Roll No. .....

NOV 2013

Total No. of Questions – 7

FINAL
GROUP-II PAPER-5
ADVANCED MANAGEMENT ACCOUNTING

Total No. of Printed Pages – 12

Time Allowed – 3 Hours

Maximum Marks – 100

HAK

Answers to questions are to be given only in English except in the case of candidates who have opted for Hindi Medium. If a candidate has not opted for Hindi medium, his / her answers in Hindi will not be valued.

Question No. 1 is compulsory.

Answer any **five** out of the remaining **six** questions.

Working notes form pat of the answer.

No statistical or other table will be distributed along with this question paper.

In theory questions where situations are given, candidates are not expected to copy the situations into the answer books.

Marks

1. (a) A company has to decide whether to accept a special order or not for a certain product M in respect of which the following information is given : **5**

Material A required	5000 kg	Available in stock. It was purchased 5 years ago at ₹ 35 per kg. If not used for M, it can be sold as scrap @ ₹ 15 per kg.
Material B required	8000 kg	This has to be purchased at ₹ 25 per kg from the market.
Other hardware items	₹ 10000	To be incurred
Dept X – Labour oriented	5 men for 1 month @ ₹ 7000 per month per man	Labour to be freshly hired. No spare capacity available.

Marks

Dept Y- Machine oriented	3000 machine hours @ ₹ 5 per machine hour	Existing spare capacity may be used.
Pattern and Specification	₹15000	To be incurred for M, but after the order, it can be sold for ₹ 2000

Considering relevant costs, find out the minimum value above which the company may accept the order.

(b) Answer the following independent situations relating to an assignment problem with a minimization objective : 5

(i) Just after row and column minimum operations, we find that a particular row has 2 zeroes. Does this imply that the 2 corresponding numbers in the original matrix before any operation were equal ? Why ?

(ii) Under the usual notation, where a_{32} means the element at the intersection of the 3rd row and 2nd column, we have, in a 4 × 4 assignment problem, a_{24} and a_{32} figuring in the optimal solution. What can you conclude about the remaining assignments ? Why ?

(c) The PLN Co. presents the following static budgets for 4000 units and 6000 units activity levels for October 2013 : 5

	4000 units activity level	**6000 units activity level**
Overhead A ₹ 12/hr. × 2 hr. / unit	96000	144000
Overhead B	140000	190000

Overhead C was omitted to be listed out. It is a fixed plant overhead, estimated at ₹ 12.5/hr. at 4000 units activity level. This has to also feature in the flexible budget. The actual production was 5000 units and 9600 hours were needed for production.

You are required to present the flexible budget amount of each overhead to enable appropriate comparison with the actual figures.

Marks

(d) A company can produce any of its 4 products, A, B, C and D. Only one product can be produced in a production period and this has to be determined at the beginning of the production run. The production capacity is 1000 hours. Whatever is produced has to be sold and there is no inventory build-up to be considered beyond the production period. The following information is given : **5**

	A	B	C	D
Selling Price (₹/unit)	40	50	60	70
Variable Cost (₹/unit)	30	20	20	30
No. of units that can be sold	1000	600	900	600
No. of production hours required per unit of product.	1 hour	1 hour and 15 minutes	1 hour and 15 minutes	2 hours

What are the opportunity costs of A, B, C and D ?

2. (a) State the appropriate pricing policy in each of the following independent situations : **4**

(i) 'A' is a new product for the company and the market and meant for large scale production and long term survival in the market. Demand is expected to be elastic.

(ii) 'B' is a new product for the company, but not for the market. B's success is crucial for the company's survival in the long term.

(iii) 'C' is a new product to the company and the market. It has an inelastic market. There needs to be an assured profit to cover high initial costs and the ususal sources of capital have uncertainties blocking them.

(iv) 'D' is a perishable item, with more than 80% of its shelf life over.

