CMA JUNE-2019 EXAMINATION
OPERATIONAL LEVEL
SUBJECT: P1- PERFORMANCE OPERATIONS

Model Solution

Solution to the question No. 1

ANS. No.(a)

Under absorbed overheads means that insufficient production overhead has been applied to production. Over absorbed overheads means that too much production overhead has been applied to production.

Any under or over absorbed overhead is treated as a period cost and written off in the income statement in the current period. It is not allocated to products.

ANS. No. (b)

Activity-based costing provides more accurate information because we can identify which activities cause costs, and we can determine the cost of the activity. Activity-based costing identifies and measures the costs of performing the activities that go into a product much better than traditional cost methods.
The company can try to reduce the number of cost drivers for each product through process or product redesign. The cost driver rate can also be used as a measure of cost efficiency.

ANS. No. (c)
An incremental approach to budgeting has a number of limitations as follows:
1. Promotes unnecessary spending:
Incremental budgeting can result in unnecessary spending for a company.

2. Discourages innovation:
This type of budgeting may discourage the production of innovative ideas and growth.

3. Fails to account for changes and external factors:
The key assumption behind incremental budgets is the constant stability of the company's operations. Therefore, the budgets are typically not responsive to potential changes that can result from unforeseen circumstances or some unanticipated factors.

4. Lacks an incentive for a comprehensive review:
The stability of incremental budgets does not provide any incentives to the company's management for reviewing its budgets with a view to realizing savings in expenditures. The lack of a review process makes budgets vulnerable to waste, inadequate assumptions, and mistakes.

ANS. No. (d)
EOQ maintains a fixed amount of material in its inventory and has a reorder level wherein it must be replenished to avoid shortages and extra costs while JIT focuses on meeting customers' demands on time with the right quality and quantity with minimum resource, time, and material wastes.
ANS. No. (e)
Expected values are widely used in decision making under uncertainty. An expected value is a weighted average of all possible outcomes. It calculates the average return that will be made if a decision is repeated again and again.
In other words it is obtained by multiplying the value of each possible outcome (x) by the probability of that outcome (p), and summing the results.

The formula for the expected value is EV = Σp(x) x n
Where:

EV – the expected value
P(X) – the probability of the event
n – The number of the repetitions of the event

Limitations:

- The probabilities used are usually very subjective.
- The EV is merely a weighted average and therefore has little meaning for a one-off project.
- The EV gives no indication of the dispersion of possible outcomes about the EV, i.e. the risk.
- The EV may not correspond to any of the actual possible outcomes.

ANS. No. (f)

Key Differences between Budgeting and Forecasting:

Key Points	Budgeting	Forecasting
Projected Timeframe	1 - 5 years	Static Forecasts: Usually for the remaining current fiscal year. Rolling Forecasts: Usually for the next 5 quarters or more.
Preparation Time	3-6 months	2-4 weeks
Variance Reporting	Comparisons of actual to budget	No comparisons to actual
Financial Statements	Produces detailed statements	Targets major revenues and expenses
External Disclosure	Not disclosed	Disclosed
Employee Compensations	Triggers compensation calculations	Does not trigger compensation calculations
Financial Predictability	Loses relevance because of stale data	Higher relevance because of fresh or real-time data.
Best Used For	Formulating high level strategies and goals	Targeted decisions in specific areas

ANS. No. (g)

IRR is a discounted cash flow method, while ARR is a non-discounted cash flow method. Therefore, IRR reflects changes in the value of project cash flows over time, while ARR assumes the value of future cash flows remain unchanged.

ANS. No. (h)

List the factors that determine the working capital requirements of a firm:
1. Cash Requirements.
2. Volume of Sales.
3. Terms of Purchase and Sales.
4. Inventory Turnover.
5. Current Assets Requirements.
6. Operation Efficiency.
7. Change in Technology.
8. Firm's Finance and Dividend Policy

Solution to the question No. 2

(a)

• The trends do indicate significant progress towards TQM and JIT in a number of respects.

