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NMAM INSTITUTE OF TECHNOLOGY, NITTE*(An Autonomous Institution affiliated to VTU, Belagavi)***Eighth Semester B.E. (CSE) (Credit System) Degree Examinations****Make up / Supplementary Examinations – July 2018****14HU801 – ENGINEERING MANAGEMENT**

Duration: 3 Hours

Max. Marks: 100

- Note: 1) Answer **Five full** questions choosing **One full** question from **each Unit**.
2) Use of Compound Interest and Normal Distribution Table is permitted.

Unit – I		Marks	BT*
1. a)	Define Planning. Do you agree that Planning is the most important management function and why?	06	L*2
b)	The actual sales of a business enterprise for the year 2014, 2015, 2016 and 2017 were 5000 units, 5400 units, 4800 units and 4900 units respectively. Estimate the demand for the year 2018 using i) Naïve method ii) Simple Average method iii) Exponential Smoothing method, if $\alpha = 0.5$	06	L3
c)	Write a note on i) Planning Premise and Planning Horizon ii) Basic Features of a Sound Objective	08	L2
2. a)	Define Forecasting. Explain briefly various Quantitative Methods of forecasting.	08	L2
b)	Sales revenue generated by a business firm four years in precedence Rs.500, Rs.480, Rs.440, Rs.520 and Rs.440 (in thousands) respectively. What is the sales forecast for the next year using i) Weighted Average Method if weights assigned are 0.4, 0.3, 0.2, and 0.1, starting from the recent past year. ii) Simple Linear Regression method	12	L3
Unit – II			
3. a)	Define Organizing function. Explain briefly the stages of organizing.	04	L1
b)	Define Partnership. Explain briefly the major features of partnership form of business.	10	L2
c)	Distinguish between Partnership firm and Private Limited Company.	04	L2
4. a)	Define Span of Management and Control. Explain the factors determining the Span of Control.	10	L3
b)	Define Cooperative firm. How do argue that a Cooperative form of business is a democratically managed form of business.	10	L3
Unit – III			
5. a)	Explain Maslow's Need Hierarchy Theory of Motivation. Bring out its relevance in present day organizations in motivating the workforce towards higher level performance.	10	L3
b)	Explain 360 Degree Performance Appraisal.	10	L2
6. a)	'Money is the only Motivator at Workplace'. Discuss.	10	L3
b)	Define Leadership. Explain Democratic and Bureaucratic styles of leadership.	10	L2
Unit – IV			
7. a)	Calculate the equivalent present worth of Rs.50,000 made at the beginning of each year for 06 years; if discount rate is 12% p.a.	04	L2

Make up / Supplementary – July 2018

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- b) Select the best alternative for investment using Payback Period method.

Year	Alternative – A (in rupees)	Alternative – B (in rupees)
0	- 1,20,000	- 1,50,000
1	20,000	40,000
2	40,000	40,000
3	30,000	40,000
4	50,000	40,000
5	20,000	40,000
6	10,000	40,000

- c) A Machine with an initial cost of Rs.80,000 expected to earn Rs.20,000, Rs.23,000, Rs.28,000 for the first three years and 12,000 thereafter for four years. The Machine requires an additional investment of Rs.8,000 at the end of third year of useful life. Is this Machine justifiable for investment, if 8% rate of discount charged to calculate the Net Present Worth?
8. a) A new equipment – B is available to replace the existing equipment – A. Equipment –B is 50% costlier than Equipment –A. The Equipment – A lasts for 10 years. If Equipment – B replaces the Equipment – A ; what should be the life of Equipment –B to make it comparable to Equipment – A. Consider 10% cost of capital per annum for your calculation.
- b) The details of two projects are available with estimated economic life of 20 years.

Particulars	Year	Project – X	Project – Y
	0	10,00,000	5,00,000
Investment	1	—	5,00,000
	0-5	50,000	45,000
Annual Income	6-10	80,000	90,000
	11-20	70,000	70,000

Select the best Project using Net Present Worth method, if 8% discount rate is charged per annum.

Unit – V

9. a) Given the details of a project.

Tasks	Predecessor Tasks	Duration (Months)
A	Start	4
B	A	6
C	A	5
D	B	8
E	C	10
F	A	12
G	C	6
H	E,F	3
J	K,M	9
K	D	8
M	G,H	4

- Draw an Arrow network diagram. Identify the critical path and length.
- b) Define Depreciation. Explain the major causes for depreciation? Explain.

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Make up / Supplementary – July 2018

10. a) A Machine was purchased at First Cost of Rs.80,000 with no salvage value after 10 years of useful life. The management is considering to replace this Machine with new one after 06 years of working and the dealer of the new machine offers Rs.12,000 to the existing old Machine. If the decision of replacement is confirmed, what will be the Sunk-Cost of replacement decision?
- b) Draw a PERT Network Diagram and Estimate the total project completion time using the given project details.

