FINAL EXAMINATION

December 2014

F–P15(EPM)
Syllabus 2008

Management Accounting—Enterprise Performance Management

Time Allowed: 3 Hours | Full Marks: 100

The figures in the margin on the right side indicate full marks.

Attempt Question No. 1 *(carrying 25 marks), which is compulsory and* any five *more questions (each carrying 15 marks) from the rest.*

Please (i) Answer all part of a question at one place only.
(ii) Open a new page for answer to a new question.

1. (a) State whether the following statements given below are 'True' or 'False'. If True, simply rewrite the given statement (= 1 mark). If False, state it as False (= ½ marks) and rewrite the correct statement (= ½ mark): 1×5=5

(i) The term 'Control' is used in management parlance in a synergetic sense.

(ii) Redundant Relationship is one in which the connected systems cannot function alone.

(iii) Theory 'Y' style of Management is a highly autocratic style.

(iv) The key factors of 'Theory of Constraints' is Contribution and Profit.

(v) Options, which can be used to increase or decrease capacity to match current demand include : Hire/Lay-off, Overtime, sub-contracting and pricing.

(b) Out of the different options given against each of the following statements, only one is the most appropriate option. You are required to write it down. 2×5=10

(i) Given :

	Proposal A	Proposal B
Standard Deviation :	548	1,140
Expected Value :	4,000	4,000

Ascertain which proposal has a greater degree of risk?

A. Proposal A
B. Proposal B
C. Both proposals have same degree of risk
D. Insufficient information

(ii) ABC Co. has the capacity of production of 80,000 units and presently sells 20,000 units at ₹ 100 each. The demand is sensitive to selling price and it has been observed that for every reduction of ₹ 10 in Selling Price, the demand is doubled. If the Profit Margin on Sale is 25%, the Target Cost at full capacity would be

A. ₹ 60
B. ₹ 80
C. ₹ 100
D. None of these

(iii) Ramdev Manufacturing Co. produces the following Products, using 5,000 tons of Coal at a cost of ₹ 15 per ton into a common process :
Coke - 3,500 Tons, Tar - 1,200 Tons, Sulphate of Ammonia - 52 Tons and Benzol - 48 Tons. 200 Tons of material is lost in Process as waste and air evaporation. Labour and Overheads for the process are ₹ 15,000 and ₹ 6,000 respectively. The Joint-Cost apportioned in the above ratio for Coke will be

A. ₹ 50,000
B. ₹ 70,000
C. ₹ 80,000
D. ₹ 90,000

(iv) Ganesh Ltd., produces a product, which has a Variable Cost of Materials ₹ 40, Labour ₹ 10 and Overheads ₹ 4. The Selling Price is ₹ 90 per unit. Under a wage agreement, an increase of 10% is payable to all direct workers from the beginning of the forthcoming year, while the Material Cost is expected to increase by 7.5%, Variable Overheads by 5% and Fixed Overhead by 3%. The total Variable cost per unit in the forthcoming year will be

A. ₹ 54 B. ₹ 58.20
C. ₹ 60.20 D. None of these

(v) Following information is available for the 1st and 2nd quarter of the year for ABC Ltd. :

Quarter	Production in units	Semi-variable cost
Quarter-1	36,000	₹ 2,80,000
Quarter-2	42,000	₹ 3,10,000

The Variable Cost per unit will be

A. ₹ 3 B. ₹ 6
C. ₹ 5 D. None of these

(c) Define the following terms in one/two sentences only : 1×5=5

i. Coefficient of Variation ii. Decision Trees iii. Zero-defects
iv. Reverse Engineering v. Human Resources Planning

(d) Expand the following abbreviations : 1×5=5

i. DBR ii. BSC iii. PBB
iv. CWQC v. FMECA

2. (a) What do you mean by 'Outsourcing'? Briefly illustrate. 7

(b) Srisanth & Co. has installed 200 electric bulbs of a certain brand. The company follows the policy of replacing the bulbs as and when they fail. Each replacement costs ₹ 2. The Probability distribution of the life of the bulbs is as given here below :

Life of bulb (weeks)	1	2	3	4	5
% of bulbs	0.10	0.30	0.45	0.10	0.05

i. Determine the cost/week of the replacement policy in the long run.

ii. Compute the average cost of Group Replacement.

iii. Find out when the Group Replacement is advisable. 2+4+2=8

3. (a) An investment company wants to study the investment projects based on market demand, profit and the investment required, which are independent of each other. Following Probability distribution are estimated for each of these 3 factors :

Annual demand ('000 units)	25	30	35	40	45	50	55
Probablity	0.05	0.10	0.20	0.30	0.20	0.10	0.05

Profit per unit	3	5	7	9	10
Probability	0.10	0.20	0.40	0.20	0.10

Investment required (₹'000)	2,750	3,000	3,500
Probability	0.25	0.50	0.25

Using Simulation Process, repeat the trial 10 times. Compute the investment on each trial, taking these factors into trial. What is the most likely return?

