

**Modified Enlarged 24 pt**

**OXFORD CAMBRIDGE AND RSA  
EXAMINATIONS**

**Wednesday 19 January 2022 – Morning**

**Level 3 Cambridge Technical in  
Engineering**

**05873**

**Unit 24: Project management for engineers**

**Time allowed: 2 hours plus your additional  
time allowance**

**You must have:**

**a calculator**

**the Resource Booklet**

**Please write clearly in black ink.**

**Centre  
number**

--	--	--	--	--

**Candidate  
number**

--	--	--	--

**First name(s)** \_\_\_\_\_

**Last name** \_\_\_\_\_

**Date of  
birth**

D	D	M	M	Y	Y	Y	Y
---	---	---	---	---	---	---	---

## **READ INSTRUCTIONS BELOW**

### **INSTRUCTIONS**

**Use black ink. You can use an HB pencil, but only for graphs and diagrams.**

**Write your answer to each question in the space provided. If you need extra space use the lined pages at the end of this booklet. The question numbers must be clearly shown.**

**Answer ALL the questions.**

### **INFORMATION**

**The total mark for this paper is 80.**

**The marks for each question are shown in brackets [ ].**

### **ADVICE**

**Read each question carefully before you start your answer.**

# BLANK PAGE

**Answer ALL the questions.**

**1 Refer to TEXT 1.**

**(a) Identify and describe THREE leadership styles that Oliver could use to manage this project. [6]**

**Leadership style 1** \_\_\_\_\_

\_\_\_\_\_

**Description** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Leadership style 2** \_\_\_\_\_

\_\_\_\_\_

**Description** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Leadership style 3** \_\_\_\_\_

\_\_\_\_\_

**Description** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**(b) (i) State the main customer of Dynamic Defence plc.**

\_\_\_\_\_ **[1]**

**(ii) Explain how the market power of a customer might affect the outcome of a project.**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ **[2]**

**(c) Oliver has produced a graph in the Resource Booklet which shows the power and interest levels of project stakeholders, Fig. 1.**

**(i) Rank the stakeholders according to their levels of power shown in Fig. 1. [2]**

<b>Rank:</b>	<b>Stakeholder</b>
<b>1 (most power)</b>	
<b>2</b>	
<b>3</b>	
<b>4</b>	
<b>5</b>	
<b>6 (least power)</b>	

**(ii) Rank the stakeholders according to their levels of interest shown in Fig. 1. [2]**

<b>Rank:</b>	<b>Stakeholder</b>
<b>1 (most interest)</b>	
<b>2</b>	
<b>3</b>	
<b>4</b>	
<b>5</b>	
<b>6 (least interest)</b>	

**(iii) Based on their levels of power and interest, explain how Oliver should manage the General Public.**

---

---

---

---

[2]

**(iv) Explain ONE possible consequence for Dynamic Defence plc of disregarding the Ministry of Defence (MOD).**

---

---

---

---

---

---

[3]

- (d) Oliver has good information management skills.**

**Explain how good information management skills can help Oliver mitigate risks during this project.**

---

---

---

---

**[2]**

- (e) The Steering Committee has chosen 'quality', rather than 'time' or 'cost', to be the critical control for this project.**

**Explain ONE likely reason why 'quality' has been chosen as the critical control for this project.**

---

---

---

---

**[2]**

**2 Refer to TEXT 2.**

- (a) Explain, using examples from TEXT 2, the meaning of each of the following terms:**

**Computer hardware** \_\_\_\_\_

---

---

---

---

---

**Computer software** \_\_\_\_\_

---

---

---

---

---

- (b) Oliver uses PERT to estimate the expected duration of the project.

His calculations suggest:

‘optimistic time’ = 20 months

‘pessimistic time’ = twice as long as ‘optimistic time’

‘most likely time’ = 35% longer than ‘optimistic time’.

Calculate, using PERT, the estimated expected duration of this project.

Show your workings. [6]

---

---

---

---

---

---

---

---

- 
- 
- 
- 
- (c) Oliver is considering whether to use critical path analysis to monitor this project.**

**Evaluate the advantages to Dynamic Defence plc of Oliver using critical path analysis to monitor this project. [12]**

---

---

---

---

---

---

---

---

---

---



---

---

---

---

---

---

---

---

---

---

**3 Refer to TEXT 3.**

**(a) Analyse ONE advantage and ONE disadvantage to Dynamic Defence plc of using equity finance to fund this project. [6]**

**Advantage** \_\_\_\_\_

---

---

---

---

---

---

---

---

---

**Disadvantage** \_\_\_\_\_

---

---

---

---

---

---

---

---

---

---

---

**(b) Explain ONE benefit and ONE drawback to Dynamic Defence plc of using advancing technologies in the 'Mark 3' radar equipment.**

**Benefit** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Drawback** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**[4]**

- (c) Explain how the inclusion of probability in the quality control report could help Oliver decide how serious the problem is with the gold bars. [3]**