Activities	Predecessor Activities	Time (Weeks)		
		Optimistic	Most Likely	Pessimistic
A	Start	4	6	8
B	A	2	4	8
C	A	3	6	8
D	C,E	4	7	9
E	Start	8	10	12
F	A	6	8	12
G	Start	3	5	8
H	D,F,G	3	4	6

06 L3

10 L4

10 L4 BT* Bloom's Taxonomy, L* Level

10 L5

08 L3

12 L3



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NMAM INSTITUTE OF TECHNOLOGY, NITTE*(An Autonomous Institution affiliated to VTU, Belagavi)***Eighth Semester B.E. (CSE) (Credit System) Degree Examinations**

April – May 2018

14HU801 – ENGINEERING MANAGEMENT

Duration: 3 Hours

Max. Marks: 100

*Note: Answer Five full questions choosing One full question from each Unit.***Unit – I****Marks**

1. a) Define planning. Explain its importance in the success of modern organizations. 10
b) Consider the below given data:
- | Year | Sales |
|------|-------|
| 1997 | 1100 |
| 1998 | 1300 |
| 1999 | 1200 |
| 2000 | 1600 |
- Taking into consideration the actual values (A_t)
Calculate
i) Simple moving average i.e, F_{2001} with $n=4$
ii) Weighted moving average i.e, F_{2001} with weight 0.4, 0.3, 0.2, 0.1 for most recent 4 years 10
2. a) Explain quantitative methods of forecasting. 12
b) Write a note on planning Horizon and Premise. 8

Unit – II

3. a) Explain various factors determining effective span of control. 10
b) Explain the staff selection process highlighting the major parts of it. 10
- a) Explain the phases involved in conducting a training programme. 6
b) What are the various methods of training and development? 14

Unit – III

- a) Explain Maslow's hierarchy of needs with a neat diagram. 10
b) Describe McClelland's trio of needs. 6
c) Explain the basic traits of effective leader. 4
- a) Explain 'Is Money a Best Carrot' to motivate employees at workplace with reference to 'Carrot and stick' theory of motivation. 8
b) List and explain the styles of leadership for managers. Comment on major types of forces for employing management style. 12

Unit – IV

- a) Explain various steps involved in the control process. 8
b) What are the criteria to be satisfied by an effective control system? 12
- a) A loan of \$1200 is made for a period of 13 months, from January 1 to January 31 the following year, at a simple interest rate of 10%. What future amount is the due at the end of loan period? 7
b) A credit plan charges interest at the rate of 18% compounded monthly. What is the effective interest rate? 8
c) What annual year end payment must be made each year to have \$20,000 available 5 years from now? The compound annual interest rate is 6%. 5

P.T.O.

14HU801

Unit – V

SEE – April – May 2018

9. a) Given the details of a project:

Tasks	Follows Task(s)	Time (weeks)
A	-	4
B	-	6
C	A	5
D	A	8
E	D, B	8

Identify the critical path and length.

- b) Explain sunk-cost with suitable numerical example.
10. a) What do you mean by depreciation? Give the causes for it.
 b) Small computers purchased by a public utility cost \$7000 each. Past records indicate that they should have a useful life of 5 years, after which they will be disposed off, with no usage value. The company currently has a cost of capital of 7%. Determine.
 i) The depreciation charge during year 1
 ii) The depreciation charge during year 2
 iii) The depreciation reserve accumulated by the end of year 3
 iv) The book value of the computer at the end of year 3.

BT* Bloom's Taxonomy, L* Level

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NMAM INSTITUTE OF TECHNOLOGY, NITTE
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Eighth Semester B.E. (CSE) (Credit System) Degree Examinations
 Make up / Supplementary Examinations - July 2016

12HU801 – ENGINEERING MANAGEMENT

Duration: 3 Hours

Max. Marks: 100

Note: 1) Answer **Five full** questions choosing **One full** question from **each Unit**.
 2) Use of Interest Factor Table is permitted.

Unit – I

Marks BT*

1. a) "A goal without a plan is just a wish", justify this statement to ascertain the importance of planning.
 b) Exponential smoothing is used to forecast automobile battery sales of a firm. Two values of α are examined $\alpha=0.8$ and $\alpha=0.5$. Evaluate the accuracy of each smoothing constant. Which is preferable? (Assume the forecast for January as 22 batteries) Actual sales are given below.

10 L*3

Month	Actual Battery sales	Forecast
Jan	20	22
Feb	21	
Mar	15	
Apr	14	
May	13	
Jun	16	

10 L6

2. a) List and explain the different methods for forecasting.
 b) What are the characteristics of a sound objective? State a career objective for yourself and assess how well written it is.
 c) A firm uses a simple exponential smoothing with $\alpha=0.1$ to forecast demand. The forecast for the first week of January was 500 units whereas the actual demand turned out to be 450 units. Calculate the demand forecast for the second week of January.

