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Project Management
Lecture

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Project Management

1st Chapter

1. Define Project.
The PMI has defined a project as "A temporary endeavor undertaken to create a unique product or service." According to Adam Ebert, "A project is a one-shot set of activities with a definite beginning and ending point."
According to R. L. Martino, "A project is some overall task which has a definable beginning and a definable end. It consists of a number of related and dependent activities, all of which utilize resources and upon which there are imposed internal and external conditions.

2. Describe the forces which foster project management. Answer:
Ans: Expansion of knowledge/ Continuing demand/ Worldwide market forces/ Social forces/ Cultural forces/ Environmental forces/ Technological forces.

3. Discuss the objectives of project.
Answer: 01. Performance: There is a tendency to think a project solely in terms of its outcome - that is its performance. Indeed, even the concept of performance or scope is more complex than is apparent**./ 02. Time** Another objectives of the project is to complete the project in due date./ **03. Cost:** the project should be completed at the estimated budget.

4. Discuss the features of project.
Ans: 01. Importance/ 02. Performance/ 03. Definite life cycle/ 04. Complex interdependent/ 05. Uniqueness/ 06. Resources/ 07. Conflict environment.

5. Discuss about the project life cycle.
Ans. 01. Project identification/ 02. Project preparation/ 03. Project appraisal/ 04. Project negotiation/ 05. Project implementation and supervision/ 06. Project evaluation.

06. Discuss the classification of project.
Ans. **01. On the basis of national income and socio economic activities**: a. Industrial project. b. Agricultural project, c. Educational project, d. Engineering project./ 02. On the basis of input and production factor: a. Labor intensive project, b. Capital intensive project./ **03. On the basis of proprietor partnership project:** a. Single proprietorship project, b. Joint proprietorship project.

07. Define project management.

Project management: Project management can be defined as the planning, directing and controlling of resources (people, equipment, mental) to meet the technical, cost and time constraints of the project.
According to BB Gael, "Project management is an organized venture for managing projected that involves scientific application of modern tools and techniques in planning, financing.
implementing, monitoring, controlling and coordinating unique activities of tasks to procedure desirable outputs in consonance."

8. Discuss the functions and responsibilities of a project
Ans: 01. Project planning/ 02. Project coordinating/ 03. Project staffing and training/ 04. Project implementation/ 05. Project controlling and reporting/ 06. Maintaining linkage with concerned parties/ 07. Conflict of management/ 08. Change management/ 09. Project financing management/ 10. Terminating the project/ 11. Overall project report.

2nd Chapter

9. Define project appraisal.
Ans: Simply speaking project appraisal means the assessment of a project. Project appraisal is made for both proposed and execute projects. Project appraisal is a cost and benefits analysis of different aspects of proposed projects with an objective to adjust its viability.
Project appraisal means the analysis of technical organizational, economical and financial activities of a project.

10. Discuss the key steps in Market and demand analysis.
Ans: 1. Situational analysis and specification of objectives: In order to get a "feel" of the relationship between the product and its market, the project analyst may informally talk to customers, competitors, middleman and others in industry./ **2. Collection of Secondary information:** In order to answer the questions listed while delineating the objectives of the market study, information may be obtained from secondary source and primary source./ **3. Conduct of market survey:** For getting primary and secondary information market survey is need to be done./ **4. Characterization of the market: (i)** Effective demand in the past and present; (ii) Breakdown of demand; (ii) Price; (iii) Methods of distribution and sales promotion; (v) Consumers; (vi) Supply and competition; (vii) Government policy./ **5. Demand forecasting:** After gathering information about various aspects of the market and demand from primary and secondary sources, an attempt may be made to estimate future demand. / **6. Uncertainties in demand forecasting: (i)** Data about past and present market; (ii) Methods of forecasting; (iii) Environmental change./ **07. Market planning: (i)** Current marketing situation; (ii) Opportunity and issue analysis (iii) Objective (vi) Marketing strategy; (vii) Action programmed.

