

# Govt Engineering College Jhalawar

## Department of management Studies

**Class: MBA IV<sup>th</sup> Sem**

**Subject : Project Management**

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**Model Question Paper With Answer**

**Q.1 What do you mean by project management ? Explain phases of project life cycle.**

**Ans:- Project management** is the discipline of initiating, planning, executing, controlling, and closing the work of a team to achieve specific goals and meet specific success criteria at the specified time. ... The primary challenge of **project management** is to achieve all of the **project** goals within the given constraints.

Phases of project life cycle

Initiation Phase

During the first of these phases, the initiation phase, the project objective or need is identified; this can be a business problem or opportunity. An appropriate response to the need is documented in a business case with recommended solution options. A feasibility study is conducted to investigate whether each option addresses the project objective and a final recommended solution is determined. Issues of feasibility (“can we do the project?”) and justification (“should we do the project?”) are addressed.

Once the recommended solution is approved, a project is initiated to deliver the approved solution and a project manager is appointed. The major deliverables and the participating work groups are identified, and the project team begins to take shape. Approval is then sought by the project manager to move onto the detailed planning phase.

**Planning Phase**

The next phase, the planning phase, is where the project solution is further developed in as much detail as possible and the steps necessary to meet the project’s objective are planned. In this step, the team identifies all of the work to be done. The project’s tasks and resource requirements are identified, along with the strategy for producing them. This is also referred to as “scope management.” A project plan is created outlining the activities, tasks, dependencies, and timeframes. The project manager coordinates the preparation of a project budget by providing cost estimates for the labor, equipment, and materials costs. The budget is used to monitor and control cost expenditures during project implementation.

Once the project team has identified the work, prepared the schedule, and estimated the costs, the three fundamental components of the planning process are complete. This is an excellent time to identify and try to deal with anything that might pose a threat to the successful completion of the project. This is called risk management. In risk management, “high-threat” potential problems are identified along with the action that is to be taken on each high-threat potential problem, either to reduce the probability that the problem will occur or to reduce the impact on the project if it does occur. This is also a good time to identify all project stakeholders and establish a communication plan describing the information needed and the delivery method to be used to keep the stakeholders informed.

Finally, you will want to document a quality plan, providing quality targets, assurance, and control measures, along with an acceptance plan, listing the criteria to be met to gain customer acceptance. At this point, the project would have been planned in detail and is ready to be executed.

### **Implementation (Execution) Phase**

During the third phase, the implementation phase, the project plan is put into motion and the work of the project is performed. It is important to maintain control and communicate as needed during implementation. Progress is continuously monitored and appropriate adjustments are made and recorded as variances from the original plan. In any project, a project manager spends most of the time in this step. During project implementation, people are carrying out the tasks, and progress information is being reported through regular team meetings. The project manager uses this information to maintain control over the direction of the project by comparing the progress reports with the project plan to measure the performance of the project activities and take corrective action as needed. The first course of action should always be to bring the project back on course (i.e., to return it to the original plan). If that cannot happen, the team should record variations from the original plan and record and publish modifications to the plan. Throughout this step, project sponsors and other key stakeholders should be kept informed of the project’s status according to the agreed-on frequency and format of communication. The plan should be updated and published on a regular basis.

Status reports should always emphasize the anticipated end point in terms of cost, schedule, and quality of deliverables. Each project deliverable produced should be reviewed for quality and measured against the acceptance criteria. Once all of the deliverables have been produced and the customer has accepted the final solution, the project is ready for closure.

### **Closing Phase**

During the final closure, or completion phase, the emphasis is on releasing the final deliverables to the customer, handing over project documentation to the business, terminating supplier contracts, releasing project resources, and communicating the closure of the project to all stakeholders. The last remaining step is to conduct lessons-learned studies to examine what went well and what didn’t. Through this type of analysis, the wisdom of experience is transferred back to the project organization, which will help future project teams.

