Roll No. .....

MAY 2016

Total No. of Questions – 7

FINAL
GROUP-II PAPER-5
ADVANCED MANAGEMENT
ACCOUNTING

Total No. of Printed Pages – **15**

Time Allowed – 3 Hours

Maximum Marks – **100**

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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 who has not opted for Hindi Medium, his/her answers in Hindi will not be valued.

Question No. **1** is compulsory.

Answer any **five** questions from the remaining **six** questions.

In case, any candidate answers extra question(s)/sub-question(s) over and above the required number, then only the requisite number of questions first answered in the answer book shall be valued and subsequent extra questions answered shall be ignored.

Working notes should form part of the answer.

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

Wherever necessary, candidates may make appropriate assumption & clearly state them.

Marks

1. (a) UK Ltd. prepared a draft budget for the next year as follows : **5**

Quantity	10,000 units
	₹
Selling price per unit	60
Variable cost per unit	
- Direct materials	16
- Direct labour (2 hours × ₹ 6)	12
- Variable overheads (2 hrs*₹ 1)	2
Contribution per unit	30
Total budgeted contribution	3,00,000
Total budgeted fixed overheads	2,80,000
Total budgeted profit	20,000

Marks

The board of directors are not satisfied with this draft budget and suggested the following changes for the better profit :

(i) The budgeted profit is ₹ 50,000,

(ii) The company should spend ₹ 57,000 on advertisement and the target sales price up to ₹ 64 per unit.

(iii) It is expected that the sales volume will also rise, inspite of the price rise, to 12,000 units.

In order to achieve the extra production capacity, however, the work force must be able to reduce the time taken to make each unit of the product. It is proposed to offer a pay and productivity deal in which the wages rate per hour is increased to ₹ 8. The hourly rate for variable overheads will be unaffected.

You are required to calculate the target labour time require to achieve the target profit.

(b) Supreme Prakashan Ltd. is in the business of publishing a leading newspaper which has a wide customer base. It measures quality of service in terms of 5

(i) Print quality

(ii) On time delivery

(iii) Number of damaged and unsold paper

To improve its business prospects and performance, the company is considering installing a scheduling and tracking system which involve an annual additional cost of ₹ 3,00,000 beside equipments costing ₹ 4,00,000 needed for the installation of system.

To purchase the equipment, company is planning to utilise the proceeds of an investment fetching an annual income @ of 9%.

Details regarding the present and future performance are given as under :-

	Present	**Expected**
On-time delivery	85%	97%
Variable cost per lot of newspaper damaged and unsold	₹ 40	₹ 40
Fixed cost	50,000	50,000
No. of lots of newspaper damaged and unsold	6,000	1,000

Marks

It is expected that each percentage increase in on time performance will result in revenue increase of ₹ 36,000 per annum. Required contribution margin is 40%.

Should Supreme Prakashan Ltd. install the new system ?

(c) A company is considering three alternative proposals for conveyance facilities for its sales personnel who have to do considerable travelling, approximately 20,000 kilometres every year. The proposals are as follows : **5**

(i) Purchase and maintain its own fleet of cars. The average cost of a car is ₹ 1,00,000.

(ii) Allow the Executive to use his own car and reimburse expenses at the rate of ₹ 1.60 per kilometre and also bear insurance costs.

(iii) Hire cars from an agency at ₹ 20,000 per year per car. The company will have to bear costs of petrol, taxes and tyres.

The following further details are available :

Petrol ₹ 0.60 per km

Repairs and maintenance ₹ 0.20 per km

Tyres ₹ 0.12 per km

Insurance ₹ 1,200 per car per annum

Taxes ₹ 800 per car per annum

Life of the car : 5 years with annual mileage of 20,000 kms

Resale value : ₹ 20,000 at the end of the fifth year.

Work out the relevant costs of three proposals and rank them.

Marks

(d) The cost per unit of transporting goods from the factories X, Y and Z to destination A, B, C and D and the quantities demanded and supplied are given : **5**

Factories	Destinations				Supply
	A	B	C	D	
X	25	50	20	25	100
Y	30	40	35	10	250
Z	20	10	25	35	200
Demand	250	100	150	50	550

Answer the following question with reasons taking u_3 as zero while calculating u_i & v_j :

(i) Is this solution is optimum ?

