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Budgeting for Planning & Control Questions

Chartered Accountancy
Corporate Level
Advanced Management Accounting (AMA)

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Chapter 6

BUDGETING FOR PLANNING AND CONTROL

Exercise 01

A company has the following budgeted and actual information for a department.

	Budget	Actual
Level of activity (units of output)	1,000	1,200
Cost Rs.	20,000	23,000

Required

(a) Assuming all costs are variable, has the company done better or worse than expected?
(b) If Rs10,000 of the budgeted costs are fixed costs, the remainder being variable, has the company performed better or worse than expected?

Exercise 02

Redfern hospital is a government funded hospital in the country of Newland. Relevant cost data for the year ended 31 December 2019 are as follows:

(1) Salary costs per staff member were payable as follows:

	Budget Rs.	Actual Rs.
Doctors	100,000	105,000
Nurses	37,000	34,500

Budgeted and actual staff were 60 doctors and 150 nurses.

(2) Budgeted costs for the year based on 20,000 patients per annum were as follows:

	Rs.	Variable cost %	Fixed cost %
Other staff cost	1,440,000	100	-
Catering	200,000	70	30
Cleaning	80,000	35	65
Other operating cost	1,200,000	30	70
Depreciation	80,000	-	100

Variable costs vary according to the number of patients.

(3) The actual number of patients for the year was 23,750. Actual costs (excluding the cost of doctors and nurses) incurred during the year were as follows:

	Rs.
Other staff cost	1,500,000
Catering	87,500
Cleaning	142,000
Other operating cost	1,050,000
Depreciation	80,000

Required:

Prepare a statement which shows the actual and budgeted costs for Redfern hospital in respect of the year ended 31 December 2019 on a comparable basis.

Exercise 03

AW plc produces two products, A and C. In the last year (2018) it produced 640 units of A and 350 units of C incurring costs of Rs.672,000. Analysis of the costs has shown that 75% of the total costs are variable. 60% of these variable costs vary in line with the number of A produced and the remainder with the number of C.

The budget for the year 2019 is now being prepared using an incremental budgeting approach. The following additional information is available for 2019:

- All costs will be 4% higher than the average paid in 2018.
- Efficiency levels will remain unchanged.
- Expected output of A is 750 units and of C is 340 units.

Required:

What is the budgeted total variable cost of product C (to the nearest Rs.100) for the full year 2019?

Exercise 04

The NW Entertainments Company (NWEC) is a privately owned organization which operates an amusement park in a rural area within the North West region of a country which has a good climate all year round. The amusement park comprises a large fairground with high-quality rides and numerous attractions designed to appeal to people of all ages.

The park is open for 365 days in the year.

Each day spent by a guest at the park is classed as a 'Visitor Day'. During the year ended 30 November 2018 a total of 2,090,400 visitor days were paid for and were made up as follows:

Visitor category	% of total visitor days
Adults	40
14-18 years of age and senior citizen	20
Under 14 years of age	40

Two types of admission pass are available for purchase, these are:

The 'One-day Visitor's pass' and the 'Two-day Visitor's pass', which entitles the holder of the pass to admission to the amusement park on any two days within the year commencing 1 December.

The pricing structure was as follows:

(i) The cost of a One-day pass for an adult was Rs.40. Visitors aged 14-18 years and Senior Citizens receive a25% discount against the cost of adult passes. Visitors aged below 14 years receive a 50% discount against the cost of adult passes.

(ii) The purchase of a Two-day Visitor's pass gave the purchaser a 25% saving against the cost of two One-day Visitor's passes.

(iii) 25% of the total visitor days were paid for by the purchase of One-day passes. The remainder were paid for by the purchase of Two-day passes.

Total operating costs of the park during the year amounted to Rs.37,600,000.

NWEC receives income from traders who provide catering and other facilities to visitors to the amusement park. There are 30 such traders from whom payments are received. The amount of the payment made by each trader is dependent upon the size of the premises that they occupy in the amusement park as shown in the following summary:

Size of premises	No. of annual traders	Payment trader (Rs)
Large	8	54,000
Medium	12	36,000
Small	10	18,000

The income from each trader is received under 3 year contracts which became effective on 1 December 2018. The income is fixed for the duration of each contract.

