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

Group I

Group Number :	1
Group Id :	64065313518
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 :	64065338382
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 :	64065380764
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 1 Question Id : 640653565351 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 :

6406531889810. ✔ YES

6406531889811. ✖ NO

Sub-Section Number :	2
Sub-Section Id :	64065380765
Question Shuffling Allowed :	Yes
Is Section Default? :	null

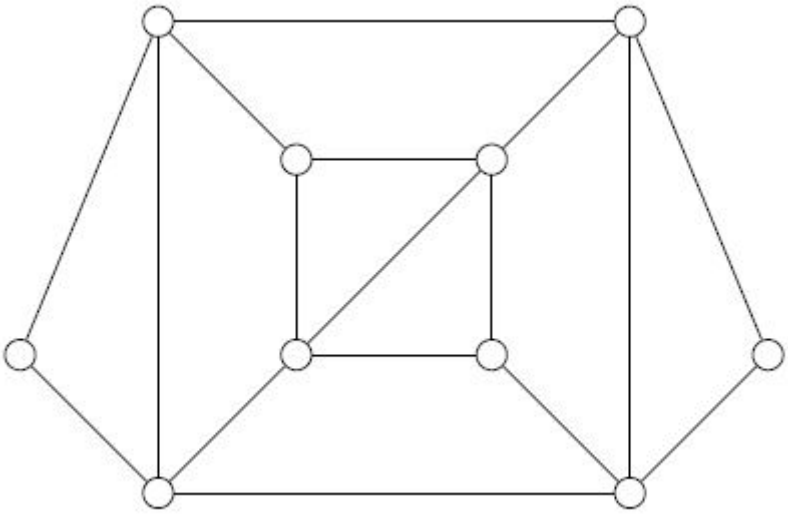
Question Number : 2 Question Id : 640653565352 Question Type : SA Calculator : None

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

Correct Marks : 3

Question Label : Short Answer Question

What is the minimum number of colours required to colour 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

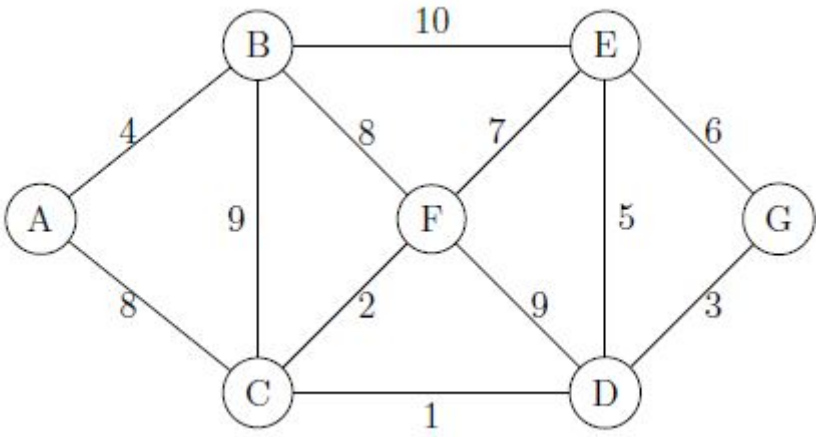
Question Number : 3 Question Id : 640653565355 Question Type : SA Calculator : None

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 :

23

Sub-Section Number :	3
Sub-Section Id :	64065380766
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 4 Question Id : 640653565353 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

How many edges are there in a graph with 10 vertices each of degree 6?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

30

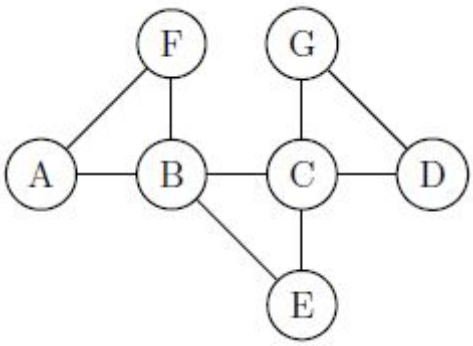
Sub-Section Number :	4
Sub-Section Id :	64065380767
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 5 Question Id : 640653565354 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4