11. Discuss the key steps in a sample survey.
Ans: 1. Define the target population: In defining the target population the important terms should be carefully and unambiguously defined./ **2. Selecting the sampling scheme and sample size:** There are several sampling schemes: simple random sampling, cluster sampling, sequential sampling etc. from these a sampling scheme is to be selected./ **3. Develop the questionnaire**: The questionnaire is the principal instrument for eliciting information from the sample respondents. / **4. Recruit and train the field investigators:** Recruiting and training of field investigators must be planned well since it can be time consuming./ **5. Obtain information as per the questionnaire from the sample of respondents:** Respondents may be interviewed personally, telephonically or by mail for obtaining information personal interview ensure a high rate of response./ **6. Scrutinize the information gathered:** Information gathered should be thoroughly scrutinized to estimate date which is internally inconsistent and which is of dubious validity./ **7. Analyze and interpret the information:** Information gather in the survey needs to be analyzed and interpreted with care and imagination.

12. Describe the methods of demands forecasting.
Ans: 1. Qualitative methods: These methods rely essentially on the judgment of experts to translate qualitative information into quantitative estimates. The important qualitative methods are: **a. Jury of executive method:** This method, which is very popular in practice, involves soliciting the opinions of a

group of managers on expected future sales and combining them into a sales estimate. **b. Delphi method:** This method is used for eliciting the opinions of experts with the help of a mail survey.
2. Time series projection methods: This method generates forecast on the basis of an analysis of the historical time series. The important time series projection methods are: **a. Trend projection method:** The trend projection methods involves - determining the trend of consumption by analyzing past consumption statistics and projecting future consumption by extrapolating the trend, **b. Exponential smoothing method:** In exponential smoothing forecasts are modified in the light of observed errors**, c. Moving average methods:** As per the moving average methods of sales forecasting, the forecast for the next period is equal to the average of the sales for several preceding periods.
3. Causal method: More analytical than the proceeding methods, causal methods seek to develop forecasts on the basis of cause-effect relationship specified in an explicit, quantitative manner. The important causal methods are:- Chain ratio method;/ Consumption level method;/ End use method; /Leading indicator method;/ Economic methods.

13. Describe facets project analysis.
Ans: 1. Market analysis: (i) What would be the aggregate demand of the proposed product or service in future? (ii)What would be the market share of the project under appraisal?/ **2. Technical analysis:** Analysis of the technical and engineering aspects of project needs to be done continually when a project is formulated. / **3. Financial analysis:** Financial analysis seeks to ascertain whether the proposed project will be financially viable in the sense of being able to meet the burden of servicing debt and whether the proposed project will satisfy the return expectations of those who provide the capital./ **4. Economic analysis:** Economic analysis also refereed to as social cost benefit analysis is conceded with judging a project from the larger social point of view./ **5. Ecological analysis:** In recent years, environment al concerns have assumed a great deal of significance and rightly so.

14. How would you characterize the market?
Ans: 1. Effective demand in the past and present: To gauge the effective demand in the past and present, the starting point typically is apparent consumption which is defined as: Production + Imports - Exports - Changes in stock level/ **2. Break down of demand:** To get a deeper insight into the nature of demand, the aggregate market demand may be broken down into demand for different segments of the market. Market segments may be defined by - (i) Nature of product; (ii) Consumer group; (iii) Geographical division./ **3. Price:** Price statistics must be gathered along with statistics pertaining to physical quantities./ **4. Methods of distribution and sales promotion:** The method of distribution may very with the nature of the product. Capital goods, industrial raw materials or intermediates and consumers products tend to have different distribution channels. / **5. Consumers:** Consumers may be characterized along two dimensions as follows: (i) Demographic and Sociological; (ii) Attitudinal/ **6. Supply and competition:** It is necessary to know the existing sources of supply and whether they are foreign or domestic./ **7. Government policy:** The role of the government in influencing the demand and market for a product may be significant.