All operating costs of the park incurred during the year ending 30 November 2019 are expected to increase by 4%. This has led to a decision by management to increase the selling price of all categories of admission passes by 4% with effect from 1 December 2018. Management expect

the number of visitor days, visitor mix and the mix of admission passes purchased to be the same as in the previous year.

NWEC also own a 400 bedroom hotel with leisure facilities, which is located 20 kilometers from the amusement park.

During the year ended 30 November 2018, the charge per room on an all-inclusive basis was Rs.100 per room, per night. The total operating costs of the hotel amounted to Rs.7,950,000. Average occupancy during the year was 240 rooms per night. The hotel is open for 365 days in the year.

It is anticipated that the operating costs of the hotel will increase by 4% in the year ending 30 November 2019. Management have decided to increase the charge per room, per night by 4% with effect from 1 December 2018 and expect average occupancy will remain at the same level during the year ending 30 November 2019.

The revenue of the hotel is independent of the number of visitors to the amusement park.

Required:

Prepare a statement showing the budgeted net profit or loss for the year to 30 November 2019

Exercise 05

A company uses rolling budgeting and has a sales budget as follows:

	Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total
	Rs.	Rs.	Rs.	Rs.	Rs.
Sales	125,750	132,038	138,640	145,572	542,000

Actual sales for Quarter 1 were Rs.123,450. The adverse variance is fully explained by competition being more intense than expected and growth being lower than anticipated. The budget committee has proposed that the revised assumption for sales growth should be 3% per quarter for Quarters 2, 3 and 4.

Required:

Update the budget figures for Quarters 2-4 as appropriate.

Exercise 06

AW Inc produces two products, A and C. In the last year (2018) it produced 640 units of A and 350 units of C incurring costs of Rs.672,000. Analysis of the costs has shown that 75% of the total costs are variable. 60% of these variable costs vary in line with the number of A produced and the remainder with the number of C.

The budget for the year 2019 is now being prepared using an incremental budgeting approach. The following additional information is available for 2019:

- All costs will be 4% higher than the average paid in 2018.
- Efficiency levels will remain unchanged.
- Expected output of A is 750 units and of C is 340 units.

What is the budgeted total variable cost of products A and C for the full year 2019?

Exercise 07

Trimake Ltd makes three main products, using broadly the same production methods and equipment for each. A conventional absorption costing system is used at present, although an activity based costing (ABC) system is being considered. Details of the three products for atypical period are:

	Hours per unit		Material Per unit	Volumes
Product	Labour	Machinery	Rs.	Units
X	0.50	1.50	20	750.00
Y	1.50	1.00	12	1,250.00
Z	1.00	3.00	25	7,000.00

Direct labour costs Rs.6 per hour and production overheads are absorbed on a machine hour basis. The rate for the period is Rs.28 per machine hour (i.e. the OAR) and a total of 23,375 machine hours were worked.

Traditional absorption costing would give a full production cost per unit as follows:

	X (Rs.)	Y (Rs.)	Z (Rs.)
Material	20.00	12.00	25
Labour	3.00	9.00	6
Total direct cost	23.00	21.00	31.00
Production OH @ Rs28/- per hour	42.00	28.00	84.00
Total	65.00	49.00	115.00

Further analysis shows the total production overhead of Rs.654,500 is not entirely driven by machine hours and can be divided as follows:

	%
Cost relating to set ups	35
Cost relating to machinery	20
Cost relating to material handling	15

Cost relating to inspection	30
Total production overhead	100

The following total activity volumes are associated with the product line for the period as a whole:

Product	Number of set-ups	No. of movements in material	No. of inspections
X	75.00	12.00	150
Y	115.00	21.00	180
Z	480.00	87.00	670
	670.00	120.00	1,000.00

Required:

Calculate the cost per unit for each product using ABC principles.

Exercise 08

Anglin company has prepared an activity-based budget for its stores department. The budgeted costs are:

	Cost driver	Budgeted cost
Receiving goods	No. of deliveries	Rs.80 per delivery
Issuing goods from stores	No. of stores requisition	Rs.40 Per requisition
Ordering	No. of orders	Rs.25 per order
Counting stock	No. of stock counts	Rs.1,000 per count
Keeping records		Rs24,000 per year
Supervision		Rs30,000 per year

Actual results for April were:

Activity		Actual cost Rs.
Receiving goods	45 orders delivered	3,450.00
Issuing goods from stores	100 requisition	4,400.00
Ordering	36 Orders	960.00
Counting stock	2 stock counts	1,750.00
Keeping records		1,900.00
Supervision		2,700.00
		15,160.00

Required:

Prepare a variance report for the month.

