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Assignment: Engineering Management
and Economics.

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Q1 Multiple Choice Questions.

① Engineering management is : Both art and science

a) An Art

b) Both Art and science

c) A Science

d) Neither Art nor Science.

② Engineers can become good managers only through : Experience

a) Experience

b) Taking master degree in management

c) Effective career planning.

d) Trainings.

③ When engineers enter management, what is most likely problem he finds difficult to acquire.

All of the above.

- ④ Strategic planning is undertaken in which management level :
Top Management level
- ⑤ What management functions refers to the process of anticipating problems, analyzing them, estimating their likely impact and determining actions that will lead to the desired outcomes and goals Planning
- ⑥ What refers to the establishing interrelationships between people and things in such a way that humans and materials resources are effectively focused toward achieving the goal of the company
Leading
- ⑦ Actual performance normally is the same as the original plan and therefore it is necessary to check for deviation and to take corrective actions. This action

Refers to what management level Controlling

⑧ Strategic planning is undertaken in which management level:

Top Management level.

⑨ For a project manager to achieve his given set of goals through other people, he must have a good Leadership

⑩ An engineer is required to finish a certain engineering job in specific time. He is said to be Effective if he finished the job within the required specific time.

⑪ If an engineer provides less input (labour and material) to his project and still come out with the same output, he said to be more Efficient

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Q2 A manager's job is complex and multidimensional and requires a range of skills. What are those skills, discuss in detail.

Ans- A manager's job is complex and multidimensional and requires a range of skills i.e.

- > Conceptual skills
- > Human skills
- > Technical skills.
- > Diagnostic skills.

• Conceptual Skills-

It is the ability to see the organization as a whole and the relationship among its parts. Conceptual skills involves the manager's thinking, information processing and planning abilities. Knowing where one's department fits into the total organization and how the organization fits into the industry.

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the community and the broader business and social environment. The ability to think strategically. Concept skills is very important for managers at the top. Many of responsibilities of top managers—such as decision making, resource allocation and innovation require a broad view.

- Human Skills—

It is the ability to work with and through others and to work effectively as a group member.

- i) The ability to motivate, lead, communicate and resolve conflicts.
- ii) Allows subordinates to express themselves without fear of ridicule and encourages participation
- iii) Relies on the quality of its people for its success
- iv) Likes other people and is liked by others.

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- v) Have good judgment for other decision such as hiring and setting company policies.
- vi) He makes employees feel valued and inspired and promote close working relationships that are fun.
- vii) Effective managers are cheer leaders, facilitators, coaches and nurturers.
- viii) Excellent managers don't take people for granted.
- ix) Measures employees satisfaction using formal questionnaire.
- x) Getting things done through people.

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• Technical Skills:-

It is the understanding and proficiency in the performance of specific tasks

- Including mastery of methods, techniques and equipment involved in specific functions such as engineering, manufacturing, finance, forecasting and marketing skills.

- Specialized knowledge, analytical ability, competent use of tools and techniques to solve problems in specific discipline.

• Diagnostic Skills:-

Managers ability to visualize the most appropriate response.

- Diagnose and analyze a problem and then developing a solution.

For example high turnover - possible

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reason dissatisfaction with pay
or not favorable environment or
poor interpersonal skill, find solution
by interviewing of employees.

For example in favorable situation—
sales increases at higher rate
than anticipated cause, low price
or greater demand than predicted
or high price by a competitor is
known as diagnostic skill.

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b) Briefly explain the characteristics of authority.

Ans: Characteristics of Authority:-

Because of the position that a manager holds.

① Authority is vested in organizational position not people-

Because of the position that a manager holds

② Authority is accepted by employees-

Authority flows top down through the organization's hierarchy, employees comply because they believe that managers have legitimate right to issue orders.

③ Authority flows down the vertical hierarchy-

Positions at the top of the hierarchy are vested with

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more formal authority than are positions at the bottom.

iv) Responsibility:-

It is the flip side of authority coin. It is the duty to perform the task or activity an employee has been assigned. When managers have responsibility for task outcomes but little authority, the job is possible but difficult. But when managers have authority exceeding responsibility, they may become tyrants.

vi) Accountability:-

Is the mechanism through which authority and responsibility are brought into alignment. It means that people with authority and responsibility are subject to reporting and justifying tasks outcomes to those above.

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them in the chain of command. Employees must be aware that they are accountable for a task and accept the responsibility and authority for performing it.

vi) Delegation of Authority:-

Is the process by which a manager assigns a portion of his total work load to others. Subordinates help ease the manager's burden. In some case, a subordinate may have more expertise than a manager. It also helps develop subordinates. Delegation of authority involves three steps, assigning responsibility, giving the authority to do the job and establishing subordinates accountability.

