(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 1310 Roll No.

B.Tech.

(SEM VI) EVEN SEMESTER THEORY EXAMINATION, 2009-2010

SOFTWARE PROJECT MANAGEMENT

Time : 3 Hours *Total Marks : 100*

Note : *The question paper contains **five** questions. Attempt **all** questions.*

1. Attempt **any four** of the following : **(4x5=20)**

(a) Give a complete Software Project Management Cycle with brief description of its every individual activity.

(b) Write down structure of a software project plan and discuss its various components in brief. What are various types of software project plans ?

(c) Draw hierarchical organization of various project elements. Discuss each element in brief giving examples.

(d) Suppose that you have been appointed as Project Manager to develop Intranet for your Institution. Create a work breakdown structure (WBS) for this project breaking at least one item up to the third level in WBS.

(e) Write down various components and their content in the Vision and Scope document of a project.

(f) Planning is the most important activity in the overall software project management. Comment on this statement.

Attempt **any four** of the following : **(4x5=20)**

(a) What is cost benefit analysis ? In context to cost benefit analysis, define the following terms precisely.

- Net Profit (NP)
- Payback Period (PP)
- Return on Investment (ROI)
- Net Present Value (NPV)

(b) The status of cash flow for four projects is given in the following table. (Negative figures at the end of year 0 represent initial investment).

Cash flow for four projects (Figures are end of year totals 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

On the basis of this data, calculate various terms (a) above. You may assume discount rate to be as 10%.

(c) How are the risks evaluated ? Discuss the Decision tree analysis method for risk evaluation.

(d) Discuss the feasibility analysis/assessment of a project. How do we do strategic assessment of a project ?

(e) What is cash flow forecasting ? Draw cash flow for a typical product life cycle.

(f) Explain why discounted cash flow technique provides better criteria for project selection than net profit or return on investment.

Attempt **any two** of the following : (2x10=20)

(a) Consider the following project specifications with estimated activity durations and precedence requirements

Activity	Activity Description	Duration (weeks)	Precedents
A	Hardware selection	6	
B	Software design	4	
C	Install hardware	3	A
D	Code and test software	4	B
E	File take-on	3	B
F	Write user manuals	10	
G	User training	3	E,F
H	Install and test system	2	C,D

Draw an activity network using activity on arrow (AOA) network conventions, carry out forward and backward pass and identify the Critical Path(s). Discuss how the project duration can be shortened ?

(b) List various methods of estimation. Discuss the Albretch Function Point count method for estimation of function points. Show that the Complexity Adjustment Factor (CAF) adjusts the unadjusted value of Function Point (UFP) to ±35%.

(c) Discuss COCOMO hierarchy of estimation models in details. How these models differ from the dynamic estimation models.

4. Attempt **any two** of the following : (2x10=20)

(a) What are the various techniques for visualizing progress of a project ? Discuss Earn Value Analysis. How it is different from Cost Monitoring.

(b) What are various types of risks ? Discuss the risk-management process in details.

(c) Consider the following information about a one-year project.

- Budgeted cost of work schedule (BCWS) = Rs. 23,000
- Budgeted cost of work performed (BCWP) = Rs. 20,000
- Actual cost of work performed (ACWP) = Rs. 25,000
- Budget at completion (BAC) = Rs. 120,000

Answer the following questions :

(i) What is the cost variance, schedule variance, Cost Performance Index (CPI), and Schedule Performance Index (SPI) for the project ?

(ii) How is the project doing ? Is it ahead of schedule or behind the schedule ? Is it under budget or over budget ?

(iii) Use the CPI to calculate the estimate at completion (EAC) for this project. Is the project performing better or worse than planned ?

(iv) Use the schedule performance index to estimate how long it will take to finish the project.

5. Attempt any four parts of the following : (4x5=20)

(a) Discuss various types of software reviews in brief ?

(b) Statistical quality assurance is done by carrying out a sequence of steps involving collection and classification of errors during all phases of development of the software and following Pareto's principle. Using this methodology derive expression for Error Index which acts as an indicator of the quality.

(c) Define software quality. Give a list of various software quality attributes/factors.

(d) Discuss SEI capability Maturity Model.

(e) List various activities carried out by software development organizations for Software Quality Assurance. What is the importance of formal technical reviews ?

(f) "Software Quality Assurance is an umbrella activity" Justify this statement.

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