# Lecture 5 Answers

## Question One

Variable costs:

Petrol at 5,000 miles = 5,000 x £1.90 = £380 at 10,000 miles = 10,000 x £1.90 = £760 25 25

Spares at 5,000 miles = 5,000 x £20 = £100 at 10,000 miles = 10,000 x £20 = £200 1,000 1,000

5000 10 000 15 000 30 000 miles miles miles miles (£) (£) (£) (£)

Variable costs:

Spares 100 200 300 600

Petrol 380 760 1140 2280

Total variable cost 480 960 1440 2880

Variable cost per mile 0.096 0.096 0.096 0.096

Fixed costs

Maintenance 220 220 220 220

Vehicle licence 80 80 80 80

Insurance 250 250 250 250

550 550 550 550

Fixed cost per mile 0.11 0.055 0.036 0.018

Total cost 1,030 1,510 1,990 3,430

Total cost per mile 0.206 0.151 0.133 0.114

The *cost per mile* declines as activity increases. This is because many of the costs are fixed and do not increase when mileage increases. However, *total cost* will increase with increases in mileage.

## Question Two

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Profit/loss | Profit improvement | Revised profit/ (loss) | Fixed costs | Contribution |
| A | (20,000) | 15,000 | (5,000) | 15,000 | 10,000 |
| B | (12,000) | 3,000 | (9,000) | 15,000 | 6,000 |
| C | (4,500) | 4,000 | (500) | 10,000 | 9,500 |
| D | (22,000) | 2,000 | (20,000) | 10,000 | (10,000) |
| E | (14,000) | 8,000 | (6,000) | 15,000 | 9,000 |
|  | **(72,500)** | **32,000** | **(40,500)** | **65,000** | **24,500** |

Garage D should be closed as it has a negative contribution to fixed costs and profits.

Overall, without D the loss that the company makes will be reduced. But the company is still loss making and should consider alternative uses of resources in the long run.

## Question Three

The costs that are relevant are costs that will change.

The variable costs of manufacture are £26 compared to £30 to buy in. At first glance it is better to manufacture but if buy in fixed costs will change

Variable cost of manufacturing 26.00 Extra fixed overheads 30,000/4,000 7.50 Total relevant cost of manufacture 33.50

For outsourcing need to consider the cost of buying in plus the extra transport costs

Purchase Price 30.00 Transport costs 2.00 Total relevant cost of outsourcing 32,000

**Therefore, where production at 4,000 units outsource.**

Production 3,000 Production 7,000

Variable cost of manufacturing 26.00 26.00 Extra fixed overheads 30,000/3,000 & 7,000 10.00 4.29 Total relevant cost of manufacture 36.00 30.29

**Outsource Manufacture**

## Question Four

**Per question production with red**

Red Blue White Total

£000 £000 £000 £000

Sales 40 50 45 135

Less: VC 30 26 24 80

Less: FC (45,000 x 1/3) 15 15 15 45

Profit (loss) (5) 9 6 10

Without Red

Blue White Total

£000 £000 £000

Sales 50 45 95

Less: VC 26 24 50

Contribution 24 21 45

Less: FC (45,000 x 1/3) 45

Profit (loss) 0

Red had made a positive contribution to fixed costs of 10,000 (40-30) this is lost but the fixed costs still must be covered by the remaining units. Therefore, the profits of the company are reduced by shutting down the red division.

If the production capacity of red could have been put to an alternative use which generated a greater contribution per unit, then and only then should the production of red stained-glass windows have ceased.

## Question Five

As there is spare capacity need to consider if positive contribution is generated.

£

Sales value 400

Variable costs (120 +100+60) (280)

Contribution 120 per unit

Contribution per unit £120 x number of units 500 = £60,000.

But there is the extra export cost as this cost changes it is a relevant cost.

£

Contribution 60,000

Export costs (20,000)

Positive total contribution 40,000

Accept order. Break into a new market, contact with a new customer, current market at saturation level so no new orders will be obtained.

Other customers may want the price of £400.