NEW SCHEME

Reg. No.

Seventh Semester B.E. Degree Examination, January/February 2006

Computer Science / Information Science and Engineering

Engineering & Technology Management

Time: 3 hrs.) (Max.Marks : 100

Note: ***Answer any FIVE full questions.***

1. (a) Describe base, key and pacing technologies that are important for their strategic management of technology. **(3×3 Marks)**

   (b) Sales of a particular product (in thousands of dollars) for the years 1997 through 2000 have been 48, 64, 67 and 83 respectively

   i) What sales would you predict for 2001 using a simple four-year moving average?

   ii) What sales would you predict using weighted moving average with weights of 0.50 for the immediate preceding year and 0.3, 0.15 and 0.05 for the three years before that

   iii) Taking actual 1997 sales of $ 48000 as the forecast for 1998, what sales would you forecast for 1999, 2000 & 2001 using exponential smoothing and a weight α on a actual values of 0.4. **(2+4+5 Marks)**

2. (a) Distinguish between functional staff authority and traditional line authority. **(5 Marks)**

   (b) Describe the factors which determine effective spans. **(5 Marks)**

   (c) Describe the purpose, size, preparation for, conduct and followup involved in a committee meeting with which you are familiar. **(10 Marks)**

3. (a) Explain the difference between optimizing and sufficing in making decisions. **(4+4 Marks)**

   (b) A firm manufactures two types of products P and Q and sells them at a profit of $ 20 on type P and $ 30 on Q. Each product is processed on two machines A and B. Type P requires one minute of processing time on A and two minutes on B. Type Q requires one minute on A as well as on B. The machine A is available for not more than 6 hours 40 min, while machine B is available for 10 hours during the working day. Formulate the problem and solve graphically indicate the maximum profit. Show the isoprofit lines. **(4+6+2 Marks)**

4. (a) Suggest your own definitions for i) Motivation ii) Leadership. **(3×2 Marks)**

   (b) There are two theories to motivate people. Explain in detail, the validity of content and process theories. **(7×2 Marks)**

5. (a) Distinguish between i) product layout ii) process layout iii) group technology **(3×3 Marks)**

   (b) What are the basic categories of flexible manufacturing technology and the advantages of FMS? **(7+4 Marks)**

Contd.... 2

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6. (a) Discuss the characteristics of effective project managers. **(6 Marks)**

(b) What do you understand by the term Crashing the project? The following table shows the activities, normal & crash time (in weeks) and cost (in dollars). Determine the critical path. Identify the tasks you would crash and the incremental cost to reduce the project duration by two weeks after drawing the network (AON)

Activity Tasks	Time		Cost		Follows Tasks
	Normal	Crash	Normal	Crash	
A	5	4	4000	6000	Start
B	4	2	3000	4000	Start
C	6	5	2200	3000	A
D	7	4	5000	8000	A, B
E	7	5	3000	6000	C, D

(4+10=14 Marks)

7. (a) Tasks, x, y and z must be completed in series to complete a project. The three time estimate (a, m & b) for each task in days are x: 30, 45 & 66, y : 24, 42 and 60 z : 26, 50 & 68 days. For each task calculate :

i) the expected time t_e and

ii) the standard deviation

what is the

iii) expected time t_e and

iv) standard deviation σ_T for the complete project.

(2×4 Marks)

(b) For the project outlined in the following table, prepare

i) Gnatt bar chart

ii) An arrow network diagram

iii) A circle (AON) network diagram

iv) What and how long is the critical path?

Task	Follows Tasks	Week Duration
A	Start	6.0
B	Start	5.0
C	Start	5.0
D	A	3.0
E	A, B	6.0
F	D, E, C	1.0

8. (a) What are the characteristics of effective control systems (mention at least four)? **(3×4=12 Marks)**

(6 Marks)

Contd.... 3

NEW SCHEME

Reg. No.

