

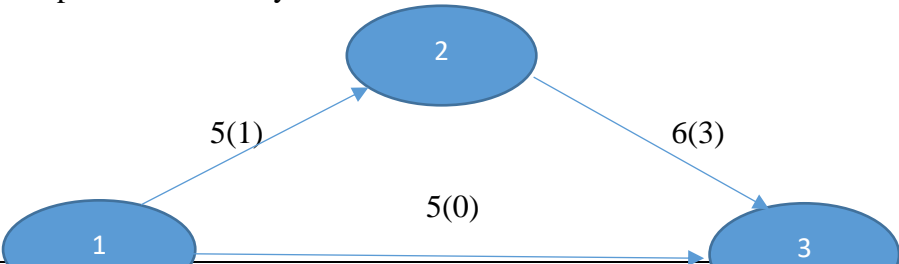
Name:	 <b>UPES</b> UNIVERSITY WITH A PURPOSE
Enrolment No:	

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**End Semester Examination, May 2020**

<b>Course: Project Management</b> <b>Program: B. Tech –Mechanical</b> <b>Course Code: IPEG425</b>	<b>Semester: VIII</b> <b>Time 03 hrs.</b> <b>Max. Marks: 100</b>
---------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------

**Instructions: All questions are compulsory.**

**SECTION A**

S. No.		Marks	CO
Q 1.0	A project costs Rs. 20 lakh and yields annually a profit of Rs. 3,00,000 after depreciation at 12.5 % but before tax at 50 %. Calculate payback period and suggest whether it should be accepted or rejected based on 6-year standard payback period. -- -----	5	CO2
1.1	A and B are two mutually exclusive projects of life 1 year each involving different outlays. The effective rate of discount for both the projects can be taken as 10%. The relevant details of the projects are as follows. A: -           Initial Investment   Rs 5,000       Cash Inflow   Rs 6,250. B: -           Initial Investment   Rs 7,500       Cash Inflow   Rs 9,150. Suggest which project should be accepted as per IRR and as per NPV. -----	5	CO2
1.2	It is the set of Project options that offers either a maximum return for a given level of risk and minimum risk for every level of return is called  A-Check list model B- Simplified scoring model C- Efficient frontier D- None	5	CO2
1.3	The time estimate to do the first iteration of an activity is 10 minutes. Find out the time necessary to complete the 8 <sup>th</sup> activity. Given a= .322 -----	5	CO3
1.4	Find out the minimum time to complete the project after crashing. Activity 1-2 can be crashed by 1 day, activity 2-3 by 3 days and activity 1-3 by zero day. Activity 1-2 completion time 5 days, activity 2-3 completion time 6 days and activity 1-3 completion time 5 days.  	5	CO3

1.5	Activities P, Q and R instantly follow activity M, and their current start times are 12, 19, and 10. Therefore, the latest finish time for activity M is A-13 B- 18 C- 11 D- Cannot be determined	5	CO3
<b>SECTION B</b>			
Q 2.0	Can project lifecycles have different shapes? Provide hypothetical examples of projects for which the life cycles follow different paths and discuss their characteristics.	10	CO2
2.1	What is the cost slope? Explain the method time cost trade off of a project network.	10	CO3
2.2	Define the term contract in procurement management. Discuss various types of contracts in detail.	10	CO4
2.3	a-Write short notes on Construction Management. b- Assume you can lease an item you need for a project for Rs.750/day. To purchase the item, the investment cost is Rs. 5,000, and the daily cost would be another Rs.250/day. 1-How long will it take for the lease cost to be the same as the purchase cost? 2-If you need the item for 12 days whether you lease it or purchase it?	10	CO4
2.4	a-Write short note on subcontract administration. b-Discuss the importance of productivity in project performance. <b>OR</b> Discuss the importance of cost estimation in project planning? Discuss how it links together with the work breakdown structure and the Project schedule.	10	CO4 CO3
<b>SECTION-C</b>			
Q 3	<p style="text-align: center;"><b>Case Study</b></p> <p style="text-align: center;"><b>Bus Rapid Transit System (BRTS) in Delhi</b></p> <p><b>Background</b> Majority of Indian cities are facing serious traffic congestion and air pollution due to rapid urbanization. The civic bodies of the cities have realized that there is limitation in widening the road space to accommodate the increasing number of private vehicles. Therefore, an efficient public transportation has become a necessity for reducing traffic congestion and air pollution. Public transport is cost effective and convenient. In addition, it has significant environmental and social impact as it is more environment-friendly and economic. Increasing concern about fuel scarcity and global warming has emphasized the need of a comprehensive public transport network in the major cities of India. Public transportation network includes different modes of mass transport, such as bus, metro, and suburban trains. The government should integrate different modes of public transportation for creating cost-effective and environmentally sustainable transportation system. The Delhi Government has been</p>	20	CO1

undertaking various public transport project for meeting the increased transportation concerns of the citizens.

The transportation in Delhi is mainly road based with 1284 km of road in every 100 square km area. Roads occupy a significant portion (21%) of the total area in Delhi. Therefore, there is very little scope in expanding the road network. The number of vehicles is also increased by 21.2% from 1991 and 2008. Therefore, there is an increasing need of creating space either over the roads (flyovers) or beneath the roads (underpass). As a result, more than 15 flyovers have been made on Ring Road alone.

