**Question 31**

The following figures relate to Product A and Product Z. Demand for each product is   
4,000 units per month and there are 16,000 hours per month available to make both products.

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|  | **Y** | **Z** |
| Selling Price per unit | £30 | £40 |
| Variable Cost per unit | £20 | £31 |
| Labour Hours per unit | 4 hours | 3 hours |

1. Calculate the contribution per labour hour for each product. **2**
2. State which product should be produced in order to maximise profits. Give a   
   brief reason for your answer. **1**
3. Calculate the monthly product mix which will maximise profit. **4**
4. If fixed costs per month are £22,500, calculate the monthly profit. **3**

**Total marks 10**

|  |  |  |  |
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| **Question** | **Expected answer(s)** | **Max**  **mark** | **Additional guidance** |
| **31 (a)** | Contribution per labour hour:   |  |  |  |  | | --- | --- | --- | --- | |  | **A** | **Z** |  | | Contribution per unit | £30 — £20 = £10 | £40 — £31 = £9 | **(1 for both)** | | Contribution per hour | £10/4 = £2·50 | £9/3 = £3 | **(1 for both)** | | **2** |  |
| **31 (b)** | Product Z — as it has the highest contribution per hour. | **1** | This will be consequential from (a).  If no attempt to outline reason — **do not award 1 mark.**  If (a) is correct, **award 1 mark** — need only say ‘highest contribution’ (per hour not needed).  If (a) incorrect, **do not award 1 mark** — must be an indication of ‘per hour’ in candidate’s reason. |
| **31 (c)** | Hours available 16,000  Units of Z to be produced **4,000 (1)**  Hours per unit (Z) x 3 **(1)**  Hours of Z required 12,000  Hours of A available 4,000 **(1)**  Hours per unit (A) ÷4 **(1)**  Units of A **1,000** | **4** | Watch for consequentiality.  If answer given in terms of hours and units are not indicated — maximum **2 marks**, as question asks for units.  If candidate just states 4,000 units of either product without working — **0 marks**. |
| **31 (d)** | Contribution of A = 1,000 X £10 = £10,000  Contribution of Z = 4,000 X £9 = £36,000  £46,000  Less fixed costs = £22,500  PROFIT £23,500 | **3** | Watch for consequentiality.  Candidates may use a different method to get the correct answer. If answer incorrect, use professional judgement to allocate marks. |