

# PTM 04

Project Management (Elective Subject)

Roll No.

Total No. of Printed Pages: 4

Total No. of Questions : 5

Maximum Marks : 60

Duration (hrs.) : 3

## Question No. 1 (15 Marks)

Answer the following:

- What are the impacts and causes of cost overrun of projects?
- What do you understand by Matrix Management for projects?
- Why should an organization not rely only on return on investment (ROI) to select projects?
- What are the salient features of limited recourse project financing structure?
- What is the difference between PERT and CPM?

## Question No. 2 (20 Marks)

A] A project for installation of an oxygen plant in an integrated steel plant was approved for ₹190 crore. At the time of formulation and processing for the approval of project, the execution mode could not be decided. After the project was approved, an offer came from an experienced and reputed contractor to execute the project on the following modes:

Build-own-operate (BOO), build-operate-transfer (BOT), build-own-operate-sell (BOOS), build-own-operate-lease (BOOL), engineering-procurement-construction (EPC).

Explain the role of project consultant and payment of fees to the consultant in the above modes of execution of project. (05 Marks)

B] For a project, a contract is finalized for ₹82.50 crore. The tenderer believes that the Union Budget 2012-2013 and policies to be announced in early 2013 are pertinent and significant for him. The project is expected to start in July 2012 and complete by July 2015 and contract is on turnkey basis. Before opening the price bids on 22 February 2012, departmental estimate was prepared in November 2011. At the time of opening of the price bids on 22 February 2012, cover of departmental estimates was also opened. The estimated cost of the same job as worked out by the department consultant is for ₹75.40 crore. This was put up to the contracts finalization committee (tender committee) for scrutiny and giving its recommendation. Consider that you are a member of that committee and need to make an analysis before the committee finalizes its recommendations. Would you favour awarding the contract? (05 Marks)

C] According to a report of the Research Foundation for Governance: "In India, different cases find independent solutions (mostly in the Courts of Law through Public Interest Litigation), but the underlying problems remain with the existing laws regarding land acquisition and rehabilitation policy. The commonly referred legislation pertaining to land acquisition is the Land Acquisition Act (1894) which, though amended several times retains its colonial flavour by granting unfettered powers to the Government....."

"The High Court upheld as constitutional and valid the Singur Land Rehabilitation and Development Act 2011, by which the West Bengal government vested the land leased to Tata Motors Ltd. (TML). The justice held that if TML, which has shifted its Nano car plant from

Singur to Sanand in Gujarat alleging political unrest, makes an application for compensation, the district judge will have to dispose it within six months.

Tata Nano car was result of a five year research and development project carried out by Tata Nano development team. While developing the car, Tata Motors and its suppliers constantly made efforts to reduce the costs while ensuring quality of each and every component including engine, steering, wheels, and so on. The West Bengal government had acquired 997 acres of land at Singur in 2006 for the Tata Nano factory. However, a political party that led the movement against acquisition of fertile land won the Assembly elections and made the legislation of Singur Land Rehabilitation and Development Act 2011, by which it vested the land leased to TML and also to the vendors.”

- ? “Project manager should be conversant with the basic provisions or select legal aspects of the contract.” How is this statement vindicated by the Singur case and what are the implications of the Singur case on other projects in the field? **(05 Marks)**

D] Explain the terms with regard to project management: **(05 Marks)**

- i. Work breakdown structure
- ii. Float
- iii. Crash time
- iv. Gantt chart
- v. Information technology projects

**Question No. 3 (05 Marks)**

“The Ambani brothers who came together to celebrate Dhirubhai Ambani’s birth anniversary, have both made plans to hit the international market for funds next month. In 2012, both brothers will tap the international markets to raise debt of over a couple of billion dollars. Mukesh Ambani-led Reliance Industries is in the market to raise \$1 billion through bond issuance. The firm has roped in Citibank, Bank of America Corp. And UBS AG merchant bankers to the planned 10-year dollar bond issue.

Anil Ambani’s Reliance Power will be knocking the doors of Exim banks of US and China to raise over \$1.5 billion for its proposed power plants in Madhya Pradesh and Jharkhand. The company is setting up projects at cost of ₹44000 crore.

According to analysts, RIL fund raising plans are rather surprising since RIL is estimated to generate operating cash flow of around \$6 billion each year in the coming years. Maybe they are borrowing funds because of the low cost of funds overseas. They are talking to raise funds at 150-175 basis points above libor.”

- i. Why it has become easier for Indian firms to raise capital in international markets?
- ii. What would be the main features of the bond issue planned by Mukesh Ambani? What are Yankee bonds? What are Eurocurrency loans and Eurocurrency bonds?
- iii. What is ‘buyer’s credit arrangement’ applicable for the upcoming projects of the Anil Ambani group, considering that they are roping in export credit agency like US EXIM?

