OCR
Oxford Cambridge and RSA

Wednesday 13 June 2018 – Morning

AS GCE MATHEMATICS

4736/01 Decision Mathematics 1

PRINTED ANSWER BOOK

Candidates answer on this Printed Answer Book.

OCR supplied materials:
- Question Paper 4736/01 (inserted)
- List of Formulae (MF1)

Other materials required:
- Scientific or graphical calculator

Duration: 1 hour 30 minutes

Candidate forename		Candidate surname	

Centre number						Candidate number				

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.** If additional space is required, you should use the lined page(s) at the end of the Printed Answer Book. The question number(s) must be clearly shown.
- 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 **8** pages. Any blank pages are indicated.

1 (i)

Shop	A	B	C	D	E	F	G	H
Boxes	500	400	600	300	300	400	300	200

Van 1:

Van 2:

Van 3:

Van 4:

1 (ii)

Shop	A	B	C	D	E	F	G	H
Boxes	500	400	600	300	300	400	300	200

Van 1:

Van 2:

Van 3:

Van 4:

1 (iii)

Shop	A	B	C	D	E	F	G	H
Boxes	500	400	600	300	300	400	300	200

Van 1:

Van 2:

Van 3:

1 (iv)

2 (i)

M	*N*	*P*

2 (ii)

M	*N*	*P*

3 (i)

3 (ii)

3 (iii)

P	x	y	s	t	u	RHS
1	–2	4	0	0	0	0
0	4	–12	1	0	0	12
0	7	–19	0	1	0	35
0	–3	15	0	0	1	0

A spare copy of this diagram can be found on page 5.

P	x	y	s	t	u	RHS

(answer space continued on next page)

3 (iii) **(continued)**

Spare copy of the diagram for question 3(iii).

P	*x*	*y*	*s*	*t*	*u*	RHS

3 (iv)

P = ... *x* = ... *y* = ...

s = ... *t* = ... *u* = ...

3 (v)

4 (i)

4 (ii)

	M	*N*	*P*	*R*	*S*
M			6		7
N				5	4
P	6			3	2
R		5	3		4
S	7	4	2	4	

Arcs used (in order of being chosen)

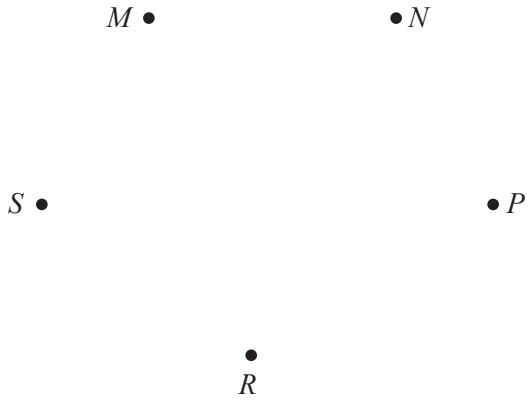
.....

.....

Tree

Total weight

.....



4 (iii) $x =$

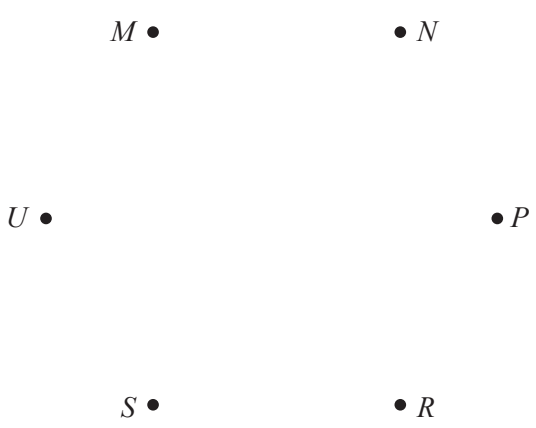
4 (iv) $x =$

4 (v)