15. What are the components of cost of project? Discuss them in details.
Ans: 1. Land and site development: The cost of land and site development is the sum of following: (i) Basis cost of land including conveyance and other allied charges; (ii) Premium payable on leasehold and conveyance charge; (iii) Cost of leveling and development./ **2. Bu Iding and civil works:** Building and civil works cover the following: (i) Building for the main plant and equipment; (ii) Go downs, warehouse, and open yard facilities; (iii) Canteen, guesthouse, time office etc. (iv) Garage, sewers, drainage etc./ **3. Plant and machinery/ 4. Technical know-how and engineering fees:** When it is necessary to engage technical consultants or collaborations from India and or abroad for advice and help in various technical matters like preparation of project report, choice of technology, selection of the plant and machinery, detailed engineering and so on./ **5. Expenses on foreign technicians and training of local technicians abroad:** service of foreign technicians may be required in India for setting up the project and supervision the trial runs./ **6. Miscellaneous fixed assets**: Fixed assets and machinery which are not part of the direct manufacturing process may be referred to as miscellaneous fixed assets. They include items like furniture, office machinery and equipment tools, vehicles etc./ **7. Preliminary and capital issue expenses**: Expenses incurred for identifying the project, conducting the market survey, preparing the feasibility report, drafting

the memorandum and articles of association and incorporating the company are referred to as primary expenses./ **8. Pre-operative expenses:** Expenses of the following types incurred till the commencement of commercial production are referred to as pre-operative expenses:/ **9. Margin money for working capital:** The money for working capital is sometimes utilized for meeting over-runs in capital cost. / **10. Initial cash losses:** Most of the projects incur cash losses in the initial years.

16. Describe briefly the various means of financing of a project.

Ans: 1. Share capital: Share capital is an important means of finance for a project. There are two types of share capital. These are as follows:- (i) Equity capital; (ii) Preference capital./ **2. Term loans:** Provided by financial institution and commercial banks, term loans represent secured borrowings which are a very important sources of finance./ **3. Debenture capital:** Debentures are instrument for raising debt capital. There are two broad types of debenture: (i) Convertible debenture; (ii) Non-convertible debenture./ **4. Deferred credit:** Many a time the suppliers of the plant and machinery after a deferred credit facility under which payment for the purchase of the plant and machinery can be made over a period of time./ **5. Incentive sources:** The government and its agencies may provide financial support as an incentive to certain types of promoters or for setting up industrial units in certain locations./ **6. Miscellaneous sources**: A small portion of the project finance may come from miscellaneous sources like unsecured loans, public deposits and leasing and here purchase finance.

17. Discuss the key business considerations.

Ans: 1. Cost: In general the cost of debt funds is lower than the cost of equity funds because the interest payable on debt capital is a tax deductible expense./ **2. Risk:** The main sources of risk for a firm are Business risk and Financial risk. / **3. Control:** From the point of view of the promoters of the project, the issue of control is important./ **4. Flexibility:** This refers to the ability of a firm to raise further capital from any source it wishes to tap to meet the future financing needs.

3rd Chapter

18. What do you mean by matrix organization? What are the advantage and disadvantages of matrix organization?

Ans: Matrix organization: The matrix organization is a combination of the two. It is a pure project organization overlaid on the functional divisions of the parent firm. Being a combination of pure project and function structures, a matrix organization can take on a wide variety of specific forms, depending on which of the two extremes (functional or pure project) it most resembles.

Advantages of matrix organization: 01. The project is the point of emphasis. One individual, the PM, takes responsibility for managing the project./ 02. The project organization is overlaid on the functional divisions, temporarily drawing labor and talent from them, the project has reasonable access to the entire reservoir of technology in all functional divisions./ 03. There is less anxiety about what happens when the project is completed than is typical of the pure project organization. / 04. Response to client needs is as rapid as in the pure project case, and the matrix organization is just as flexible./ 05. With matrix management, the project will have - or have access to - representative from the administrative units of the parent firm./ 06. Where there are several projects simultaneously under way, matrix organization allows a better companywide balance of resources to achieve the several different time/cost/performance targets of the individual projects./ 07. While pure project and functional organizations represent extremes of the organizational spectrum, matrix organization cover a wide range in between.

Disadvantages of matrix organization : 01. In the case of functionally organized projects, there is no doubt that the functional division in the focus of decision-making power. / 02. While the ability to balance time, cost, and performance between several projects is an advantage of matrix organization, that abi\itv has its dark side. / 03. For strong matrices, problems associated with shutting down a project are almost as severe as those in pure project organizations./ 04. In matrix organized projects, the PM controls administrative decisions and the functional heads control technological decisions./ 05. Matrix management violates the management principle of unity of command.