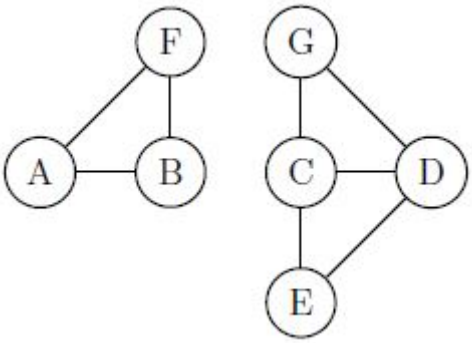
Question Label : Multiple Choice Question

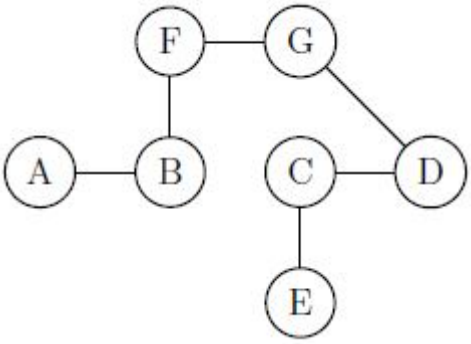
Suppose we perform BFS so that when we visit a vertex, we explore its unvisited neighbors in a random order. Which of the following graphs could represent the edges explored by BFS starting at vertex '*E*'?



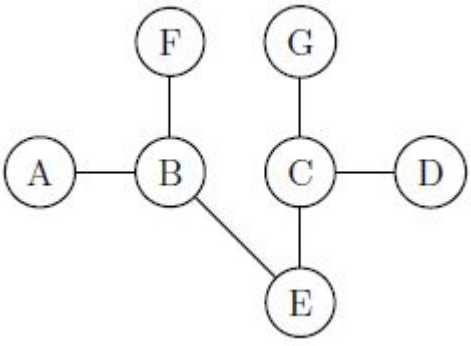
Options :

6406531889814. ✖

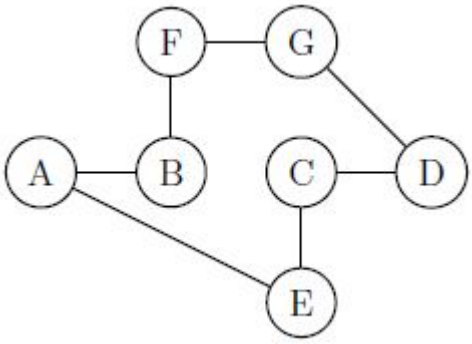




6406531889815. ✖



6406531889816. ✔



6406531889817. ✖

Sub-Section Number :	5
Sub-Section Id :	64065380768
Question Shuffling Allowed :	Yes

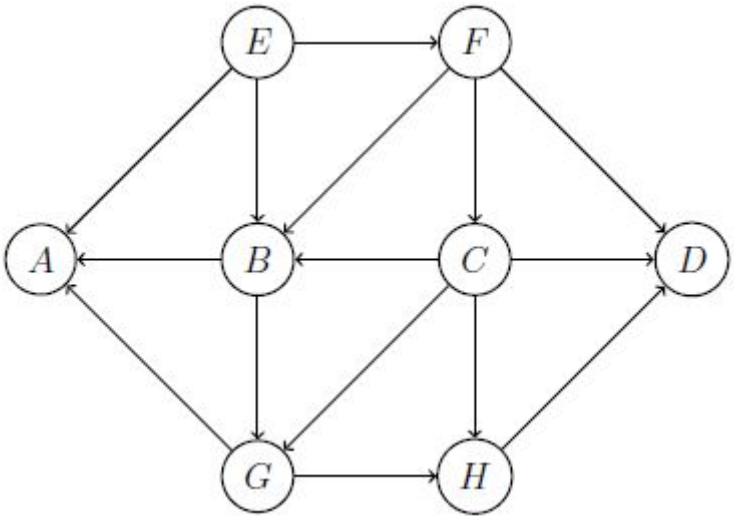
Is Section Default? : null

Question Number : 6 Question Id : 640653565356 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

Which of the following are valid topological orderings of the given DAG ?



