems that can be modularized

D: uses mathematical notations

ANSWER: **uses mathematical notation (d)**

15: Components based methods are useful for systems that

a: process lots of data

b: process intensive system

c: is used for large systems that can be modularized

d: uses mathematical notation

ANSWER: **is used for large system that can be modularized (c)**

QUESTION NO 2:

Case Study: Fire Alarm

The owner of a large multi-stored building wants to have a computerized fire alarm system for his building. _ . After a fire condition has been successfully handled, the fire alarm system should support resetting the alarms by the firefighting personal.

a: identify the functionalities of above fire alarm system.

b: describe how the user employs the system and how the system provide services to the users i-e give a scenario view using use case diagram.

c: give a process view of the above scenario using an activity diagram.
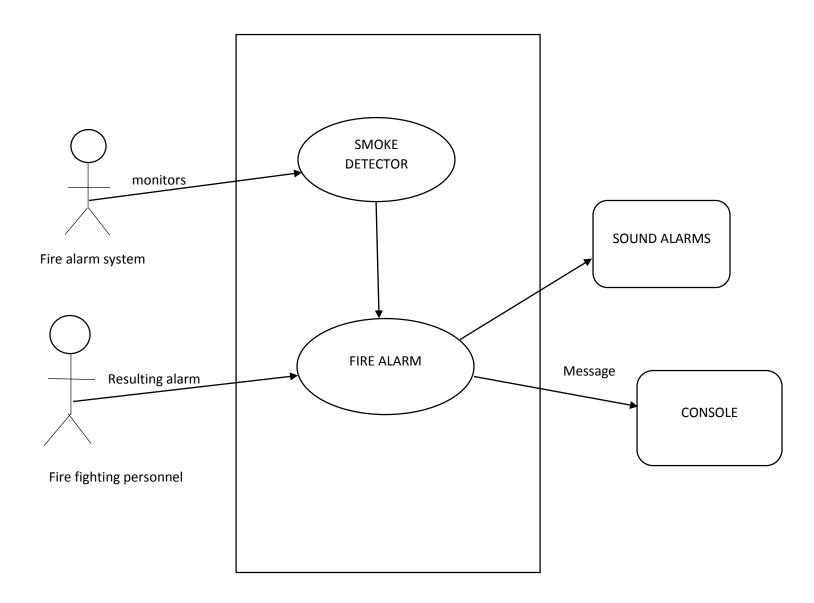
ANSWER a:

The above fire alarm system are used to monitor the status of the smoke detector placed in each room of the building. It also determine the location at which the fire condition has occurred and it flash an alarm message on the computer console. It support resetting the alarms by the firefighting personnel.

ANSWER b:

FIRE ALARM SYSTEM

ANSWER c:

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  ●──────────▶ ┌──────────────────┐
               │  Smoke detector  │
               └──────────────────┘
                        │
                        ▼
                      ◇ reported ◇ ──────────────────────────┐
                        │                                     │
                        ▼                                     │
               ┌──────────────────┐        ┌──────────────────────────┐
               │ Fire alarm system│───────▶│   Flash an alarm message │
               └──────────────────┘        └──────────────────────────┘
                        │                              │
                        ▼                              ▼
               ┌──────────────────┐        ┌──────────────────────────┐
               │ Determine location│        │     Computer console     │
               └──────────────────┘        └──────────────────────────┘
                        │                              │
                        ▼                              ▼
               ┌──────────────────┐        ┌──────────────────────────────┐
               │  Sound the atoms │        │ Give condition successfully   │
               │ neighboring location│      │            handle            │
               └──────────────────┘        └──────────────────────────────┘
                        │                              │
                        │                              ▼
                        │                   ┌──────────────────────────┐
                        │                   │  Console round the clock │
                        │                   └──────────────────────────┘
                        │                              │
                        │                              ▼
                        │                   ┌────────────────────────────────────┐
                        │                   │ Resetting alarms by firefighting    │
                        │                   │            personnel                │
                        │                   └────────────────────────────────────┘
                        │                              │
                        └──────────────────────────────┴────▶ ●
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