Seventh Semester B.E. Degree Examination, January/February 2006

Computer Science / Information Science and Engineering

Engineering & Technology Management

Time: 3 hrs.) (Max.Marks : 100

Note: ***Answer any FIVE full questions.***

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   iii) Taking actual 1997 sales of $ 48000 as the forecast for 1998, what sales would you forecast for 1999, 2000 & 2001 using exponential smoothing and a weight α on a actual values of 0.4. **(2+4+5 Marks)**

2. (a) Distinguish between functional staff authority and traditional line authority. **(5 Marks)**

   (b) Describe the factors which determine effective spans. **(5 Marks)**

   (c) Describe the purpose, size, preparation for, conduct and followup involved in a committee meeting with which you are familiar. **(10 Marks)**

3. (a) Explain the difference between optimizing and sufficing in making decisions. **(4+4 Marks)**

   (b) A firm manufactures two types of products P and Q and sells them at a profit of $ 20 on type P and $ 30 on Q. Each product is processed on two machines A and B. Type P requires one minute of processing time on A and two minutes on B. Type Q requires one minute on A as well as on B. The machine A is available for not more than 6 hours 40 min, while machine B is available for 10 hours during the working day. Formulate the problem and solve graphically indicate the maximum profit. Show the isoprofit lines. **(4+6+2 Marks)**

4. (a) Suggest your own definitions for i) Motivation ii) Leadership. **(3×2 Marks)**

   (b) There are two theories to motivate people. Explain in detail, the validity of content and process theories. **(7×2 Marks)**

5. (a) Distinguish between i) product layout ii) process layout iii) group technology **(3×3 Marks)**

   (b) What are the basic categories of flexible manufacturing technology and the advantages of FMS? **(7+4 Marks)**

Contd.... 2

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6 a. Distinguish between product layout and process layout. **(10 Marks)**
b. Distinguish between MRP and MRP II. **(05 Marks)**
c. What are the primary functions of the maintenance engineering activity? **(05 Marks)**

7 a. Identify three types of maintenance and distinguish between them. **(10 Marks)**
b. How do the tasks of marketing vary with the type of relationship existing? **(10 Marks)**

8 a. Tasks x,y and z must be completed in series to complete a project. The three time estimates (optimistic, most likely and pessimistic time) for each task in days are
x : 30, 45, 66
y : 24, 42, 60
z : 26, 50, 68
For each task, calculate the expected time te, and the standard deviation σ **(10 Marks)**
b. What are the characteristics that strongly affect perceived failure of projects? **(10 Marks)**

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NEW SCHEME

Seventh Semester B.E. Degree Examination, May / June 2006
CS / IS
Engineering and Technology Management

Time: 3 hrs.] [Max. Marks:100

Note: ***1. Answer any FIVE questions.***
2. All questions carry equal marks.

1 a. Mention the key result areas on which the organization's survival depends as per Peter Drucker. **(08 Marks)**

b. Sales of a particular product (in thousands of dollars) for the years 1997 through 2000 have been 48, 64, 67 and 83 respectively.
   i. What sales would you predict for 2001 using a simple four –year moving average?
   ii. What sales would you predict for 2001 using a weighted moving average with weights of 0.3, 0.15 and 0.05 for the three years before that? **(04 Marks)**

c. You operate a small wooden toy company making two products : alphabet blocks and wooden trucks. Your profit is $30 per box of blocks and $40 per box of trucks. Producing a box of blocks requires one hour of wood working and two hours of painting; producing a box of trucks takes three hours of wood working but only one hour of painting. You employ three wood workers and two painters, each working 40 hours a week. How many boxes of blocks (B) & trucks (T) should you make each week to maximize profit? **(08 Marks)**

2 a. Explain different conditions as affecting the number of people a manager can effectively supervise. **(08 Marks)**

b. Describe assignment, delegation and accountability. What are the reasons for delegation? **(12 Marks)**