(b) A bakery sells a popular brand of bread. Cost price per bread is ₹ 16 and selling price per bread is ₹ 20. Shelf life of the bread is 2 days and if it is not sold within two days, then it has no sale value at the end of second day. Daily demand based on past experience is as under : **8**

Daily Demand	0	20	25	35	40	45
Probability	.01	.15	.30	.40	.10	.04

Marks

Consider the following sequence of random numbers :

58, 80, 51, 09, 47, 26, 64, 43, 86, 35

Using the sequence, simulate the demand for the next 10 days and find out the total profit or loss for 10 days assuming 35 breads are purchased every day in the morning and there is an opening stock of 5 breads (purchased the previous day) on the 1st day morning. Assume LIFO basis (Last In First Out basis – where the fresh bread is sold first).

(c) The following independent situations are given in JIT systems of production. You are required to state if each recommendation is valid or invalid and give a brief reason. **4**

Sl. No.	Situation	Recommendation by the Cost Accountant
(i)	A company produces LCD TVs. Presently total inventory turnover is measured annually.	Compute inventory turnover every month. Break it down into raw material, WIP, expensive inventory and finished goods.
(ii)	Textile company.	Accept employees' claim for piece rate incentive for exceeding a certain production volume.
(iii)	Sports goods manufacturing company	Closely monitor direct labour variances including idle time variances to convince employees to work faster.
(iv)	Multiproduct production	Monitor the average set up time per machine in a period which is given by $\frac{\text{Aggregate set up time of all machines}}{\text{Total number of machines.}}$

3. (a) Flyway Ltd. has hired an aircraft to specially operate between cities A and B. All the seats are economy class. **12**

The following information is available :

Seating capacity of the aircraft	:	260 passengers
Average number of passengers per flight	:	240 passengers
Average one-way fare from A to B	:	₹ 5,000 per passenger

Marks

Fuel costs per flight from A to B	:	₹ 90,000
Food cost (A to B sector) (no charge to passenger)	:	₹ 300 per passenger
Commission to travel agents (All tickets are through agents)	:	10% of the fare
Annual lease costs allocated to each flight	:	₹ 2,00,000
Ground services, baggage handling/checking in service costs per flight A to B	:	₹ 40,000
Flight crew salaries per flight A to B	:	₹ 48,000

There is an offer from another airlines operator, Haltgo Ltd. for a stop-over at destination D, which is on the way from A to B. Due to this, the flight will operate from A to D, then from D to B.

The following terms are considered for the stop-over :

50 seats from D to B will be booked by Haltgo at ₹ 2,700 per ticket, whether or not Haltgo is able to sell them to its customers. No agents' commission is payable on these tickets. However, Snacks must be provided to these passengers also by Flyway Ltd. at no further charge to Haltgo or the passengers.

A maximum of 60 tickets can be sold by Flyway's travel agents for the A to D sector at a fare of ₹ 3,000 per passenger.

Since the stop-over wastes more time, 25 of Flyway's original passengers in the A to B sector will voluntarily drop out in favour of other airlines offering direct flights between A and B.

Due to the stop-over, fuel costs will increase from ₹ 90,000 to ₹ 1,35,000. Additional airport landing/baggage handling charges of ₹ 19,000 per stop-over will have to be incurred by Flyway Ltd.

Flyway Ltd. will have to serve snacks to all the passengers in the D to B sector at no charge to passengers. Each snack will cost Flyway ₹ 200. This will be in addition to the original food at ₹ 300 served in the A to D sector.

Marks

You may assume that fuel costs are not affected by the actual number of passengers in the flight, ignore non-financial considerations, additional wear and tear to aircraft due to extra landing/take-off.

Without considering Haltgo's offer,

(i) What is the profit earned by Flyway Ltd. per flight from A to B ?

(ii) What is the Break-even number of passengers for each flight from A to B ?

Considering the effects of Haltgo's offer,

(iii) Evaluate whether Flyway should accept the offer.

