PAPER ID-410166

Subject Code: KOE068

Roll No: | | | | | | | | | | | | | |

**BTECH**

**(SEM VI) THEORY EXAMINATION 2023-24**

**SOFTWARE PROJECT MANAGEMENT**

**TIME: 3 HRS** **M.MARKS: 100**

**Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.

**SECTION A**

**1. Attempt *all* questions in brief.**

| | | |
|---|---|---|
| a. | Define the project with a suitable example. | 02 |
| b. | Explain different types of projects. | 02 |
| c. | Explain the limitations of the waterfall model. | 02 |
| d. | Explain the parametric model for effort estimation. | 02 |
| e. | Explain the critical path in software project development. | 02 |
| f. | Discuss the structure of the activity node in the activity network. | 02 |
| g. | Discuss the activities under software configuration management. | 02 |
| h. | Explain the steps to handle the change control process in a software project. | 02 |
| i. | Explain job enlargement. | 02 |
| j. | Discuss organizational behavior. | 02 |

**SECTION B**

**2. Attempt any *three* of the following:**

| | | |
|---|---|---|
| a. | Explain why the discounted cash flow technique provides better criteria for project selection than net profit or return on investment. | 10 |
| b. | Calculate the function point value for a project with the following information domain characteristics:<br>Number of user inputs = 30<br>Number of user outputs = 42<br>Number of user enquiries = 08<br>Number of files = 07<br>Number of external interfaces = 06 | 10 |

| Measurement Parameter | Low | Average | High |
|---|---|---|---|
| 1. Number of external inputs (EI) | 7 | 10 | 15 |
| 2. Number of external outputs (EO) | 5 | 7 | 10 |
| 3. Number of external inquiries (EQ) | 3 | 4 | 6 |
| 4. Number of internal files (ILF) | 4 | 5 | 7 |
| 5. Number of external interfaces (EIF) | 3 | 4 | 6 |

Assume that all complexity adjustment values are moderate and weighting factors are average given below in the table.

| | | |
|---|---|---|
| c. | Illustrate project scheduling with the help of various project schedule activities. | 10 |
| d. | Discuss Software Configuration Management. | 10 |
| e. | Explain the Role of organizational behavior in Software Project Management. | 10 |

QP24EP1_068 | 13-Jun-2024 9:03:43 AM | 103.248.120.243



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**SECTION C**

**3. Attempt any *one* part of the following: 1 x 10 = 10**

| | | |
|---|---|---|
| a. | The large software project that you are managing is doing very well. Your latest estimates predict that your team will finish the project at the end of June 2003, three months ahead of schedule and 15% under budget. You now have to make a choice about what to do in this situation. You have thought of three options:<br>(i) Finish early in June; release the project team to work on other projects. Give the unused budget back to your boss.<br>(ii) Use the 3 months and the budget to do more testing on the project to try and find any residual errors.<br>(iii) Use the 3 months and the budget to improve the internal and external documentation for the project.<br>Apply software management principles; which alternative would you choose? | 10 |
| b. | The status of cash flow for four projects is given in the following table. (Negative figures at the end of year 0 represents initial investment). | 10 |

| Cash flow for four projects (Figures are end-of-year total in rupees) | | | | |
|---|---|---|---|---|
| Year | Project 1 | Project 2 | Project 3 | Project 4 |
| 0 | -100,000 | -1,000,000 | -100,000 | -120,000 |
| 1 | 10,000 | 200,000 | 30,000 | 30,000 |
| 2 | 10,000 | 200,000 | 30,000 | 30,000 |
| 3 | 10,000 | 200,000 | 30,000 | 30,000 |
| 4 | 20,000 | 200,000 | 30,000 | 30,000 |
| 5 | 100,000 | 300,000 | 30,000 | 75,000 |

Calculate Net Profit (NP), Payback Period (PP), Return on Investment (ROI) and Net Present Value (NPV) based on above table. You may assume discount rate to be as 10%.

**4. Attempt any *one* part of the following:**

| | | |
|---|---|---|
| a. | Outline Rapid Application Model for software development. | 10 |
| b. | Outline Agile methods for software development. | 10 |

**5. Attempt any *one* part of the following:**

| | | |
|---|---|---|
| a. | ln the application of risk management to software development projects has been strongly advocated. ln practice, however, managers are often reluctant to apply the techniques. Derive the reasons you might be think for this. | 10 |
| b. | Consider the following project specifications with estimated activity durations and precedence requirements. | 10 |

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| | | |
|---|---|---|
| | | |

| Activity | Activity Description | Durations (weeks) | Precedents |
|---|---|---|---|
| A | Hardware selection | 8 | |
| B | System configuration | 5 | |
| C | lnstall hardware | 3 | A |
| D | Data migration | 4 | B |
| E | Draft office procedures | 4 | B |
| F | Recruit staff | 12 | |
| G | User training | 5 | E, F |
| H | lnstall and test system | 3 | C, D |

Formulate an activity network using activity-on-node network conventions, carry out forward and backward pass and identify the critical paths.

**6. Attempt any *one* part of the following:**

| | | |
|---|---|---|
| a. | Calculate Estimate At Completion (EAC) and Variance At Completion (VAC) if both SPI and CPI influence the project work when given variables are<br>• Budget At Completion (BAC) = $22,000<br>• Earned Value (EV) = $13,000<br>• Planned Value (PV) = $14,000<br>• Actual Cost (AC) = $15,000 | 10 |
| b. | You are managing a project that is six months from its execution. You are now reviewing the project status, and you have ascertained that the project is behind schedule. The actual cost of Activity A is ₹ 2,00,000, and Activity B's is ₹ 1,00,000. The planned value of these activities is ₹ 1,80,000 and ₹ 80,000, respectively. The Activity A is 100% complete. However, Activity B is only 75% complete. Calculate the project's schedule performance index and cost performance index on the review date. | 10 |

**7. Attempt any *one* part of the following:**

| | | |
|---|---|---|
| a. | An organization has detected low job satisfaction in the following departments:<br>• the system testing group.<br>• the computer applications help desk.<br>• computer batch input.<br>Design a model so that these jobs be redesigned to give more job satisfaction? | 10 |
| b. | Three different mental obstacles to good decision-making were identified in the text:<br>Faulty heuristics, escalation of commitment, and information overload.<br>Formulate steps do you think can be taken to reduce the danger of each of these. | 10 |

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