

GUJARAT TECHNOLOGICAL UNIVERSITY
ME- SEMESTER II- EXAMINATION – SUMMER 2015

Subject Code: 2721307**Date: 26/05/2015****Subject Name: Economic Evaluation of Transportation Projects****Time: 2:30 PM – 5:00 PM****Total Marks: 70****Instructions:**

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

- Q.1** (a) What are the purposes of Economic Evaluation? What are the basic principles involved in it? **07**
(b) Describe various stages involved in Economic Evaluation of Transportation Project. **07**

- Q.2** (a) Differentiate between: (i) Economic Evaluation and Economic Formulation of Engineering projects, (ii) Economic Analysis and Financial Analysis. **07**
(b) Explain demand and utility. **07**

OR

- (b) Discuss with graphs: Marginal utility, Consumer's Surplus, Elasticity of demand. **07**

- Q.3** (a) Describe in brief Total Transportation Cost components. **07**
(b) (i) Find monthly installment for the present worth of Rs. 4,50,000/- if annual rate of compound interest is 9.5% and time period of 7 years. **07**
(ii) Find the value of annual saving of Rs. 25,000/- for 8 years at 10% interest rate.

OR

- Q.3** (a) Explain with sketches factors affecting RUC (Road User Cost) and their evaluation. **07**
(b) The cost of improving an existing road 20 km long, is Rs. 10 lakhs per km. Details of costs with and without improvement are given in following table for a 5 years period after the completion of the improvement. Assuming a discount rate of 10%. Find out whether the project is economically justifiable? Use NPV and B/C ratio methods. **07**

All amounts are in Rs. Lakh in the table.

Year	RUC		Accident cost		Maintenance cost	
	With Improvement	Without Improvement	With Improvement	Without Improvement	With Improvement	Without Improvement
(t)	(2)	(3)	(4)	(5)	(6)	(7)
0	0	0	0	0	0	0
1	310.8	358.7	3.8	6.8	8.6	5.6
2	333.4	384.6	4	7.8	8.6	5.6
3	354.6	414	4.2	8.4	8.6	5.6
4	384.5	445.4	4.5	9.2	8.6	5.6
5	418	481.2	4.8	10.2	8.6	5.6

- Q.4** (a) Describe National Income. Briefly discuss NNP, GNP, GDP. **05**

- (b) The basic cash flow data (in Rs.) for two proposed alternatives are given below. Carry out economic analysis by Present Worth of Cost method and find which alternative is better? **09**

Cash flow item	Alternative 1	Alternative 2
Initial investment (I)	2,30,000	2,50,000
Terminal value (T)	80,000	90,000
Uniform annual expense (K)	10,000	11,000
Uniform annual RUC exclusive of road user taxes (U)	94,000	90,000
Minimum attractive rate of return (i)	9%	9%
Analysis of period in years (n)	10	10

OR

- Q.4** (a) Write short note on appraisal model: HDM-IV. **07**
(b) Explain the methods of estimating National Income. **07**
- Q.5** (a) Briefly discuss about benefits of: (i) Highway project, and (ii) Urban mass transit system. **07**
(b) Explain the methods for raising funds for urban mass transportation projects. **07**

OR

- Q.5** (a) Discuss about critical issues in funding of transportation system. **07**
(b) Briefly explain: (i) Subsidy, (ii) Inflation. **07**