8 L2

8 L3

4 L6

Unit – II

3. a) Explain briefly the steps in organizing process.
 b) Establish the needs for training and development in an organization. List the different methods of training and development.
 4. a) Explain the process of selection in man power planning of an organization.
 b) What are the different legal forms of an organization? Explain any one of the them in detail.

8 L2

12 L3

10 L2

10 L3

Unit – III

5. a) Define McClelland's trio of needs in detail and compare it with Maslow's need hierarchy to bring out its implication.
 b) Define controlling. Explain the major steps in control process.
 3. a) Explain in detail Herzberg's two factor theory of motivation and bring out its implications.
 b) Describe the major styles of leadership.

10 L4

10 L2

12 L2

8 L2

P.T.O.

Unit – IV

7. a) A company has two alternatives, each requiring an entire capital investment budget of Rs.3,25,000. Alternative 'A' will earn Rs.3,90,000 at the end of one year; Alternative B will earn Rs.2,16,000 at the end of each of the first two years. Which alternative should be recommended on the basis of
- Simple payback time?
 - Net present worth assuming a required rate of return of 20%?
- b) What are the three perspectives on the timing of control? Explain in detail.
- c) List the different types of control.
8. a) Explain the characteristics of an effective control system.
- b) A firm is considering the purchase of a new machine to increase the output of an existing production process. Of all the machines considered, the management has narrowed the field to the machines represented by the cash flows shown below.

Machine	Initial investment Rs.	Annual operating cost Rs.
1	80,000	15,425
2	60,000	20,540
3	75,000	17,082
4	1,00,000	11,374
5	50,000	22,500

If each of these machines provide the same service for 3 years and minimum attractive rate of return is 12%, which machine should be selected?

Unit – V

9. a) Compare and contrast between PERT and CPM as project planning tools.
- b) Explain the straight line method of depreciation calculation. What are its limitations?
10. a) Write a note on different types and causes of depreciation.
- b) A company purchased a machine at a cost of Rs.3,40,000 on 28th March 2012. It was estimated that the machine has a useful life of 10 years with a salvage value of Rs.40,000. The company uses straight line method to charge depreciation. The accounting period ends on 31st December each year. Compute and record the depreciation upto 31st December 2015 for each year since its induction.

BT* Bloom's Taxonomy, L* Level



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NMAM INSTITUTE OF TECHNOLOGY, NITTE*(An Autonomous Institution affiliated to VTU, Belagavi)***Eighth Semester B.E. (CSE) (Credit System) Degree Examinations**

April - May 2016

12HU801 – ENGINEERING MANAGEMENT

Duration: 3 Hours

Max. Marks: 100

Note: 1) Answer **Five full** questions choosing **One full** question from **each Unit**.
2) Use of Interest Table and Normal Distribution table is permitted.

Unit – I**Marks BT***

1. a) "Failing to Plan is Planning to Fail". Elaborate on the statement highlighting the importance of planning in an organization's success. 10 L*3
b) Given the details of the actual sales revenue of a business firm Rs. 20000, Rs. 23000, Rs. 25000 and Rs. 18000 for the years 2012, 2013, 2014 and 2015 respectively. Estimate the sales revenue forecast for the year 2016; using:
i) Weighted moving average method assigning weights 0.4, 0.3, 0.2 and 0.1 starting from the recent past year.
ii) Exponential Smoothing methods with a weight $\alpha = 0.4$ 10 L2
2. a) Define Forecasting. Explain briefly the methods of forecasting. 10 L3
b) Explain briefly
i) Planning Premise
ii) Planning Horizon
c) Define Objectives? What makes objectives essential for an organization? 06 L2
04 L1

Unit – II

3. a) Define the management function 'Organizing'. Explain the steps involved in organizing process. 06 L1
b) Define partnership. Bring out the major features of the Partnership form of business. 08 L2
c) What are the important contents of a good resume? 06 L2
- a) "The number of Subordinates reporting to a Superior in a business organization is decided by a number of factors". Explain. 10 L3
b) Explain the contents of a typical job description. 04 L2
c) Distinguish between 'On-the-Job Experience' and 'Vestibule method' in training employees in an organization. 06 L3

Unit – III

- a) Define Leadership. Explain the basic traits generally observed in a good leader? 10 L2
b) Explain briefly the Self-motivation techniques that one can follow in his personal and professional life. 04 L3
c) Write a note on:
i) Democratic Style of Leadership
ii) Bureaucratic Style of Leadership 06 L2
- a) Explain briefly Two-Factor Theory of motivation. Bring-out its managerial relevance in motivating people at workplace. 12 L3
b) "A style of leadership that a manager follows is generally relative". Explain. 08 L3

Unit – IV

- a) Define Controlling. Explain the basic steps in controlling process. 08 L2

P.T.O.