19. Define risk management and how it applies to projects.
Ans: Risk management: Dealing with uncertainties has come to be known as risk management.
Applies to risk management project: The systematic process of identifying, analyzing, and responding to project risk., and consists of six sub process and, as we shaU see be\ow, a seventh sub process needs to be added. **01. Risk management planning:** Deciding how to approach and plan the risk management activities for a project./ **02. Risk identification:** Determining which risks might affect the project and documenting their characteristics./ **03. Qualitative risk analysis:** Performing a qualitative analysis of risks and conditions to priorities their impacts on project objectives./ **04. Quantitative risk analysis:** Estimating the probability and consequences of risks and estimating the implications for project objectives./ **05. Risk response planning:** Developing procedures and techniques to enhance opportunities and reduce threats to the project objectives./ **06. Risk monitoring and control:** Monitoring residual risks, identifying new risks, executing risk reduction plans, and evaluating their effectiveness throughout the project life cycle./ **07. Create and maintain a risk management data bank:** A permanent record of identified risks, methods used to mitigate or resolve them, and the result of all risk management activities.

20. What are the some advantages and disadvantages of housing a project in a functional form?
Ans: Advantages of housing a project in a functional form: 01. There is maximum flexible in the use of staff./ 02. Individual experts can be utilized by many different projects./ 03. Specialists in the division can be grouped to share knowledge and experience./ 04. The functional division also serves as a base of technological continuity when individuals choose to leave the project, and even the parent firm./ 05. Finally, and not the least important, the functional division contains the normal path of advancement for individuals whose expertise in the functional area.
Disadvantages of housing a project in a functional form: 01. A primary disadvantage of this arrangement is that the client is not the focus of activity and concern./ 02. The functional division tends to be oriented toward the activities particulars to its function./ 03. Occasionally in functionally organized projects, no individual is given full responsibility for the project./ 04. The same reasons that lead to lack of coordinated effort tend to make response to client needs slow and arduous./ 05. There is a tendency to sub-optimize the project./ 06. The motivation of people assigned to the project tends to be weak./ 07. Such an organizational arrangement does not facilitate a holistic approach to the project.

21. What is pure project organization?
Ans: At the other end of the organizational spectrum is pure project organization. The project is separated from the rest of the parent system. It becomes a self-contained unit with its own technical staff, its own administration, tied to the parent firm by the tenuous strands of periodic progress reports and oversight. Some parent organizations prescribe administrative, financial, personnel, and control procedures in declaim. Others allow the project almost total freedom within the limits of final accountability.

22. What is mixed organization project (Hybrid)?
Ans: Mvxcd organization project: A method of organizing that maintains both functional supervisors as well as project supervisors. A strong matrix operates closer to a pure project organization while a weak matrix operates more like a functional organization. **President :** Project M/ Finance/ Engineering/ Project Z/ Manufacturing

23. Define project management office.
Ans: An office to deal with multiple projects and charged with improving the projects and charged with improving the project management maturity and expertise of the organization, as well as increasing the success rate of projects.

24. What is management by objective (MBO)?
Ans: A management approach popular during the 1960s that encouraged managers of give their subordinates more freedom in determining how to achieve task objectives.

25. What are the advantages of empowerment for project teams?

Ans: 01. It harnesses the ability of the team members to manipulate tasks so that project objectives are met. The team is encouraged to find better ways to do things./ 02. Professionals do not like being micromanaged. Participative management does not tell them how to work but, given a goal, allows them to design their own methods./ 03. The team members know they are responsible and accountable for achieving the project deliverables./ 04. There is a good chance that synergistic solutions will result from {earn interaction./ 05. Team members get fjfl]e|y feedback on their performance./ 06. The PM is provided a tqpj for evaluating the team's performance.

26. What types of conflicts a project manager faced?

Ans: 01. Meeting schedule and cost goals without compromising performance appears to be a technical problem for the project manager. / 02.. Another problem is motivating project team members to accomplish the work of the project./ 03. Another behavioral problem for the project manager is interpersonal conflict. The problem is so pervasive, that conflict between project team members and between team member and outsiders (including the client) seems to be the natural state of existence for projects.

