OCR
RECOGNISING ACHIEVEMENT

ADVANCED SUBSIDIARY GCE

MATHEMATICS **4736**

Decision Mathematics 1
INSERT for Questions 3 and 4

Monday 19 January 2009
Afternoon

Duration: 1 hour 30 minutes

4736

| 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.
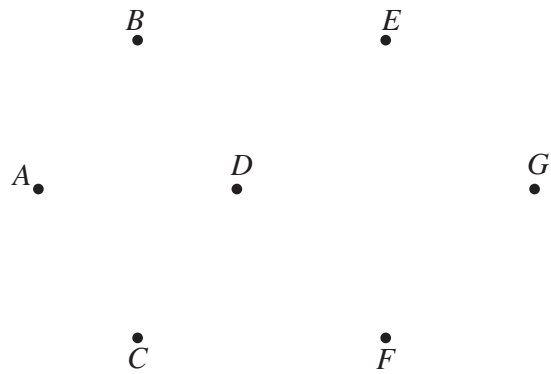
INFORMATION FOR CANDIDATES

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

OCR is an exempt Charity

3 **(i)**
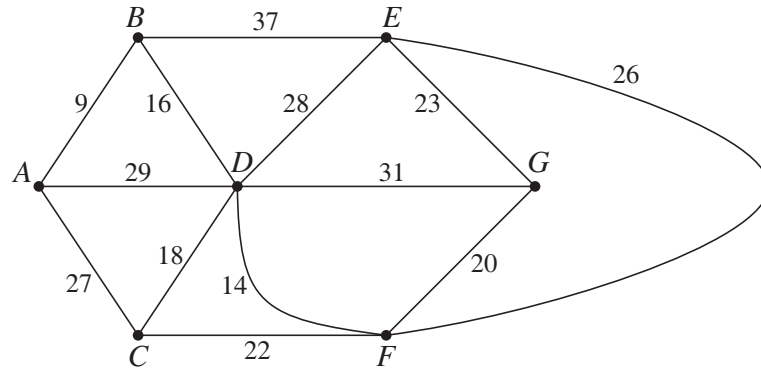
AB = 9
DF = 14
BD = 16
CD = 18
FG = 20
CF = 22
EG = 23
EF = 26
AC = 27
DE = 28
AD = 29
DG = 31
BE = 37

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)

Key:

Order of becoming
permanent

Permanent
label
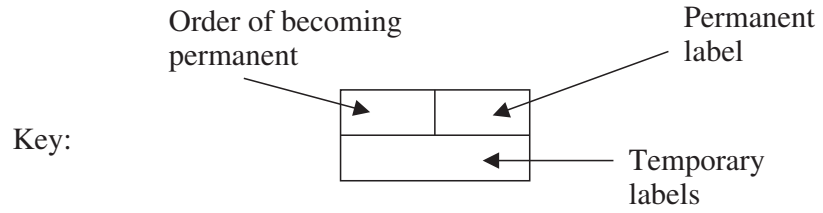
Temporary
labels

Do not cross out your working
values (temporary labels)

B   37   E

26

9   16   28   23

A   29   D   31   G

18

27   14   20

C   22   F
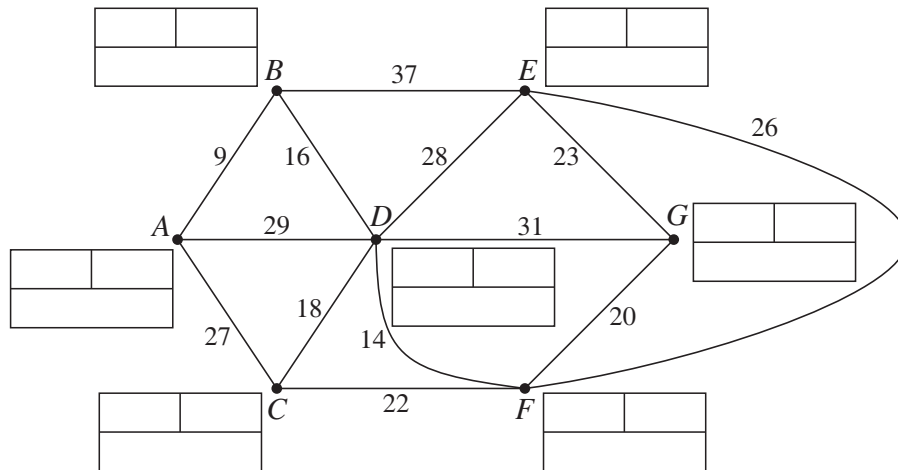
Weight = ...

Route = ...

(vi) ....

....

....

....

....

....

4   **(i)**   .... passes

   (ii)   .... comparisons and .... swaps

   (iii)

.... comparisons and .... swaps

   (iv)   Comp   Swap

   (v)   .... is the more efficient method in this case

   because ....

   ....

   ....