Use the following random nos. :

(30,12,16), (59,09,69), (63,94,26), (27,08,74), (64,60,61)

(28,28,72), (31,23,57), (54,85,20), (64,68,18), (32,31,87)

In the bracket above, the 1st random no. is for annual demand, the 2nd one is for Profit and the last one is for the investment required. 8

(b) A firm produces 3 types of products A, B and C. The profit on I unit of type A, B and C are ₹ 3, ₹ 2 and ₹ 4 respectively. A firm has 2 m/c s and below is given the required processing time in minutes for each m/c on each product:

	Products		
M/c	A	B	C
G	4	3	5
H	3	3	5

The M/c s G and H are available for not more than 2,000 mins and 2,500 mins respectively.

The firm must manufacture 100 A s, 200 B s and 50 C s.

Only Formulate a LPP. Do not solve the LPP. 7

4. (a). XYZ Company manufactures a product ABC by mixing three raw materials. For every 100 kg. of ABC, 125 kg. of raw materials are used. In April, 2014, there was an output of 5,600 kg. of ABC. The standard and actual particulars of April, 2014 are as follows:

Raw Material	Standard		Actual	
	Mix%	Price per Kg. (₹)	Mix%	Price per Kg. (₹)
Raw Material I	50	40	60	42
Raw Material II	30	20	20	16
Raw Material III	20	10	20	12

Calculate:

(i) Material Cost Variance.

(ii) Material Price Variance.

(iii) Material Mix Variance. 7

(b) Shri Kiran manufactures lighters. He sells his product at ₹ 20 each and makes a profit of ₹ 5 on each lighter. He worked at 50% of his machinery capacity at 50,000 lighters. The cost of each lighter is as follows:

Direct Material	₹ 6
Wages	₹ 2
Workers overhead	₹ 5 (50% fixed)
Sales expenses	₹ 2 (25% variable)

His anticipation for the next year is that the cost will go up as under:

Fixed cost	10%
Direct wages	20%
Material	5%

There will not be any change in selling price. There is an additional order for 20,000 lighters in the next year.

What will be the lowest rate he can quote so that he can earn the same profit as the current year? 5

(c) In what circumstances is a company justified in selling its products at a price below variable cost? 3

5. The following figures relate to the current year's position in an engineering industry operating at 70% capacity level:

BE Point ₹ 80 Crores.

P/V ratio = 40%.

Margin of Safety = ₹ 20 Crores.

The Board at its last meeting has taken a decision to increase the output to 98% capacity level with the following modification:

(i) Reduction in selling price by 5%.
(ii) Fixed cost increase by ₹ 8 crores (including depreciation on additions but excluding interest burden).
(iii) Reduction in variable on cost by 5% on sales.
(iv) Additional finance for capital expenditure and working capital ₹ 20 crores.

(a) You are required to determine the revised sales figures necessary to yield the existing quantum of profit plus additional profit of ₹ 4 crores on account of increased activity and 20% interest burden on fresh capital inputs. 3

(b) Also determine the revised—(i) BE Point (ii) P/V Ratio (iii) Margin of Safety. 2×3=6

(c) Speedy Airlines can carry maximum of 10,000 passengers per month on one of its routes at a fare of ₹ 85. Variable costs are ₹ 10 per passenger and fixed costs are ₹ 3,00,000 per month.

Calculate:

(i) BE Quantity.

(ii) BE Sales.

(iii) Suppose that the management aims at sales for a profit target of ₹ 2,00,000. What would be required profits before taxes to achieve this profit target, if the corporate tax rate of the company is 46%? 2×3=6

6. A company makes a single product which sells at ₹ 800 per unit and whose variable cost is ₹ 500 per unit. Production and Sales are 1,000 units/month. Production is running to full capacity and there is market enough to absorb an additional 20% of output each month.

   The company has 2 options :

   Option-1: Inspect the finished goods at ₹ 10,000/month. 4% of the production is detected as defectives and scrapped at no value. There will be no warranty replacement, since every defect is detected. A small spare-part, which wears out due to defective materials is required to be replaced at ₹ 2,000 per spare-part for every 20 units of scrap generated. This repair cost is not included in the manufacturing costs mentioned above.

   Option-2: Shift the finished goods inspection at no extra cost, to raw material inspection (since defective raw materials are entitled to free replacement by the supplier) and take up machine set-up tuning and machine inspection at an additional cost of ₹ 8,000 per month, so that the scrap of finished goods is completely eliminated. However, delivery of uninspected finished products may result in 1% of the quantity sold to be replaced under free warranty due to minor variations in dimensions, which does not result in wearing out the spare-part as stated under option-1.

   Using the monthly figures relevant for decision-making, advice which option is more beneficial to the company, from a financial perspective. 15

7. (a) What do you mean by "Supply Chain Management"? 5

   (b) The following table gives the result of 20 samples of 100 items, each taken on working days. Draw a P-chart (Not to scale):

Sample No.	1	2	3	4	5	6	7	8	9	10
No. of Defectives	0	2	4	6	6	4	0	2	4	8
Sample No.	11	12	13	14	15	16	17	18	19	20
No. of Defectives	8	0	4	6	14	0	2	2	6	2

   Find out:

   (i) Upper Control Limit.

   (ii) Lower Control Limit.

   (iii) Central Line. 3×3=9

   Is the Production Process under Statistical Quality Control? 1

8. Write Short notes on *any three* of the following : 3×5=15

   (a) Divisional Structure

   (b) Difference between Strategic Planning and Management Control

   (c) Options for adjusting capacity

   (d) Buffer Management

   (e) Merits of Contribution Approach