### **Q.2 Define project and explain its types.?**

**Ans:** A project consists of a concrete and organized effort motivated by a perceived opportunity when facing a problem, a need, a desire or a source of discomfort (e.g., lack of proper ventilation in a building). It seeks the realization of a unique and innovative deliverable, such as a product, a service, a process, or in some cases, a scientific research. Each project has a beginning and an end, and as such is considered a closed dynamic system. It is developed along the 4 Ps of project management: Plan, Processes, People, and Power. It is bound by the triple constraints that are calendar, costs and norms of quality, each of which can be determined and measured objectively along the project lifecycle. Each project produces some level of formal documentation, the deliverable(s), and some impacts, which can be positive and/or negative

## **Types of project**

### **Construction Projects**

The project produces an artefact. The value generated by the project is embedded in the artefact. The artefact may be a complex system with human and mechanical components.

Examples:

- Warship
- Jubilee line extension
- Millennium dome
- Customer call centre
- Method guidebook
- IT system

### **Research Projects**

The project produces knowledge. The knowledge may be formally represented as models, patterns or patents. Or the knowledge may be embedded in a working process or artefact.

Examples:

- Business modelling
- Developing a model of the UK economy
- Developing a new species of wheat
- Developing novel approaches to project management.
- Military intelligence/ codebreaking.
- The analysis, testing, QA or evaluation portions of a larger project.

### **Reengineering Projects**

The project produces a desired change in some system or process.

Examples:

- Taking sterling into the Euro
- Renumbering the UK telephone system
- Implementing PRINCE project management practices into a large organization.
- Designing and installing an Intranet.

### **Procurement Projects**

The project produces a business relationship contractually based with a selected supplier for a defined product or service based on a fixed specification and/or a defined specification process

Examples:

- Outsourcing a specific construction or research project
- Outsourcing a complete business function (such as IT).
- Imposing new rules and measures on a regulated industry.

### **Business Implementation Projects**

The project produces an operationally effective process. The value generated by the project is embedded in the process.

Examples:

- Developing a new business process to repackage and exploit existing assets.
- Installing e-commerce

### **Some projects are difficult to classify under this scheme.**

National symbolic programmes:

- Putting a man on the moon by the end of the decade.
- Mitterand's Grandes Projects.
- New Labour

Large medical programmes:

- Creating an artificial heart.
- Mass inoculation programmes.

Other hybrid or interdisciplinary projects

- Pilot projects
- Moving offices

In most cases, this difficulty arises from an ambiguity about the primary purpose of the project. Are we doing this pilot for its own sake, or merely as an experiment? Are we doing this drug trial

to benefit current patients, or to create knowledge that will benefit future patients? What's the real political agenda? Of course, we must be able to handle hybrid projects - but we may need to surface the underlying ambiguity.

### **Q.3 Explain the difference between Pert and Cpm .**

CPM is used for projects that assume deterministic activity times; the times at which each activity will be carried out are known. PERT, on the other hand, allows for stochastic activity times; the times at which each activity will be carried out are uncertain or varied. Because of this core difference, CPM and PERT are used in different contexts.

#### **PERT**

PERT is used for projects in which activity times are unknown. For example, take a research and development project (R&D). In an R&D project, the amount of time to complete a given task is unpredictable. In such a case, PERT is the best choice, since it allows planners to allocate three estimates for completion times – the most likely, the most optimistic and the most pessimistic.

#### **CPM**

The activities involved in a construction project, on the other hand, are much more predictable, and may not need three estimated completion times. If this is the case, CPM may be more appropriate, since unlike PERT, CPM also allows for planners to make trade-offs between the cost of the project and the amount of time needed to complete it. Key Differences Between PERT and CPM

The most important differences between PERT and CPM are provided below:

1. PERT is a project management technique, whereby planning, scheduling, organising, coordinating and controlling of uncertain activities is done. CPM is a statistical technique of project management in which planning, scheduling, organising, coordination and control of well-defined activities takes place.
2. PERT is a technique of planning and control of time. Unlike CPM, which is a method to control costs and time.
3. While PERT is evolved as research and development project, CPM evolved as construction project.
4. PERT is set according to events while CPM is aligned towards activities.
5. A deterministic model is used in CPM. Conversely, PERT uses probabilistic model.
6. There are three times estimates in PERT i.e. optimistic time ( $t_o$ ), most likely time  $t_m$ , pessimistic time ( $t_p$ ). On the other hand, there is only one estimate in CPM.
7. PERT technique is best suited for a high precision time estimate, whereas CPM is appropriate for a reasonable time estimate.

