



Wednesday 23 May 2018 - Morning

A2 GCE MATHEMATICS

4737/01 Decision Mathematics 2

PRINTED ANSWER BOOK

Candidates answer on this Printed Answer Book.

OCR supplied materials:

- Question Paper 4737/01 (inserted)
- List of Formulae (MF1)

Other materials required:

· Scientific or graphical calculator

Duration: 1 hour 30 minutes



| Candidate forename | | | | Candidate surname | | | |
|--------------------|----|--|--|-------------------|-------|--|--|
| | | | | | | | |
| Centre numb | er | | | Candidate nu | ımber | | |

INSTRUCTIONS TO CANDIDATES

These instructions are the same on the Printed Answer Book and the Question Paper.

- The Question Paper will be found inside the Printed Answer Book.
- Write your name, centre number and candidate number in the spaces provided on the Printed Answer Book. Please write clearly and in capital letters.
- Write your answer to each question in the space provided in the Printed Answer Book. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).
- Use black ink. HB pencil may be used for graphs and diagrams only.
- Answer all the questions.
- Read each question carefully. Make sure you know what you have to do before starting your answer.
- Do not write in the barcodes.
- You are permitted to use a scientific or graphical calculator in this paper.
- Give non-exact numerical answers correct to 3 significant figures unless a different degree of accuracy is specified in the question or is clearly appropriate.

INFORMATION FOR CANDIDATES

This information is the same on the Printed Answer Book and the Question Paper.

- The number of marks is given in brackets [] at the end of each question or part question on the Question Paper.
- You are reminded of the need for clear presentation in your answers.
- The total number of marks for this paper is 72.
- The Printed Answer Book consists of 12 pages. The Question Paper consists of 12 pages. Any blank pages are indicated.

| 1 (i) | | | | | |
|---------|-------|--------|-------|--------------|-------|
| | | (A) • | | • (1) | |
| | | (B) • | | • (2) | |
| | | (C) • | | • (3) | |
| | | (D) • | | • (4) | |
| | | (E) • | | • (5) | |
| | | | | () | |
| 1 (ii) | | | | | |
| | | | | | |
| | | | | | |
| | | (A) • | | • (1) | |
| | | (B) • | | • (2) | |
| | | (C) • | | • (3) | |
| | | (D) • | | • (4) | |
| | | (E) • | | • (5) | |
| | | | | | |
| 1 (iii) | | | | | |
| | | | | | |
| | (A) = | (B) = | (C) = | (D) = | (E) = |
| 1 (iv) | | | | | |
| | | (A) • | | • (1) | |
| | | (B) • | | • (2) | |
| | | (C) • | | • (3) | |
| | | (D) • | | • (4) | |
| | | (E) •— | | → (5) | |
| | | | | | |

| 2 (i) | |
|---------|--|
| | |
| 2 (ii) | |
| | |
| 2 (iii) | (a) |
| | $(1,5) \qquad A \qquad (2,4) \qquad \qquad (1,5) \qquad \qquad F \qquad \qquad (2,4)$ |
| | $S \longrightarrow D \longrightarrow T$ |
| | $(1,6) \qquad B \qquad (2,3) \qquad E \qquad (1,2)$ $(1,5) \qquad G \qquad (1,2)$ |
| | |
| | (b)(c)(d) |
| | $ \begin{array}{cccccccccccccccccccccccccccccccccccc$ |
| | $ \uparrow \downarrow \qquad \qquad \qquad \downarrow \qquad \qquad \qquad \downarrow \qquad \qquad \qquad \downarrow \qquad \qquad \qquad \downarrow \qquad \qquad \qquad \downarrow \qquad \qquad \downarrow \qquad \qquad \qquad \downarrow \qquad \qquad \qquad \qquad \downarrow \qquad \qquad \qquad \downarrow \qquad \qquad \qquad \qquad \downarrow \qquad \qquad \qquad \downarrow \qquad \qquad \qquad \qquad \downarrow \qquad \qquad \qquad \qquad \qquad \downarrow \qquad \qquad \qquad \qquad \qquad \qquad \downarrow \qquad \qquad$ |
| | Augmented route: Cut: |

