

BUDGET AND BUDGETARY CONTROL

1. The budgeted level of activity of a production department of a manufacturing company is 5,000 hours in a period. But a technical study assumes overhead behaviour mentioned below :-

	<u>`(00) Per hr.</u>	<u>Total in `(000).</u>
Indirect wages, variable cost,	0.40	
Rent and Tax, fixed cost		320
Consumable supplies, variable	0.24	
Repairs : up to 2,000 hours		100
additional each extra 500 hours up to 4,000 hours		35
additional 4,001 to 5,000 hours		60
additional, above 5,000 hours		70
Supervision up to 2,500 hours		400
additional each extra 600 hours up to 4,900 hours		100
additional, above 4,900 hours		150
Power variable up to 3,600 hours	0.25	
for hours above 3,600 hours,	0.20	
Depreciation up to 5,000 hours		650
above 5,000 hours		820
Clearing up to 4,000 hours		60
above 4,000 hours		80
Lighting 2,100 to 3,500 hours		120
3,501 hours to 5,000 hours		150
above 5,000 hours		175

- (a) Prepare fixed budget and a flexible budget at 70%, 80% and 110% of budgeted level of activity in one statement.
(b) Calculate a departmental hourly rate of overhead absorption.

- 2.. A single product company estimated its sales for the next year quarter wise as under :

Quarter	Sales Units
I	30,000
II	37,500
III	41,250
IV	45,000

The opening stock of finished goods is 10,000 units and the company expects to maintain the closing stock of finished goods at 16,250 units at the end of the year. The production pattern in each quarter is based on 80% of the sales of the current quarter and 20% of the sales of the next quarter.

The opening stock of raw materials in the beginning of the year is 10,000 Kg. And the closing stock at the end of the year is required to be maintained of 5,000 kg. Each unit of finished output requires 2 Kg. of raw materials.

The company proposes to purchase the entire annual requirement of raw materials in the first three quarters in the proportion and at the price given below :

Quarter	Purchase of raw materials % to total Annual requirement in equity	Price per kg.
I	30%	2
II	50%	3
III	20%	4

The value of the opening stock of raw materials in the beginning of the year is `20,000.

You are required to present the following for the next year, quarter-wise :

- Production budget in units.
- Raw material consumption budget in quantity.
- Raw material purchase budget in quantity and value.
- Priced stores ledger card of the raw material using First out method.

3. A company produces 3 products A, B and C. The following information is available for a period.

Production	A	B	C
Contribution (Sales – Direct Materials)	` 24	` 20	` 12
Machine hours required per unit:			
Machine 1	12	4	2
Machine 2	18	6	3
Machine 3	6	2	1
Estimated sales demand	200	200	200

It is given that machine capacity is limited to 3,200 hours for each machine, you are required to analyze the above information and apply TOC process to remove the constraint.

4. The following data is to be used to answer questions (a), (b) and (c) below.
 HG plc manufactures four products. The unit cost, selling price and bottleneck resource details per unit are as follows:

	Product W	Product X	Product Y	Product Z
Selling price	56	67	89	96
Materials	22	31	38	46
Labour	15	20	18	24
Variable overhead	12	15	18	15
Fixed overhead	4	2	8	7
	Minutes	Minutes	Minutes	Minutes
Bottleneck resource time	10	10	15	15

- (a) Assuming the labour is a unit variable cost, if the products are ranked according to their contribution , the most profitable product is
 (A) W (B) X (C) Y (D) Z

- (b) Assuming that labour is a unit variable cost, if budgeted unit sales are in the ratio W:2; X:3; Y:3; Z:4 and monthly fixed costs are budgeted to be ₹ 15,000, the number of units of W that would be sold at the budgeted breakeven point is nearest to
 (A) 106 units (B) 142 units. (C) 212 units (D) 283 units
- (c) If the company adopted throughput accounting and the products were ranked according to 'product return per minute', the highest ranked product would be
 (A) W (B) X (C) Y (D) Z
5. Flopro plc make and sell two products A and B, each of which passes through the same automated production operations. The following estimated information is available for period 1
- | | | | |
|-----|--|----------|----------|
| (i) | <u>Product unit data:</u> | <u>A</u> | <u>B</u> |
| | Direct material cost (₹) | 2 | 40 |
| | Variable production overhead cost (Rs) | 28 | 4 |
| | Overall hours per product unit (hrs) | 0.25 | 0.15 |
- (ii) Production/ sales of products A and B are 1,20,000 units and 45,000 units respectively. The selling prices per unit for A & B are ₹ 60 and ₹ 70 respectively.
- (iii) Maximum demand for each product is 20% above the estimated sales levels.
- (iv) Total fixed production overhead cost is ₹ 14,70,000. This is absorbed by products A and B at an average rate per hour based on the estimated production levels.

Required:

(a) Using net profit as the decision measure, show why the management of Flopro plc argues that it is indifferent on financial grounds as to the mix of products A and B which should be produced and sold and calculate the total net profit for period 1

(b) One of the production operations has a maximum capacity of 3,075 hours which has been identified as a bottleneck which limits the overall production/ sales of products A and B. the bottleneck hours required per product unit for product A and B are 0.02 and 0.015 respectively.

All other information detailed in (a) still applies.