(A detailed profitability statement is not essential. Only figures relevant for the cost-revenue analysis are required.)

(b) What are the limitations of Uniform Costing ? **4**

4. (a) B Ltd. makes three products X, Y and Z in Divisions X, Y and Z respectively. The following information is given : **12**

	X	Y	Z
Direct Material (₹ / Unit) (excluding material X for Divisions Y and Z)	8	22	40
Direct Labour (₹ / Unit)	4	6	8
Variable Overhead (₹ / Unit)	2	2	2
Selling price to outside customers (₹ / Unit)	25	65	90
Existing capacity (no. of units)	6000	3000	3000
Maximum external Market demand (no of units)	5000	5500	5000
Additional fixed cost that would be incurred to install additional capacity (₹)	45000	9000	23100
Maximum additional units that can be produced by additional capacity	6000	2000	2250

Marks

Y and Z need material X as their input. Material X is available in the market at ₹ 23 per unit. Defectives can be returned to suppliers at their cost. Division X supplies the material free from defects and hence is able to sell at ₹ 25 per unit. Each unit of Y and Z require one unit of X as input with slight modification.

If Y purchases from outside at ₹ 23 per unit, it has to incur ₹ 3 per unit as modification and inspection cost. If Y purchases from Division X, it has to incur, in addition to the transfer price, ₹ 2 per unit to modify it.

If Z gets the material from Division X, it can use it after incurring a modification cost of ₹ 1 per unit. If Z buys material X from outside, it has to either inspect and modify it at its own shop floor at ₹ 5 per unit or use idle labour from Division X at ₹ 3 per unit. Division X will lend its idle labour as per Z's requirement even if Z purchases the material from outside.

The transfer prices are at the discretion of the Divisional Managers and will remain confidential. Assume no restriction on quantities of inter-division transfers or purchases.

Discuss with relevant figures the best strategy for each division and for the company as a whole.

(b) State whether the learning curve theory can be applied to the following independent situations briefly justifying your decision : 4

(i) A labour intensive sculpted product is carved from the metal provided to the staff. The metal is sourced from different suppliers since it is scarce. The alloy composition of the input metal is quite different among the suppliers.

(ii) Pieces of hand-made furniture are assembled by the company in a far off location. The labourers do not know anything about the final product which utilizes their work. As a matter of further precaution, rotation of labour is done frequently.

(iii) Skilled workers have been employed for a long time. The company has adequate market for the craft pieces done by these experts.

(iv) A company finds that it always has an adverse usage of indirect material. It wants to apply learning curve theory to improve the way standards have been set.

Marks

5. (a) The following information relates to the labour element of X Ltd. **8**

Type of labour	Skilled	Semi-skilled	Unskilled	Total
No. of workers in the standard gang	4	3	2	9
Standard rate per hour (₹)	6	3	1	
Number of workers in actual gang				9
Actual rate per hour (₹)	7	2	2	

In a 40 hour week, the gang produced 270 standard hours. The actual number of semi-skilled workers is two times the actual number of unskilled workers. The rate variance of semi-skilled workers is ₹ 160 (F).

Find the following :

(i) The number of workers in each category

(ii) Total gang variance

(iii) Total sub-efficiency variance

(iv) Total labour rate variance

Indicate if the variances are Favourable (F) or Adverse (A or U).

(b) Given below is an iteration in a simplex table for a maximization objective linear programming product mix problem for products X_1, X_2 and X_3. **8**

Cj			6	4	10	0	0	0
	Basic Variable	Quantity	X_1	X_2	X_3	S_1	S_2	S_3
0	S_1	400	0	4/3	0	1	–1/3	0
6	X_1	400	1	2/3	2	0	1/3	0
0	S_3	400	0	5/3	0	0	–2/3	1
	Z_j	2400	6	4	12	0	2	0
	$C_j - Z_j$		0	0	–2	0	–2	0

Marks

Answer the following questions :

(i) Is the above solution feasible ?