• The trend in the first pass yield indicates that the proportion of products passing through production without requiring any rework or repair has increased significantly. This is obviously an indication of TQM. This type of improvement in FPY also avoids the buildup of a backlog of stock awaiting repairs, so it also indicates progress towards JIT.

• The faster turnover indicates that the quantity of stock on hand at any time (as a proportion of sales) has significantly reduced. Such reductions in stock are a basic element of JIT.

• The faster cycle time from customer order to delivery is an indicator of progress with regard to both TQM and JIT. First, the faster turnaround time improves the quality of service to customers, who appreciate not having to wait so long for their order to be delivered. Second, there is likely to be a smaller stock of work in progress as items are apparently manufactured more quickly than before.

• The simplification of the product design is likely to improve quality, as the use of 5 standard parts rather than 20 parts (some of them non-standard) is likely to reduce the number of errors and delays in manufacturing. The simplification is almost certain to be a cause of progress towards JIT, since the use of standard parts which can be shared across a number of products facilitates a lower factory-wide parts inventory than is possible if each product requires its own specialized components.

Solution to the question No. 2

(b)

Cost reduction: Organizations that have an effective environmental costing system are more likely to identify and take advantage of cost reduction and other improvement opportunities. Cost reductions will arise as a result of reduction in wastage and disposal costs. Organizations that are aware of environmental costs have benefited from additional revenues as a result of recycling waste.

Increased revenues: An awareness of the extent of environmental costs may result in the production of products that meet the environmental needs of or concerns of customers. This can result in an improved company image which can lead to increased sales. It may also be possible to sell these products at a premium price.

Improved decision making: An awareness of environmental costs will also reduce the chances of employing incorrect pricing of products and services and taking the wrong options in terms of mix and development decisions. This in turn may lead to enhanced customer value while reducing the risk profile attaching to investments and other decisions which have long term consequences.

Avoidance of costs of failure: A lack of awareness of environmental costs can result in environmental failures and significant additional costs, for example the associated costs of clean-up and financial penalties associated with environmental disasters.

Solution to the question No. 2

(c)(i)

The total cost plus pricing formula will then result in increased selling prices thereby reducing still further the company's ability to compete. Therefore first disadvantage of this approach to pricing is that it does not consider the nature of the market and Secondly, It can lead to loss of sales and of course profits.

(ii)

A primary advantage of target costing is that it allows you to analyze the best way to make or acquire products at the lowest costs. Minimizing costs is a common financial goal of any small business, regardless of whether they offer high, medium or low prices.

Solution to the question No. 2

(d)

Flexible Budget

Particulars	Capacity Utilization 50%	Capacity Utilization 60%	Capacity Utilization 80%
A] Number of Units	10, 000	12, 000	16, 000
B] Selling Price Per Unit	BDT 200	BDT 196	BDT 190
C] Variable Cost Per Unit • Direct Material • Direct Labor • Factory Overheads [60%] • Administrative Overheads [50%]	 BDT 100 BDT 30 BDT 18 BDT 10	 BDT 102 BDT 30 BDT 18 BDT 10	 BDT 105 BDT 30 BDT 18 BDT 10
D] Total Variable Cost Per Unit	BDT 158	BDT 160	BDT 163
E] Total Variable Cost [A X D]	BDT 1,580,000	BDT 1,920,000	BDT 2,608,000
F] Fixed Costs [BDT12 + BDT10 = BDT22 per unit at existing level of 10, 000 units.]	BDT 220,000	BDT 220,000	BDT 220,000
G] Total Cost [E + F]	BDT 1,800,000	BDT 2,140,000	BDT 2,828,000
H] Sales Revenue [A X B]	BDT 2,000,000	BDT 2,352,000	BDT 3,040,000
I] Profits/Losses [H – G]	BDT 200,000	BDT 212,000	BDT 212,000