27. Who are the members of a project team?

Ans: 01. Project engineer: The project engineer is in charge of product design and development and is responsible for functional analysis, specifications, drawings, cost estimates, quality /reliability, engineering change, and documentation./ **02. Manufacturing engineer:** The engineer's task is the efficient production of the product or process the project engineer has designed, including responsibility for manufacturing engineering, design and production of tooling/jigs/fixture, production scheduling, and other production tasks./ **03. Field manager:** This person is responsible for the installation, testing, and support of the product/ process once it is delivered to the customer./ **04. Contract administrator:** The administrator is in charge of all official paper work, keeping track of customer changes, billings, questions, complaints, legal aspects, costs, and other matters related to the contract authorizing the project./ **05. Project controller:** The controller keeps daily account of budgets, cost variances, labor charges, project supplies, capital equipment status, etc./ **06. Support service manager:** This person is in charge of product support, subcontractors, data processing, and general management support functions.

4th Chapter

28. What do you mean by project planning.

Ans: Project planning: The primary purpose of planning, of course, it is establish a set of directions in sufficient detail to tell the project team exactly what must be done, when it must be done, and what resources to use in order to produce the deliverables of the project successfully.

According to R. L. Marline, "A project planning establishes the duration of the project, the resources needed to complete each activity and the required sequence of performance of each job.

29. Any successful project plan must contain nine key elements. List these items and briefly describe the composition of each. "OR" Describe the factors for making project plan effective.

Ans: Project plan elements: (i) Over view : This is a short summary of the objective and scope of the project is directed to top management and contains a statement of the goals of the project, a brief explanation of their relationship to the firm's objectives, a description of the managerial structure that will be used for the project, and a list of the major milestones in the project schedule.

ii. Objective: This contains a more detailed statements of the general goals noted in the overview section. The statement should include profit and competitive aims as well as technical goals.

iii. General approach: This section describes both the managerial and the technical approaches to the work. The technical discussion describes the relationship of the project to available technologies.

iv. Contractual aspects: This critical section of the plan includes a complete list and description of all the reporting requirement, customer-supplied resources, liaison arrangements, advisory committees, project review and cancellation procedures, proprietary requirements, any specific management arrangement, as well as the technical deliverables and their specifications, delivery schedules, and a specific procedure for changing of the above.

v. Schedules: This section outlines the various schedules and lists all milestone events. Each task is listed, and the estimated time for each task should be obtained from those who will do the work.

vi. Resources: There are two primary aspects to this section. The first is the budget. Second, monitoring and control procedure should be described.
vii. Personnel: This section lists the expected personnel requirements of the project. Special skills, types of training needed, possible recruiting problems, legal or policy restriction on work force composition, and any other special requirements, such as security clearance, should be noted here.
viii. Risk management plans: This covers potential problems as well as potential lucky breaks that could affect the project. Sometimes it is difficulties to convince planners to make a serious attempt to anticipate potential difficulties Or benefits.
iX. Evaluation methods: Every project should be evaluated against standards and by methods established at the project's inception, allowing for both the direct and ancillary goals of the project.

30. What is Work Breakdown Structure (WBS)?
Ans: A Work breakdown structure (WBS) is prepared to determine the exact nature of the tasks required to complete the project.

31. Describe the project planning process.
Ans: 01. Concept evaluation;/ 02. Requirements identification;/ 03. Design;/ 04. Implementation;/ 05. Test;/ 06. Integration;/ 07. Validation;/ 08. Customer test and evaluation;/ 09. Operations and maintenance.

