

**CMA APRIL, 2019 SPECIAL EXAMINATION  
PROFESSIONAL LEVEL-III  
SUBJECT: 302. ADVANCED COST ACCOUNTING.**

Time: Three hours

Full Marks: 100

- ❖ All questions are to be attempted.
- ❖ Show computations, where necessary.
- ❖ Answer must be brief, relevant, neat and clean.
- ❖ Start answering each question from a fresh sheet.

**Q. No. 1**

- (a) Describe a situation in which the sales value at split-off method cannot be used but the NRV method can be used for joint-cost allocation.
- (b) Tata Company produces three products (X, Y, and Z) in a joint process costing Tk. 100,000. The company uses sales value at split-off point to allocate joint cost across products at split-off point. The products can be sold as they leave the process, or they can be processed further and sold. The cost accountant has provided you with the following information:

Product	Unit Volume	Sales Price at Split-Off	Separable Further Processing Costs	Sales Price After Further Processing
X	3,000	Tk. 10	Tk. 60,000	Tk. 25
Y	4,000	15	50,000	30
Z	8,000	20	90,000	35

**Required:**

Assuming all processing costs are variable costs identify which products should Tata sell at split-off, and which products should be processed further?

- (c) The ABC Mine is a small mine that extracts coal in Coastal area. Each ton of coal mined is 40% Grade A coal, 40% Grade B coal, and 20% coal tar. All output is sold immediately to a local utility. In May, ABC mined 1,000 tons of coal. It spent Tk. 10,000 on the mining process. Grade A coal sells for Tk. 100 per ton. Grade B coal sells for Tk. 60 per ton. ABC gets one quarter of a vat of coal tar from each ton of coal tar processed. The coal tar sells for Tk. 60 per vat. ABC treats Grade A and Grade B coal as joint products, and treats coal tar as a byproduct.

**Required:**

- (i) Assume that ABC allocates the joint costs to Grade A and Grade B coal using the Sales value at split-off method and accounts for the byproduct using the production method. What is the inventoriable cost for each product and ABC's gross margin?
- (ii) Assume that ABC allocates the joint costs to Grade A and Grade B coal using the Sales value at split-off method and accounts for the byproduct using the sales method. What is the inventoriable cost for each product and ABC's gross margin?

**[Marks: 4+6+(5+5) = 20]**

**Q. No. 2**

Xerox Company produces a special kind of grease that is widely used by race car drivers. The grease is produced in two processing departments: Refining and Blending. Raw materials are introduced at various level of refining process. Conversion costs are incurred uniformly throughout the process.

The following incomplete Work in Process account is available for the Refining Department for May:

**Work-in-Process (Refining Department)**

	Tk.		Tk.
Inventory, May 1 (5,000 units 60% completed)	44,530	Completed and transferred to Blending Department (30,000 units) Inventory, May 31 (4,000 units, 75% completed)	?
May costs added (30,000 units introduced in the process):			?
Direct materials	155,040		
Conversion Costs	218,230		
<b>Total</b>	<b><u>417,800</u></b>		

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Q. No. 2(cont'd...)

The May 1 work in process inventory consists of Tk. 21,960 in materials and Tk. 22,570 in conversion costs. The company uses the weighted average method to account for units and costs.

80% of the total materials in the refining process are introduced at the start of the process whereas, the rest 20% are introduced when conversion has been done by 30%. Lubricants, Inc., inspect their process twice, one to identify units subject to rework, which is done at 50% level of work and the other inspection is done to identify spoiled units @ 80% level of work. In the first stage of inspection Xerox inspected total 32,000 units for rework and send back the units subject to rework to 20% level of work to covert them as good units. Under the both inspection points, the company expects 5% of units inspected as normal loss. In the second stage of inspection, the company identifies the spoiled units and can sell the scrap at the rate of Tk. 3 per unit.

**Required:**

Prepare a production report for Refining Department for the month (show the necessary workings).  
**[Marks: 20]**

**Q. No. 3**

- (a) Ajax Sporty manufactures and sells baseball bats. For a recent period, its production and sales objectives were each set at 20,000 units. Also, for this period the firm had estimated costs as follows:

Component of Costs	Amount (Tk.)	Component of Costs	Amount (Tk.)
Variable production costs (per unit)	3	Committed fixed costs (Total)	30,000
Variable selling costs (per unit)	2	Discretionary fixed costs (Total)	40,000

**Required:**

Based on the above data, do the followings –

- (i) Assume that Ajax actually produced and sold 18,000 bats. Hanks Corporation's operations for the period would (on an overall basis) be regarded as efficient if total costs were below what amount?
- (ii) Assume Ajax actually produced and sold 19,000 bats. At this level of operation, Ajax's total costs were Tk. 170,000. Evaluate Ajax's success in terms of effectiveness and efficiency.
- (b) A factory which uses a large amount of coal is situated between two collieries A and B, the former being 10 km and the later 15 km away from the factory. A fleet of lorries of 10 tonne carrying capacity are used for collection of coal from the pitheads. The lorries give an average speed of 20 km per hour when running and regularly take 10 minutes in the factory premises to unload. At colliery A, loading time averages 20 minutes per load, and at colliery B, 30 minutes per load. Costs attached to the carrying process are given below with reference to per trip:

Cost per Trip	Amount (Tk.)
Fixed Cost (Driver's wages, licences, insurance, depreciation, garage and similar charges)	10 per hour operated
Running Cost (Fuel, oil, tyres, repairs and similar charges)	1 per km run

**Required:**

- (i) Draw up a statement showing the cost per tonne-km of carrying coal from each colliery.
- (ii) If the coal is of equal quality and price at pithead, from which colliery should the purchases be made?

