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MBMI-007

MBA – INFORMATION TECHNOLOGY MANAGEMENT (MBAITM)

00269

Term-End Examination

December, 2014

MBMI-007 : SOFTWARE ENGINEERING PROCESSES

Time : 3 hours *Maximum Marks : 100*

Note :

(i) *Section I is **compulsory**.*

(ii) *In Section II, solve any **five** questions.*

(iii) *Assume suitable data wherever required.*

(iv) *Draw suitable sketches wherever required.*

(v) *Italicized figures to the right indicate maximum marks.*

SECTION I

1. Answer the following questions in short : *10×2=20*

(i) Define Software Processes.

(ii) What is the difference between Computer Engineering (CE), Computer Science (CS), and Software Engineering (SE) ?

(iii) What is Software runaway ? Give any four reasons of Software runaway.

(iv) What are the disadvantages of Waterfall model ?

(v) List the weaknesses of Extreme Programming.

(vi) Draw the workflow diagram of XP.

(vii) Compare agile model with past iterative methods in short.

(viii) What is meant by Verify Software Quality in RUP practices ?

(ix) What are the phases of agile methodology ?

(x) Define Sprint and Sprint Backlog.

2. A university wishes to increase security in its car park. It has been decided to issue an identity card to all employees. The cards record the employee's name, department and identity number.

A barrier, a card reader and a sensor are placed at the entrance of the car park. The driver inserts the numbered card into the card reader. The card reader checks the card number. If the number is valid, the reader sends a signal to raise the barrier and the vehicle can enter the car park. The sensor sends a signal to the barrier to lower when the vehicle has entered. There is a system at the exit with a barrier

which is raised when a car wishes to leave the car park.

When there are no spaces in the car park a sign at the entrance displays "Full" and is only switched off when a vehicle leaves.

Special visitors' cards, which record a number and the current date, also permit access to the car park. Visitors' cards may be sent out in advance or collected from reception. All visitors' cards must be returned to the reception when the visitor leaves the site so that they can be deleted from the list of valid cards.

Draw the following UML diagram for the above scenario :

(i) Draw a UML use-case diagram for the university car park system. *5*

(ii) Draw a UML class diagram for the university car park system. *5*

SECTION II

3. Answer any ***two*** of the following questions in detail : *7+7=14*

   (i) What are the fundamental roles in Scrum ? Explain them with their responsibilities.

   (ii) What is Agile Modelling ? Explain in detail.

   (iii) Explain incremental model with its pros and cons.

4. Read the given paragraph and answer the following questions :

   A number of IT professionals started to work individually on new approaches to develop a software. The results of their researches were a set of new development methodologies that have many common features. When they met in 2001 in a conference in Utah, they created the so called: Agile Manifesto. These approaches were developed based on the same rule that the best way to verify a system is to deliver working versions to the customer, then update it according to their notes. Agile authors built their methodologies on four principles. First, the main objective is to develop a software that satisfies the customers, through continuous delivering of

working software, and getting feedback from customers about it. The second principle is accepting changes in requirements at any development stage, so that the customers would feel more comfortable with the development process. The third principle is the cooperation between the developers and the customers (business people) on a daily basis throughout the project development. The last principle is developing on a test-driven basis; that is to write test prior to writing code. A test suite is run on the application after any code change. Agility in short means to strip away as much of the heaviness, commonly associated with traditional software development methodologies, as possible, in order to promote quick response to changing environments, changes in user requirements, accelerate project deadlines, and the like. Agile methodologies prefer software development over documentation. Their philosophy is to deliver many working versions of the software in short iterations, then update the software according to customers' feedback. Applying this philosophy will help to overcome the problems mentioned earlier, by welcoming changes, satisfying user requirements, faster development, and at the end, users will have just the system they need.

Questions :

(i) What are the key features of Agile ? *4*

(ii) What is Agile philosophy ? *5*

(iii) Explain how customer gets satisfaction with Agile development. *5*

5. Explain the following terms :

(i) Activity *5*

(ii) Artifacts *4*

(iii) Workflow *5*

6. What are the values of XP ? Explain them in detail. Also explain the various practices of XP. *5+5+4=14*

7. Explain the architecture of Rational Unified Process in detail. *14*

8. Explain the following : *7+7=14*

(i) How does the risk factor affect the Spiral model of software development ?

(ii) Explain throw-away prototyping and evolutionary prototyping, and also give differences between the two.