Change Background Color :	No
Change Theme :	No
Help Button :	No
Show Reports :	No
Show Progress Bar :	No

Group I

Group Number :	1
Group Id :	64065313511
Group Maximum Duration :	0
Group Minimum Duration :	90
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	580
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No
Revisit allowed for group Instructions? :	Yes
Maximum Instruction Time :	0
Minimum Instruction Time :	0
Group Time In :	Minutes
Navigate To Group Summary From Last Question? :	No
Disable Submit Button During Assessment? :	No
Section Selection Time? :	0
No of Optional sections to be attempted :	0

Sem1 Maths1

Section Id :	64065338302
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	15
Number of Questions to be attempted :	15
Section Marks :	50
Display Number Panel :	Yes
Group All Questions :	No
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	64065380204
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 1 Question Id : 640653563086 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 0

Question Label : Multiple Choice Question

THIS IS QUESTION PAPER FOR THE SUBJECT "FOUNDATION LEVEL : SEMESTER 1: MATHEMATICS FOR DATA SCIENCE 1 (COMPUTER BASED EXAM)"

ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?
CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.

(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)

Options :

6406531882655. ✔ YES

6406531882656. ✖ NO

Sub-Section Number : 2

Sub-Section Id : 64065380205

Question Shuffling Allowed : Yes

Is Section Default? : null

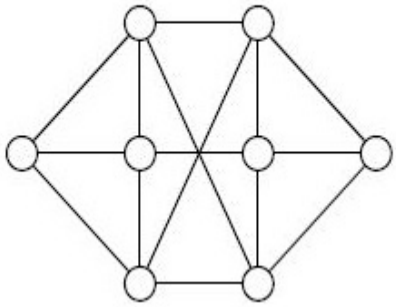
Question Number : 2 Question Id : 640653563087 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Short Answer Question

Find the cardinality of the maximum independent set of the graph given below.



Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

3

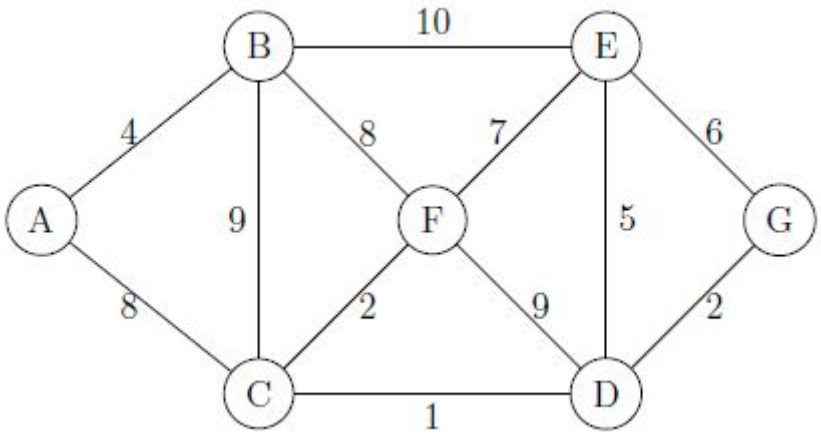
Question Number : 3 Question Id : 640653563090 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Short Answer Question

What is the weight of a minimum cost spanning tree of the given graph ?



Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

22

Sub-Section Number :	3
Sub-Section Id :	64065380206
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 4 Question Id : 640653563088 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Short Answer Question

An undirected graph *G* has 8 edges. If the degree of each vertex is 2, then find the number of vertices in *G*.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

8

Sub-Section Number :	4
Sub-Section Id :	64065380207
Question Shuffling Allowed :	Yes
Is Section Default? :	null

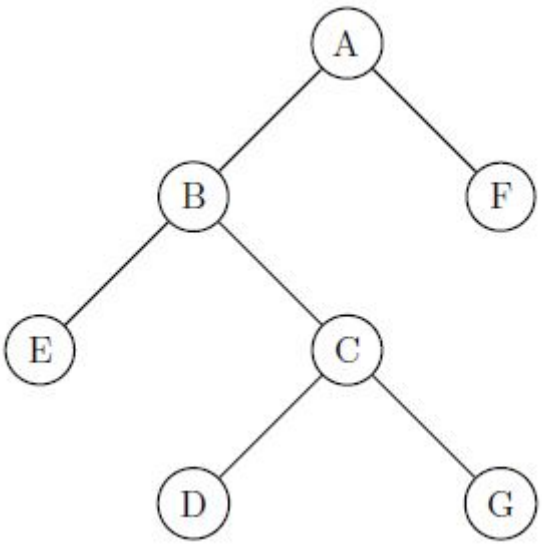
Question Number : 5 Question Id : 640653563089 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4

Question Label : Multiple Choice Question

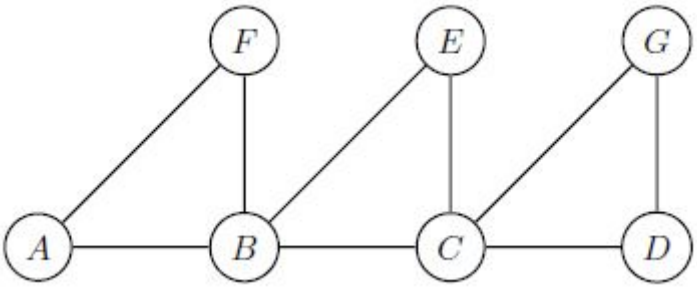
The DFS (Depth First Search) tree of a graph starting with vertex *A* is shown below.