8. PERT deals with unpredictable activities, but CPM deals with predictable activities.
9. PERT is used where the nature of the job is non-repetitive. In contrast to, CPM involves the job of repetitive nature.
10. There is a demarcation between critical and non-critical activities in CPM, which is not in the case of PERT.
11. PERT is best for research and development projects, but CPM is for non-research projects like construction projects.
12. Crashing is a compression technique applied to CPM, to shorten the project duration, along with least additional cost. The crashing concept is not applicable to PERT.

#### **Q.4 What are the Sources of finance ?**

**Ans** Ordinary shares are issued to the owners of a company. They have a nominal or 'face' value, typically of Rs. 50. The market value of a quoted company's shares bears no relationship to their nominal value, except that when ordinary shares are issued for cash, the issue price must be equal to or be more than the nominal value of the shares.

#### **Deferred ordinary shares**

are a form of ordinary shares, which are entitled to a dividend only after a certain date or if profits rise above a certain amount. Voting rights might also differ from those attached to other ordinary shares.

Ordinary shareholders put funds into their company:

- a) by paying for a new issue of shares
- b) through retained profits.

Simply retaining profits, instead of paying them out in the form of dividends, offers an important, simple low-cost source of finance, although this method may not provide enough funds, for example, if the firm is seeking to grow.

A new issue of shares might be made in a variety of different circumstances:

- a) The company might want to raise more cash. If it issues ordinary shares for cash, should the shares be issued pro rata to existing shareholders, so that control or ownership of the company is not affected? If, for example, a company with 200,000 ordinary shares in issue decides to issue 50,000 new shares to raise cash, should it offer the new shares to existing shareholders, or should it sell them to new shareholders instead?
  - i) If a company sells the new shares to existing shareholders in proportion to their existing shareholding in the company, we have a *rights issue*. In the example above, the 50,000 shares would be issued as a one-in-four rights issue, by offering shareholders one new share for every four shares they currently hold.

ii) If the number of new shares being issued is small compared to the number of shares already in issue, it might be decided instead to sell them to new shareholders, since ownership of the company would only be minimally affected.

b) The company might want to issue shares partly to raise cash, but more importantly to float' its shares on a stock exchange.

c) The company might issue new shares to the shareholders of another company, in order to take it over.

### **New shares issues**

A company seeking to obtain additional equity funds may be:

a) an unquoted company wishing to obtain a Stock Exchange quotation

b) an unquoted company wishing to issue new shares, but without obtaining a Stock Exchange quotation

c) a company which is already listed on the Stock Exchange wishing to issue additional new shares.

The methods by which an unquoted company can obtain a quotation on the stock market are:

- a) an offer for sale
- b) a prospectus issue
- c) a placing
- d) an introduction.

Offers for sale:

An offer for sale is a means of selling the shares of a company to the public.

a) An unquoted company may issue shares, and then sell them on the Stock Exchange, to raise cash for the company. All the shares in the company, not just the new ones, would then become marketable.

b) Shareholders in an unquoted company may sell some of their existing shares to the general public. When this occurs, the company is not raising any new funds, but just providing a wider market for its existing shares (all of which would become marketable), and giving existing shareholders the chance to cash in some or all of their investment in their company.

When companies 'go public' for the first time, a 'large' issue will probably take the form of an offer for sale. A smaller issue is more likely to be a placing, since the amount to be raised can be obtained more cheaply if the issuing house or other sponsoring firm approaches selected institutional investors privately.

## **Rights issues**

A rights issue provides a way of raising new share capital by means of an offer to existing shareholders, inviting them to subscribe cash for new shares in proportion to their existing holdings.

For example, a rights issue on a one-for-four basis at 280c per share would mean that a company is inviting its existing shareholders to subscribe for one new share for every four shares they hold, at a price of 280c per new share.