SEE – April – May 2016

12HU801

- b) Given below are the details of two investment alternatives:

Particulars	Alternative - A	Alternative - B
Initial Cost	Rs. 2,40,000	Rs. 1,80,000
Annual Operating Cost	Rs. 2,400	Rs. 4,800
Annual Income	Rs. 38,000	Rs. 44,000
Salvage Value	Nil	Rs. 7,000
Interest Rate per annum	9 years	8%
Useful economic life	9 years	6 years

Alternative - B requires Rs. 12000 to upgrade at the end of 3rd year of useful life. Choose the best alternative to invest.

8. a) Explain briefly the characteristics of an effective control system.
b) Two Machines are under consideration for investment:

Year	Machine - X	Machine - Y
0	- 80,000	- 1,20,000
1	30,000	40,000
2	30,000	38,000
3	30,000	40,000
4	30,000	32,000
5	30,000	18,000
Salvage Value	12,000	Nil
Interest Rate	10% p.a.	

Which machine would you like to choose to invest using:

- i) Payback period method
ii) PW method.

Unit - V

9. a) Given below are the details of a Project:

Task	A	B	C	D	E	F	G	H	K	M	N
Follows Task(s)	Start	A	A	Start	D	Start	C	B,D,F,K	C	G,H,E	C
Time (Days)	3	5	4	3	5	2	6	4	3	3	5

Identify the Critical Path, Critical Path Tasks and Length of the Critical Path.

- b) Define Depreciation. Explain the types and Causes of Depreciation.

10. a) Given below are the details of a project:

Activities	Predecessor Activities	Normal		Crash	
		Time (Days)	Cost (Rs.)	Time (Days)	Cost (Rs.)
A	Start	4	1000	3	1200
B	Start	3	3000	2	4000
C	Start	3	3000	3	3000
D	C	5	5000	3	8000
E	A	4	4000	2	8000
F	A,B,C	3	3000	3	3000
G	A,B,C	2	2000	1	3000
h	D,G	3	3000	2	6000

What are the project completion time, total cost and incremental cost after crashing the critical path length?

- b) The owner of a machine planning to replace a machine purchased 03 years back with an initial total cost of Rs. 38,000, salvage value of Rs.2000 and 06 years of useful life. If the realizable market value of the machine now is Rs. 12,000, estimate the sunk cost due to replacement decision.

BT* Bloom's Taxonomy, L* Level

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Eighth Semester B.E. (CSE) (Credit System) Degree Examinations
Make up / Supplementary Examinations - July 2015

HU801 – ENGINEERING MANAGEMENT

Note: 1) Answer **Five full** questions choosing **One full** question from **each Unit**.
2) Use of the Interest Tables is permitted.

Max. Marks: 100

Unit - I

- a) How the future market share of a company sale is estimated by forecasting methods? Elaborate your answer highlighting various forecasting techniques. 12
b) "Planning and Controlling are the twin functions of management". Discuss. 08
a) Define objective. What are the characteristics of a sound objective? Explain. 06
b) A firm is engaged in producing two products - A and B. Each unit of product-A requires 02 kgs of raw material and 04 labour hours for processing, whereas, each unit of product-B requires 03 kgs of raw material and 03 hours of labour of the same type. Every week the firm has an availability of 60 kgs of raw material and 96 labour hours. One unit of product-A earns Rs. 40 and one unit of product-B earns Rs. 35 as profit. Moreover, each of the products is required to be packed. Every unit of product-A requires 04 hours while every unit of product-B needs 3.5 hours for packaging and only 105 hours are available in packaging department every week. Formulate LPP. 06
c) Explain the Peter Drucker's Key Result Areas to decide on resource allocation in an organization to accomplish the business objectives. 08

Unit - II

- a) Define Span of Control. Bring out the factors that determine the number of people a manager can effectively supervise. 10
b) Explain briefly 360 degree performance appraisal and its implications. 10
a) Define Partnership. Explain briefly the characteristics of partnership form of business. 10
b) What is a resume and what content should it include? Write a sample resume to illustrate the same. 10

Unit - III

- a) What do you understand by controlling function? Narrate briefly the characteristics of effective control system. 10
b) "Carrot and Stick theory" of motivation is still relevant in managing and motivating employees in organizations. Discuss. 10
a) Describe the major styles of leadership. 10
b) Explain Herzberg's Two Factors theory of motivation. 10

Unit - IV

- a) What are the major steps in product life cycle? Explain. 08
b) If you buy a machine with first cost of Rs. 40,000 on hire purchase scheme making one-fourth of the first cost as an initial down-payment and the balance amount will be paid on 12 monthly installments. Calculate the equated monthly installment to be paid and the amount paid over and above the cost price, if 12% interest rate per annum charged. 12

P.T.O.