32. What are the pre-requisites for successful project implementation?
Ans: What can be done to minimize time and cost over-runs and thereby improve the prospects of the successful completion of project? While a lot of things can be done to achieve this goal, the more important ones appears to be as follows –
i. Adequate formulation: Superficial field investigation; / Cursory assessment of input requirements;/ Slip-shod methods used for estimating costs and benefits; / Omission of project linkages;/ Flawed judgments because of lack of experience of expertise; / Undue hurry to get started;/ Deliberate over-estimation of benefits and under-estimation of costs.
ii. Sound project organization: It is led by a competent leader who is accountable for the project performance;/ The authority of the project leader and his team is commensurate with their responsibility;/ Adequate attention is paid to the human side of the project; / Systems and methods are clearly defined./ Rewards and penalties to individuals arc related to performance.
iii. Project implementation planning: Develop a comprehensive time plan for various activities like land acquisition, tender evaluation, recruitment of personnel, onstriction of building, erection of plant, arrangement for utilities, trial production run, run, etc. / Estimate meticulously the resources requirements (manpower, materials, money, etc.) for each period to realize the time plan;/ Define properly the inter-linkages between various activities of the project;/ Specify cost standards.
iv. Advance action: When the project appears prima facie to be variable and desirable, advance action on the following activities may be initiated: (i) Acquisition of land, (ii) Securing essential clearance, (iii) Identify technical collaborators/consultants, (iv) Arranging for infrastructure facilities, (v) Preliminary design and engineering, and (vi) Calling of tenders.
v. Timely availability of funds: Once a project is approved, adequate funds must be made available to meet its requirements as per the plan of implementation — it would be highly desirable if funds are provided even before the final approval to initiate advance action.
vi. Judicious equipment tendering and procurement: To minimize time over-runs, it may appear that a turnkey contract has obvious advantages. Since these contracts are likely to be bagged by foreign suppliers, when global tenders are floated, a very important question arises.
vii. Better contract management : (a) The competence and capability all the contractors must be ensured - one weak link can jeopardize the timely performance "f the contract. (b) Proper discipline must be inculcated among retractors and suppliers by insisting that they should develop realistic and detailed resource time plans which are congruent.
viii. Effective monitoring: (a) Anticipating deviations from the implementation plan; (b) Analyzing emerging problems; (c) Taking corrective action.

33. What are the basic guidelines for system design which assure that individual components of the system are design in the best manner?

Ans: (i) Require .no component performance specifications unless necessary to meet one or more systems requirements. (ii) Every component requirement should be traceable to one or more systems requirements. (iii) Design components for effective system performance, not the performance of subsystems.

34. What should be accomplished at the initial coordination meeting?

Ans: 01. technical scope is established/ 02. Basic areas of foreface responsibility are accepted by the participants;/ 03. Any attentive delivery dates or budget set by the parent organization arc clearly noted; and / 04. A risk management group is created.

35. What re the three major objectives of system integration?

Ans: 01. Performance: Performance is what a system does. It includes system design, reliability, quality, maintainability, and reparability. Obviously, these are not separate, independent elements of the system, but are highly interrelated qualities./ **02. Effectiveness:** (i) Require no component performance specifications unless necessary to meet one or more systems requirements. (ii) Every component requirement should be traceable to one or more systems requirements. (iii) Design components for effective system performance, not the performance of ' subsystems./ **03. Cost:** Cost system integration considers cost to be a design parameter, and costs can be accumulated in several areas. Added design cost may lead to decreased component cost, leaving performance and effectiveness otherwise unchanged.

36. What are the basic steps to design and use the work breakdown structure?

Ans: 01. Using information from the action plan, list the task breakdown in successively finer levels of detail. Continue until all meaningful tasks or work package have been identified and each task or package can be individually planned, scheduled, monitored, and controlled./ **02.** For each such work package, identify the data relevant to the WBS (e.g., vendors, durations, equipment, materials, and special specifications./ **03.** All work package information should be reviewed with the individuals or organizations that have responsibility for doing or supporting the work in order to verify the WBS's accuracy./ **04.** For the purpose of pricing a proposal, or determining profit and loss, the total project budget should consist of four elements. / **05.** Similarly, schedule information and miles one (significant) events can be aggregated into a project master schedule./ **06.** As a project is carried out, step by step, the PM can continually examine actual resources use, by work element, work package, task, and so on up to the full project level. / **07.** Finally, the project schedule may be subjected to the same comparisons as the project budget.

5th Chapter

37. What do you mean by critical path?

Ans: A critical path is an activity or event that, if delayed, will delay project completion.

38. How is critical path determined? What is "dummy" and "Slack" in the project networking?

Ans: 01. Calculate the Earliest Occurrence Time (EOT) for each event: An event occurs when all activities leading to the event have been completed./ 02. Calculate the Latest Occurrence Time (LOT) for each event: The LOT for an event represents the latest allowable time by which the event can occur, given the time that is allowed for the completion of the project (occurrence of end event). Normallyvthe time allowed for the completion of the project is set equal to the EOT of the end event./ 03. Calculate the slack for each event: The slack for an event is the difference between its LOT and EOT./ 04. Obtain the critical and slack paths: The critical path starts with the beginning event, terminates with the end event, and is marked by events which have a zero slack. This is obviously the path on which there is no slack, no cushion. Other paths are slack paths with some cushion./ 05. Compute the activity floats: Given the estimates of activity time and event slacks, activity floats can be calculated. There are three measures of floats. These are: (i) Total float; (ii) Free float; and (iii) Independent float.