Solution to the question No. 2

(e)

i. If you borrow BDT 50,000,000 for one month, you will pay interest of:
Interest = BDT 50,000,000 (.0072) = BDT 360,000
However, with the compensating balance, you will only get the use of:
Amount received = {BDT 50,000,000 – BDT 50,000,000(.04)} = BDT 48,000,000
This means the periodic interest rate is:
Periodic interest = BDT 360,000/ BDT 48,000,000 = .007500 or 0.750%
So, the EAR is: EAR = [1 + (BDT 360,000/ BDT 48,000,000)]12 – 1= .0938 or 9.38%

ii. To end up with BDT 15,000,000 you must borrow:
Amount to borrow = BDT 15,000,000 /(1 – .04) = BDT 15,625,000
The total interest you will pay on the loan is:
Total interest paid = [BDT 15,625,000 (1.0072)6 – BDT 15,625,000] = BDT 687,267.27

Solution to the question No. 3

(a) Proposed Resort - Investment Appraisal

Cash flow	Note	Year 0	Year 1	Year 2	Year 3
Gross revenues	1		1,597,440	1,397,760	1,297,920
Gross profit	2		559,104	698,880	838,656
Breakfast Cost	3		(119,808)	(119,808)	(119,808)
Light & Heat Cost	4		(110,240)	(110,240)	(110,240)
Staff Costs			(336,000)	(369,600)	(406,560)
Insurance Costs			(36,000)	(30,000)	(30,000)

Trading Profits			1,554,496	1,466,992	1,459,984
Taxation	5			(182,062)	(173,524)
Purchase Price		(3,200,000)			
Fixtures		(120,000)			
Equipment		(200,000)			
Net Annual Cash Flow		(3,520,000)	1,554,496	1,284,930	1,296,444
Cumulative Cash Flow		**(3,520,000)**	**(1,965,504)**	**(680,574)**	**615,870**
Discount Factors		1	0.909	0.826	0.751
Present value		**(3,520,000)**	**1,413,037**	**1,061,352**	**973,629**
Net Present Value (1)		**(71,982)**			

Although the actual cash flow for the proposal is positive when the time value of money is taken into consideration in there is a negative net present value for the proposal. Therefore I would not recommend this investment. Perhaps other funding options could be considered. For example, leasing the kitchen equipment may help the project yield a positive net present value and if that is the case then it should be invested in.

Please see below for the related workings:

Note 1)

	Year 1	**Year 2**	**Year 3**
Occupied Week Night Rooms	9,984	9,984	9,984
Occupied Weekend Night Rooms	9,984	9,984	9,984
Total Occupied Nights	19,968	19,968	19,968
Rate per night	80	70	65
Gross revenues	**1,597,440**	**1,397,760**	**1,297,920**

Note 2)

	Year 1	**Year 2**	**Year 3**
Total Occupied Nights	19,968	19,968	19,968
Guests per room	2	2	2
Total Guest Nights	39,936	39,936	39,936
Gross profit per Guest (BDT20/Tk25/BDT30*70%)	14	17.5	21
Gross profit	**559,104**	**698,880**	**838,656**

Note 3)

	Year 1	**Year 2**	**Year 3**
Total Guest Nights	39,936	39,936	39,936
Breakfast Cost per guest	3	3	3
Total Guest Nights	119,808	119,808	119,808

Note 4)

	Year 1	**Year 2**	**Year 3**
Total Occupied Nights	19,968	19,968	19,968
Cost Per Night	5	5	5.5
Total Variable Cost	99,840	99,840	109,824
Fixed Cost	10,400	10,400	10,400
Total Light & Heat Cost	**110,240**	**110,240**	**(110,240)**

Note 5) Taxation

	Year 1	**Year 2**
Trading profits	1,554,496	1,466,992
WDA Fixtures	(48,000)	(28,800)
WDA Plant	(50,000)	(50,000)
Taxable Profits	1,456,496	1,388,192
Tax @ 12.5%	182,062	173,524

