5.1 Operations management

Name: _____ Class: _____ Date: _____ **Total: 25 marks**

KEY WORDS break-even analysis • margin of safety

Operations management

Objective

Measure productivity, choose operations methods, weigh location factors, and master the break-even arithmetic (syllabus 5.1–5.5).

1 Key knowledge and worked examples

Unit 5 toolkit. Transformation: inputs → process → outputs; efficiency vs effectiveness. Labour productivity = 2 000/80 = 25 repairs per employee per month. Methods: job, batch, flow, mass customisation. Location: quantitative factors (site cost, labour, grants, transport – rankable by weighted score) vs qualitative (image, skills, infrastructure, regulation); services follow customers. Price 25, variable cost 15, contribution 10, fixed costs 12 500 a month: BEQ = 1 250 repairs; margin of safety 750 = 37.5% of sales; a 15 000 profit needs 2 750.

2 Practice

2.1 The firm completes 2 000 repairs a month with 80 employees. Calculate labour productivity and state one way to raise it. [2]

2.2 Price per repair is 25, variable cost 15 and monthly fixed costs 12 500. Calculate the contribution per repair and the monthly break-even quantity. [3]

2.3 The firm currently completes 2 000 repairs a month. Calculate the margin of safety, in repairs and as a percentage of sales. [2]

2.4 The owner targets a monthly profit of 15 000. Calculate the required output. [3]

2.5 The firm will open a fourth workshop. State one quantitative and one qualitative location factor, and say which should dominate for a repair service. [2]

3 Exam-style questions

3.1 *(Original, Paper 1 style.)* The firm will add a subscription fleet: standard bikes serviced identically, but each subscriber chooses their own accessories and service intervals. Compare job, batch and flow production and recommend, with two reasons, the best method or combination. [6]

3.2 *(Original, Paper 2 style.)* Using price 25, variable cost 15 and fixed costs 12 500 a month: draw and label the break-even chart, mark the break-even point and the margin of safety, and state one limitation of the model. [4]

3.3 *(Original, Paper 1 style.)* Two sites are available: a high-street unit at 4 500 a month by the station, or a ring-road unit at 2 800 a month with poorer customer access. Evaluate which site the firm should choose. [3]