3 a. Explain Maslow's hierarchy of needs. **(05 Marks)**

b. Explain expectancy theory of motivation. **(10 Marks)**

c. What is MBTI in measuring the personal preferences? **(05 Marks)**

4 a. With a neat block diagram, mention and explain the four steps of the control process. **(06 Marks)**

b. Comment on the proposal to invest $1,000,000 in a new product now, which is projected to generate $2,00,000 profit at the end of each year for eight years, assuming that your company requires 15% return on investment before taxes. **(14 Marks)**

5 a. Mention and explain NSPE stages of new product development. **(14 Marks)**

b. An engineered system has a hazard rate of 0.01 failures per hour. What is its MTBF? If the same system has a MTBM of 60 hours, a MDT of 20 hours, and a MTTR of 6 hours, what are its.
   i. Inherent availability and
   ii. Operational availability? **(06 Marks)**

Contd.... 2

6 a. Identify three types of maintenance; and distinguish between them. **(10 Marks)**
b. Explain the engineered time standards of work measurement. **(05 Marks)**
c. Describe the traits of leadership. **(05 Marks)**

7 a. Explain the different activities of project proposal process. **(10 Marks)**
b. How could you use Gantt's chart as a project planning tool? Explain. **(05 Marks)**
c. Mention types of contracts. Describe any one of them in detail. **(05 Marks)**

8 a. Compare functional organization with projectized organization for project management. **(08 Marks)**
b. Excelsior Corporation reported the following status (in thousands of rupees) as of December 31, 2001: accounts payable of Rs.150; accounts receivable of Rs.250; cash of Rs.150; inventory of Rs.200; long-term debt of Rs.260; net plant and equipment of Rs.500; notes payable during 1996 of Rs.250; and stockholder's equity of Rs.440.
i) Prepare a balance sheet as of 31st December 2001, and
ii) Prepare profit and loss statement. **(12 Marks)**

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NEW SCHEME

Seventh Semester B.E. Degree Examination, Dec. 06 / Jan. 07
Computer Science
Engineering and Technology Management

Time: 3 hrs.] [Max. Marks:100

Note: *Answer any FIVE full questions.*

1 a. Describe any five of the Peter Drucker's key result areas in which objectives are to be established. **(08 Marks)**

b. Explain the quantitative methods of forecasting. **(06 Marks)**

c. Sales of a particular product (in thousands of rupees) for the years 1997 through 2000 have been 46, 62, 69, and 86 respectively. What sales would you forecast for 2001 using simple regression model? **(06 Marks)**

2 a. You must decide whether to buy new machinery to product X or to modify existing machinery. You believe the probability of a prosperous economy next year is 0.6 and of a recession is 0.4. Prepare a decision tree and use it to recommend the best course of action. The applicable pay off table of profits (+) and the losses (-) is: **(04 Marks)**

	N_1(prosperity)	N_2(recession)
A_1(buy new)	Rs.+950,000	Rs.-200,000
A_2(modify)	+700,000	+300,000

b. Describe the different legal forms of an organization. **(08 Marks)**

c. Envisage at least four reasons for using committees in organizational structure. **(08 Marks)**

3 a. Explain Mc Clelland's trio of needs for motivation. **(06 Marks)**

b. Describe the strategies to be mastered by successful technical leaders. **(07 Marks)**

c. Explain the three different perspectives on the timing of control. **(07 Marks)**

4 a. For the year 2001 XYZ corporation reported (in millions of rupees) net sales of Rs.10.0, cost of goods sold of Rs.4.4, other (sales, G and A, and interest) expense of Rs.1.2, and income taxes of Rs.1.6. As of December 31, 2001, the company had Rs.1.0 cash and securities, Rs.1.4 accounts receivable, and Rs.2.0 inventory; it owed Rs.2.0 in current liabilities (including unpaid taxes) and Rs.2.5 in long-term debt. Calculate as many financial ratios as you can with the information provided.

b. Define a patent. Describe different kinds of patents. **(08 Marks)**

c. What are some of support services an organization might provide to make the work of research and design engineers more effective? **(07 Marks)**