| 3 (i) | | | | | | | | | | | | | | | | | |
|--------|-------|--------|----------|---------|----------|-----|--------|-------|--------|---|--------|-------|--------|--------|---|--------|--------|
| | | | | | | | F | or wo | rking, | if need | led | | | Yo | our ans | swer | |
| | | N | P | Е | В | | | N | P | Е | В | | | N | P | Е | В |
| | (1) | 1000 | 600 | 200 | 200 | | (1) | | | | | | (1) | | | | |
| | (2) | 800 | 500 | 300 | 200 | | (2) | | | | | | (2) | | | | |
| | (3) | 500 | 400 | 300 | 100 | | (3) | | | | | | (3) | | | | |
| | (4) | 1000 | 300 | 400 | 200 | | (4) | | | | | | (4) | | | | |
| 2 (1) | TI | | C.I | 1 | 1 | , | | 1 | | | | | | | | | |
| 3 (ii) | Use a | s many | y of the | ese tab | les as y | you | i neec | 1 | | | | | | | | | |
| | | N | P | Е | В | | •••• | ••••• | | ••••• | •••••• | ••••• | | •••••• | • | | ••••• |
| | (1) | | | | | | | | | • | | | | | | ••••• | |
| | (2) | | | | | | •••• | | | | | | | | | | |
| | (3) | | | | | | •••• | ••••• | | ••••• | ••••• | ••••• | | ••••• | | | ••••• |
| | (4) | | | | | | •••• | | | | | ••••• | •••••• | | | | |
| | | N | P | Е | В | | | | | | | | | | | | |
| | (1) | | | | | | | | | | | ••••• | | | | | |
| | (2) | | | | | | •••• | | ••••• | | ••••• | ••••• | | ••••• | ••••• | | |
| | (3) | | | | | | •••• | | ••••• | ••••• | ••••• | ••••• | | ••••• | ••••• | | |
| | (4) | | | | | | •••• | | ••••• | | ••••• | ••••• | | ••••• | | | ••••• |
| | | N | Р | Е | В | | | | | | | | | | | | |
| | (1) | | | | | | •••• | | | | ••••• | | | ••••• | | | |
| | (2) | | | | | | •••• | | | | | | | | | | |
| | (3) | | | | | | •••• | | | | | | | | ••••• | | |
| | (4) | | | | | | | | | | | | | | | | |
| | | | | | | | •••• | | | | | | | | | | |
| | | | | | | | | | | | (answ | er s | pace | conti | nued (| on nex | t page |

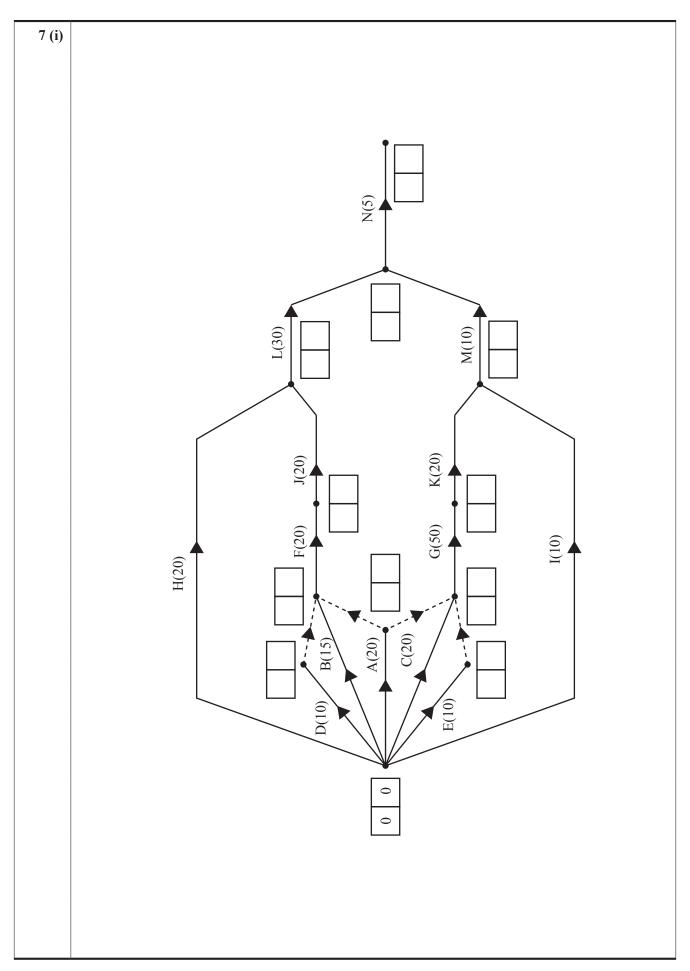
| 3 (ii) | (cont | inued |) | | | |
|---------|-------|-------|---------|-------|--------|------|
| | | N | P | Е | В | |
| | (1) | | | | | |
| | (2) | | | | | |
| | (3) | | | | | |
| | (4) | | | | | |
| | | | | | | |
| | | N | P | Е | В | |
| | (1) | | | | | |
| | (2) | | | | | |
| | (3) | | | | | |
| | (4) | | | | | |
| | | | | | | |
| | | N | P | Е | В | |
| | (1) | | | | | |
| | (2) | | | | | |
| | (3) | | | | | |
| | (4) | | | | | |
| | | | | | | |
| 3 (iii) | Even | | | | | |
| | Even | | | | | |
| | Even | | | | | |
| | | | er of p | eople | expect | ed = |
| 3 (iv) | 10111 | | 51 P | | | |
| | | | | | | |
| | | | | | | |