**[Marks: 8+(10+2) = 20]**

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**Q. No. 4**

- (a) "Management should always maximize sales of the product with the highest contribution margin per unit." Do you agree? Why?
- (b) SPrint manufactures and sells 18,000 high-technology printing presses each year. The variable and fixed costs of rework and repair are as follows:

	Variable Cost	Fixed Cost	Total Cost
Rework cost per hour	Tk. 79	Tk.115	Tk.194
Repair costs			
Customer support cost per hour	35	55	90
Transportation cost per load	350	115	465
Warranty repair cost per hour	89	150	239

SPrint's current presses have a quality problem that causes variations in the shade of some colors. Its engineers suggest changing a key component in each press. The new component will cost Tk.70 more than the old one. In the next year, however, SPrint expects that with the new component it will (1) save 14,000 hours of rework, (2) save 850 hours of customer support, (3) move 225 fewer loads, (4) save 8,000 hours of warranty repairs, and (5) sell an additional 140 printing presses, for a total contribution margin of Tk.1,680,000. SPrint believes that even as it improves quality, it will not be able to save any of the fixed costs of rework or repair. SPrint uses a one-year time horizon for this decision because it plans to introduce a new press at the end of the year.

**Required:**

Should SPrint change to the new component? Show your calculations.

- (c) In 2017, Nandan Department store devoted 6000 square feet to the display and sale of clothes, 1500 square feet to linen and bedding and 2000 square feet to jewelry and cosmetics. This left empty 500 square feet of its 10000 square feet store. The Tk.47500 annual cost to maintain the store building was allocated to the three departments based on the 9500 square feet of occupied space. In 2018, management put in a confectionary shop in the previously unoccupied space. In 2018 the four departments' earnings before allocated building costs were:

Clothes	Tk.36000	Jewelry	20000
Bedding	9750	Confectionary	2000

In 2019 the four departmental managers each requested that they be allowed to expand their floor space. They argued that one of the other department's floor space should be reduced so that their own department could be expanded.

**Required:**

Determine net income for 2018 after allocation of building costs. What would be the reported net income per unit of scarce resources?

**[Marks: (4+8+8) = 20]**

**Q. No. 5**

- (a) A company produces three products P, Q and R. The following information is available with reference to each unit of the products:

	P (Tk.)	Q (Tk.)	R (Tk.)
Sales	80	60	40
Direct Material	50	35	25
Contribution	30	25	15

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Q. No. 5 (cont'd)

Machine hours required per unit of production:

	Hours			Throughout Accounting
	P	Q	R	
Machine 1	10	2	4	133.33%
Machine 2	15	3	6	200%
Machine 3	5	1	2	66.67%

Estimated sales demand for P, Q and R are 500 units each and machine capacity is limited to 6,000 hours for each machine.

**Required:**

Analyze the above information and apply theory of constraints process to remove the constraints. How many units of each product will be made?

- (b) Company X uses the advantage of standard costing system along with flexible budget in controlling its costs. The company is successful in doing so and becomes competitive in the market. For a particular product, it uses liquid form of raw material which is measured in gallons. Standard cost of a gallon has been captured from standard cost card of the company which is given below:

	Amount (Tk.)
Direct Material:	
2 quarts of A	14
4 quarts of B	<u>16</u>
Total direct material	30
Direct Labor:	
2 hours	16
Manufacturing overhead:	<u>12</u>
Total	<u>58</u>

The flexible budget system provides for Tk. 50,000 of fixed overhead at normal capacity of 10,000 direct labor hours. Variable overhead is projected at Tk. 1 per direct labor hour.

Actual results for the period indicated the following data across all the cost elements along with other:

Production	: 5,000 gallons
Direct material	:
A	: 12,000 quarts purchased at a cost of Tk. 7.20/quart; 10,500 quarts used
B	: 20,000 quarts purchased at a cost of Tk. 3.90/quart; 19,800 quarts used
Direct labor	: 9,800 hours worked at a cost of Tk.79,380
Overhead	: Fixed Tk. 48,100
	Variable <u>21,000</u>
	Total overhead <u>Tk. 69,100</u>

**Required:**

- (i) Total material price & quantity variance;
- (ii) Labor rate & efficiency variance;
- (iii) MOH volume & efficiency variance;
- (iv) MOH spending variance, both fixed and variable.

[Marks: (8+12) = 20]

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