Qn. Set Code-1

Semester: 6th
Programme: B.Tech
Branch: CSE

SPRING END SEMESTER EXAMINATION-2023

6th Semester B.Tech

SOFTWARE PROJECT MANAGEMENT

IT-3032

(For 2021 (L.E), 2020 & Previous Admitted Batches)

Time: 3 Hours | Full Marks: 50

Answer any SIX questions.
Question paper consists of four SECTIONS i.e. A, B, C and D.
Section A is compulsory.
Attempt minimum one question each from Sections B, C, D.
The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable and all parts of a question should be answered at one place only.

SECTION-A

1. Answer the following questions. [1 × 10]

   (a) How software product development differs from outsourced projects? Give an example to justify your answer.

   (b) Why discounted cash flow techniques provide better criteria for project selection than net profit or return on investment? What are the different types of costs involved in a project?

   (c) List out the major shortcomings of the waterfall model. How have those shortcomings been overcome by the agile model?

   (d) List three common types of risks that a project might suffer. Outline the main steps that you would follow to effectively manage risks in your project.

   (e) For removing bugs from code, would review or testing be more cost-effective? Explain the reason behind your answer.

   (f) Demonstrate examples of how project termination review results can change the development process and the project management process.

(g) What problems are you likely to face if you are developing several versions of the same software product according to a client's request and are not using any configuration management tools?

(h) Compare the difference between functional versus project formats.

(i) Define SEI CMM.

(j) What is the difference between process and product metrics? Give two examples of each.

SECTION-B

2. (a) Classify the different types of contracts with their advantages and disadvantages. List out any two differences between contract and project. [4]

   (b) How project portfolio management (PPM) helps the organization to categorize the projects and align the projects with their organizational goals. Highlight the main elements of PPM and discuss the important limitations of PPM. [4]

3. (a) What are the chief constituents of project risk management? Explain with an example how a project risk matrix can be used to classify and evaluate various risks. Differentiate between tangible and intangible benefits. [4]

   (b) Assume that the size of an organic type software product is estimated to be 32,000 lines of source code. Assume that the average salary of a software developer is £2,000 per month. Interpret the effort required to develop the software product, the nominal development time, and the staff cost to develop the product. Explain the significance of software estimation in a project development. [4]

SECTION-C

4. (a) Analyze with the help of a workflow model the product breakdown structure and its corresponding product flow diagram of the deliverables of a vendor who would develop a College payroll software by customizing one of its existing products. Recall the use of checkpoints in an activity network. [4]

(b) Let us assume that the number of inputs to and the number of outputs from a new software application is to be built. The new application is known to require 7 inputs and 15 outputs. One of the past cases, project A has 8 inputs and 17 outputs. Project B has 5 inputs and 10 outputs. What would be the Euclidean distance between the project A and the target new project being considered above? Is project B a better analogy with the target than project A? Examine. Identify any two shortcomings of SLOC measure. [4]

5. (a) Identify the need of a software lifecycle model. Analyze various selection criteria s for a software process model. Why extreme programming is called as 'extreme'? Which model is suitable for projects, where either the customer requirements or the technical solutions are not well understood? [4]

(b) Discover with the help of an example the approaches to identify the activities that make up a software project. Why should not an activity network contain dangles and loops? Distinguish between free float and interfering float. [4]

6. (a) A new project has 'average' novelty for the software supplier that is going to execute it and thus given a nominal rating on this account for precedentedness. Development flexibility is high, requirements may change radically and so risk resolution exponent is rated very low. The development team are all located in the same office and this leads to team cohesion being rated as very high, but the software house as a whole tends to be very informal in its standards and procedures and the process maturity driver has therefore been given a rating of 'low'. [2+2]

FACTOR	RATING	VALUE
PREC	Nominal	3.70
FLEX	High	2.02
RESL	Very Low	7.05
TEAM	Very High	1.10
PMAT	Low	6.22

(i) Calculate what would be the scale factor (sf) in this case?
(ii) What would the estimate effort if the size of the application was estimated as in the region of 4000 lines of code from the above diagram?

(b) A schedule of charges per function point [4]

Function point count	Function design cost per FP	Implementation cost per FP	Total cost per FP
Up to 2,000	$242	$725	$967
2,001–2,500	$255	$764	$1,019
2,501–3,000	$265	$793	$1,058
3,001–3,500	$274	$820	$1,094
3,501–4,000	$284	$850	$1,134

A software system to be designed and implemented is counted as comprising 3200 FPs. What would be the total charge according to the schedule in the above Table?

List out some important advantages provided by the functional team format and how it differs from project format.

SECTION-D

7. (a) Discuss Stress management techniques for dealing project. Discuss the quality plans for a project. [4]

(b) The nominal effort and duration of a project is estimated to be 1000 pm and 15 months. The project cost is negotiated to be £200,000. This needs the product to be developed and delivered in 12 months time. Estimate the new cost that needs to be negotiated? Distinguish between top-down and bottom-up estimation approach with an example. [4]

8. (a) Elaborate any three types of testing with examples. How does Herzberg's two factor theory of motivation contribute to an individual and to a team as a whole? [4]

(b) Suppose a project is to be completed in one year at the cost of £100,000. After three months, you realize that the project is 30% complete at a cost of £40,000. Assess the performance of the project. Determine whether the project is as per schedule and within budget or not. [4]

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