A company making a rights issue must set a price which is low enough to secure the acceptance of shareholders, who are being asked to provide extra funds, but not too low, so as to avoid excessive dilution of the earnings per share.

## **Preference shares**

Preference shares have a fixed percentage dividend before any dividend is paid to the ordinary shareholders. As with ordinary shares a preference dividend can only be paid if sufficient distributable profits are available, although with 'cumulative' preference shares the right to an unpaid dividend is carried forward to later years. The arrears of dividend on cumulative preference shares must be paid before any dividend is paid to the ordinary shareholders.

From the company's point of view, preference shares are advantageous in that:

- Dividends do not have to be paid in a year in which profits are poor, while this is not the case with interest payments on long term debt (loans or debentures).
- Since they do not carry voting rights, preference shares avoid diluting the control of existing shareholders while an issue of equity shares would not.
- Unless they are redeemable, issuing preference shares will lower the company's gearing. Redeemable preference shares are normally treated as debt when gearing is calculated.
- The issue of preference shares does not restrict the company's borrowing power, at least in the sense that preference share capital is not secured against assets in the business.
- The non-payment of dividend does not give the preference shareholders the right to appoint a receiver, a right which is normally given to debenture holders.

However, dividend payments on preference shares are not tax deductible in the way that interest payments on debt are. Furthermore, for preference shares to be attractive to investors, the level of payment needs to be higher than for interest on debt to compensate for the additional risks.

For the investor, preference shares are less attractive than loan stock because:

- they cannot be secured on the company's assets
- the dividend yield traditionally offered on preference dividends has been much too low to provide an attractive investment compared with the interest yields on loan stock in view of the additional risk involved.

## Loan stock

Loan stock is long-term debt capital raised by a company for which interest is paid, usually half yearly and at a fixed rate. Holders of loan stock are therefore long-term creditors of the company.

Loan stock has a nominal value, which is the debt owed by the company, and interest is paid at a stated "coupon yield" on this amount. For example, if a company issues 10% loan stock the coupon yield will be 10% of the nominal value of the stock, so that \$100 of stock will receive \$10 interest each year. The rate quoted is the gross rate, before tax.

Debentures are a form of loan stock, legally defined as the written acknowledgement of a debt incurred by a company, normally containing provisions about the payment of interest and the eventual repayment of capital.

## Debentures with a floating rate of interest

These are debentures for which the coupon rate of interest can be changed by the issuer, in accordance with changes in market rates of interest. They may be attractive to both lenders and borrowers when interest rates are volatile.

## Security

Loan stock and debentures will often be *secured*. Security may take the form of either a *fixed charge* or a *floating charge*.

a) **Fixed charge;** Security would be related to a specific asset or group of assets, typically land and buildings. The company would be unable to dispose of the asset without providing a substitute asset for security, or without the lender's consent.

b) **Floating charge;** With a floating charge on certain assets of the company (for example, stocks and debtors), the lender's security in the event of a default payment is whatever assets of the appropriate class the company then owns (provided that another lender does not have a prior charge on the assets). The company would be able, however, to dispose of its assets as it chose until a default took place. In the event of a default, the lender would probably appoint a receiver to run the company rather than lay claim to a particular asset.

## The redemption of loan stock

Loan stock and debentures are usually redeemable. They are issued for a term of ten years or more, and perhaps 25 to 30 years. At the end of this period, they will "mature" and become redeemable (at par or possibly at a value above par).

Most redeemable stocks have an earliest and latest redemption date. For example, 18% Debenture Stock 2007/09 is redeemable, at any time between the earliest specified date (in 2007) and the latest date (in 2009). The issuing company can choose the date. The decision by a company when to redeem a debt will depend on:

- a) how much cash is available to the company to repay the debt
- b) the nominal rate of interest on the debt. If the debentures pay 18% nominal interest and the current rate of interest is lower, say 10%, the company may try to raise a new loan at 10% to redeem the debt which costs 18%. On the other hand, if current interest rates are 20%, the company is unlikely to redeem the debt until the latest date possible, because the debentures would be a cheap source of funds.