Exercise 09

BFG Ltd is investigating the financial viability of a new product, the S-pro. The S-pro is a short-life product for which a market has been identified at an agreed design specification. The product will only have a life of 12 months.

The following estimated information is available in respect of the S-pro.:

(1) Sales should be 120,000 in the year in batches of 100 units. An average selling price of Rs.1,050 per batch of100 units is expected.

(2) An 80% learning curve will apply for the first 700 batches after which a steady state production time will apply, with the labour time per batch after the first 700 batches being equal to the time of the 700th batch. The labour cost of the first batch was measured at Rs.2,500. This was for 500 hours at Rs.5 per hour.

(3) Variable overhead is estimated at Rs.2 per labour hour.

(4) Direct material will be Rs.500 per batch for the S-pro for the first 200 batches produced. The second 200 batches will cost 90% of the cost per batch of the first 200 batches. All batches from then on will cost 90% of the batch cost for each of the second 200 batches.

(5) S-pro will require additional space to be rented. These directly attributable fixed costs will be Rs.15,000 per month.

A target net cash flow of Rs.130,000 is required in order for the project to be acceptable.

Note: At the learning curve rate of 80% the learning factor (b) is equal to 0.3219.

Required:

Prepare detailed calculations to show whether S-pro will provide the target net cash flow.

Exercise 10

BCB Company manufactures and sells product Z. The budgeted sales for the year 2015 are 5Mn units at a selling price of Rs50/- each. Budgeted unit variable cost is Rs30/-. Fixed cost are budgeted at Rs25Mn for the year.

The sales for the year ended 31st December 2014 are 6Mn units. However the actual unit selling price and actual unit variable cost are Rs48 and Rs32 per unit respectively. The actual fixed cost for the year is Rs20Mn.

You are required to prepare a flexible budget operating statement, which compares the company's budgeted and actual results for the last year.

Exercise 11

Lorex Limited makes and sells product R. The budgeted and actual results for the last month are set out below. As the company operates JIT purchasing and manufacturing system, its opening and closing stocks are not significant.

			Rs.000
	Budget	**Actual**	**Variance**
Sales Qty ('000)	10	11	1
Revenue	250	255	5
Costs			
D. Material	45	48.6	(3.6)
D. Labour	60	71.4	(11.4)
Variable production overhead	30	40	(10)
Fixed production overhead	35	38	(3)
Selling and administration overhead	35	34	1
Total cost	205	232	(27)
Profit / (Loss)	**45**	**23**	**(22)**

All selling and administration overhead are fixed.

You are required to prepare an operating statement in marginal costing format that includes a flexible budget for the last month.

Exercise 12

Suppose that a manager of a production department in a manufacturing company is made responsible for the costs of his or her department. These costs include **directly attributable overhead items** such as the costs of indirect labour employed and indirect materials consumed in the department. The department's overhead costs also include an apportionment of costs from other cost centres, such as rent and rates for the building it shares with other departments and a share of the costs of the maintenance department.
Required

Discuss whether the production manager should be held accountable for any of these apportioned costs.

Exercise 13

A wage award for production staff is agreed which exceeds the allowance incorporated in the budget. Discuss whether the performance of the production manager should be linked to the wage cost.

Exercise 14

A manager is awarded a bonus for achieving monthly budgetary targets. State three possible behavioral implications of this policy.

What should be done to try to improve the process?

Exercise 15

A sales manager has achieved Rs.550,000 of sales in the current year. Business is expected to grow by 10% and price inflation is expected to be 3%.

Suggest a suitable budget target for the forthcoming year.

Exercise 16

Bottom up budgeting is generally seen as preferable because it leads to improved managerial motivation and performance. However, there are situations for which top down budgeting is preferable.

Describe three situations where top down budgeting would be more applicable.