39. What are the usual assumptions underlying CPM analysis.

Ans: 01. The cost associated with a project can be divided into two components: (i) Direct costs: Direct costs are incurred on direct material and direct labor, (ii) Indirect costs: Indirect costs consists of

overhead items like indirect suppliers, rent, insurance- managerial services etc./ **02.** Activities of the project can be expedited by crashing which involves employing more resources./ **03.** Crashing reduces time but enhances direct costs because of factors like overtime payment, extra payments, and wastage./ **04.** Indirect costs associated with the project increases linearly with project duration.

40. What steps are involved in PERT analysis?

Ans: 01. Find out the exertions for project implementation./ 02. Determining the exertion schedule./ 03. Time estimation; (i) Optimistic Time; (ii) Pessimistic Time; (iii) Most likely Time./ 04. Calculate the estimated Time (TE)./ 05. Calculate the variance of estimated time;/ 06. Determine critical path./ 07. Determine the possibility of a project complete to a specific time.

41. Define "Late start time", "Early start time", and "Early finish time".

Ans: Late start time: (i) all events occur at their latest because all activities starts at their latest finished time; (ii) some activities may start after a time lag subsequent to the occurrence of the preceding events; and (iii) all activities leading to an event are completed at the same time.

Early start time: (i) all events occur at their earliest because all activities starts at their earliest starting time and finish at their earliest finish time; (ii) there may be time lags between the completion of certain activities and the occurrence of events which these activities lead to; and (iii) all activities emanating from an event begin at the same time.

Early finish time : (i) all events occur at their earliest because all activities and finish at their earliest finish time; (ii) there may be time lags between the completion of certain activities and the occurrence of events which these activities lead to; and (iii) all activities emanating from an event begin at the same time.

42. What is the difference between activity-on-node and activity-on-arrow diagrams?

Ans: Arrow diagrams : (i) An another format for drawing networks./ (ii) It is used for ADM/PERT networks. (iii) The amount of nodes (circular) number is grater then Nodes diagram. (iv) It is used dummy activity for creating relationship between project work and another activity.

Node diagram (i) In the preceding example, rectangles (nodes) represent the activity. (ii) It is used for PDM/CPM networks. (iii) The amount of nodes (circular) number is less
then Arrow diagram. (iv) It is not used dummy activity for creating relationship between project work and another activity.

43. Different between CPM and PERT method.

Ans: CPM : (i) CPM, acronym for Critical Path Method/ (ii) CPM is primarily concerned with the tradeoff between cost and time./ (iii) CPM has been applied mostly to project that employ a fairly stable technology./ (iv) It is risk free method./ (v) CPM network diagram is activity oriented./ (vi) The orientation of CPM is 'deterministic'.

PERT : (i) PERT, an acronym for Program Evaluation Review Technique./ (ii) PERT is primarily concern with only time./ (iii) PERT is eminently suitable for research and development programs, aerospace projects, and other projects involving new technology. (iv) It is very risky and uncertainty methods./ (v) Generally, PERT network diagram is event oriented. (vi) The orientation of PERT is 'probabilistic'.

6th Chapter

44. What are the fundamental purposes of control? To what is it to direct?

Ans: fundament objectives of control: 01. The regulation of results through the attention of activities./ 02. The stewardship of organization assets.

Most discussion of the control functions : 01. Physical assets control: Physical assets control requires control of the use of physical assets. **02. Human resource control:** Stewardship of human resources requires controlling and maintaining the growth and development of people. **03. Financial resource control:** Though accountants have not succeeded in developing acceptable methods for human resource accounting, their work on techniques for the conservation of financial resources has most certainly resulted in excellent tools for financial control.