HU801

Make up / Supplementary – July 20

8. a) Distinguish between Nominal and Effective Rate of Interest with a suitable numerical example.
b) A firm sells its product at Rs. 1200 per unit, and its variable cost is Rs.800 per unit and Total Fixed Cost is Rs.80,000 per month. Calculate:
i) Break Even Point sales
ii) Profit if the firm sells 2400 units
iii) Sales volume required to make a profit of Rs.70,000

Unit – V

9. a) Explain briefly the major causes of depreciation.
b) A project has fourteen activities to complete – A through N. The relationship between activities are given as below:
A starts as the first operation
B and C can be performed in parallel and are immediate successors of A
D, E, and F follow B
G follows E
H follows D; but it cannot start until E is complete
Q and J succeed G
F and J precede K
H and Q precede L
M succeeds L and K
The last operation N succeeds M and C
Construct an arrow network diagram and number the nodes.

10. a) Explain the Sunk-Cost with a suitable numerical example.
b) The details of a project are as below:

Tasks	A	B	C	D	E	F	G	H	I
Follows Task(s)	-	-	A	A	D	B,C	B,C	E,F	G
Duration (Weeks)	4	2	1	4	5	2	1	3	4

Draw an Arrow Network diagram and identify the critical path and length.

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Eighth Semester B.E. (CSE) (Credit System) Degree Examinations
April - May 2015

HU801 - ENGINEERING MANAGEMENT

Duration: 3 Hours

Max. Marks: 100

Note: 1) Answer **Five full** questions choosing **One full** question from **each Unit**.
2) Use of Interest Factor Table is permitted.

Unit – I

1. a) Explain the importance of planning as a primary function of management. 6
b) What are the characteristics of sound objective? Explain with an example. 6
c) List the different methods of forecasting. 8
2. a) Explain the process of MBO along with its pros and cons. 8
b) A housewife wishes to mix two types of food F1 and F2 in such a way that the vitamin contents of the mixture contain at least 8 units of vitamin A and 11 units of vitamin B. Food F1 costs Rs.60 per Kg and Food F2 costs Rs.80 per kg. Food F1 contains 3 units per kg of vitamin A and 5 units per kg of vitamin B while Food F2 contains 4 units per kg of vitamin A and 2 units per kg of vitamin B. Formulate this problem as a linear programming problem to minimize the cost of mixture. 8
c) Differentiate between routine and non-routine decisions. 4

Unit – II

3. a) Explain the major features of partnership form of business organization. 8
b) Explain the process of delegation. List the guidelines for effective delegation of authority. 8
c) What are the details to be included in a resume? 4
4. a) What are the needs for training and development in an organization? List the different methods of training and development. 10
b) Define span of control. Explain the types and factors determining the span of control. 10

Unit – III

5. a) Explain Maslow's need hierarchy theory of motivation. 6
b) List the personal characteristics or traits of effective leadership. 6
c) Explain the 'Leadership Grid' approach to identify leadership styles of practicing managers. 8
6. a) Explain McClelland's trio of needs in detail. What are its implications? 10
b) Describe the major styles of leadership. 10

Unit – IV

7. a) An airplane manufacturer is negotiating a contract for the production of 20 small jets. The initial jet requires 400 days of direct labour. The learning percentage is 80 percent. Estimate the expected number of days of direct labour for:
i) The 20th jet. ii) All 20 jets. iii) The average time for 20 jets. 10
b) Define controlling. Explain the different characteristics of effective control system. 10
8. a) Describe the following terms with suitable examples. 10
i) Patents ii) Copyright iii) Trademarks iv) Trade secrets
b) Explain different quantitative tools used in production planning. 10

Unit – V

9. a) Explain the different methods of computing depreciation in detail. 10
b) What is milestone schedule? Explain with an appropriate example. 10
10. a) Write a note on different types and causes of depreciation. 8
b) Differentiate between PERT and CPM with respect to their use, advantages and disadvantages. 8
c) Write a brief note on depletion. 4

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Eighth Semester B.E. (CSE) (Credit System) Degree Examinations
Make up / Supplementary Examinations – July 2014

HU801 – ENGINEERING MANAGEMENT

Duration: 3 Hours

Max. Marks: 100

Note: 1) Answer **Five full** questions choosing **One full** question from **each Unit**.
 2) Use of the Interest and Distribution Tables is permitted.

Unit – I

1. a) An electronic device manufacturing firm produced two types of circuits. The requirement of hardware, software and firmware for each type of circuit along with other data are given in the table below:

	Circuits		Stock Available (in Units)
	A	B	
Hardware	15	10	180
Software	10	20	200
Firmware	15	20	210
Profit	Rs. 5	Rs. 8	

Formulate LPP. Using graphical method, find out how many circuits of each type should the firm produce to maximize the profit?