(ii) If yes, can there be any alternate optimum solution ?

2. (a) A company produces and sells a single product. The cost data per unit for the year 2017 is predicted as below : **8**

	₹ Per unit
Direct material	35
Direct labour	25
Variable overheads	15
Selling price	90

The company has forecast that demand for the product during the year 2017 will be 28,000 units. However to satisfy this level of demand, production quantity will be increased ?

There are no opening stock and closing stock of the product.

The stock level of material remains unchanged throughout the period.

Marks

The following additional information regarding costs and revenue are given :

- 12.5% of the items delivered to customers will be rejected due to specification failure and will require free replacement. The cost of delivering the replacement item is ₹ 5 per unit.
- 20% of the items produced will be discovered faulty at the inspection stage before they are delivered to customers.
- 10% of the direct material will be scrapped due to damage while in storage.

Due to above, total quality costs for the year is expected to be ₹ 10,75,556.

The company is now considering the following proposal :

1. To introduce training programmes for the workers which, the management of the company believes, will reduce the level of faulty production to 10%. This training programme will cost ₹ 4,50,000 per annum.
2. To avail the services of quality control consultant at an annual charges of ₹ 50,000 which would reduce the percentage of faulty items delivered to customers to 9.5%.

You are required to :

(i) Prepare a statement of expected quality costs the company would incur if it accepts the proposal. Costs are to be calculated using the four recognised quality costs heads.

(ii) Would you recommend the proposal ? Give financial and non-financial reasons.

Marks

(b) A company manufactures a product Y in addition to other products by using the same machines in department A and department B. 8

The usage details are :-

Per unit of Product Y	**Department A**		**Department B**	
	Usage	Rate	Usage	Rate
Direct Material	8 kg	₹ 4	4 kg	₹ 6
Direct Labour	2 hours	₹ 14	3 hours	₹ 12

Basis of overhead recovery are given below :

	Deptt. A per rupee of direct material	**Deptt. B per direct labour hour**
	₹	₹
Variable overheads	0.80	2.00
Fixed overheads	2.20	3.00

Other Details are :

Value of Plant & Machinery in department A is ₹ 22 Lacs and in department B is ₹ 18 Lacs.

The Working Capital requirement of Product Y based on a target volume of output of 2,000 units per month is estimated at ₹ 2,72,800 per annum which is 40% of the potential capacity.

Required :-

(i) Calculate the selling price of Product Y to ensure contribution equivalent to 25% of investment made.

(ii) If Product Y is a new product about to be launched in the market, on what basis should the price be fixed and what would be the minimum price ?

(iii) If Product Y is a well established product, what should be the basis for price fixing and what would be the minimum price ?

Marks

3. (a) Division X and Y are two divisions of XY Ltd., which operates as profit centres. Division X makes and sells product X. The budgeted Income statement of Division X, based on a sales volume of 30,000 units, is given below : 8

Budgeted Income Statement of Division X

Particulars	**₹ in '000**
Sales Revenue	6,000
Component purchase costs	1,050
Other variable costs	1,680
Fixed costs	480
Variable marketing costs	270
Fixed marketing overheads	855
Operating profit	1,665

The manager of Division X suggests that sales can be increased by 9,600 units, if the selling price is reduced by ₹ 20 per unit from the present price of ₹ 200 per unit and that for this additional volume, no additional fixed costs will be incurred.

Division Y makes a component Y which is sold outside at a price of ₹ 50 per unit.

Division X presently uses a component which is purchased from outside at ₹ 35 per unit. This component is similar to component made by Division Y. Division Y can make this component for Division X with a minor modification in specification which would cause reduction in direct material cost for the Division Y by ₹ 1.5 per unit and would require extra labour hour of 1 per unit at the rate of ₹ 1.5 per hour.

Marks

Further the Division Y will not incur variable selling marketing cost on units transferred to the Division X. Division X's manager has offered to buy the component from Division Y at ₹ 25.00 per unit. Division Y has the capacity to produce 85,000 units.

