GENERAL MATHEMATICS 2024

Unit 4
Key Topic Test 7 – Networks and Decision Mathematics: Flow Problems

Recommended writing time*: 45 minutes
Total number of marks available: 25 marks

fc

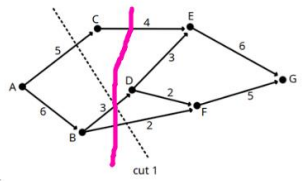
SOLUTIONS

SECTION A – Multiple Choice (1 mark per question)

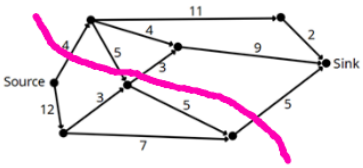
Question 1
Answer: C

$5 + 3 + 2 = 10$

Question 2
Answer: E



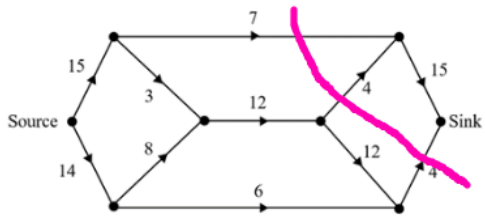
Question 3
Answer: B



Question 4
Answer: A

$a + 2 + 6 = 17$
$a = 9$

Question 5
Answer: A



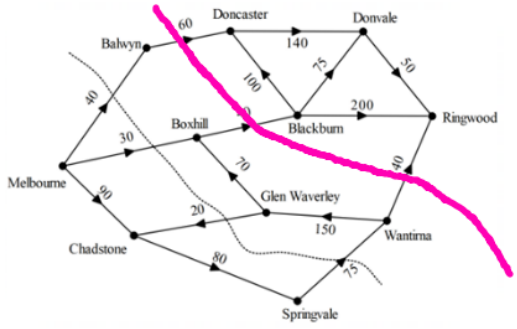
SECTION B – Short Answer

Question 1

a. $40 + 30 + 75 = 145$

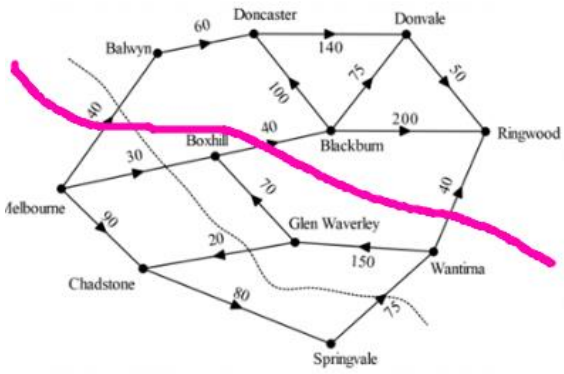
1 mark

b.



1 mark

c. 120 cars per minute

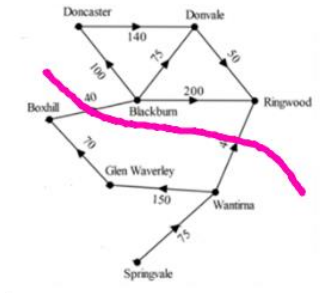


2 marks

d. 75 cars per minute

1 mark

e. 80 cars per minute
There is another cut with capacity of 80



2 marks

f. Wantirna – GW = 150
GW- BH – R (via anywhere) = maximum 40

Therefore GW – Ringwood needs to be 110 to maximise flow

110 cars per minute

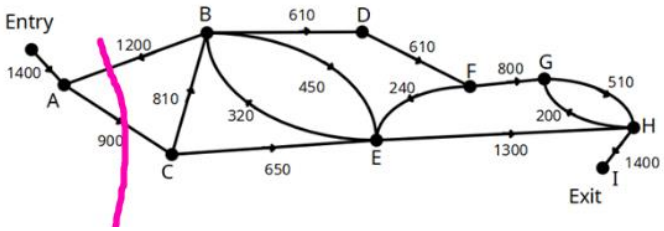
2 marks

Question 2

a. 510 cars

1 mark

b. 900 cars



1 mark

c. A – C

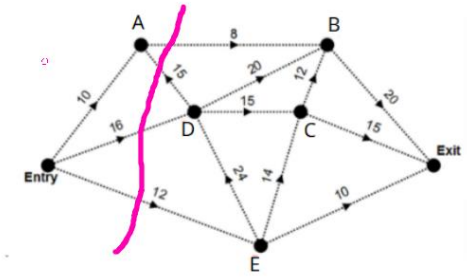
1 mark

d. Next lowest cut has a capacity of 1400
Increase A – C to 1400

1 mark

Question 3

a. 36

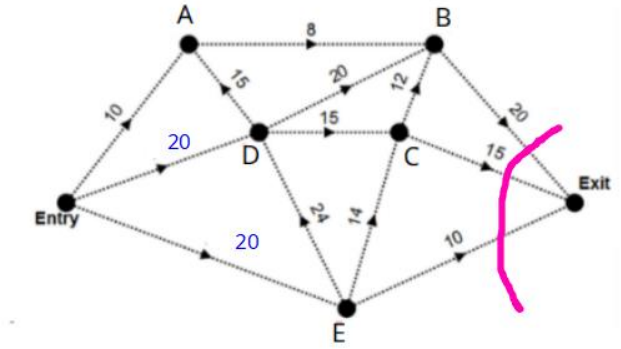


1 mark

b. Entry – D
Entry – E

2 marks

c. 45 people



1 mark

Question 4

a. $10 + 6 + 8 = 24$

1 mark

b. $12 + 8 + 7 + 12 = 39$

1 mark

c. $8 + m = 17$
$m = 9$

1 mark

END OF KEY TOPIC TEST SOLUTIONS