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Vii) Decentralization-

The process of systematically delegating of power and authority throughout the organization to middle and lower level managers. Decision making power and authority are delegated as far down the chain of command as possible. The greater the complexity and uncertainty of the environment, the greater is the tendency to decentralize. Successful organizations are usually decentralized.

Viii) Centralization-

The process of systematically retaining power and authority in the hands of high-level managers. Decision making power and authority are with top managers. In times of crises or risk of organization failure, authority may be centralized at the top.

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ix) Coordinating Activities

The fifth major element of organizing is coordination. It is the process of linking the activities of the various departments of organization. The reason for coordination is that departments and work groups are interdependent. Systems must be put into place to keep the activities of each department focused on the attainment of organizational goals.

X) Differentiating between positions

The last building block of organization structure is differentiating between line and staff positions. Line managers work directly toward organizational goals, whereas staff managers advise and assist.

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Question no # 03

Q) How does a project emerge? Describe its characteristics.

Ans A project is emerged by an idea, driven by a need, a desire for innovation and creativity and an addition to a school of thought or a body of knowledge.

A project is a temporary endeavor undertaken to create a unique product, service or a result.

Characteristics of a Project:-

Components of a project are:

A start

A process

An end

and contains resources, costs, people, timescales etc constraints.

- Project management is an applied subject.
- Effective project management is

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- a mix of past experience.
- analytical techniques
- a pragmatic approach to the problem in hand.
- There are no theoretical principles that must be followed.
However numerous methodologies has been proposed.
- A successful outcome to a project cannot be guaranteed but using a structured methodology can reduce the risk of failure.
- A PM uses tools and skill to assess situation and hand at minimize risk of failure.

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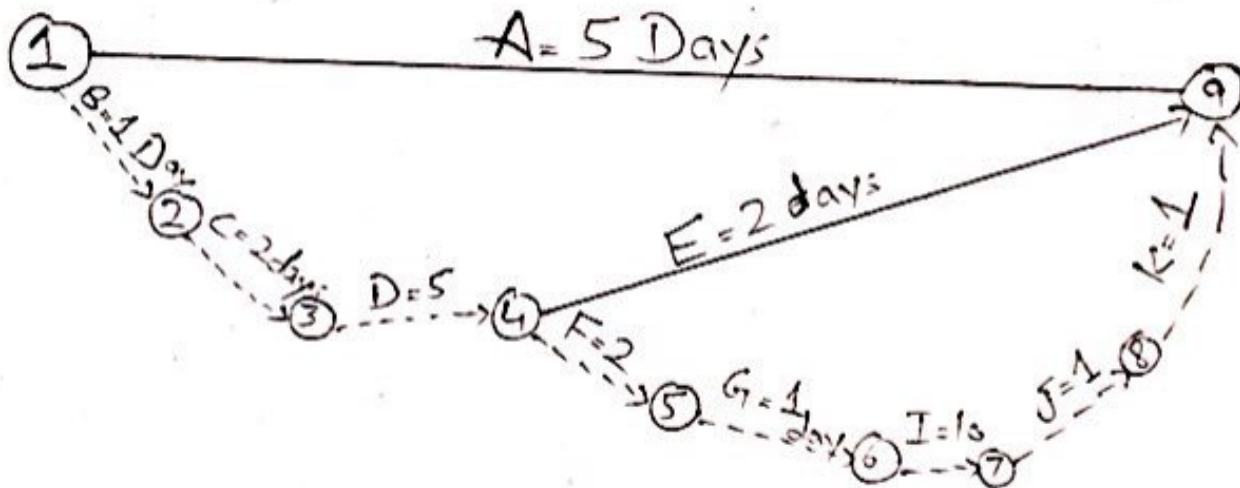
b) An international conference is planned in 1989, National University. The activities listed down and their precedence and time taken. Prepare a network diagram and determine the critical path.

	Activity	Precedence	Time
a)	Date, Topic and speakers	-	5 days
b)	Prepare logo and brochures	-	1 day
c)	Send letters to speakers.	B	2 days
d)	Get confirmation from speakers	C	5 days
e)	Send letters to participants. C, D		2 days
f)	Obtain travel plan from D speakers.		2 days
g)	Arrange Accommodation F		1 days
h)	Get handouts from F speakers.		4 days
I)	Finalize registration. G, H		10 days
J)	Setting of Hall. I		1 day
K)	Conduct of program J		1 day

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Ans



Critical Path = B C D F H I J K = 26 day