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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belgaum)

Sixth Semester, B.E. – Industrial and Production Engineering

Semester End Examination; June/July - 2015

Engineering Economics

Time: 3 hrs

Max. Marks: 100

Note: i) Answer any **FIVE** full questions, selecting at least **TWO** full questions from each part.

ii) Use of Interest table is permitted

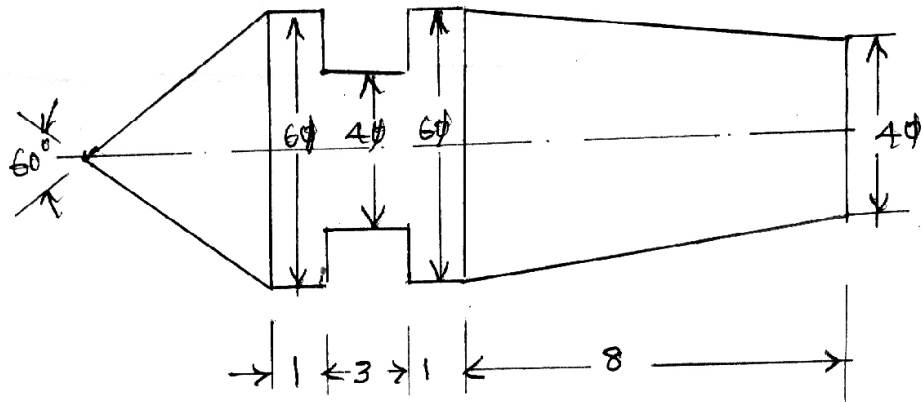
PART - A

1. a. Describe the problem solving process with a diagram. 10
- b. Mention the difference between intuition and analysis. 5
- c. What is tactics and strategy? 5
- 2 a. Explain the following terms: 10
- i) Simple interest ii) Compound Interest iii) Effective interest rates
- b. Determine the effective interest rate for a nominal annual rate of 6% that is compounded. 10
- i) Semiannually ii) Quarterly iii) Monthly iv) Daily
- 3 a. Explain the conditions of present worth comparisons. 12
- b. An investor can make 3 end of year payments of ` 15000/-. Which are expected to generate of ` 10000, at the end of 4 year that will increase annually by ` 2500 for the following 4 years? If the investors can earn a rate of returns of 10% on 8 years investment, is this alternative attractive? 8
- 4 a. Write a note on: 10
- i) Sinking fund method.
- ii) Annuity contract for guaranteed income.
- b. The purchaser of a truck with an operator's platform on a telescoping hydraulic boom will reduce labour cost for sign installation by ` 15000/year. The price of the boom truck is `93000 and its operating cost will exceed those of present equipment by `250/month. The resale value is expected to be `18000 in 8 years. Should the boom track be purchased when the current available interest rate is 7% use EAW method? 10

PART - B

- 5 a. Describe the following : 8
- i) Minimum acceptable rate of return,
- ii) Internal rate of return
- iii) External rate of return

- b. A parcel of land adjacent to a proposed freeway exit is deemed likely to increase in value. It can be purchased now for ₹ 80,000 and is expected to be worth of ₹ 1,50,000 within 5 years. During that period it can be rented for pastures at ₹ 1500/year. Assume taxes are presently ₹ 850 and will likely remains constant. What rate of return will be earned on the investment if estimates are accurate? 12
6. a. What is depreciation? Explain any two methods of depreciation. 8
 b. Explain the various causes of depreciation. 12
- 7 a. What do you mean by replacement due to deterioration? Explain. 5
 b. List and explain the elements of product cost. 5
 c. Calculate the weight of a lathe centre shown in figure below, if the material weight is 7.8 gm/cc. Also determine the cost of the material if its rate is ₹ 20/kg.



All dimensions are in mm

- 8 a. What is inflation? Explain the causes of inflation. 5
 b. Describe the lease / buy decisions. 5
 c. Calculate the BEP in units and Rupees from the following data. 10
 Selling price per unit ₹ 12.
 Variable cost / unit ₹ 7.
 Total fixed cost ₹ 50,000.
 i) What sales (units) are required to earn a pretax income of ₹ 60,000/-?
 ii) What sales are required to earn a after tax income of ₹ 60,000/- if the tax rate is 40%?

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