Bus is the most prominent form of public transport in Delhi. More than 6 million commuters or 42% of the total commuters travel by bus everyday even though it is very inconvenient and time consuming. The Government of the National Capital Territory of Delhi (GNCTD) approved the plan of Delhi metro in 1998 for providing an alternate public transport. However, Delhi metro could not completely replace the bus transport due to capacity constraints and limited reach of metro in some areas of Delhi. Therefore, the need to create a faster and more convenient bus transport became every evident.

### **Bus Rapid Transport system (BRTS)**

BRTS has been recognized as one of the most efficient mode of public transport throughout the world. It refers to a transportation system that provides faster and more efficient Bus services. This kind of transportation system is widely known as busway or quality bus. In BRTS, buses are provided a separate corridor, coupled with priority signaling system for faster movement. BRTS also provides separate corridor for non-motorized transports (cycle, rickshaw) and pedestrians. It facilitates in making bus transport faster, cheaper, and more convenient. The system has been successfully implemented in many major cities all over the world, such as Lagos, Mexico, Sao Paulo, Johannesburg, Curitiba, Bogotá, and Los Angeles. Many think BRTS to be a very significant step for another green revolution improving the quality of city life all over the world. India implemented BRTS for the first time in Pune in December 2006. However, the Pune government failed to successfully implement the bus corridor project. The traffic police failed to enforce the dedicated lane for the Buses. Pune Municipal Corporation also failed to adhere to the guidelines of the project advisors. Apart from Pune, Ahmedabad, Jaipur, Bhopal, and Hyderabad are some of the cities where BRTS is being considered.

### **Implementation of BRTS in Delhi**

The Delhi government considered BRTS to be an immediate solution for the congestion on roads. It planned to build 26 corridors of BRTS covering a length of

310 km by 2020. The implementation process was divided into three phases. GNICD appointed RAIL INDIA Technical and Economic services (RITES) and Indian Institute of Technology (IIT), Delhi for planning and implementing the first corridor from Ambedkar Nagar to Delhi Gate covering 14.5 km of road. The bus lane was planned to be in the middle of the road with a width of 3.3 meters. The lane for other vehicles were planned by the side of the bus lane with a width of 6.75 meters. Separate lane was also planned for the non-motorized vehicles and the pedestrians.

RITES served the role of the Project manager, whereas IIT Delhi was an advisor for the project. In 2006 Delhi Integrated Multi Model transit system (DIMTS) was created as a special purpose vehicle for the BRTS Project. DIMTS was responsible for the operations and maintenance activities of the project. The construction project started in October 2006. The daily progress was monitored by the operation control Centre (OCC) at Kashmere Gate. The first corridor in Delhi is operational since April 2008.

### **Evaluation of the Project**

The project did not succeed in delivering the expected outcomes. It created mixed reaction among the different stakeholders. BRTS added to the annoyance of the private vehicle users by reducing the width of the road. Private vehicles account for almost 90 % of all vehicles in Delhi, whereas public buses account for only 2.5 % .However the width of the road was reduced for the separation of lanes ,which resulted in traffic congestion .The ratio of public and private vehicle is significantly different in other developed countries where BRTS has been implemented. The police were not able to enforce the dedicated lanes for the buses in Delhi. There was also a lack of supporting infrastructure such as parking places and Intelligent Transport signaling system.

The parliamentary standing committee on urban Transport has said that the BRTS projects in Delhi is a failure despite potential benefits of BRTS.The committee has also recommended abandoning all other corridors of the project. GNCTD failed to learn from the BRTS project in Pune where the project could not deliver the desired result because of poor implementation. However, it is not only poor planning and implementation that lead to the failure of the project. Lack of proper enforcement of the corridors and violation of traffic rules also added to the problem.

### **Answer the following questions based on case**

Q1- Do you think there was any need of BRTS project in Delhi?

Q2- Discuss the reasons for the failure of the Project.

Q3- Articulate the key learning for the government from the project?

**OR**

A company is planning to set up a project at a cost of Rs 3,00,00,000. It has decided to locate the plant in Bengaluru. The project envisages a borrowing of Rs 2,00,00,000. The cost of borrowing will be 12 %. The borrowings have to be repaid in four equal annual installments beginning from the end of the fourth year. Consider the 10% of depreciation of total cost every year.

With the help of information given in Table, please advise the management of the company whether the project should be set up or not. Note:

- (a) A discount rate of 15 % can be assumed for computational purposes.
- (b) Income tax rate applicable to the company is 50 % of their profits.
- (c) Please apply the NPV criteria

<u>Year</u>	<u>Profit / (Loss) before interest / depreciation and taxes (in Rs lakhs).</u> Bengaluru	<u>Discounting Factors</u> <u>applying a rate of 15%</u>
1	(6)	0.87
2	34	0.76
3	54	0.66
4	75	0.57
5	110	0.50
6	140	0.43
7	150	0.38
8	250	0.33
9	350	0.28

	10	450	0.25		
--	----	-----	------	--	--