Exercise 17

For a number of years, the research division of Z Inc has produced its annual budget (for new and continuing projects) using incremental budgeting techniques. The company is now under new management and the annual budget for 2020 is to be prepared using ZBB techniques.

Explain how Z Inc could operate a ZBB system for its research projects.

Exercise 18

The operating divisions of Z plc have in the past always used a traditional approach to analyzing costs into their fixed and variable components. A single measure of activity was used which, for simplicity, was the number of units produced. The new management does not accept that such a simplistic approach is appropriate for budgeting in the modern environment and has requested that the managers adopt an activity-based approach in future.

Required:

Explain how ABB would be implemented by the operating divisions of Z plc.

Exercise 19

Select and justify a suitable budgeting system for a company operating in the mobile phone market.

Exercise 20

The budget for the production cost of a new product was based on the following assumptions:

(i) Time for the 1st batch of output = 10 hours

(ii) Learning rate = 80%

(iii) Learning will cease after 40 batches, and thereafter the time per batch will be the same as the time of the final batch during the learning period, ie the 40th batch

(iv) Standard direct labour rate per hour = Rs. 120

An extract from the out-turn performance report based on the above budget is as follows.

	Budget	***Actual***	***Variance***
Output (batches)	60	50	10 adverse
Direct labour hours	163.53	93.65	69.88 favorable
Direct labour cost	Rs. 19,620	Rs. 11,460	Rs. 8,160 favorable

Further analysis has shown that, due to similarities between this product and another that was developed last year, the rate of learning that should have been expected was 70% and that the learning should have ceased after 30 batches.

Other budget assumptions for the new product remain valid.

Required

(1) **Prepare** a revised performance report for the new product that:

(i) Shows the flexed budgeted direct labour hours and direct labour cost based on the revised learning curve data; and

(ii) Shows the variances that reconcile the actual results to your flexed budget in as much detail as possible. **(7 marks)**

(2) Explain why your report is more useful to the production manager than the report shown above. **(3 marks)**

Note. The learning index values for an 80% and a 70% learning curve are –0.3219 and –0.5146 respectively.

Question 01

Apollo (Pvt) Ltd (APL) sells a range of clothing, electronic and furniture products through a chain of department stores. It operates an activity-based costing system for product costing. The following is the activity related information, for each product category.

Cost driver	Clothing item	Electronic item	Furniture item
No. of pallets delivered	600.00	120.00	80.00
No. of customers	20,000.00	12,000.00	8,000.00
No. of inventory items	1,000.00	100.00	30.00

The actual overhead cost and expected increase in the year 2019, are given below.

Cost pool	Cost driver	Actual OH cost 2018 (Rs.000)	Expected increase OH cost 2019 (Rs.000)
Customer service	No. of customer	6,000.00	5%
In-store merchandising	No. of inventory items	6,328.00	12%
Warehouse receiving	No. of pallets delivered	9,000.00	10%

Required:

(a) **Assess** the budgeted departmental overhead cost for clothing items for the year 2019, using the activity-based costing system. (4 marks)

(b) **Explain** activity-based management and how it could be applied for APL, in a competitive environment. (3 marks)

(c) **Explain** how proper working capital management could improve the profitability of a company such as APL. (3 marks)

Question 02

Nipro (Pvt) Ltd (NPL) is a manufacturing and trading company who has developed a new product (P1) several months ago. This is being manufactured in a different line in the same premises. Product's (P1's) standard cost information and the actual cost for the month of June 2018 were as follows.

Description	Standard cost Rs.	Actual cost Rs.
Material	2Kg at Rs.500 per Kg	23,100kg for Rs. 12.705 million
Direct labour	2.369 hours per unit at Rs. 200 per hour	21,000 hours for Rs. 4.305 million
Variable overhead	Rs. 400 per unit	Rs. 4.18 million
Fixed overhead	Rs. 7 million	Rs. 7.5 million

- NPL has manufactured 11,000 units of P1 during the month of June 2018 against a budget of 10,000 units and the production manager was very happy with his performance in labour utilization during the month.

- The labour standard has been set using the average labour utilization for the first 3,000 units manufactured up to May 2018. However, analysis has now shown that the learning rate of labour was 90% during the first 5,000 units manufactured. (The learning index value for a 90% learning curve is - 0.152).The learning effect ends at 5,000th unit manufactured. The labour utilization for the first unit was 8 hours.