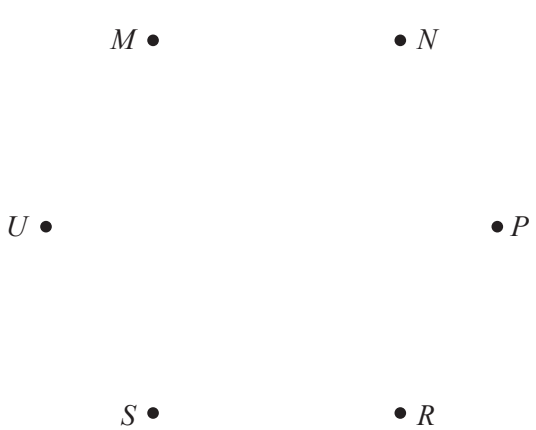
4 (vi)

Upper bound =

4 (vii)



4 (viii)

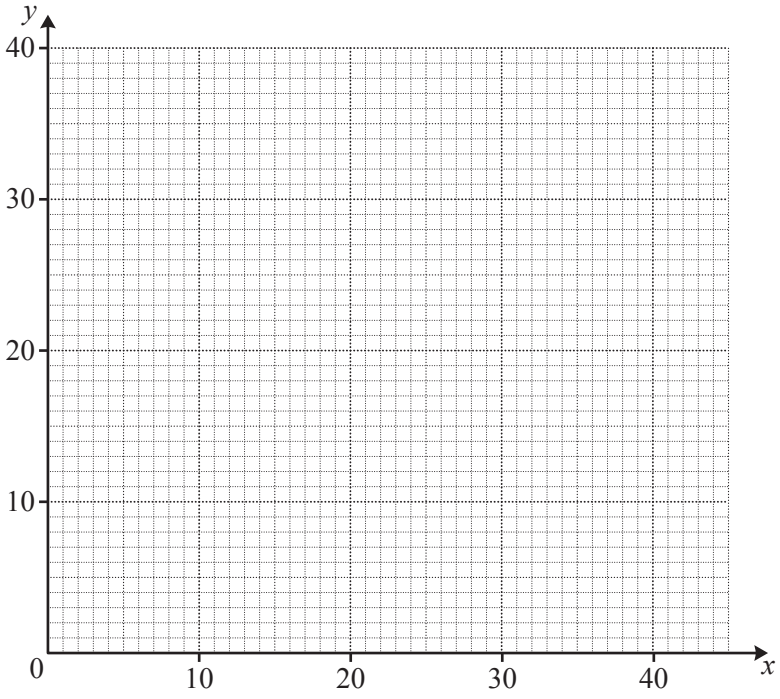


5 (i) $3x + 4y \leqslant 120$ because

Other constraints (apart from x and y being integers)

5 (ii) $P =$

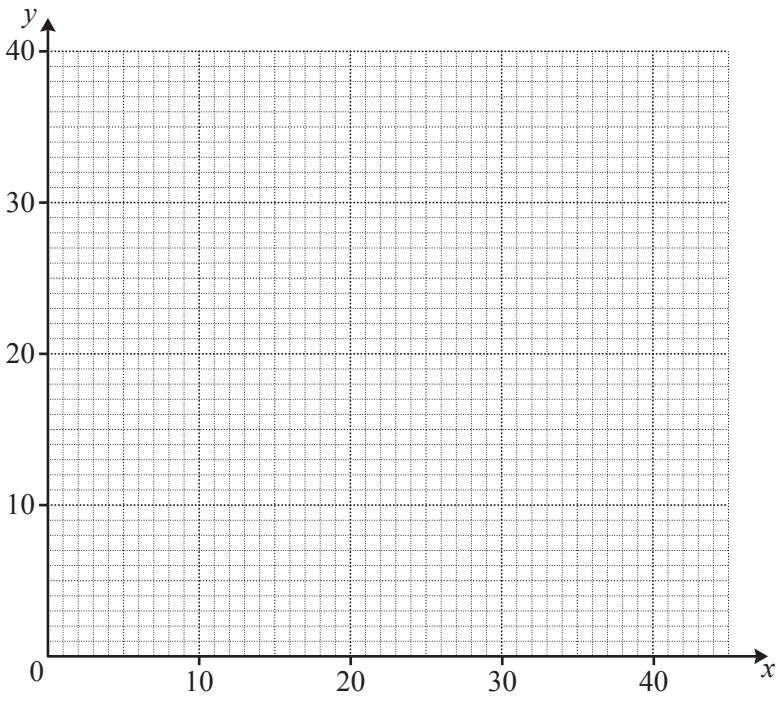
5 (iii) **A spare copy of this diagram can be found on page 9.**



(answer space continued on next page)

5 (iii) **(continued)**

Spare copy of the diagram for question 5(iii).



