

ADVANCED SUBSIDIARY GCE

MATHEMATICS

Decision Mathematics 1

INSERT for Questions 3 and 4

4736

Monday 19 January 2009
Afternoon

Duration: 1 hour 30 minutes



Candidate Forename						Candidate Surname					
Centre Number						Candidate Number					

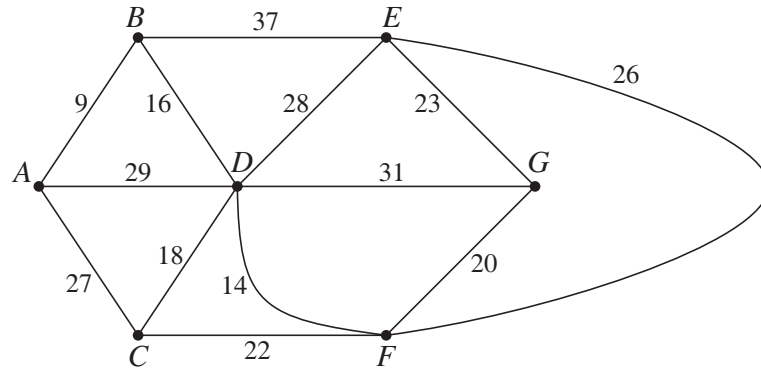
INSTRUCTIONS TO CANDIDATES

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the boxes above.
- Use black ink. Pencil may be used for graphs and diagrams only.
- This insert should be used to answer Questions **3** and **4**.
- Write your answers to Questions **3** and **4** in the spaces provided in this insert, and attach it to your Answer Booklet.

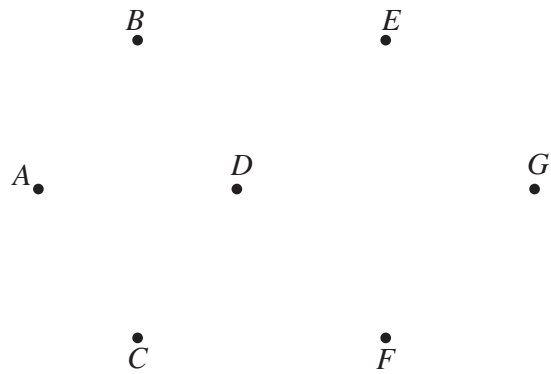
INFORMATION FOR CANDIDATES

- This document consists of **4** pages. Any blank pages are indicated.

3 (i)



- $AB = 9$
- $DF = 14$
- $BD = 16$
- $CD = 18$
- $FG = 20$
- $CF = 22$
- $EG = 23$
- $EF = 26$
- $AC = 27$
- $DE = 28$
- $AD = 29$
- $DG = 31$
- $BE = 37$



Total weight of arcs in minimum spanning tree =

(ii) Weight of spanning tree for vertices A, B, C, D, F and G only =

.....

Lower bound for travelling salesperson problem on original network =

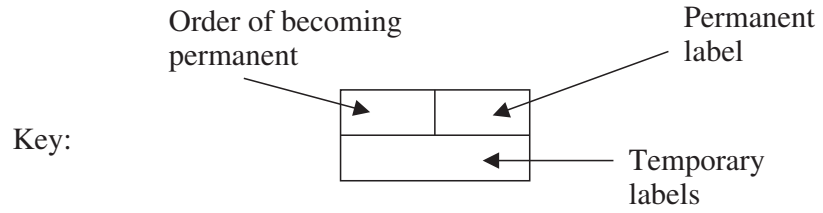
(iii)

.....

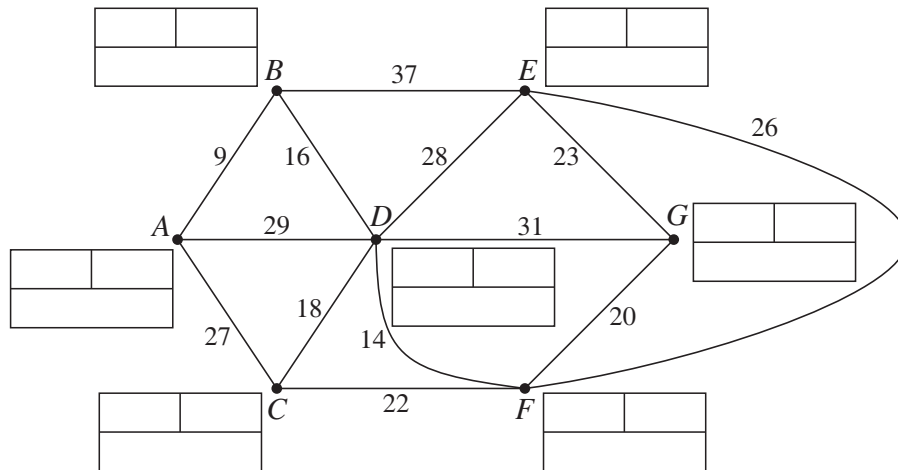
(iv) Nearest neighbour gives B –

Upper bound for travelling salesperson problem on original network =

(v)



Do not cross out your working values (temporary labels)



Weight =

Route =

(vi)

.....

.....

.....

.....

.....

.....

4 (i) passes

(ii) comparisons and swaps

(iii)

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..... comparisons and swaps

(iv)

Comp Swap

(v) is the more efficient method in this case

because

.....

.....



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