- b) Define Planning. Explain briefly the managerial importance of planning. 12
08
2. a) Define forecasting? Explain briefly the qualitative and quantitative methods of forecasting. 12
 b) What is an Objective? Explain briefly the features of a sound objective. 08

Unit – II

3. a) Define Training. Explain briefly the major internal sources of training. 10
 b) What is recruitment? Explain various sources of recruitment. 10
4. a) Define Partnership. Explain briefly major features of partnership form of business establishment. 10
 b) Define Span of Control. Explain the major factors determining the Span of Control. 10

Unit – III

5. a) Define Controlling. Explain the characteristics of a good control system. 10
 b) Explain Maslow's Need Hierarchy theory of motivation. Bring out its merits and demerits. 10
6. a) Define Leadership. Explain briefly Blake and Mouton's Leadership Grid. 10
 b) Write a note on Self Motivation. 10

Unit – IV

7. a) Explain briefly the stages of Technology Life Cycle. 12
 b) Write a note on Economic Order Quantity (EOQ) 08
8. a) A specific variety of raw-material is purchased in two batches at the rate of Rs. 60,000 per batch. The first batch is purchased after 5 years from now and the second batch is purchased after 8 years from now. If the rate of interest is 6% compounded per annum, what is the present worth of the raw-material purchased? 10
 b) Define Break – Even Point with Break Even chart. Bring out underlying assumptions of Break Even Analysis. 10

P.T.O.

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Unit - V

Make up / Supplementary - July 2014

9. a) Define Sunk-Cost. Explain it with a suitable example.
b) The following information is available about a CPM network.

	9	8	8	7	7	6	6	5	4	4	3	2
Successor (i)	9	8	8	7	7	6	6	5	4	4	3	2
Predecessor (i)	8	7	6	6	5	4	3	2	2	1	1	1
Duration (Dij)	6	11	6	0	9	9	8	6	7	11	12	5

- i) Sketch an arrow network diagram
ii) Identify the critical path and length in days.
10. a) Distinguish between PERT and CPM.
b) A Maintenance Supervisor gives following estimates of time and cost for overhauling electric motors. The various activities involved are:
A - dismantle the electric motor
B - clean the starter and paint it
C - remove the burnt windings and rewind the armature
D - replace the wornout bearings
E - re-assemble the motor.
Activity (A) precedes activities (B), (C), (D) and activity (E) can be taken up only when (B), (C) and (D) have been completed. Activities (A), (B), (C), (D) and activity (E) consumes 6, 5, 10, 8 and 6 hours and Rs. 60, Rs. 30, Rs. 80, Rs. 50 and Rs. 40 respectively for a lot. However, activities (A), (C), and (D) can be completed 02 hours before, whereas activities (B) and (E) can be finished 01 hour before their scheduled time. But, in doing so, the firm will have to spend Rs. 90, Rs. 80, Rs. 160, Rs. 100 and Rs. 60 (i.e., crash cost) on activities (A), (B), (C), (D) and activity (E) respectively.
- i) Plot the arrow network diagram
ii) Identify the critical path and duration
iii) Crash the critical activities
iv) Find the incremental cost after crashing the critical path length by an hour.

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NMAM INSTITUTE OF TECHNOLOGY, NITTE
(An Autonomous Institution affiliated to VTU, Belgaum)
Eighth Semester B.E. (CSE) (Credit System) Degree Examinations
May - 2014

HU801 - ENGINEERING MANAGEMENT

Max. Marks: 100

Note: 1) Answer **Five full questions** choosing **One full question** from **each Unit**.
2) Interest factors table is permitted.

Unit - I

1. a) Define forecasting. List the different quantitative methods of forecasting. 6
b) Define MBO and explain the process of MBO. Establish its advantage and disadvantages. 6
c) A paint manufacturer produces two types of paint, one type of standard quality (S) and the other of top quality (T). To make these paints, he needs two ingredients, the pigment and the resin. Standard quality paint requires 2 units of pigment and 3 units of resin for each unit made, and it is sold at a profit of Re.1 per unit. Top quality paint requires 4 units of pigment and 2 units of resin for each unit made, and is sold at a profit of Rs.1.50 per unit. He has stocks of 12 units of pigment and 10 units of resin. Formulate the above problem as a linear programming problem to maximize his profit? 8
2. a) Define planning and explain the importance of planning in an organizational management. 8
b) Sales of a particular product for the years 2010 through 2013 have been 48, 64, 67 and 83 thousands of rupees respectively. What sales would you predict for 2014 using:
i) Simple two year moving average.
ii) Simple four year moving average.
iii) Weighted moving average with weights of 0.50 for the immediate preceding year and 0.3, 0.15, 0.05 for three years before that. 8
c) What are the key result areas in which managers should set objectives for the survival of the organization? 4