Required: Calculate the mix (units) of products A and B which will maximize net profit and the value (₹) of the maximum net profit.

(c) The bottleneck situation detailed in (b) still applies. Flopro plc has decided to determine the profit maximizing mix of products A and B based on the throughput Accounting principle of maximizing the throughput return per production hour of the bottleneck resource. This may be measured as:

Throughput return per production hour = (selling price – material cost) \ Bottleneck hours per unit

All other information detailed in (a) and (b) still applies, except that the variable overhead cost as per (a) is now considered to be fixed for the short / intermediate term, based on the value (₹) which applied to the product mix in (a).

Required:

- (i) Calculate the mix (units) of products A and B which will maximize net profit and the value of that net profit.

- (ii) Calculate the throughput accounting ratio for product B which is calculated as:

$$\frac{\text{Throughput return per hour of bottle for product B}}{\text{Overall total overhead cost per hour of bottleneck resource}}$$

- (iii) Comment on the interpretation of throughput accounting ratios and their use as a control device. You should refer to the ratio for Product B in your answer.

Budget Ratios:

1. Efficiency Ratio = $(\text{Standard hours} \div \text{Actual hours}) \times 100$
2. Activity Ratio = $(\text{Standard hours} \div \text{Budgeted hours}) \times 100$
3. Calendar Ratio = $(\text{Available working days} \div \text{budgeted working days}) \times 100$
4. Standard Capacity Usage Ratio = $(\text{Budgeted hours} \div \text{Max. possible hours in the budgeted period}) \times 100$
5. Actual Capacity Usage Ratio = $(\text{Actual hours worked} \div \text{Maximum possible working hours in a Bud. period}) \times 100$
6. Actual Usage of Budgeted Capacity Ratio = $(\text{Actual working hours} \div \text{Budgeted hours}) \times 100$

6. Following data is available for T.T.D and Co:

Standard working hours	8 hours per day of 5 days per week
Maximum capacity	50 employees
Actual working	40 employees
Actual hours expected to be worked per four week	6,400 hours
Std. hours expected to be earned per four weeks	8,000 hours
Actual hours worked in the four week period	6,000 hours
Standard hours earned in the four week period	7,000 hours

The related period is of 4 weeks. In this period there was a one special holiday due to national event. Calculate the following ratios :

- (1) Efficiency Ratio, (2) Activity Ratio, (3) Calendar Ratio, (4) Standard Capacity Usage Ratio, (5) Actual Capacity Usage Ratio. (6) Actual Usage of Budgeted Capacity Ratio.

7. V Ltd. manufactures a single product. The selling price of the product is ` 95 per unit. The following are the result obtained by the company during the last two quarters:

	Quarter 1	Quarter 2
Sales units	5,100	4,800
Production units	5,500	4,500
Direct materials A	66,000	54,000
B	55,000	45,000
Manufacturing wages	1,56,750	1,38,000
Factory overheads	86,000	83,000
Selling overheads	79,000	73,000

The company estimates its sales for the next quarter to range between 5,500 units and 6,500 units, the most likely volume being 6,000 units. The manufacturing programme will match with the sales quantity such that no increase in inventory of finished goods is contemplated in the next quarter. The following price and cost changes will, however, apply to the next quarter:

- The price of direct material B will increase by 10%. There will be no change in the price of direct material A.
- The variable wage rates will go up by 8%. If the production volume increases beyond 5,500 units, overtime premium of 50% is payable on the increased volume due to overtime working to be done by the variable labour complement.
- The fixed factory and selling expenses will increase by 20% and 25% respectively.
- A discount in the selling price of 2% is allowed on all sales made at 6,500 units level of output. The selling price, however, will remain unaltered, if the volume of output is below 6,500 units.

While operating at a volume of output of 6,500 units in the next quarter, the company intends to quote for an additional volume of 2,000 units to be supplied to a Government department for its captive consumption. The working capital requirement of this order is estimated at 80% of the sales value of the Government order. The company desires a return of 20% on the capital employed in respect of this order.

Required:

(i) Prepare a flexible budget for the next quarter at 5,500, 6,000 and 6,500 unit levels and determine the profit at the respective volumes.

(ii) Calculate the lowest price per unit to be quoted in respect of the Government order for 2,000 units.

8. Spares Ltd. Produces spare part 'X' for cars. The company has an annual production capacity of 1,80,000 units of X. However, the actual production is carried out according to the volume of order received. For the next year, the company has received an order for a value of ₹ 64,00,000. To meet the requirements of the order, the company has to work at 70% capacity for the first four months, 80% capacity for next six months and 90% capacity for the remaining period for the year. Assume no opening or closing stocks.

The following information is available:

Material cost is ₹ 15 per unit.

Labour ₹ 12 per unit, subject to a minimum of ₹ 1,30,000 p.m.

Variable overhead ₹ 5 per unit

Fixed overhead ₹ 16,000 per month

Semi-variable overheads ₹ 75,000 per annum incurred upto 70% average annual capacity utilization. Thereafter, it increases at ₹ 5,000 per annum for every 10% average annual capacity increase.

If the company targets a return of 27% on budgeted cost, should the order be accepted. Justify your answer showing budgeted annual values for each element of cost for the next year.

(May 2010 (old), 12 marks)