45. What are three main types of control system?

Ans: (i) Cybernetic control: Cybernetic or steering control is by for the most common type of control system. It is an automatic control system containing a negative feedback loop. A cybernetic control system that acts to reduce deviations from standard is called a negative feedback loop./ **(ii) Go/non-go control:** Initially, a type of gauge VhaV quickly tells an inspector if an object's dimension is within contains limits. In the case of project management, this can be any measure that allows managers to decide whether to continue, change, or terminate an activity or a project./ **(iii) Post control:** Post control also known as post performance controls or reviews, or post project or reviews are applied after the fact.

46. What are the reasons for poor project control?

Ans: (i) Reasons for poor project control : 01. Customer and management changes;/ 02. Technical complexities;/ 03. Unrealistic project plan;/ 04. staffing problems;/ 05. Inability to detect problems early;
(ii) Senior management ranks these reasons somewhat differently : 01. Insufficient front end planning;/ 02. Unrealistic project plans;/ 03. Underestimated project scope;/ 04. Customer and management changes,/ 05. Insufficient contingency planning.

47. What are the criteria for effective project control?

Ans: 01. Detailed project planning;/ 02. Break \he o\era\l program into phases and sub/ 03. Result and deliverablcs;/ 04. Measurable milestones;/ 05. Commitment;/ 06. Intra-program involvement;/ 07. project tracking/ 08. Measurability/ 09. regular reviews/ 10. Signing on;/ 11. Interesting work;/ 12. Communication;/ 13. Leadership;/ 14. Minimize treats;/ 15. Personal drive.

7th Chapter

48. What do you mean by termination of project?

Ans: A project can be said to be terminated when work on the substance of the project has ceased or solved to the point that further progress on the project is no longer possible, when the project has been indefinitely delayed, when its resources have been deployed to other projects, or when project personnel become personnel non grate with senior management and m the company lunchroom.

49. Describe the different ways of project termination.

Ans: 01. Termination by extinction: The project is stopped. It may and because it has been successful" and achieved its goals; the new product has been developed and handed over to the client, or the software has been installed and is running./ **02. Termination by addition:** Most projects are "in house" carried out by the project tern for use in the parent organization. If a project is a major success, it may be terminated by institutionalizing it as a formal part of the parent organization./ **03. Termination by integration:** This method of terminating a project is the most common way of dealing with successful project, and the most complex. The property, equipment, material, personnel and functions of the project are distributed among the existing elements of the parent organization. The output of the project becomes a standard part of the operating systems of the parent, or client./ **04. Termination by starvation:** There is a fourth type of project termination although strictly speaking, it is not a "termination" at all. It is slow starvation by budget decrement. Almost anyone who has been involved with projects over a sufficient period of time to have covered a business recession has had to cope with budget cuts.

50. When to terminate a project?

Ans: Is the project still consistent with organizational goals?/ Is management sufficiently enthusiastic about the project to support its implementation?/ Is the scope of the project consistent with the organizational financial strength?/ Does the project have the support of all the departments?/ Is the project team still innovative?/ Has the project lost its key person or champion?/ Is the project team enthusiastic about success?

51. Describe the fundamental reasons why some projects fail to produce satisfactory answer?

Ans: **01. A Project Organization Is Not required:** The use of the project form of organization was inappropriate for this particular environment./ **02. Insufficient Support from Senior Management:** Project invariably develops needs for resources that were not originally allocated./ **03. Naming the Wrong Person as Project Manager:** This book is testimony to the importance of the PM./ **04. Poor planning:** This is the very common cause of project failure. In the rush to get the substance of the project under way, competent planning is neglected.

52. What are the project final reports include?

Ans: (i) Project performance : A key element, of the report, is a comparison of what the project achieved (the terminal evaluation) with what the project tried to achieve (the project proposal)./ **02. Administrative performance:** The substantive side of the project usually gets a great deal of attention, while the administrative side is often ignored until administrative problems occur./ **03. Organizational structure:** each of the organizational forms used for projects has its ovvn, unique set of advantages and disadvantages./ **04. Project and administrative teams:** On occasion, individuals who are competent and likable Ats individuals do not perform we/I as members of a team when a high level of interpersonal communication and cooperation is required. / **05. Techniques of project management:** The outcome of the project is so dependent on the skill with which the forecasting, planning, budgeting, scheduling, resource allocation, risk management, and control are handled that attention must be given to checking on the way these tasks were accomplished.