Unit - II

3. a) Establish the need for training and development in a modern organization and explain the different methods of training and development. 12
b) Define Delegation. Explain the relationship between delegation, assignment and accountability. 8
4. a) What are the different legal forms of organization? Explain any one of them in detail. 12
b) Compare and contrast between line organization structure and matrix organization structure. 8

Unit - III

5. a) What is a resume? What content should it include? Write a sample resume to illustrate the same. 10
b) Define controlling. Explain the major steps in control process. 10
6. a) Compare and contrast between Maslow's need hierarchy theory and Herzberg's two factor theory of motivation. 12
b) Describe the major styles of leadership. 8

Unit - IV

7. a) What is a patent right? Explain the major types of patent. What are the basic qualities or features required to get a patent right? 8

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- b) An engineering analysis by net present worth (NPW) is to be made for the purchase of two devices A and B. If an 8% interest rate is to be used, recommend the device to be purchased.

Device	A	B
First Cost	Rs.600	Rs.700
Annual Income	Rs.100	Rs.100
Life	5 Years	10 Years
Salvage Value	Rs.250	Rs.180

8. a) Write a brief note on quantitative tools used in production planning.
 b) A civil engineering firm is considering 2 automobiles for company executives. The US model costs Rs.22000, costs Rs.2000 per year to operate and has a salvage value of Rs.12000 after 3 years. The Japanese model is Rs.26000, cost Rs.1200 per annum to operate and will be worth Rs.15,000 after 3 years. Interest rate is 15% per year. Find which is the better deal using Net Present Worth.

Unit - V

9. a) A production plant with fixed cost of Rs.3,00,000 produces a product with variable cost of Rs.40 per unit and sells them at Rs.100 each. What is the Break Even Quantity and cost? Illustrate with a break even chart.
 b) Define depreciation. Explain the major types and causes for depreciation.
10. a) Write a note on managerial use of PERT and CPM and distinguish between PERT and CPM.
 b) What are the different methods of computing depreciation? Explain each of them briefly.

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NMAM INSTITUTE OF TECHNOLOGY, NITTE (An Autonomous Institution affiliated to VTU, Belgaum) Eighth Semester B.E. (CSE) (Credit System) Degree Examinations Make up / Supplementary Examinations – June 2013

HU801 – ENGINEERING MANAGEMENT

Duration: 3 Hours

Note: 1) Answer **Five full** questions choosing **One full** question from **each Unit**.
 2) Interest Factors tables permitted.

Unit – I

- a) Define forecasting. Explain the different quantitative methods of forecasting. 10
 b) A company manufactures two types of printers. The requirements are Transistors, registers and capacitors for each type of printer circuits along with other data are given in the table below:

	Circuit		Stock Available
	A	B	
Transistors	15	10	180
Registers	10	20	200
Capacitors	15	20	210
Profit per unit	Rs.5	Rs.8	

Find the number of units of A and B the manufacturers should make to maximize the profit. Solve graphically as a linear program and confirm analytically. 10

- a) Define Planning and explain the importance of planning in an organizational management. 8
 b) Sales of a particular product for the years 2009 through 2012 have been 48, 64, 67 and 83 thousands of rupees respectively. What sales would you predict for 2013 using:
 i) Simple two year moving average?
 ii) Simple four year moving average?
 iii) Weighted moving average with weights of 0.50 for the immediate preceding year and 0.3, 0.15, 0.05 for three years before that? 8
 c) What are the key result areas in which managers should set objectives for the survival of the organization? 4

Unit – II

3. a) Establish the need for training and development in a modern organization and explain the different methods of training and development. 12
 b) Write a note on pros and cons of linking performance with appraisal to pay review. 8
 4. a) What is a resume and what content should it include? Write a sample resume to illustrate the same. 12
 b) Compare and contrast between line organization structure and matrix organization structure. 8

Unit – III

5. a) Describe the major styles of leadership. 10
 b) Define controlling. Explain the major steps in control process. 10
 6. a) Compare and contrast between Maslow's need Hierarchy theory and Herzberg's two factor theory of motivation. 12
 b) Define cooperative form of organization. Bring out its major characteristics. 8

P.T.O.

HU801

Make up / Supplementary – June 2013

Unit – IV

7. a) What is a patent right? Explain the major types of patent. What are the basic qualities or features required to get a patent right?
- b) A man purchases a corner site in a commercial area of a metro city. After careful study he finalizes the following alternatives hoping to get the best return on his investments. Evaluate the alternatives based on future worth comparison at an interest rate of 12%, which alternative is to be preferred?