5 a. Mention the several phases of new product development, as suggested by NSPE. Explain any two of them. **(05 Marks)**

b. Discuss the factors that would be most important in planning manufacturing facilities. **(10 Marks)**

(10 Marks)

Contd.... 2

Activity	Time (Weeks)		Cost (dollars)	
	Normal	Crash	Normal	Crash
A	5	4	4000	6000
B	4	2	3000	4000
C	6	5	2200	3000
D	7	4	5000	8000
E	7	5	3000	6000

i) Identify the critical path and project duration.

ii) What will be the incremental cost over and above the normal cost, to reduce project duration by 2-weeks? **(12 Marks)**

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6. (a) Discuss the characteristics of effective project managers. (6 Marks)

(b) What do you understand by the term Crashing the project? The following table shows the activities, normal & crash time (in weeks) and cost (in dollars). Determine the critical path. Identify the tasks you would crash and the incremental cost to reduce the project duration by two weeks after drawing the network (AON)

Activity Tasks	Time		Cost		Follows Tasks
	Normal	Crash	Normal	Crash	
A	5	4	4000	6000	Start
B	4	2	3000	4000	Start
C	6	5	2200	3000	A
D	7	4	5000	8000	A, B
E	7	5	3000	6000	C, D

(4+10=14 Marks)

7. (a) Tasks, x, y and z must be completed in series to complete a project. The three time estimate (a, m & b) for each task in days are x: 30, 45 & 66, y: 24, 42 and 60 z : 26, 50 & 68 days. For each task calculate :

i) the expected time t_e and

ii) the standard deviation

what is the

iii) expected time t_e and

iv) standard deviation σ_T for the complete project.

(b) For the project outlined in the following table, prepare (2×4 Marks)

I) Gnatt bar chart

ii) An arrow network diagram

iii) A circle (AON) network diagram

iv) What and how long is the critical path?

Task	Follows Tasks	Duration
A	Start	5.0
B	Start	5.0
C	Start	5.0
D	A	3.0
E	A, B	3.0
F	D, E, C	1.0

8. (a) What are the characteristics of effective control systems (mention at least four)? (3×4=12 Marks)

Contd..

(b) Hytek corporation ended 2001 with cash of $ 50,000, accounts receivable of $ 100,000 and inventory of $ 300,000. Property, plant and equipment were valued at their original cost of $ 470,000, less accumulated depreciation of $ 170,000. Current liabilities other than income taxes (see below) were $ 120,000 and long term debt was $ 250,000. Stock holders' equity consisted of

i) $ 90,000 capital stock investment and

ii) accumulated retained earnings which had totaled $ 130,000 at the end of 2000.

Net sales for 2001 were $ 900,000. Expenses included $ 500,000. Cost of goods sold, $ 50,000 allowance for depreciation, $ 85,000 selling expenses and $ 65,000 G & A expense. Interest income and expense were $ 5000 and $ 25000 respectively and income taxes for the year (unpaid at year's end) were $ 80,000. Dividends of $ 20,000 had been declared but not paid at year's end. Prepare first an income statement and then a balance sheet reflecting these figures. What is the asset turnover ratio?

(6+6+2 Marks)

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CS71

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NEW SCHEME

Seventh Semester B.E. Degree Examination, May 2007
CS / IS
Engineering and Technology Management

Time: 3 hrs.] [Max. Marks:100

Note : *Answer any FIVE full questions.*

1 a. "For the strategic management of technology, the technologies are divided into three broad classes". Elaborate on this statement by naming the technologies and explain them. **(06 Marks)**

b. Describe the key result areas to be considered in implementing MBO in an organization. **(06 Marks)**

c. Using exponential smoothing with a weight of $\alpha = 0.6$ on actual values answer :

i) If sales are \$ 45,000 and \$ 50,000 for 1998 and 1999, what would you forecast for 2000? (The first forecast is equal to the actual value of the preceding year).