Paid Year 2 Year 3

(b) If ultimately the proposal was to be accepted:

• Will JR Ltd be in a position whereby the requisite number of appropriately skilled staff can be recruited to work for the hotel?
• Does the management team of **JR Ltd** possess the experience and skills to run an 80 bedroom hotel efficiently?
• Who would be the near competitors to the proposed hotel and will JR Ltd be capable of competing in a manner which will enable them to achieve the projected market share?
• How might economic conditions change? And will JR Ltd be capable of dealing with either a downturn in demand or a surge in demand if conditions improve?
• Are there alternative investment opportunities possible for JR Ltd with which to compare the proposed hotel investment?

Solution to the question No. 4

(a) In order to decide about which proposal should be accepted, the contribution per machine hour, which is a limiting factor, will have to be worked out. The product, which will yield higher contribution per machine hour, will have to be promoted for maximizing the profit. The following statement is prepared for this purpose:

Statement showing Comparative Analysis of the two Export Proposals

Particulars	Offer from Canada For Product A BDT	Offer from Middle East for Product B BDT
(i) Export price per unit	17.50	15.50
(ii) Variable cost per unit:		
Materials	2.00	4.00
Labor	4.00	4.00
Variable factory overheads	3.00	1.80
Variable selling & administration overheads	3.20	2.00
Special packing charges	.50	.50
(iii) Total variable cost per unit	12.70	12.30
(iv) Contribution per unit (i-iii)	4.80	3.20
(v) Machine hours per unit *	2.5 hours	1.5 hours
(vi) Contribution per machine hour (iv-v)	4.80/2.50 = BDT 1.92	3.20/1.5 = BDT 2.13

It is clear from the above statement that product B yields higher contribution per machine hour and hence offer from Middle East should be accepted as compared to the offer from Canada.
* Machine hours per unit are computed as under.
Product A: Factory overheads per unit BDT5, machine hour rate BDT2, factory overheads are absorbed on the basis of machine hours and hence the machine hours per unit of A are BDT 5/2.5 = 2.5

Product B: Factory overheads per unit BDT 3, machine hour rate BDT 2, hence the machine hours per unit of B are BDT 3/2 = 1.5 hours

(b) ***Overall Profitability:*** For showing overall profitability units of product A sold in domestic market and units of product B sold in domestic market as well as in the export market of Middle East will have to be taken into consideration. The following statement is prepared to show the overall profitability.

Statement showing Overall Profitability

Particulars	Product A – BDT	Product B – BDT	Total – BDT
(i) Sales units	600	867	
(ii) Sales value	600 x BDT23.00 = BDT13, 800	400 units x BDT19 = BDT7, 600 467 units x BDT15.50 = BDT7, 239 ** Total BDT14, 839	28, 639
(iii) Variable Costs			
Materials	1, 200	3, 468	4, 668
Labor	2,400	3,468	5,868
Factory overheads-variable	1, 800	1, 561	3, 361
S & A overheads	1, 920	1, 734	3, 654
Special packing		234	234
(iv) Total variable costs	7, 320	10, 465	17, 785
(v) Contribution (ii –iv)	6, 480	4, 374	10, 854
(vi) Fixed overheads #	4, 080	1, 680	5, 760
(vii) Profits (v-vi)	2, 400	2, 694	5, 094

* Units of product B are computed in the following manner:

- Machine hours per unit of A = 2.5 [as shown above] × 600 units = 1500 hours
- Machine hours per unit of B = 1.5 [as shown above] × 400 units = 600 hours
- Thus, total machine hours used = 1500 + 600 = 2100 hours, these hours represent 75% capacity as given in the example and so for 100% capacity the number of machine hours used will be 2100/75 × 100 = 2800 hours. Thus additional 700 hours will be available for the export offer in which 467 units of B will be produced. [1.5 hours for 1 unit]

** The selling price for B in the export market is BDT15.50 per unit.

Fixed overheads for both the products consist of factory overheads and selling and administration overheads.

=THE END=