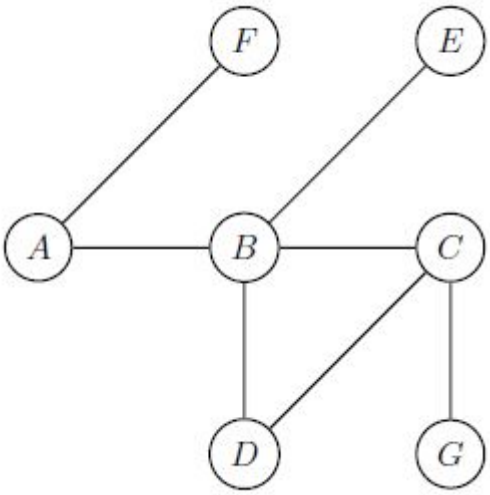
Choose the option which might be the original graph.



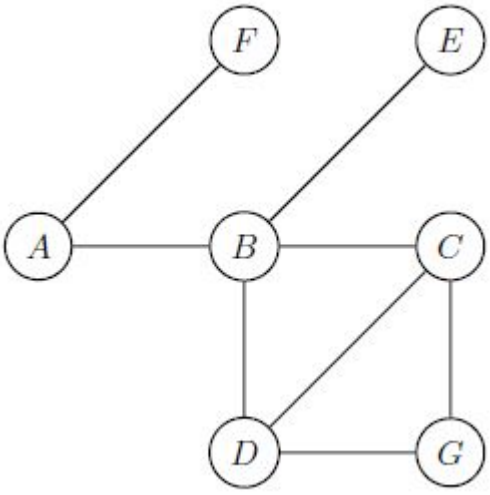
Options :

6406531882659. ✖



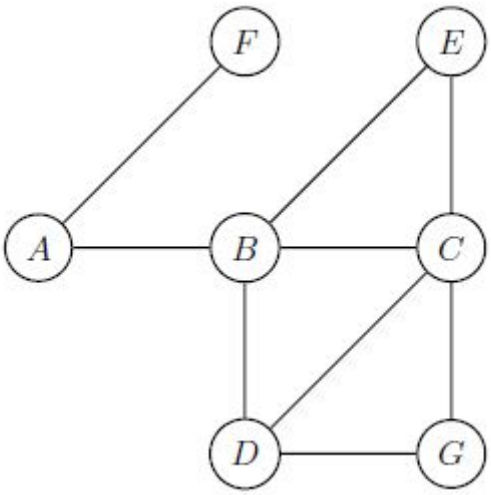


6406531882660. ✔



6406531882661. ✖

6406531882662. ✖



Sub-Section Number : 5

Sub-Section Id : 64065380208

Question Shuffling Allowed : Yes

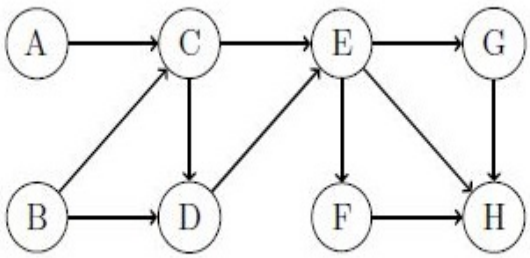
Is Section Default? : null

Question Number : 6 Question Id : 640653563091 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Selectable Option : 0

Question Label : Multiple Select Question

Consider the following directed graph:



Which of the following orderings **can not** be a valid topological sort of the graph?

Options :

6406531882664. ✖ ABCDEFGH

6406531882665. ✔ ABCDEFHG

6406531882666. ✖ BACDEFGH

6406531882667. ✔ BACEDFGH

Sub-Section Number : 6

Sub-Section Id : 64065380209

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 7 Question Id : 640653563092 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2 Selectable Option : 0

Question Label : Multiple Select Question

Consider the sequence $(1, 2, 3, 4, 5, 6, \dots)$, that is, $a_n = n$ for all $n \in \mathbb{N}$. Which of the following sequences are subsequences of $\{a_n\}$?

Options :

6406531882668. ✖ $(5, 7, 5, 7, \dots)$, that is, $b_n = 5$ if n is odd and $b_n = 7$ if n is even.

6406531882669. ✔ $(2, 5, 8, 11, \dots)$, that is, $b_n = 3n - 1$ for all $n \in \mathbb{N}$.

6406531882670. ✔ $(2, 9, 28, 65, \dots)$, that is, $b_n = n^3 + 1$ for all $n \in \mathbb{N}$.