The current budgeted information of Division Y are as follows :

Number of units sold outside 60,000 units @ ₹ 50 per unit, variable cost including material and labour ₹ 15 per unit, variable marketing cost ₹ 3 per unit, operating profit ₹ 12,00,000 and fixed overheads ₹ 7,20,000.

Advise

(i) Should the Division X reduce the selling price by ₹ 20 per unit even if it is not able to procure the component from Division Y at ₹ 25 per unit ?

(ii) Should the Division Y be willing to supply 39,600 units to Division X at ₹ 25 per unit ?

Support each of your conclusions with appropriate calculations.

(b) A company is engaged in manufacturing two products M and N. Product M uses one unit of component P and two units of component Q. Product N uses two units of components P, one unit of component Q and two units of component R. Component R which is assembled in the factory uses one unit of component Q. Components P and Q are purchased from the market. The company has prepared the following forecast of sales and inventory for the next year : 8

	Product M	Product N
Sales (in units)	80,000	1,50,000
At the end of the year	10,000	20,000
At the beginning of the year	30,000	50,000

Marks

The production of both the products and the assembling of the component R will be spread out uniformly throughout the year. The company at present orders its inventory of P and Q in quantities equivalent to 3 months production. The company has compiled the following data related to two components :

	P	Q
Price per unit (₹)	20	8
Order placing cost per order (₹)	1,500	1,500
Carrying cost per annum	20%	20%

Required :

(i) Prepare a Budget of production and requirements of components for next year.

(ii) Suggest the optimal order quantity of components P and Q.

4. (a) A company operates a standard cost system to control the variable works cost of its only product. The following are the details of actual production, costs and variances for November, 2015. **8**

Production and cost (actual)

Production	10,000 units
Direct Materials (1,05,000 kg.)	₹ 5,20,000
Direct Labour (19,500 hrs.)	₹ 3,08,000
Variable Overheads	₹ 4,10,000

Cost variances

Direct materials – Price	₹ 5,000 (F)
Direct materials – Usages	₹ 25,000 (A)
Direct labour – Rate	₹ 15,500 (A)
Direct labour – Efficiency	₹ 7,500 (F)
Variable overheads	₹ 10,000 (A)

The Cost Accountant finds that the original standard cost data for the product is missing from the cost department files. The variance analysis for December, 2015 is held up for want of this data.

Marks

You are required to calculate :

(i) Standard price per kg of direct material.

(ii) Standard quantity for each unit of output.

(iii) Standard rate of direct labour hour.

(iv) Standard time for actual production.

(v) Standard variable overhead rate.

(b) After 15 days of working the following progress is noted for the network of an erection job : **8**

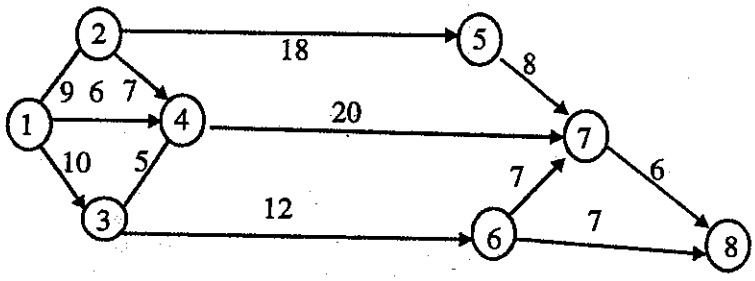
(i) Activity 1-2, 1-3, and 1-4 completed as per original schedule.

(ii) Activity 2-4 is in progress and will be completed in 3 more days.

(iii) Activity 3-6 is in progress and will need 18 days more for completion.

(iv) Activity 6-7 appears to present some problem and its new estimated time of completion is 12 days.

(v) Activity 6-8 can be completed in 5 days instead of originally planned for 7 days.



You are required to :

(i) Update the above diagram after 15 days of the start of work based on the assumption given above.

(ii) Write down the critical path with total project duration.

Marks

5. (a) MP Ltd. has developed a special product. Details are as follows : 8

The product will have a life cycle of 5,000 units. It is estimated that market can absorb first 4,500 units at ₹ 64 per unit and then the product will enter the "decline" stage of its life cycle.

