

K.J. Somaiya Institute of Management Studies and Research
MCA – III Sem.(2016-19 Batch)
Sub: Software Engineering
(End Term Exam)

Max. Marks: 50

Time: 3 Hrs.

6/11/2017

PART- A

Short note Questions on basic concepts and application of concepts

TOTAL MARKS: 20

Answer any four of the following questions:

Q.1 Write a short note on scoping (gathering requirements) for a project emphasizing on the skills required for understanding requirements and process mapping.

Q2. Describe Agile Development methodology using SCRUM framework as the basis. Why is it better than Waterfall development methodology for handling changes?

Q3. Explain the difference between Logical Design and Physical Design giving details of items under both components.

Q4. Write brief notes on the following:

- a. Configuration Items
- b. Baselineing a configuration item
- c. 3 levels of version numbers

Q5.. Write a note on different methods of Training using traditional and modern approach

Q6. What is Business Intelligence? How does Business Intelligence help the business?

PART- B

Basic concepts, conceptual understanding, Analytical ability and situational analysis

Total Marks: 15

Answer any three of the following

Q7. You are the head of IT for a call taxi service company. The call taxi service company must provide its clients with a taxi within 10 minutes of their initiating a booking through the mobile. All taxis have GPS facility in the vehicles. Clients can also book vehicles for the day or book vehicles for specific timings of the day. The company also offers carpooling facility. Draw a DFD diagram for this system making assumptions, if required. Please state your assumptions, if any.

Q8. You are the head of Supply-chain for an automobile organization. You have more than

100 vendors supplying components or raw material for the manufacture of automobiles. Vendors supplying raw material supply the material directly to your organization and you accept it after due quality checks. Vendors supplying components are of two types:

- They manufacture all items in the component and assemble it and deliver it to the company
- The items in the component are made by sub-contractors and vendor is just assembling it and giving it to you

A sub-contractor for a component can also be direct vendor for raw material or supply of some other component to your company. Draw an ERD showing the type of relationship between entities

Q9. Three programs (P1, P2, P3) have to be modified for a change request. The task has been assigned to programmer X. When X inspects the configuration management library, he finds that:

- P1 is locked by Programmer A
- P2 is available for modification
- P3 is locked by programmer B

On discussing with Programmer A and B, X finds out that programmer A will take 2 more weeks to release the program after making changes while programmer B will be releasing it the next day. What are the options for programmer X to complete the change request assigned to him?

Q10. You are the head of Software Engineering Process Group in a software development company. As part of their quality improvement process, the CEO has requested you to put in systems for the following metrics:

- Measuring actual delivery of projects against planned delivery
- Measuring actual effort of projects against planned effort
- Measuring number of defects in a project/ 100 lines of code

He wanted the projects to be categorized into 3 categories by size:

Small: 1-1000 lines of code

Medium 1000- 5000 lines of code

Large: All projects greater than 5000 lines of code

The CEO wanted the above 3 metrics at organization level and within each category of projects.

What will you measure? How will you get the required data so that it can be given to CEO at the end of every month?

PART C

Case Analysis/case –lets/Applications of concepts

Total Marks: 15

Q11. Case Study

You are the head of a college and committed to the use of automation for processes in your college. You are receiving constant requests from students to extend the library working hours from the current timings. The library timings are 9 AM to 6 PM. The students want the timings to be extended from 6 AM to 11 PM. The library has the following main processes:

- Reference facility where students can come and refer to books at any time when the library is open. The college maintains a record of students who come for reference and their time of arrival and leaving from the library
- All students have an access card which also acts as a debit card. The card is used for access to college premises/facilities and also used for petty payments like eating in the canteen, library fines, Xerox and printing charges etc.
- A student can be issued a maximum of 3 books. A book is issued for a maximum period of one week and can be renewed as long as there is no reservation by someone else for the book.
- All books in the library have a bar code which can be read by a bar code reader
- A student is fined Rs. 10 per day for the first week of delay, Rs. 20 per day of delay in second week. At the end of the second week, the student has to be charged the cost of the book plus a fine of Rs. 100
- The library has 3 staff plus a 24 hour security guard. The duties of the 3 staff are as follows:
 - One person to issue and return books
 - One person to follow-up on late books and manage reservation of books
 - One person to handle accounts and order new books for the library
- Due to budget constraints, you cannot increase the number of staff in the library. However, the college is willing to invest one time Rs. 5 lakhs to automate the process of book issuance, return, accounting and fines using the access card of students.
- If fully automated process fails temporarily, books can be issued through manual entry on a screen. In such an eventuality, the existing staff will work longer hours and will be paid over time

You decide to agree to the students request and extend the library timings from 6 AM to 11 PM with no library staff (security guard is present 24 hours) from 6AM to 9 AM and from 6 PM to 11 PM. You can make reasonable assumptions. Please do the activities listed below related to the change:

A. Draw up a high level requirements document for fully automated operations when there are no staff in the library

B. Design a report format listing all students, who have delayed return of books along with period of delay, contact details and amount to be charged to them as per delay procedures listed above

C. Draw up a screen design for manual fall back operations when the fully automated system is not working

End Of The Question Paper