**Question No. 4 (05 Marks)**

CASE STUDY

Reliance Industries Ltd. (RIL): Gas Field Development Project

The Reliance KG D6 deepwater gas field development project won the best project of the year award at the PMI India project management conference 2009. The award recognized the successful implementation of high technology, which is at par with the best performance benchmarks in the world.

The deepwater gas exploration project in the Krishna-Godavari river basin in India, called KG D6 project, was commissioned in April 2009, within seven years, against a global average of 8 to 10 years for completion, largely because of the effective use of project management principles. RIL used project management to give direction to the engineering and management capabilities of its teams. The integrated project team had around 30 key people including program managers, project managers and work pack managers across the project life cycle. The project employed over 200 consultants and service providers, engaged in over 20 locations worldwide. Project planning took two years (October 2002 to October 2004), front end engineering design took another two years (2003-2004), construction – development and implementation progressively four years (2005-2008) and testing and commissioning over three months (January-March 2009). Planning, design and construction of the underwater project meant installation of 500 km of pipelines and umbilical over 200 sub-sea connections, more than 80 installations of vessels and barges, usage of underwater robotic technology and installation of a complex reservoir monitoring system. Safety in operations was a key concern in the design and selection of equipment and facilities and RIL conducted geo-technical investigations for all sub-sea locations as well as geo-hazards studies. The extensive investigations helped RIL mitigate project risks.

RIL set up two dedicated project teams – one for onshore and the other for offshore – to ensure smooth operations. The team had to look after time management, risk management, interface management and quality assurance. The project involved a complex web of inter-dependent activities that made the targets gruelling. Managing communications was also challenging apart from other difficulties such as availability of people and equipment and acquiring statutory clearances at several stages. At RIL, the team maintained an integrated Project Master Schedule and a multi-tiered project review system. A ‘war room’ was also set up in Mumbai and project information was made available round the clock to the senior management. E-room enabled exchange of documents. Interface manager took care of all interfaces with contractors and held the responsibility for management and maintenance of various interfaces.

The project has fulfilled the organization's goals and is enhancing India's energy landscape. Production from the Dhirubhai 1 and 3 discoveries of the KG D6 block is likely to result in a quantum leap towards achieving India's energy security as it has the potential to account for 40% of the country's current hydrocarbon production. The production of natural gas from KG D6 has reduced the dependence on more expensive liquid fuels that were being used in the steel, refining and petrochemical sectors.

The facility has undergone extensive quality assurance and quality control audits with the support of international experts like Det Norske Veritas (DNV), Ward Associates and Shell Global Solutions. The pipeline network was put through nitrogen-helium tests for leak tests and pressure points. Fatigue tests were also carried out on installed infrastructure to ensure their ability to support the lifespan of the field.

Questions:

1. Explain the dimensions of project success for this RIL case.
2. Describe the project organization.
3. What kind of mathematical modelling techniques do you suggest for such projects?
4. How did RIL ensure that ‘nothing was left to chance’ with regard to quality control?

**Question No. 5 (15 Marks)**

For a technological upgradation and quality improvement project, following details on its techno-economics parameters are available in the Feasibility Report prepared by the consultant:

I.	Production at the existing level (of 'X' product)	300,000 tonnes
II.	Yield as per existing level	60%
III.	Yield after completion of the project	95%
IV.	Net sales realization per tonne of 'X' product As per existing price circular	₹150/tonne
V.	Net sales realization per tonne of product After completion of the project	₹250/tonne
VI.	Operating cost for the proposed project	₹25/tonne
VII.	Operating cost as per existing level	₹5/tonne
VIII.	Proposed project additional operating cost:	
	(a) Power	₹50 lakh
	(b) Makeup water	₹1.5 lakh
	(c) Maintenance @ 2.5% of the project cost	
IX.	Project Cost [Including interest during construction of ₹1.18 crore]	₹18.50 crore
X.	Rate of interest for commercial borrowings @ 13.5% p.a.	
XI.	Construction Schedule	2 years and 6 months
XII.	Financing of the project:	
	(a) Internal Resources	50%
	(b) Commercial Borrowings	50%
XIII.	Projection of fund requirement (₹crore)	
	Total	[Including interest during construction]
	1 <sup>st</sup> year	2.00 [0.07]
	2 <sup>nd</sup> year	12.50 [0.55]
	3 <sup>rd</sup> year	4.00 [0.56]
XIV.	Gestation period and production build up:	
	1 <sup>st</sup> year (6 months)	50%
	2 <sup>nd</sup> year	75%
	3 <sup>rd</sup> year and onwards	100%
XV.	Life of project after completion	20 years

Consider the following:

- Depreciation rate of 5.28% on straight line method assuming three shift working.
- Depreciation rate of 25% on written down value method for working out income tax on profit.
- Income-tax @ 35% on taxable profit.
- No additional working capital is required as the organization is an existing organization.

From the above details work out:

- Profitability Statement
- Payback Period
- Return on Investment
- Net Present Value (NPV) at discount rate of 12%