The company estimates the following cost structure :

Direct Labour	₹ 6 per hour
Other variable costs	₹ 19 per unit

Fixed costs will be ₹ 40,000 over the life cycle of the product. The labour rate and both of these costs will not change throughout the product's life cycle.

The first batch of 100 units will take 1,000 labour hours to produce. There will be an 80% learning curve that will continue until 2,500 units have been produced. Batches after this level will each take the same amount of time as the 25th batch. The batch size will always be 100 units.

Calculate :-

(i) The cumulative average time per batch for the first 25 batches.

(ii) The time taken for the 25th batch if average time for 24 batches is 359.40 hours.

(iii) The average selling price of the final 500 units that will allow the company to earn a total profit of ₹ 80,000 from the product.

(Note : Learning coefficient is -0.322 for learning rate of 80%)

The values of Logs have been given for calculation purpose :

log2 = 0.30103, log3 = 0.47712, log5 = 0.69897

antilog of 2.534678 = 342.51

antilog of 2.549863 = 354.70

antilog of 2.555572 = 359.40

antilog of 2.567698 = 369.57

Marks

(b) XY Ltd. is manufacturing a consumer product and doing marketing through 200 depots all over the country. The company is considering closing down the depots and resorting to dealership arrangements. The total turnover of the company is ₹ 160 crores per annum. The following information is given for each depot. **8**

	₹ in lakhs
Annual turnover	80.00
Average inventory	16.00
Administrative expenses per annum	1.60
Staff salary per annum	2.88

The inventory carrying cost is 16% p.a. which is also the interest rate prevailing in the market for working capital finance. The other fixed cost per annum is ₹ 16 crores. Marketing through dealers would involve engaging dealers for each area. The dealers will assure minimum sales for each area. This would result in increasing the capacity utilization from 80% to 100%. At present the company's P/V ratio is 20%. Marketing through dealers would involve payment of commission of 8% on sales. Half of the existing depot staff will have to be absorbed in the company. The dealer will deposit ₹ 3.20 crores with company on which interest at 12% p.a. will be paid.

You are required to work out the impact on profitability of the company by accepting the proposal.

Marks

6. (a) A manufacturing unit of ABC co. Ltd. has presented the following details :- **8**

Average units produced and sold per month	2,40,000
No. of workers	80
Sales value	₹ 60 Lacs
Contribution	₹ 24 Lacs
Wage rate	₹ 5 per unit

The production manager proposes to introduce a new automated machine due to which following changes will take place :

1. No. of units produced and sold are expected to increase by 20%.
2. No. of workers will be reduced to 60.
3. With a view to provide incentive for increased production, production manager intends to offer 1% increase in wage rate for every 3% increase in average individual output achieved.
4. Decrease in selling price by 2%.

Required :

Calculate amount of extra contribution after interoduction of new automated machine and give your recommendations.

(b) A manufacturer produces two types of products i.e. X and Y. Each of these products requires three types of processing. The processing time for each unit and the profit per unit are given in the following table : **8**

	Product X (hours/unit)	**Product Y (hours/unit)**	**Available capacity per day (hours)**
Process I	12	12	840
Process II	3	6	300
Process III	8	4	480
Profit per unit (₹)	5	7	

Applying Graphical method, how many units of each product should the company manufacture per day in order to maximize profit ?

Marks

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

(a) Answer the following independent situation relating to an assignment problem with a minimization objective : **4**

(i) Just after row and column minimization operations, we find that a particular row has two zeros. Does this implies that the 2 corresponding numbers in 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 assignment ? Why ?

(b) Classify the following under appropriate categories in Balanced Score Card : **4**

(i) Research and development

(ii) New product introduction

(iii) Price

(iv) Cost leadership

(v) Sales penetration

(vi) Profitability

(vii) Sales

(viii) Quality

(c) How would you use the Monte Carlo simulation method in inventory control ? **4**

Marks

(d) Indicate 2 activity drivers in respect of each of the following activity cost pools : **4**

(i) Manufacturing cost

(ii) Human resources cost

(iii) Marketing and sales costs

(iv) Accounting costs

(e) What is penetration pricing ? What are the circumstances in which this policy can be adopted ? **4**