(ii) Perform one more iteration with X_2 entering the solution to get a solution with the same value for the objective function.

(iii) Indicate the shadow prices.

(iv) If customer is prepared to pay higher price for product X_3, then by how much should the price be increased so that the company's profit remains unchanged ?

(v) From the given table, derive any one original constraint inequality with the coefficients of variables in their simplest whole number forms.

6. (a) MK Ltd. manufactures four products, namely A, B, C and D using the same plant and process. The following information relates to a production period : 8

Product	A	B	C	D
Output in Units	720	600	480	504

The four products are similar and are usually produced in production runs of 24 units and sold in batches of 12 units. The total overheads incurred by the company for the period are as follows :

	₹
Machine operation and maintenance cost	63,000
Setup costs	20,000
Store receiving	15,000
Inspection	10,000
Material handling and dispatch	2,592

During the period the following cost drivers are to be used for the overhead cost :

Cost	Cost driver
Setup cost	No. of production runs
Store receiving	Requisitions raised

Marks

Inspection	No. of production runs
Material handling and dispatch	Orders executed

It is also determined that :

- Machine operation and maintenance cost should be apportioned between setup cost, store receiving and inspection activity in the ratio 4 : 3 : 2.
- Number of requisition raised on store is 50 for each product and the no. of orders executed is 192, each order being for a batch of 12 units of a product.

Calculate the total overhead cost per unit of each product using activity based costing after finding activitywise overheads allocated to each product.

(b) A project consists of seven activities whose time estimates (optimistic – t_o, pessimistic – t_p and most likely – t_m) in days are given below : **8**

Activity	t_o	t_p	t_m
1-2	1	5	3
1-3	1	7	4
1-4	2	10	6
2-5	2	8	2
3-5	3	15	6
4-6	2	8	5
5-6	2	14	5

Required :

(i) Draw the network and find out the expected time and variance for each activity. What is the expected duration for completion of the project ?

(ii) If the target time is 22 days, what is the probability of not meeting the target ?

(iii) Within how many days can the project be expected to be completed with 99 percent chance ?

Given $Z_{2.33} = 0.9901$ and $Z_{1.67} = 0.9525$

Marks

7. Answer any **four** of the following questions :

(a) Discuss briefly two methods of costing in the service sector and give examples. **4**

(b) In Value Chain analysis, business activities are classified into primary activities and support activities. Classify the following under the more appropriate activity. **4**

(i) Order processing and distribution

(ii) Installation, repair and parts replacement

(iii) Purchase of raw material and other consumable stores

(iv) Transforming inputs into final products

(v) Selection, promotion, appraisal and employee relations

(vi) Material handling and warehousing

(vii) General management, planning, finance, accounting

(viii) Communication, pricing and channel management

(c) Define the following terms in relation to a transportation problem : **4**

(i) Degeneracy

(ii) Prohibited routes

(d) State the type of cost in the following cases : **4**

(i) Cost associated with the acquisition and conversion of material into finished product.

(ii) Cost arising from a prior decision which cannot be changed in the short run.

(iii) Increase in cost resulting from selection of one alternative instead of another.

(iv) Rent paid for a factory building which is temporarily closed.

Marks

(e) In each of the following independent situations, state with a brief reason whether 'Zero Base Budgeting' (ZBB) or 'Traditional Budgeting' (TB) would be more appropriate for year II. 4

(i) A company producing a certain product has done extensive ZBB exercise in year I. The activity level is expected to marginally increase in year II.

(ii) The sales manager of a company selling three products has the intuitive feeling that in year II, sales will increase for one product and decrease for the other two. His expectation cannot be substantiated with figures.

(iii) The top management would like to delegate responsibility to the functional managers for their results during year II.

(iv) Resources are heavily constrained and allocation for budget requirements is very strict.