



Complete, fold and seal
(see note 2 below)

SURNAME: OSBORNE

Examination Answer Books

12 Pages

FORENAME(S): RICHARD

Instructions to Candidates

1. Please give the information requested in the boxes below.
2. Enter your name in the space provided to the right, fold over and seal down (using the label provided) to hide your name.
3. The answers must be legibly written. The Examiners can either ignore illegible script or have it typed and the expense of typing charged to the candidate.
4. Write your answers in ink.
5. Begin each answer on a fresh page. Do all rough work in the answer book and cross it through.
6. No part of this book is to be torn out; it must be handed in complete.
7. If more books than one are used, fasten them together using the tags available from the invigilator(s).
8. **Every book must be handed in. In no circumstances may answer books, used or unused, be taken out of the examination venue.**

List the numbers of the questions you have attempted	Office Use
1	14
2	9
4	8
	31
Total	41.37



1. FIXED COSTS = £500,000 PER ANNUM
 VARIABLE COSTS = £7 PER UNIT
 PRICE PER UNIT = £20
 NUMBER OF UNITS = 60,000 PER ANNUM

a)

$$60,000 \times 20 - 60,000 \times 7$$

UNITS £

Contribution

$$20 - 7 = 13$$

$$60,000 \times 13 = £780,000$$

UNITS £

PRICE AFTER
VARIABLE COSTS

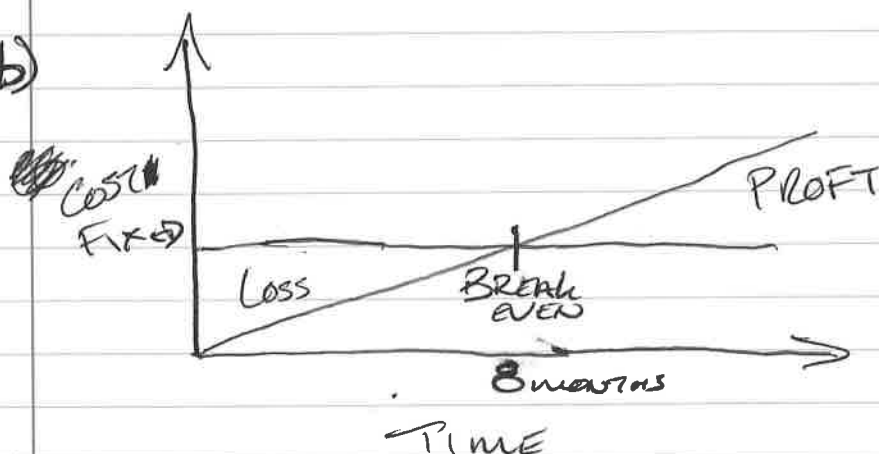
$$£780,000 \div 12 = £65,000 \text{ PER MONTH}$$

MONTHS

$$\frac{500,000}{65,000} = 7.69 \text{ MONTHS TO BREAK EVEN}$$

∴ 8 MONTHS

b)



c)

$$45,000 \times 13 = £585,000$$

UNITS PRICE AFTER
VARIABLE
COSTS

$$\text{MARGIN OF SAFETY} = £85,000$$

d)

$$60,000 \times 0.75 = 45,000 \text{ UNITS}$$

UNITS %

$$\text{ANNUAL PROFIT} = £85,000$$

1. e) LIMITATIONS OF USING BREAK-EVEN ANALYSIS ARE:

- VARIABLE COSTS CAN CHANGE
- DEPENDANT ON MARKET (DEMAND) AS A LONGER TIME PERIOD IS OFTEN NEEDED TO BREAK-EVEN
- EMPLOYEE EFFICIENCY CAN DIFFER - LOSS OF EMPLOYEE LEADS TO TIME TO FIND REPLACEMENT, TRAINING, COST OF TIME TRAINING ETC

2/5

14

25

2.

a) EASE OF OPERATION - IS THE EQUIPMENT USER FRIENDLY,
HOW EASY IS IT TO USE

SPECIFICATION - IS THE EQUIPMENT FIT FOR PURPOSE,

WILL IT DO WHAT IS REQUIRED

Time - IS THE EQUIPMENT CAPABLE OF PRODUCING THE
REQUIRED RESULTS TO THE REQUIRED STANDARD

IN A TIMELY MANNER - TIME IS MONEY.

COMPETITIVE ~~COST~~ ^{PRICE} - DOES THE COST OF BETTER &
EQUIPMENT OUTWEIGH THE SPECIFICATIONS
OF LESSER/CHEAPER COMPETITION

DELIVERY AND FITTING - TIME SCALE FOR DELIVERY AND CAN
ANYBODY INSTALL IT OR DOES IT REQUIRE A PROFESSIONAL

b) LIFE CYCLE COSTING IS UNDERSTANDING THE
INITIAL COST OF EQUIPMENT, EXPECTED TIME OF
SERVICE THE EQUIPMENT MUST LAST, AND THE
PROFIT THAT CAN BE ACHIEVED IN THAT TIME -
FRAME.

IF THE PROFIT GAINED DURING THE EQUIPMENT'S
LIFE CYCLE DOESN'T EXCEED THE COST OF
THE EQUIPMENT, OPERATORS WAGE, BILLS (ELECTRIC
ETC) AND MATERIALS THEN THE COMPANY WILL BE
WORKING AT A LOSS.

LIFE CYCLE COSTING CALCULATIONS CAN BE THE
DIFFERENCE BETWEEN A SUCCESSFUL BUSINESS AND
FAILING BUSINESS.

c) OPERATORS WAGE

EQUIPMENT - INITIAL COST

MATERIALS

RUNNING COSTS (ELECTRICITY)

ESTIMATED LIFE OF THE EQUIPMENT

PRODUCT DEMAND (CONTINUED SALES), PROFIT

RE-SALE VALUE (RESIDUAL VALUE)

Question No.

Examiner O

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Arif y Cwestiwn

4. i) • ENVIRONMENTALLY FRIENDLY (GREENER FUTURE) ✓
 • SAVINGS ON FUEL COSTS WHILE CONTINUING WITH SAME TICKET PRICES (PROFIT) ✓
 • REDUCED TAX DUE TO DOWNSIZING OF I.C.E AND LOWER EMISSIONS

2/4

ii) POLITICAL
 DOWNSIZING
 EMISSIONS
 TAX

P

1/4

ECONOMICAL ENVIRONMENTAL
 FUEL EFFICIENT
 BETTER FOR THE ENVIRONMENT
 LOWER EMISSIONS

E

1/4

SOCIAL

SEEN PUBLICALLY THAT GREENER VEHICLES ARE BEING USED
 (PUBLIC APPRECIATION)

S

1/4

TECHNOLOGICAL

ADVANCEMENTS FOR FUTURE ENGINEERS TO AIM
 HIGHER

T

1/4

4. iii)

- LESS HARMFUL GASSES RELEASED INTO THE ENVIRONMENT
- LESS CHANCE OF ~~REPRODUCING~~ CANCERS
- BRIGHTER FUTURE FOR YOUNGER GENERATIONS
- TECHNOLOGICAL ENHANCEMENTS PROVIDE FURTHER GAINS OF KNOWLEDGE TO PUBLIC AND PRACTISING ENGINEERS

2/5

2/5