Code No. 5125

FACULTY OF ENGINEERING

B.E. 3/4 (Civil/CSE/IT) I – Semester (Main) Examination, December 2015

Subject : Managerial Economics and Accountancy

Time : 3 hours **Max. Marks : 75**

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1 Micro Managerial Economics. 2

2 The functional relationship between quantity demanded and factors influencing is known as 2

3 Firm and industry. 2

4 Monopoly and its features. 2

5 Fixed and working capital. 2

6 Write Journal entries for the following 3
2006 Jan 1 Purchase goods from Sham on credit Rs.10,000
" 2 Sold goods for cash Rs.7,000
" 3 Paid rent to landlord Rs.5,000

7 What is Trial Balance? 3

8 Money measurement concept. 3

9 Write the account rules. 3

10 Convention of Disclosure. 3

PART – B (50 Marks)

11 Define managerial economics and its usefulness to Engineers.

12 What is Demand? What are the methods or techniques of Demand Forecasting.

13 What is Perfect Competition? Explain the features of Perfect Competitions.

14 A Ltd. Co. has submitted the following information.

	Rs
Sales	1,80,000
(-) variable cost	1,44,000
Contribution	36,000
Less : Fixed cost	24,000
Net profit	12,000

You are required to calculate
a) P/V ratio b) B.E.P.
c) Value of sales to earn a profit of Rs.24,000
d) Net profit from the sales of Rs.2,70,000

15 Prepare Trial Balance

	Rs.
Capital	50,000
Purchases	70,000
Prepaid expenses	500
Sales	1,00,000
Opening stock	20,000
Sundry creditors	10,000
Sundry expenses	3,000

Cash at bank Rs.6,450
Petty cash Rs. 50

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16 Cost of investment Rs.30,000 and their life is 5 years Rate of return is 10%.

Year	1	2	3	4	5
CFAT	5,000	5,000	10,000	20,000	10,000

Calculate 1) Net Present value 2) Profitability Index

17 From the following balances of Basheer Ahmed for the year ending 31-3-2012, prepare trading and profit and loss account and balance sheet as on that date.

	Rs.		Rs.
Opening stock	1,32,000	Wages	2,200
Purchases	83,600	Import duties	6,600
Purchase returns	1,320	Cash	1,760
Sales	1,87,440	Bank balance	6,600
Sales returns	8,360	Bills receivable	28,600
Debtors	26,400	Salaries	44,000
Furniture	17,600	Bad debts	440
Premises	71,500	Insurance	5,500
Capital	55,000	Advertisement	6,600
Creditors	1,76,000	Carriage outwards	1,100
Bills payable	26,400	Trade expenses	3,300

Adjustments :

1) Depreciation premises 5% furniture 20%.
2) Bad and doubtful debts 5% on sundry
3) Interest on capital 10%
4) Closing stock 1,28,700

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Code No. 5131

FACULTY OF ENGINEERING

B.E. 3/4 (EEE/Inst.) I – Semester (Main) Examination, December 2015

Subject : Linear Control Systems

Time : 3 hours **Max. Marks : 75**

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1 Why is an amplifier used in a simple closed loop system? 2

2 Write the advantages and disadvantages of feedback in control systems. 3

3 What is the cause of transient response in a control system? 2

4 A pair of closed loop roots are meeting on the negative real axis of the s-plane. Find the damping ratio. 2

5 Find the phase margin for $G(s)H(s) = \frac{2(s+1)}{s^2}$ 3

6 Give the different types of cascade compensators. 2

7 State the condition for stability for a linear system described by $\frac{dx}{dt} = AX + BU$. 2

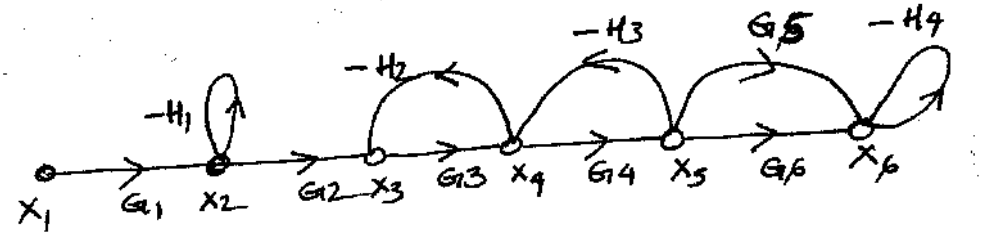
8 Define observability and give a suitable test for observability. 3