There is no guarantee that a company will be able to raise a new loan to pay off a maturing debt, and one item to look for in a company's balance sheet is the redemption date of current loans, to establish how much new finance is likely to be needed by the company, and when.

Mortgages are a specific type of secured loan. Companies place the title deeds of freehold or long leasehold property as security with an insurance company or mortgage broker and receive cash on loan, usually repayable over a specified period. Most organisations owning property which is unencumbered by any charge should be able to obtain a mortgage up to two thirds of the value of the property.

As far as companies are concerned, debt capital is a potentially attractive source of finance because interest charges reduce the profits chargeable to corporation tax.

### **Retained earnings**

For any company, the amount of earnings retained within the business has a direct impact on the amount of dividends. Profit re-invested as retained earnings is profit that could have been paid as a dividend. The major reasons for using retained earnings to finance new investments, rather than to pay higher dividends and then raise new equity for the new investments, are as follows:

- a) The management of many companies believes that retained earnings are funds which do not cost anything, although this is not true. However, it is true that the use of retained earnings as a source of funds does not lead to a payment of cash.
- b) The dividend policy of the company is in practice determined by the directors. From their standpoint, retained earnings are an attractive source of finance because investment projects can be undertaken without involving either the shareholders or any outsiders.
- c) The use of retained earnings as opposed to new shares or debentures avoids issue costs.
- d) The use of retained earnings avoids the possibility of a change in control resulting from an issue of new shares.

Another factor that may be of importance is the financial and taxation position of the company's shareholders. If, for example, because of taxation considerations, they would rather make a capital profit (which will only be taxed when shares are sold) than receive current income, then finance through retained earnings would be preferred to other methods.

A company must restrict its self-financing through retained profits because shareholders should be paid a reasonable dividend, in line with realistic expectations, even if the directors would rather keep the funds for re-investing. At the same time, a company that is looking for extra funds will not be expected by investors (such as banks) to pay generous dividends, nor over-generous salaries to owner-directors.

### Bank lending

Borrowings from banks are an important source of finance to companies. Bank lending is still mainly short term, although medium-term lending is quite common these days.

Short term lending may be in the form of:

- a) an overdraft, which a company should keep within a limit set by the bank. Interest is charged (at a variable rate) on the amount by which the company is overdrawn from day to day;
- b) a short-term loan, for up to three years.

Medium-term loans are loans for a period of from three to ten years. The rate of interest charged on medium-term bank lending to large companies will be a set margin, with the size of the margin depending on the credit standing and riskiness of the borrower. A loan may have a fixed rate of interest or a variable interest rate, so that the rate of interest charged will be adjusted every three, six, nine or twelve months in line with recent movements in the Base Lending Rate.

Lending to smaller companies will be at a margin above the bank's base rate and at either a variable or fixed rate of interest. Lending on overdraft is always at a variable rate. A loan at a variable rate of interest is sometimes referred to as a *floating rate loan*. Longer-term bank loans will sometimes be available, usually for the purchase of property, where the loan takes the form of a mortgage. When a banker is asked by a business customer for a loan or overdraft facility, he will consider several factors, known commonly by the mnemonic PARTS.

## Q.5 What Are the Factors Affecting selection of project?

Ans: **7 Factors Affecting Project Management**

### 1. **Deadline:**

Deadline is one of the key aspects that determine how a project is managed. Missing a deadline creates a bad impression for your team. However, completing a project on deadline does not mean that you compromise on quality. You have to be both alert about time and have a keen eye on quality. If the project has narrow deadlines with strict clients or stakeholders, project manager should be alert to all possible hindrances from before and take appropriate precautions, so that on-time delivery of quality products or services can be ensured. Not only should the manager be on their toes but they should instill the same kind of attitude among the team members. Team members should flag issues, problems and hindrances the moment being faced so that solutions can be looked out for immediately.

### 2. **Budget:**

Budget is another critical factor that determines a project's progress and management. In case the budget is high, then the number of days for completion of the project is also more and so is the number of resources allocated to it. Do not rush in such situations; rather focus completely on delivering products or services that are of best quality, with maximum utilization of resources. However, if the budget is less you have to adjust with limitations such as unavailability of resources, lack of time, and money. However, you cannot compromise on quality which means the stress level of you and your team increases. You may have to motivate your irritated overworked team members by encouraging them for their good performance and recognizing their efforts through rewards.