| 4 (i) | (a) |
|---------|--------------------------------------|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | Play-safe for Leo Play-safe for Maya |
| | (b) Maya would win points |
| | (c) Leo would play card |
| 4 (ii) | (a) |
| | |
| | |
| | (b) Cards |
| | |
| 4 (iii) | She might choose card B because |
| | |
| | |
| | She might choose card F because |
| | |
| | |
| | |
| | She might choose card H because |
| | She might choose card H because |

| 5 (i) | Stage | State | Action | Working | Suboptimal maximin |
|---------|----------------------------|----------|--------|-------------|----------------------|
| | 3 | 0 | 0 | 4 | 4 |
| | | 1 | 0 | 3 | 3 |
| | 2 | 0 | 0 | min (2,) = | |
| | | | 1 | min (4,) = | |
| | | 1 | 0 | min (3,) = | |
| | | | 1 | min (2,) = | |
| | | 2 | 0 | min (5,) = | |
| | | | 1 | min (2,) = | |
| | 1 | 0 | 0 | min (2,) = | |
| | | | 1 | min (5,) = | |
| | | 1 | 1 | min (2,) = | |
| | | | 2 | min (2,) = | |
| | 0 | 0 | 0 | min (4,) = | |
| | | | | | |
| | Maximin rou | te: | 1 | min (3,) = | |
| 5 (ii) | Maximin rou (0; 0) to (1 | | | |) to (2;) has weight |
| 5 (ii) | | ;) has w | veight | (1; . |) to (2;) has weight |
| 5 (ii) | (0; 0) to (1 | ;) has w | veight | (1; . | |
| 5 (ii) | (0; 0) to (1 | ;) has w | veight | (1; . | |
| 5 (ii) | (0; 0) to (1 | ;) has w | veight | (1; . | |
| 5 (ii) | (0; 0) to (1 | ;) has w | veight | (1; . | |
| | (0; 0) to (1 | ;) has w | veight | (1; . | |
| 5 (iii) | (0; 0) to (1 (2;) to (3 | ;) has w | veight | (1; . | |

| 6 (i) | Property 1: | _ |
|---------|---|---|
| | D | |
| | Property 2: | |
| | Property 3: | |
| | | _ |
| 6 (ii) | should not play in the final | |
| | because | _ |
| | | |
| | | |
| 6 (iii) | Famous faces: | |
| | | |
| | Films: | |
| | Food: | _ |
| | | |
| | Football: | |
| | | |
| 6 (iv) | There is a spare copy of this grid on the back page. Tick this box if you want the spare grid to be marked instead of this one. | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | Value of $p = \dots$ | |

| Init | ial Simpl | ex tabl | leau (y | ou may | y not n | eed all | these | rows a | and col | umns) | I | I | |
|------|-----------|---------|---------|--------|---------|---------|-------|--------|---------|-------|---|---|--|
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |



| 7 (ii) | 0 | 25 | 50 | 75 | 100 | 125 |
|---------|---|--------------------|----------------|----------------|-----|-----|
| | Person 1 | | | | | |
| | Person 2 | | | | | |
| | nobody | | | | | |
| | nobody | | | | | |
| | , <u>, , , , , , , , , , , , , , , , , , </u> | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | Spare grids (Indicate | if you want one of | these marked a | s your answer) | | |
| | 0 | 25 | 50 | 75 | 100 | 125 |
| | Person 1 | | | | | |
| | Person 2 | | | | | |
| | nobody | | | | | |
| | nobody | | | | | |
| | | | | | | |
| | 0 | 25 | 50 | 75 | 100 | 125 |
| | Person 1 | | | | | |
| | Person 2 | | | | | |
| | nobody | | | | | |
| | nobody | | | | | |
| | | | | | | |
| 7 (iii) | Version (1) | | | | | |
| | | | | | | |
| | | | | | | |
| · | | | | | | |
| | Version (2) | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | Grid. if needed for w | orking | | | | |
| | Grid, if needed for w | orking | | | | |
| | Grid, if needed for w | orking | | | | |
| | Grid, if needed for w | orking | | | | |
| | Grid, if needed for w | orking | | | | |
| | Grid, if needed for w | orking | | | | |
| | Grid, if needed for w | orking | | | | |

© OCR 2018 Turn over

| | | | | | · · · · · · · · · · · · · · · · · · · | | : | | |
|---|-----|---|---|---|---------------------------------------|---|---|------|--|
| | | | | | | : | | | |
| | | | | | : | | | | |
| | | | | | | | | | |
| | | | | | : | | | | |
| | | | | | | | | | |
| i | . i | i | i | i | i | i | i | | |



the box on page 8.

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) 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, First Floor, 9 Hills Road, Cambridge CB2 1GE.

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.