9 A unit step function is sampled every T seconds. What is the Z transform of a unit step which is delayed by T seconds. 3

10 Find the Z transform of $\frac{1}{s(s+1)}$. 3

PART – B (5 x 10 = 50 Marks)

11 Find x_6/x_1 for the signal flow graph given below : 10



12 Find C(s)/R(s) for the system whose 10

$G(s) = \frac{K(s+3)}{s^2+2s+2}$ and $H(s) = \frac{1}{s}$ for ζ = 0.5 using root locus.

13 For the transfer function 10

$G(s)H(s) = \frac{S(1+2s)}{(1+4s)\left(1+\frac{s}{4}\right)}$ draw the bode magnitude plot and find K_p.

14 Determine the state transition matrix for the system having 10

$$A = \begin{bmatrix} -2 & 1 \\ 2 & -3 \end{bmatrix}$$

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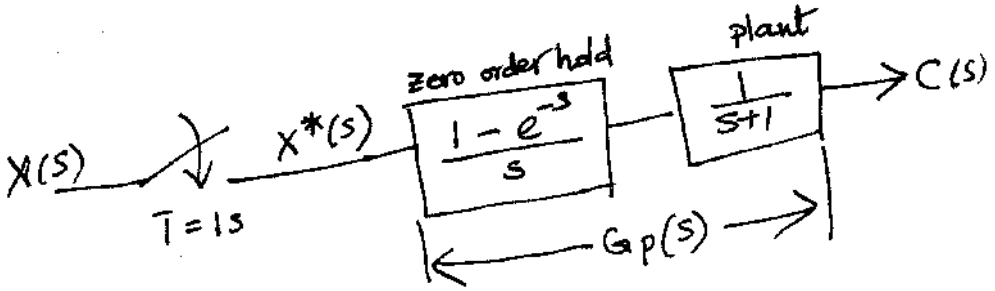
15 Find the pulse transfer function of the system given below : 10



16 a) Explain the working of D.C. and A.C. tachogenerators. 6

b) Compare the open loop and closed loop systems. 4

17 A certain unit negative feedback control system has the open loop transfer function $G(s) = \frac{K(s+2)}{\left(s^3 + As^2 + 3s + 2\right)}$ 10

Find the critical value of K and A when K and A are positive, so that the system oscillates at a frequency of 5 rad/s.

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Code No. 5150

FACULTY OF ENGINEERING

B.E. 3/4 (AE) I – Semester (Main) Examination, December 2015

Subject : Automotive Transmission

Time : 3 hours **Max. Marks : 75**

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (10 x 2.5 = 25 Marks)

1 List out different types of gear box used in an automobiles.

2 Explain the term synchronizing.

3 Explain different types of gears used in an automotive gear box.

4 What is planetary gear box?

5 Explain principal of torque conversion.

6 Distinguish between hydraulic transmission drives and hydro torque drives.

7 Explain merits and demerits of automatic transmission. Comparison with conventional transmission.

8 State the working of fluid fly wheel.

9 What are the advantages and disadvantages of hydro static drives?

10 What are the disadvantages of electrical drives?

PART – B (5 x 10 = 50 Marks)

11 a) Distinguish between centrifugal clutch and semicentrifugal clutch. 4
b) Explain briefly the construction and working of constant mesh gear box with the help of neat sketches. 6

12 Explain briefly the construction and working of Ford T-model gear box. 10

13 a) Explain single, multi stage and poly phase torque converter. 5
b) Explain performance characteristics of fluid coupling and torque converter. 5

14 a) Name different type components required for automatic transmission system. 4
b) Explain the working of cotal epicyclic gear box. 6

15 a) Explain the basic hydrostatic drive principle. 5
b) Explain modern electric drive for buses. 5

16 a) Draw and list the parts of Janney hydrostatic drive. 6
b) Explain slip in fluid coupling. 4

17 Discuss in detail about the construction and working of single plate diaphragm spring clutch in engaged and disengaged condition with neat sketch. 10

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