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10ME71

**Seventh Semester B.E. Degree Examination, Dec.2017/Jan.2018**  
**Engineering Economy**

Time: 3 hrs.

Max. Marks:100

**Note: 1. Answer any FIVE full questions, selecting atleast TWO questions from each part.**  
**2. Interest factors tables permitted.**

**PART – A**

- 1 a. Explain briefly the problem solving process with a diagram. (05 Marks)  
 b. Enumerate the difference between Intuition and analysis. (05 Marks)  
 c. Determine the effective interest rate for a nominal annual rate of 10% that is compounded :  
 i) Quarterly ii) Monthly iii) Daily iv) Hourly. (06 Marks)  
 d. A 45 years old person is planning for his retired life. He plans to divert Rs 30,000/- from his bonus as investment every year for the next 15 years. The bank gives 12% interest rate compounded annually. Find the maturity value of his accounts when he is 60 years old. (04 Marks)
- 2 a. Briefly explain the conditions for present worth comparison. (06 Marks)  
 b. Two devices are available to perform necessary functions for 3 years. The initial Costs (-ve) for each device as time zero and sub – sequent annual savings (+ve) both in rupees are shown in the following table. The required interest rate is 8%. (10 Marks)

Years	0	1	2	3
Device A	9000	4500	4500	4500
Device B	14000	6000	6000	8000

- c. How do you compare assets that have unequal lives? Explain. (04 Marks)
- 3 a. Define the following terms with respect to EAWC :  
 i) Ownership life or Service life ii) Accounting life iii) Economic life. (06 Marks)  
 b. A plot can be purchased for Rs 13,80,000. Company A offers a loan at 7.5% nominal interest to be compounded monthly, if a down payment of Rs 25,000 is paid initially. The loan is to be paid off in 15 years. Company B offers 20 year repayment period with the same down payment but the nominal interest rate is 9% compounded monthly. Evaluate the monthly payment for the above two alternatives. (08 Marks)  
 c. A stand by lighting generator is required for a shop. Two types are available.

	Type 1	Type 2
First cost	Rs 5,000	Rs 3,200
Salvage value	Rs 1,000	Nil
Annual operating costs	Rs 780	Rs 950

If both generators have a life of 4 years and the interest rate is 15% per year, which offers the lowest equivalent annual cost. (06 Marks)

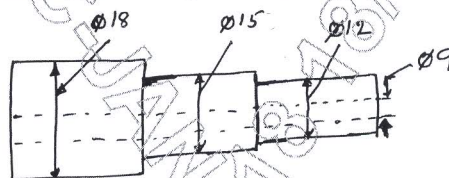
- 4 a. Explain the following : i) Minimum Acceptable rate up return (MARR) ii) Internal Rate of Return (IRR). (04 Marks)  
 b. Describe the causes of depreciation. (06 Marks)

- c. A CNC LATHE machine has a first of Rs 5,00,000/- with a salvage value of Rs 1,00,000/- after 5 years. Determine the following :
- Depreciation charge using straight line method.
  - Book value or diminishing value of the machine at the end of 2<sup>nd</sup> year.
  - Depreciation charge using SOYD method.

(10 Marks)

**PART – B**

- 5 a. With a neat sketch, explain the component of costs traditionally used in the accounting for the price of a manufactured product. (06 Marks)
- b. A TVS factory producing 500 spark plugs per day. The direct material cost is found to be Rs 40,000/- , direct labour costs is Rs 35,000/- and factory over heads chargeable to it Rs 10,000/-. If the selling on cost is 30% of the factory cost. Estimate the selling price of each spark plug to realize a profit of 15% of the selling price. (06 Marks)
- c. A C.I cone pulley is shown in figure. Taking density of C.I as 7.0208 gm/cc. Estimate unit weight of component. Calculate the cost of material, if cost per kg is Rs 20/-. All dimensions in cm. All three steps have equal length of each 6cm. (08 Marks)



- 6 a. What are the objectives of financial management? (05 Marks)
- b. Explain Finance functions. (05 Marks)
- c. Write the balance sheet equation. Following is the year end details of a Company XYZ, prepare the balance sheet for year end 31<sup>st</sup> March 2017. (10 Marks)

Equity shares	2,00,000/-	Bills payable	20,000/-
Bank balance	10,000/-	Plant & equipment	80,000/-
Dividend payable	72,000/-	Bill receivable	20,000/-
Provisions for tax	40,000/-	Creditors	55,000/-
Preference shares	1,35,000/-	General reserves	40,000/-
Land & Building	2,00,000/-	Cash in hand	15,000/-
Debtors	1,60,000/-	Stock	77,000/-

- 7 a. Describe the users of financial ratio analysis in brief. (05 Marks)
- b. List and explain the various financial ratio's. (15 Marks)
- 8 a. List the essentials of Profit Planning. (05 Marks)
- b. List the types of budgets and explain master budget. (07 Marks)
- c. For ABC company, analyse a production budget for 3 months ending 31.03.2017 for four products on the basis of following information. (08 Marks)

Product	Estimated stock on 01.01.2017	Estimated sales during Jan – March 2017	Desired closing stock on 31.03.2017
A	20,000	1,00,000	30,000
B	30,000	1,50,000	50,000
C	40,000	1,30,000	30,000
D	30,000	1,20,000	20,000

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