5.1 Operations management

Name: _____ Class: _____ Date: _____ **Total: 26 marks**

KEY WORDS break-even analysis • capacity utilisation

Operations management

Objective

Measure productivity, choose operations methods, master the break-even arithmetic, and (HL) apply lean quality, capacity and stock control, and contingency thinking (syllabus 5.1–5.9).

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. 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. HL: capacity 2 000/2 500 = 80%; buffer stock 200, lead time 2 weeks, reorder level 500 × 2 = 1 000; JIT and kaizen; control vs assurance vs TQM; crisis vs contingency; patents, copyright, trademarks; data vs information.

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 workshops can service 2 500 repairs a month. Calculate capacity utilisation and state one problem of OVER-utilisation. [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, HL lean.)* The firm holds 1 400 parts, of which 200 are buffer stock; usage is 500 parts a week and lead time is two weeks. Explain just-in-time inventory management and evaluate ONE risk of adopting it here. [4]

3.3 *(Original, HL crisis.)* The single parts supplier is hit by a fire. Distinguish crisis management from contingency planning, and outline one contingency plan the firm should have had. [4]