5 (iv)

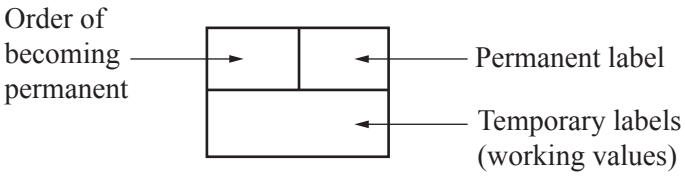
Small jars Large jars

5 (v)

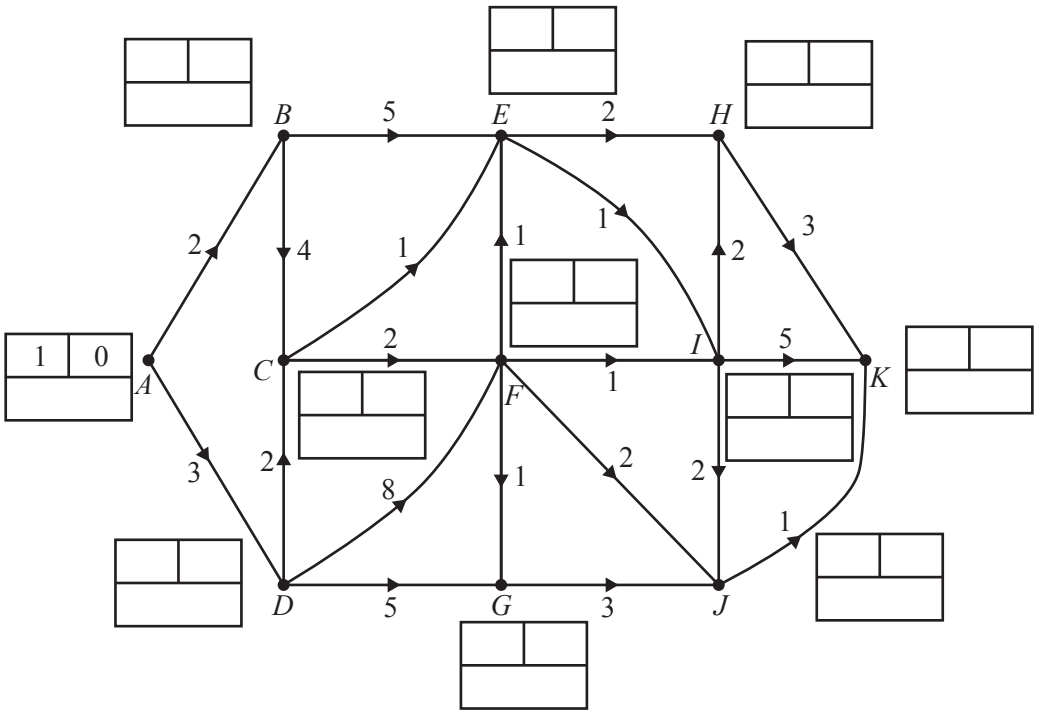
Profit £

6 (a)(i)

Key:



Do not cross out your temporary labels.



Shortest distance: (in units of 100 m)

Route(s):

6 (a)(ii)

Shortest distance: (in units of 100 m)

Route(s):

6 (b)(i)	
	Minimum distance = (in units of 100 m)
	Arcs that represent repeated roads:
6 (b)(ii)	
	Minimum distance = (in units of 100 m)
	Number of times through F =

ADDITIONAL ANSWER SPACE

If additional space is required, you should use the following lined page(s). The question number(s) must be clearly shown in the margin(s).