### 3. **Stakeholders:**

Techniques of managing projects will vary depending upon the kind of stakeholders for the projects. In case a project has multiple stakeholders from different backgrounds, there is a possibility of disagreement between them. In such cases, project management becomes extremely challenging as you cannot afford to have unhappy stakeholders and clients. Great convincing and negotiation skills are required in such cases to reach a consensus. It can be time consuming and hence the actual time dedicated to resources will reduce. The project manager needs to adopt tactful approaches in such cases and get the work done.

### 4. **Project Members:**

Project management techniques are also determined by the challenges faced by a project manager which, in turn, depends on the kind of team he or she is handling. If the team consists of members with diverse backgrounds and skills, a gap in terms of team spirit may exist. This obviously impacts work. Therefore, a project manager should apply techniques to bring the team close. He should ensure that regular team meets happen which can be both formal and informal. In team meetings and outings people from various backgrounds are bound to interact. This creates a bond between members and they are ready to be there for each other.

**5. Demand:**

Demand is another key factor that influences project management techniques. Demand itself depends on a few factors such as type of products or services, usability, etc. If the product is a perishable item such as grains or vegetables, the nature of demand will be different from that of garments that can be stocked and used for months. In case of services, such as creation of instruction manuals for electronic products, the demand depends on the number of users in the market. Depending on the kind of demand and the nature of the product or services offered, a project manager needs to apply appropriate management techniques ensuring on time delivery of goods and services.

For example, an app development company is creating a product for a new mobile offering from XYZ which will be released in the market after 6 months. Therefore, the app needs to be ready by at least a month before the release. The project manager will have the details in mind, while forming the team and allocating resources. Some of the techniques may involve daily morning stand-ups, regular testing sessions, survey within his or her organization, pilot testing among selected technology geeks. On the other hand, if an organization conducts training sessions on project management certifications, the project manager's technique may involve researching the market, offering services at lower than market rate, looking for potential candidates who can take up the certifications, offering discounts if a person takes more than one course, having an online marketing team to promote the services that are offered at attractive prices etc.

**6. Supply:**

In order to meet the demand within a stipulated date and time (which we came across as deadline), supply of resources is necessary. A project manager needs to ensure that supply is adequate, so that deadline is not compromised for want of resources. For example, the company has scheduled a training session with 15 students on a given date. Students have paid fees and they have been given the date, time and venue of the session. However, more people started registering for the session and the total number reached 25. The current venue has a capacity of 20

people. Now, the training provider should be in a position to arrange another venue immediately for the training session. If the session gets cancelled due to lack of space, it will be a big loss for the company both in terms of money and reputation.

#### 7. **Price:**

Price is an important aspect of project management. Price is determined by high level managers in consultation with project sponsors after studying market trends. Price is an important determinant of the sale and profit and should be determined after careful calculation. The type of product or service is an important factor to be considered when talking about price determination. For convenience, we will categorize products into three types: perishable products, non-perishable products, and specialized products. There are two factors that need to be considered here: the quantity that needs to be sold and the price that the buyer is willing to pay for it. In case of non-perishable items like cooking oil, grains and pulses, coal, demand is never a limitation. Additionally, being non-perishable, the products can be stored and marketed throughout the year. The storage and demand factors balance out the price. These kinds of products are usually not exorbitantly high priced.

However, it is different for perishable products and seasonal items. These are in the market for a short duration and are in high demand for that period. Owing to the high demand and limited supply, price is usually high. For example, an organization focused on export of fruits and vegetables, will have enough supply of the items during winter.

Project management is a complex concept. There is no one rule for managing projects as there is no single type of project. Services and products are the two key categories of offerings in the market and the management method differs significantly for both. Within each category, there are multiple varieties and again project management will vary depending on the type of product or service in question. The factors mentioned in this article will give you a clear idea regarding the key determinants of project management methods and techniques.