ii) Given this forecast and actual 2000 sales of \$ 53,000, what would you then forecast for 2001? **(08 Marks)**

2 a. Explain the types of decisions that managers are normally concerned with, in organizational context. **(06 Marks)**

b. Briefly outline the concept of mathematical models in management science. **(04 Marks)**

c. You must decide whether to buy new machinery to produce product X or to modify the existing machinery. You believe the probability of a prosperous economy next year is 0.6 and of a recession 0.4. Prepare a decision tree and use it to recommend the best course of action. The applicable pay off table of profits (+) and losses (-) is **(10 Marks)**

	N_1 (Prosperity)	N_2 (Recession)
A_1 (Buy new)	\$ + 950,000	\$ - 200,000
A_2 (modify)	\$ + 700,000	\$ + 300,000

3 a. With a neat chart, explain the features of a functional organization. **(04 Marks)**

b. Describe the human related activities involved in effective staffing of a technical organization. **(08 Marks)**

c. With suitable examples explain the meaning of i) Authority ii) Delegation iii) Responsibility iv) Accountability. **(08 Marks)**

4 a. With a neat diagram explain the essence of "Leadership Grid". **(06 Marks)**

b. Bring out the important features of Mc Cllrland's Trio of needs theory of motivation. **(04 Marks)**

c. Here are the extracts from audited financial statements of a leading software company in India for the year ended 31st March 2006 : (Figures in Rs – crores).

Income from software services and products	= 9,028
Software development expenses (including staff cost)	= 4,887
Depreciation	= 409
Selling and marketing expenses	= 499
General and administrative expenses	= 653

Contd... 2

Interest expenses = NIL
Interest income from deposits and mutual funds = 144
Provision for taxation = 303
Calculate the operating profit and net income of the company. What is the profitability ratio?

5 a. Explain the significance of the following in production management. **(10 Marks)**
i) JIT ii) FMS iii) TQM iv) Productivity.

b. A production plant with a fixed cost of Rs 3,00,000 produces a product with a variable cost 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 Marks)**

c. If it costs Rs 2 per unit to store an item for one year and Rs 40 set up cost every time you produce a lot and you use 1000 units per year, how many lots of what size should be manufactured each year? **(06 Marks)**

6 a. With a neat diagram, explain the stages in Technology life cycle. **(06 Marks)**

b. Explain the major factors to be considered in designing a product. **(04 Marks)**

c. "Engineers to-day are increasingly drawn into service organizations including marketing" comment. **(06 Marks)**

d. What will be the NPW (Net Present Worth) of the following investment proposal? Capital investment Rs 4 lakhs, cashflow (1st year) Rs 2.09 lakhs, cash flow (2nd year) Rs 2.42 lakhs, expected rate of return 10% per annum. **(04 Marks)**

7 a. Bring out a brief note on "Project Planning Tools". **(06 Marks)**

b. For a project outlined in the follwing table, prepare i) A bar chart ii) An arrow network diagram iii) A circle (AON) diagram iv) What and how long is the critical path? **(08 Marks)**

Task	Follows Task (s)	Weeks duration
A	Start	3
B	Start	7
C	A	2
D	B	7
E	B,C	5
F	D,E	1

(12 Marks)

8 a. What is the relevance of Resource Allocation and project crashing in project management? **(08 Marks)**

b. A project network data is furnished in fig. 8(b).

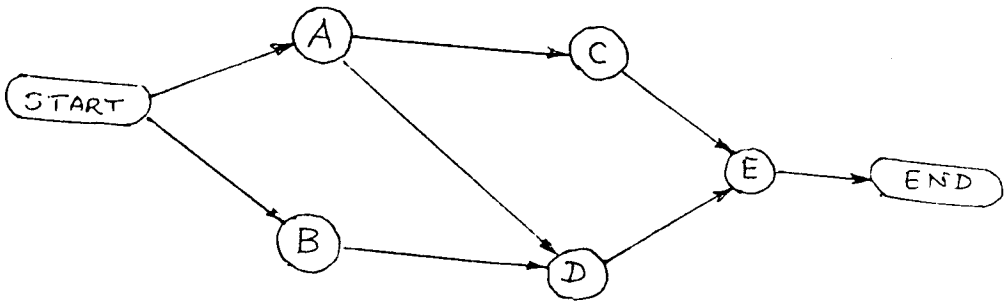

Fig. 8(b)

