



Units 3 and 4 Further Maths: Exam 1

Practice Exam Solutions

Stop!

Don't look at these solutions until you have attempted the exam.

Any questions?

Check the Engage website for updated solutions, then email practiceexams@ee.org.au.

Section A

Core: Data Analysis

Question 1

The correct answer is B.

Question 2

The correct answer is C.

Question 3

The correct answer is B.

Question 4

The correct answer is C.

Question 5

The correct answer is C.

Question 6

The correct answer is B.

Question 7

The correct answer is D.

Question 8

The correct answer is C.

Question 9

The correct answer is B.

Question 10

The correct answer is A.

Question 11

The correct answer is B.

Question 12

The correct answer is B.

Question 13

The correct answer is A.

Section B

Module 1: Number patterns and applications

Question 1

The correct answer is D.

Question 2

The correct answer is C.

Question 3

The correct answer is A.

Question 4

The correct answer is E.

Question 5

The correct answer is B.

Question 6

The correct answer is E.

Question 7

The correct answer is C.

Question 8

The correct answer is E.

Question 9

The correct answer is D.

Module 2: Geometry and trigonometry**Question 1**

The correct answer is C.

Question 2

The correct answer is A.

Question 3

The correct answer is A.

Question 4

The correct answer is C.

Question 5

The correct answer is A.

Question 6

The correct answer is D.

Question 7

The correct answer is D.

Question 8

The correct answer is E.

Question 9

The correct answer is B.

Module 3: Graphs and relations

Question 1

The correct answer is A.

Question 2

The correct answer is C.

Question 3

The correct answer is C.

Question 4

The correct answer is E.

Question 5

The correct answer is B.

Question 6

The correct answer is B.

Question 7

The correct answer is B.

Question 8

The correct answer is C.

Question 9

The correct answer is A.

Module 4: Business-related mathematics

Question 1

The correct answer is B.

Question 2

The correct answer is A.

Question 3

The correct answer is E.

Question 4

The correct answer is E.

Question 5

The correct answer is C.

Question 6

The correct answer is B.

Question 7

The correct answer is B.

Question 8

The correct answer is C.

Question 9

The correct answer is E.

Module 5: Networks and decision mathematics

Question 1

The correct answer is B.

For a connected, planar graph, Euler's formula may be used, where $V-E+F=2$

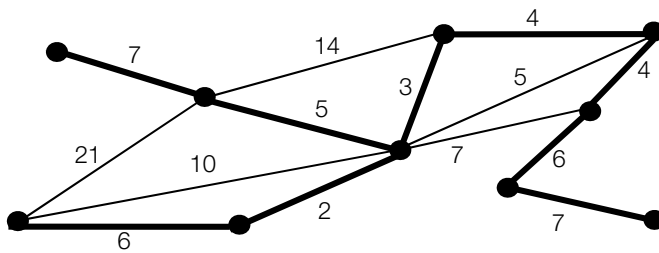
Hence, $9-12+F=2$, $F=2+12-9=5$

There are 5 faces.

Question 2

The correct answer is A.

The minimum spanning tree is:



Sum of the weighted edges = $7+5+2+6+3+4+4+6+7 = 44$

Question 3

The correct answer is C.

A complete graph with n vertices, has $\frac{n(n-1)}{2}$ edges.

Hence, $\frac{n(n-1)}{2} = 55$, solve on calculator for $n > 0$

Hence $n = 11$

Question 4

The correct answer is E.

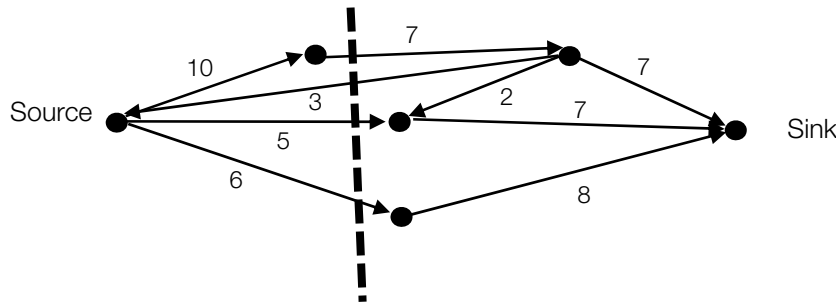
The edges with capacity 3 and 2 are considered to be backward flow as the flow across their edges goes from right to left and not left to right. Hence we do not include them in our sum.

Value of the cut = $7+7+8 = 22$

Question 5

The correct answer is D.

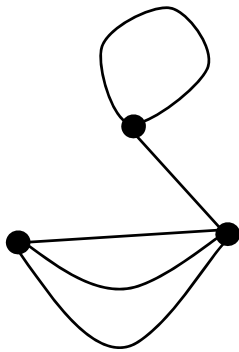
For the maximum flow, find the minimum cut:



Hence the maximum flow = $7+5+6 = 18$

Question 6

The correct answer is D. A possible graph is:



There are no vertices which have a degree of 2.

Question 7

The correct answer is E.

An Euler Path is a path which uses every edge of the graph only once. When there are two odd vertices, the path starts at one and finishes at the other. BEAGEDGFDBCD is a possible Euler path.

Question 8

The correct answer is E.

Question 9

The correct answer is D.

We forward scan and take the longest time when two activities converge at the same vertex to find the earliest start time.

Pathways AE (Time= $4+7=11$), and B (Time= 4) both converge at vertex F. Hence the earliest start time is 11.

Module 6: Matrices

Question 1

The correct answer is B.

Question 2

The correct answer is A.

Question 3

The correct answer is B.

Question 4

The correct answer is B.

Question 5

The correct answer is D.

Question 6

The correct answer is A.

Question 7

The correct answer is A.

Question 8

The correct answer is B.

Question 9

The correct answer is D.