Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
M.E Sem-II   Examination July 2010

Subject code: 721307
Subject Name: Economics and Evaluation of Transportation Projects
Date: 08 /07 /2010   Time: 11.00am – 1.30pm

Total Marks: 60

Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 **(a)** What is FIDIC contract? Why developed countries adopt this contract?   **06**
   (b) What is road pricing? What are the methods and requirements of it?   **06**

Q.2 **(a)** What are the stages of economic evaluation? Discuss in brief.   **06**
   (b) Calculate the net B/C ratio for the project which has interest rate of 12% with the   **06**
   following data.

Year	Cash flow in Lacs Rs.
0	-1.200
1	0.250
2	0.305
3	0.355
4	0.425
5	0.465

OR

   (b) Calculate annual cost of stretch of highway from the following data at rate of interest   **06**
   9% and maintenance cost is Rs. 2 lacs/Year.

Item	Cost in Lacs Rs.	Life in Year
Land	25	100
Earthwork	17	40
Bridge / Culvert	10	50
Pavement	30	15

Q.3 **(a)** Discuss the methods to calculate Accident cost.   **06**
   (b) The details of the three alternatives proposals for strengthening of a highway   **06**
   pavement are given below. Determine which one is more economical, if its rate of
   interest payable in all the cases is 10% per annum and there are average 3500 motor
   vehicles per day with annual growth rate of 5.5%.

No	Overlay type	Design life in Years	Construction Cost in Lacs Rs/Km	Maintenance Cost in LacsRs./Km	Vehicle operating cost Rs/veh.
1	WBM+ PMC	5	4.5	15000	1.59
2	BM+PMC	8	6.8	8000	1.45
3	BM+AC	12	9.2	4000	1.35

OR

Q.3 **(a)** Define: Elasticity of supply, Latent demand, Consumer surplus,   **06**
              MARR, BOOS, Shadow tolling

(b) (i)The annual maintenance cost of a new toll road open to traffic is Rs. 10 lacs.What is the future worth of this expenditure at the end of 10 years when the rate of interest is 10% per annum.
(ii)The annual maintenance cost of a bridge is Rs.20000,what is present worth of this cost encurred for 12years after the opening of the bridge.The discount rate may be taken as 12% per annum.   **06**

Q.4 **(a)** What is Inflation? Discuss about various types and effect of inflation.   **06**
(b) A bus company's liner demand curve is P=10-0.05Q, where,P is the price of a oneway ticket and Q is the number of tickets sold per hour. Determine the total revenue along the curve.   **06**

OR

Q.4 **(a)** What is public finance? What are the possible sources of financing a project.   **06**
(b) The cost of improving an existing road 20Km long is Rs.5 lacs per Km. Following table gives details for 6 years period after the completion of the improvements. Discount rate is 10%.By using NPV method find out whether the project is economically viable or not?   **06**

YEAR	Road user cost		Accident cost		Maintenance cost	
	With improvement	Without improvement	With improve.	Without improve.	With improve.	W/o Improve.
0	--	--	--	--	--	--
1	105.5	126.5	1.1	3.1	3.5	2.5
2	110.3	132.2	1.1	3.1	3.5	2.5
3	115.8	138.9	1.2	3.5	3.5	2.5
4	121.6	145.8	1.2	3.7	3.5	2.5
5	127.6	153.0	1.3	3.8	3.5	2.5
6	134.0	161.0	1.3	4.0	3.5	2.5

Q.5 **(a)** Explain the terms "Supply and demand " for transportation field .Enlist the determinants of transport demand.   **06**
(b) What is National Income? Discuss various approaches to measure National Income.   **06**

OR

Q.5 **(a)** What is Utility? What are the forms of Utility? Discuss in brief with example.   **06**
(b) What is the need of sensitivity analysis in economic evaluation of any project? How it is carried out?   **06**

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