Required:

(a) **Compute** the following:

(i) Revised standard labour utilisation and cost for the first 3,000 units.
(ii) Revised standard labour utilisation and cost for the first 5,000 units. (4 marks)

(b) **Assess** whether the production manager could be happy about the labour utilization. (4 marks)

(c) **Prepare** a budgetary control statement for the month of June 2018 (including the flexed budget, actual results and variances). (4 marks)

Question 03

New World Health Care (NWHC) has a hospital in a Colombo suburb with 400 beds.

(1) The following information has been extracted from the budgets prepared for the year ending 31 March 2018.

Function	Amount Rs. Mn	Notes
Administration	460	100% fixed
Catering	820	70% variable 30% fixed
Cleaning	160	20% variable 80% fixed
Laundry	400	100% variable
Medical supervision	1300	30% variable 70% fixed
Other overhrads	500	25% variable 75% fixed

(i) Costs for the year assuming 100% capacity utilization.
(ii) Variable costs vary in proportion to the number of beds occupied while fixed costs are incurred consistently throughout the year. Assume each month of the year has 30 days.
(iii) The average budgeted billed amount per day per patient is Rs. 30,000.
(iv) Budgeted occupancy rate is 90%.

(2) Actual information for the quarter ended 30 September 2017 is given below.

(i) Costs for the quarter

Function	Variable cost Rs.000	Fixed cost Rs.000
Administration	-	110,000.00
Catering	137,500.00	62,000.00
Cleaning	7,625.00	31,000.00
Laundry	96,900.00	-
Medical supervision	92,625.00	218,000.00
Other overheads	30,000.00	90,000.00

(ii) Average occupancy during the quarter was 380 beds per day.
(iii) 3,500 bed days were invoiced at Rs. 35,000 per day and the rest were invoiced at Rs. 30,000 per day.

Required:

(a) **Prepare** a profit statement showing the fixed budget, flexed budget and actual performance for the quarter ending 30 September 2017 using the marginal costing format. (12 marks)

(b) **Reconcile** by means of relevant variances:

(i) the fixed budget profit and the flexed budget profit

(ii) the flexed budget profit and the actual profit (10 marks)

(c) **Explain** why the comparison between the fixed budget and actual performance is meaningless for the purpose of control.(3 marks)

Question 04

Wycon (Pvt) Ltd (WPL) is a manufacturer of industrial intermediates. It prepares annual budgets and compares the actuals with it on a monthly basis. Corrective actions are then taken to rectify the process if budgets are not achieved.

WPL launched "Product MM" four months ago. During the first three months 9,000 units were manufactured and sold as budgeted. The following statement prepared for the fourth month of production was presented at a recently held performance meeting.

Budgetary control statement for the fourth month;

	Budget	Actual	Variance
Sales / Production units	3,000.00	2,500.00	500A
Sales (Rs.000)	39,000.00	32,250.00	6,750A
Direct Material Cost Rs.000	15,000.00	12,750.00	2,250F
Direct Labour Cost Rs.000	6,000.00	1,750.00	4,250F
Variable overhead Cost Rs.000	4,500.00	1,200.00	3,300F
Fixed overhead Cost Rs.000	9,000.00	8,600.00	400F
Total Cost Rs.000	34,500.00	24,300.00	10,200F
Profit Rs.000	4,500.00	7,950.00	3,450F

The budgeted labour time per unit was 2 hours and the actual labour time per unit was 0.5 hours. However at the time of preparing the budget, the impact of a learning effect that was expected to be applied for the first 10,000 units produced was ignored. The learning rate was expected to be 90% (the learning index for a 90% learning curve = -0.152).

The variable overhead absorption rate per unit is based on direct labour time.

Required:

(a) **Compute** the revised labour and variable overheads budget (without flexing) for the fourth month taking into account the learning effect. (7 marks)

(b) **Prepare** a budgetary control statement (flexed budget) for the fourth month taking into account the learning effect. (4 marks)

(c) **Compute** the planning and operating variances for labour efficiency and variable overhead efficiency. (6 marks)

(d) **Discuss** the differences and usefulness of feedback control and feed-forward control techniques for WPL in managing its operations efficiently. (8 marks)