Item	Build gas station	Build restaurant
First cost	Rs. 25,00,000/-	Rs. 36,00,000/-
Annual tax	Rs. 80,000/-	Rs. 1,50,000/-
Annual income	Rs. 9,00,000/-	Rs. 10,80,000/-
Building life	20 years	20 years
Salvage value	0	0

8. a) Write a brief note on quantitative tools used in production planning.
- b) An engineer proposes to buy a machine for Rs.1,00,000 today that will save Rs.60,000 in labor costs at the end of each of the next two years. If the company demands a 15% return on investments such as this, what is the Net Present Worth (NPW) of the proposal? Should it be funded?

Unit – V

9. a) A production plant with a fixed costs of Rs.3,00,000 produces a product with variable costs of Rs.40 per unit and sells them at Rs.100 each. What is the Break Even Quantity and cost? Illustrate with break even chart.
- b) Define depreciation. Explain the major types and causes for depreciation.
10. a) For the project outlined in the following table:

Activities	Follows Task(s)	Duration
A	Start	3
B	Start	5
C	A	2
D	A	3
E	B,D	3
F	C,E	5
G	C	1
H	F,G	2

- b) Small computers purchased by a public utility costs Rs.7000 each. Past records indicate that they should have a useful life of 5 years, after which they will be disposed of, with no salvage value. The company currently has a cost of capital of 7%. Determine
- Depreciation charge during year 1 and year 2.
 - Depreciation reserve accumulated by end of year 3.
 - The book value at the end of year 3 for computers.

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NMAM INSTITUTE OF TECHNOLOGY, NITTE
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Eighth Semester B.E. (CSE) (Credit System) Degree Examinations
Supplementary Examinations – June 2012

HU801 – ENGINEERING MANAGEMENT

Duration: 3 Hours

Max. Marks: 100

Note: 1) Answer **Five full questions** choosing **One full question from each Unit.**
2) Use of the Interest Tables is permitted.

Unit – I

1. a) Define Forecasting. Explain briefly the major methods of forecasting. 12
b) What is an objective? Explain the Key Result Areas as explained by Peter Drucker. 08

2. a) A particular company has been a producer of picture tubes to television sets and certain circuits for radio. The company has just expanded into full scale production and marketing of AM and AM-FM radio. It has built a new plant that can operate 48 hours per week. Production of an AM radio in the new plant will require 2 hours and production of an AM-FM radio will require 3 hours. Each AM radio will contribute Rs. 40 to profits while an AM-FM radio will contribute Rs. 80 to profits. The marketing department after extensive research has determined that a maximum of 15 AM radios and 10 AM-FM radios can be sold each week. Determine the optimum production-mix that will maximize the profit. Solve graphically. 12

- b) Write a note on:
i) Routine and Non-routine decisions
ii) Planning Premise and Planning Horizon 8

Unit – II

3. a) Define Corporation. Explain the features of a Joint-Stock Company (Corporation) 12
b) Explain briefly the major methods of performance appraisal. 08
4. a) Define the span of control. Explain the factors that determine the span of control. 12
b) Write a note on Job Description. 08

Unit – III

5. a) Explain the Blake and Mouton's Leadership Grid (Managerial Grid) with a neat diagram. 12
b) Explain three perspectives on the timing of control. 08
6. a) Explain briefly the 'Carrot and Stick Theory' of motivation. 12
b) What are the characteristics of effective control system? Explain. 08

Unit – IV

7. a) What are the stages (steps) of product life cycle? Explain 12
b) A production plant with fixed costs of Rs. 3,00,000 produces a product with variable costs of Rs.40 per unit and sells them at Rs. 100 each. What is the break even quantity and cost? Illustrate with a break even chart. 08
8. a) A dealer in electronic products offers you a laptop on a hire purchase scheme. You have to make a down payment of 25% of its market price of Rs. 32,000. The balance money will be paid in monthly installments at 6% rate of interest. What is the monthly installment and how much you pay over and above the cost price? 12
b) Distinguish between Nominal and Effective Rate of Interest with a suitable example. 08

P.T.O.

9. a) Explain the Gantt Chart with suitable example.
b) Define Depreciation. Explain the types and causes of depreciation.

10. a) The details of a project with 10 activities and time estimates given in table below:

Activity	A	B	C	D	E	F	G	H	I	J
Precedence	-	-	A,B	A	C,D	E	E	C,D	F,G	I,H
Optimistic Time	8	2	2	6	4	3	4	6	3	1
Most Likely Time	4	2	1	4	3	3	3	4	6	1
Pessimistic Time	10	2	3	12	5	3	5	9	16	1

- i) Draw a PERT network diagram
ii) Determine the Critical path
iii) Determine the expected project completion time and its variance.
- b) What is Sunk Cost? Explain it with a suitable numerical example.