---

---

---

---

---

---

---

---

---

---

**[3]**

**(d) Explain TWO ways the project will benefit from Oliver having excellent problem-solving skills.**

**1**

---

---

---

---

---

---

**2**

---

---

---

---

---

---

**[6]**

**BLANK PAGE**

**4 Refer to TEXT 4.**

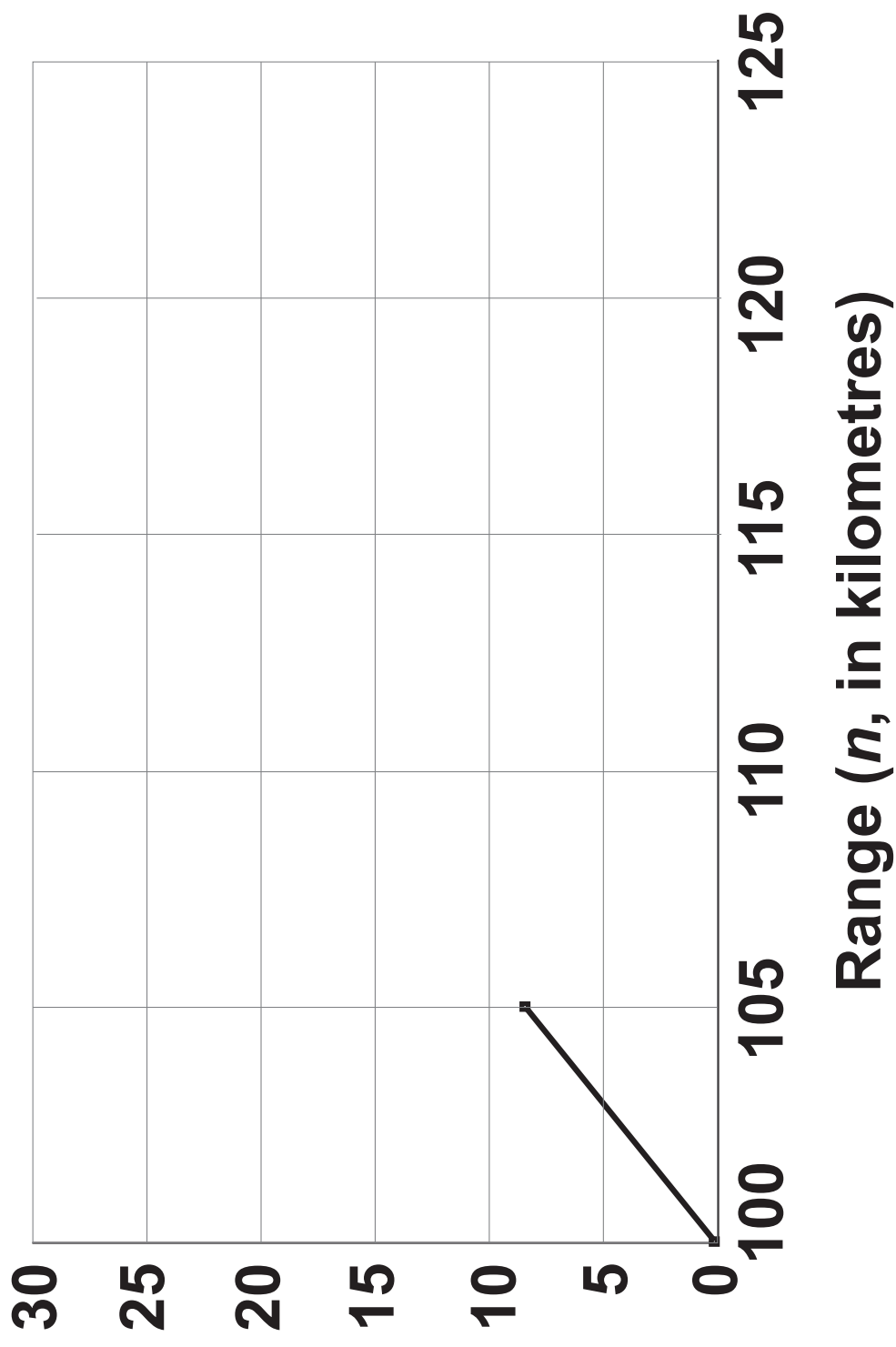
- (a) (i) **Circle** below the 'type of information' AND 'source of information' shown in **TABLE 1**.

**You should only draw TWO circles. [2]**

<b>Type of information:</b>	
<b>Quantitative</b>	<b>Qualitative</b>
<b>Source of information:</b>	
<b>Internal</b>	<b>External</b>

- (ii) **Complete the frequency polygon opposite to show the results of the 5 m<sup>2</sup> aerial target range detection test. [3]**

Frequency  
( $f$ )



- (iii) Identify the skew of this distribution and explain what this means.

**Skew** \_\_\_\_\_

**Meaning** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

[3]

- (b) When this project reaches completion, Oliver intends to gather several different types of feedback using a range of methods.

- (i) State ONE key feature of subjective feedback.

\_\_\_\_\_

\_\_\_\_\_

[1]

- (ii) Explain, using examples, the difference between formal methods of gathering subjective feedback and informal methods of gathering subjective feedback.**

---

---

---

---

---

---

---

---

---

---

**[4]**

- (iii) Explain ONE benefit and ONE drawback to Oliver of using complaints analysis to gather feedback.

**Benefit** \_\_\_\_\_

---

---

---

---

**Drawback** \_\_\_\_\_

---

---

---

---

**[4]**

**END OF QUESTION PAPER**

## ADDITIONAL ANSWER SPACE

**If additional answer space is required, you should use the following lined pages. The question numbers must be clearly shown – for example, 1(c)(iv) or 2(a).**

[illegible]















Oxford Cambridge and RSA

**Copyright Information:**

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website ([www.ocr.org.uk](http://www.ocr.org.uk)) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact the Copyright Team, OCR (Oxford Cambridge and RSA Examinations), The Triangle Building, Shaftesbury Road, Cambridge CB2 8EA.

OCR is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.