

# CBCS Scheme

USN

--	--	--	--	--	--	--	--	--	--

15MA61

Sixth Semester B.E. Degree Examination, June/July 2018

## Engineering Economics

Time: 3 hrs.

Max. Marks: 80

- Note:** 1. Answer any FIVE full questions, choosing one full question from each module.  
2. Use of Discrete Interest Tables permitted.

### Module-1

- 1 a. Explain law of supply and demand, with a neat sketch. (06 Marks)  
b. Explain the process of problem solving and decision making in engineering economics. (10 Marks)

OR

- 2 a. Explain in detail the role of engineering is a decision maker. (08 Marks)  
b. Differentiate between :  
i) Intuition and Analysis ii) Strategy and Tactics. (08 Marks)

### Module-2

- 3 a. Explain "Time Value of Money" in detail. (04 Marks)  
b. Find the effective rate of interest for an actual rate of interest of 10% when compounded:  
i) Bi-annually ii) Quarterly iii) Monthly iv) Daily v) Hourly vi) Weekly. (12 Marks)

OR

- 4 a. Explain Cash flow diagram for Borrowers and Lender's point of view. (04 Marks)  
b. Determine the effective rate of interest in the following cases : (12 Marks)  
i) Nominal rate of 12% compounded monthly with time interval of one year.  
ii) Nominal rate of 18% compounded weekly with a time interval of one year.  
iii) Nominal rate of 13% compounded monthly with a time interval of two years.  
iv) Nominal rate of 9% compounded semi annually with a time interval of two years.

### Module-3

- 5 a. The first cost for equipment and tooling modification for an investment is expected to be Rs 18, 50, 000 increase in annual maintenance cost and operating cost due to this investment operating cost is expected to be a constant 30,000/year , potential inventory reduction are estimated to be Rs 3,20,000 for the first year with further automatic gradient reduction of Rs 40,000/year production rates are expected to increase with Rs 20,000 increase per year in each of 4 years. If an interest rate of 10% find the total present worth of the equipment. (10 Marks)  
b. A company is thinking of purchasing a small truck that has a first cost of Rs 150000 and is to be kept in service. For 6 years at which time the salvage value is expected to be as 25,000 maintenance and operating costs are estimated at Rs 25,000 in first year and will increase at a rate of Rs 2000 per year. Determine the PW of vehicle at 12%. (06 Marks)

OR

- 6 a. Compare the two proposals using equivalent annual worth at 12% per annum : (08 Marks)

Cash flows	Machine A	Machine B
First cost	Rs 2,50,000	Rs 1,50,000
Annual maintenance	Rs 2,000	Rs 4,000
Overhead at end of third year	-	Rs 3,000
Salvage value	Rs 1,00,000	Rs 80,000
Useful life	5 yrs	5 yrs

- b. Two motor cycles of brand A & B are available on the following terms :  
 i) Motor cycle A makes a down payment of Rs 5000 and then Rs 6,000 at the end of each year for 7 years.  
 ii) Motor cycle B makes a down payments of Rs 15,000 and no payment for the next 3 years from end of the fourth year annual payments of Rs 12,000 for the next 4 years.  
 Assume rate of interest as 10%. (08 Marks)

**Module-4**

- 7 a. A person is planning a new business. The initial outlay and cash flow pattern for the new business are as listed below. The expected life of the business is five years. Find the rate of return for the new business. (08 Marks)

Period	0	1	2	3	4	5
Cash flow (Rs)	-1,00,000	30,000	30,000	30,000	30,000	30,000

- b. For the cash flow diagram, shown in the fig. Q7(b) below, compute the rate of return. The amount indicated in the fig are in rupees. (08 Marks)

Fig.Q7(b)



OR

- 8 a. Explain the various elements of product cost in detail. (12 Marks)  
 b. A company produces 30,000 units per annum. The various cost components are as follows :  
 Direct material → Rs 6/unit ; Direct Labor → Rs 5/unit  
 Fixed overheads → Rs 60,000 ; Variable overheads → Rs 2.50/unit  
 Calculate the total cost / unit. (04 Marks)

**Module-5**

- 9 a. Differentiate between : (08 Marks)  
 i) Capital expenditure and Revenue expenditure ii) Capital Receipt & Revenue Receipt.  
 b. The company having resources and surplus has the following year and details in rupees. Prepare a balance sheet for the same (All the amount mentioned is in Rupees). (08 Marks)

Equity shares = Rs 2,00,000	Bills payable = 20,000
Bank Balance = 10,000	Plant & Equipment = 80,000
Dividend Payable = 72,000	Bills receivable = 20,000
Provision for Tax = 40,000	Creditors = 50,000
Preference share = 1,35,000	General reserve = 40,000
Land & Building = 2,00,000	Cash in hand = 15,000
Debtors = 1,60,000	Stock = 77,000

OR

- 10 a. List the objectives and importance of financial planning. (08 Marks)  
 b. i) Differentiate between Planning and Control. (02 Marks)  
 ii) List advantages and disadvantages of Budgeting. (06 Marks)

\*\*\*\*\*