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CS71

Seventh Semester B.E Degree Examination, Dec. 07 / Jan. 08
Engineering and Technology Management

Time: 3 hrs. Max. Marks:100

Note : ***Answer any FIVE full questions.***

1 a. Explain the planning/decision making process with a neat block diagram to solve a problem. **(10 Marks)**

b. If sales for years 2000, 1999, 1998 and 1997 (n = 4) were 1600, 1200, 1300 and 1100 respectively, find sales forecast for the year 2001 by i) Simple moving average method ii) Weighted moving average method, if year 2000 has 0.4 weight, 1999 has 0.3, 1998 has 0.2 and 1997 has 0.1 weight. **(08 Marks)**

c. Differentiate between simple moving average method and weighted moving average method for forecasting. **(02 Marks)**

2 a. Explain the types of decisions as classified by Pringle et al with one example for each. **(06 Marks)**

b. Explain the legal forms of organizations. **(08 Marks)**

c. Explain the factors that determine effective span of control. **(06 Marks)**

3 a. What are the sources of power and influence as given by French and Raven? **(05 Marks)**

b. Explain Chester Bernard's acceptance theory of authority. **(05 Marks)**

c. Explain how committees can be made effective. **(10 Marks)**

4 a. Explain Maslow's hierarchy of needs. **(05 Marks)**

b. Explain Victor Vroom's expectancy theory of motivation with diagram. **(09 Marks)**

c. Explain three perspectives on the timing of control. **(06 Marks)**

5 a. What are the characteristics of effective control system? **(06 Marks)**

b. Explain the four alternative new product strategies as suggested by Ansoff and Stewart. **(06 Marks)**

c. What are the legal means to protect an organization (or an individual's) idea and right to benefit from those ideas? **(08 Marks)**

a. What are the characteristics of creative people? Explain. **(08 Marks)**

b. Explain the benefits of automated version control and configuration management. **(10 Marks)**

c. What is "Bathtub Curve" model as applied to pattern of hazard rate versus time? **(02 Marks)**

7 a. Explain material requirement planning (MRP). **(10 Marks)**

b. Explain Zenz's steps in purchasing followed in majority of organization. **(10 Marks)**

8 a. Distinguish between component parts and fabricated items. **(05 Marks)**

b. Explain the types of contracts. **(05 Marks)**

c. What are the five methods for dealing with conflict as given by Blake and Mouton? **(05 Marks)**

d. Give the advantages and disadvantages of Functional Organization and Projectized Organization. **(05 Marks)**

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(b) Discuss use case driven object-oriented analysis using unified approach. (10 Marks)

5. (a) Discuss the following relationships: (10 Marks)

i) Associations ii) Aggregation

(b) What are public and private protocols? What is the significance of separating these two protocols? (10 Marks)

(c) What are characteristics of a bad design? (6 Marks)

6. (a) Discuss the features of object-oriented database management system. What are the rules that make it an object-oriented system? (4 Marks)

(b) Distinguish between object-oriented databases and traditional databases. (15 Marks)

7. (a) What is the most basic principle by which responsibilities are assigned in object-oriented design? Discuss with an example. (5 Marks)

(b) With the help of an example discuss the following. (6 Marks)

i) Pure Fabrication ii) Indirection

(c) Distinguish between the waterfall life-cycle and an iterative life-cycle. (10 Marks)

8. Write short notes on the following: (4 Marks)

i) Reusability

ii) Frameworks

iii) Interface design as a creative process.

iv) Incremental development.

(4×5=20 Marks)

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