6406531882671. ✖ $(1, 1, 2, 2, 3, 3, \dots)$, that is, $b_n = \frac{n+1}{2}$ if n is odd and $b_n = \frac{n}{2}$ if n is even.

Sub-Section Number : 7

Sub-Section Id : 64065380210

Question Shuffling Allowed : No

Is Section Default? : null

Question Id : 640653563093 Question Type : COMPREHENSION Sub Question Shuffling

Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (8 to 9)

Question Label : Comprehension

Answer the given subquestions

Sub questions

Question Number : 8 Question Id : 640653563094 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

Evaluate $\lim_{x \to 0} \frac{2 - 2\cos x}{x^2}$.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 9 Question Id : 640653563095 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Short Answer Question

Evaluate $\int_0^1 6x\sqrt{1 - x^2}\, dx$.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

2

Question Id : 640653563109 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (10 to 11)

Question Label : Comprehension

Answer the given subquestions

Sub questions

Question Number : 10 Question Id : 640653563110 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Short Answer Question

Find the value of x that satisfies the equation

$\log(x+5) + \log(x-5) = 4\log 2 + 2\log 3.$

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

13

Question Number : 11 Question Id : 640653563111 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Short Answer Question

Find the number of solutions of the equation $e^{2x} - 2e^x = 15$.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Sub-Section Number :	8
Sub-Section Id :	64065380211
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 12 Question Id : 640653563096 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3 Selectable Option : 0

Question Label : Multiple Select Question

The function $f(x) = x + 1 + \frac{1}{x}$ has a

Options :

6406531882674. ✖ local minimum at $x = -1$.

6406531882675. ✔ local maximum at $x = -1$.

6406531882676. ✔ local minimum at $x = 1$.

6406531882677. ✖ local maximum at $x = 1$.

Sub-Section Number :	9
Sub-Section Id :	64065380212
Question Shuffling Allowed :	No

Is Section Default? : null

Question Id : 640653563097 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (13 to 14)

Question Label : Comprehension

Suppose f is a real valued function defined on $\mathbb{R}$. Let $f(x+y) = f(x)f(y)$ for all $x, y \in \mathbb{R}$ and $f(1) = 7$ and $f'(0) = 2$.

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 13 Question Id : 640653563098 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Short Answer Question

What is the value of *f*(0)?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 14 Question Id : 640653563099 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Short Answer Question

What is the value of *f* '(1)?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

14

Question Id : 640653563105 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (15 to 17)

Question Label : Comprehension

Answer the given subquestions

Sub questions

Question Number : 15 Question Id : 640653563106 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

The total number of non-empty subsets of the set $\{1, 2, 3\}$ is

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

7

Question Number : 16 Question Id : 640653563107 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Short Answer Question

Consider a function $f : \mathbb{R} \to \mathbb{R}$ defined as

$$f(x) = \lfloor \sin x \rfloor,$$

where $\lfloor x \rfloor$ denotes the greatest integer less than or equal to x. Find the number of elements in the range of f.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

3

Question Number : 17 Question Id : 640653563108 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Multiple Choice Question

The function $f : \mathbb{Q} \to \mathbb{Q}$ given by $f(x) = x^2$ is

Options :

6406531882689. ✖ one-one.

6406531882690. ✖ onto.

6406531882691. ✔ neither one-one nor onto.

6406531882692. ✖ both one-one and onto.

Sub-Section Number :

Sub-Section Id : 64065380213

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 18 Question Id : 640653563100 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3

Question Label : Multiple Choice Question

The equation of a line passing through the intersection of lines $x + 2y + 3 = 0$ and $3x + 4y + 7 = 0$, and parallel to the line $y - x = 8$ is

Options :

6406531882680. ✖ $x - y = 8$

6406531882681. ✖ $y - x = 4$

6406531882682. ✖ $x + y = -2$

6406531882683. ✔ $y - x = 0$

Sub-Section Number : 11

Sub-Section Id : 64065380214

Question Shuffling Allowed : No

Is Section Default? : null

Question Id : 640653563101 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (19 to 20)

Question Label : Comprehension

Consider a polynomial

$$p(x) = x^3 - 5x^2 + 6x + a,$$

where $a \in \mathbb{R}$. If $p(x)$ is divided by $x - 4$ then the remainder is 6.

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 19 Question Id : 640653563102 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Short Answer Question

Find the value of *a*.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

-2

Question Number : 20 Question Id : 640653563103 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

Find the sum of roots of *p(x)*.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

5

Sub-Section Number : 12

Sub-Section Id : 64065380215

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 21 Question Id : 640653563104 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5

Question Label : Short Answer Question

Consider a quadratic equation $f(x) := ax^2 + bx + c$. The maximum value of f is -3, its axis of symmetry is $x = 2$ and the value of the quadratic function at $x = 0$ is -9. What is the value of a?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

-1.5

Sem2 Statistics2

Section Id : 64065338303

Section Number : 2

Section type : Online

Mandatory or Optional : Mandatory

Number of Questions : 12

Number of Questions to be attempted : 12

Section Marks : 40