Options :

6406531889819. ✖ *E, F, C, B, A, G, H, D*

6406531889820. ✖ *E, F, B, C, G, A, H, D*

6406531889821. ✔ *E, F, C, B, G, A, H, D*

6406531889822. ✔ *E, F, C, B, G, H, D, A*

Sub-Section Number : 6

Sub-Section Id : 64065380769

Question Shuffling Allowed : No

Is Section Default? : null

Question Id : 640653565357 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 : (7 to 8)

Question Label : Comprehension

Determine whether the given statements are true or false.

Sub questions

Question Number : 7 Question Id : 640653565358 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Multiple Choice Question

There exists a sequence $\{x_n\}$ which is not increasing but $\{x_n\}$ has an increasing subsequence.

Options :

6406531889823. ✔ True.

6406531889824. ✖ False.

Question Number : 8 Question Id : 640653565359 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Multiple Choice Question

The sequence $(1, 2, 3, 4, 5, 6, ...)$, that is, $a_n = n$ has a convergent subsequence.

Options :

6406531889825. ✖ True.

6406531889826. ✔ False.

Sub-Section Number :

Sub-Section Id : 64065380770

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 9 Question Id : 640653565363 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 $f(x) = x^3 - 12x$ has a

Options :

6406531889829. ✔ local maximum at $x = -2$.

6406531889830. ✖ local minimum at $x = -2$.

6406531889831. ✖ local maximum at $x = 2$.

6406531889832. ✔ local minimum at $x = 2$.

Sub-Section Number : 8

Sub-Section Id : 64065380771

Question Shuffling Allowed : No

Is Section Default? : null

Question Id : 640653565364 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 : 640653565365 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

Consider a function defined as,

$$f(x) = \begin{cases} x^3 + 5x + 1 & x \leq 0 \\ m\sin(x) + n\cos(x) & x > 0. \end{cases}$$

If f is differentible at $x = 0$,
then the value of $m + n$ is

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

6

Question Number : 11 Question Id : 640653565366 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

Let *f* be a differentiable function at *x* = 2. The tangent line to the curve represented by the function *f* at the point (2, 6) passes through the point (6,−18). What will be the value of *f* '(2)?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

-6

Question Id : 640653565376 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 : (12 to 13)

Question Label : Comprehension

Answer the given subquestions

Sub questions

Question Number : 12 Question Id : 640653565377 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 $\log_4 x + \log_4(x-3) = 1$.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 13 Question Id : 640653565378 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

If $(a, b) \subset \mathbb{R}$ denotes the largest interval which can be a domain for the function $f(x) = \log_2\left(1 - \log_2(x^2 - 5x + 8)\right)$, then find the value of $a + b$.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

5

Sub-Section Number :	9
Sub-Section Id :	64065380772
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 14 Question Id : 640653565367 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 $x - y + 2 = 0$ and $3x + y - 10 = 0$, and perpendicular to the line $3x + 4y - 7 = 0$ is

Options :

6406531889835. ✖ $4x - 3y + 7 = 0$

6406531889836. ✖ $3x - y - 2 = 0$

6406531889837. ✔ $4x - 3y + 4 = 0$

6406531889838. ✖ $3x - y + 2 = 0$

Sub-Section Number :	10

Sub-Section Id :	64065380773
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653565360 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 16)

Question Label : Comprehension

Answer the given subquestions

Sub questions

Question Number : 15 Question Id : 640653565361 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 $\lim_{x \to \frac{\pi}{2}^-} \tan(x) - \sec(x).$

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

0

Question Number : 16 Question Id : 640653565362 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 $\pi - \int_0^{\frac{\pi^2}{4}} \cos(\sqrt{x})\, dx.$

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

2

Question Id : 640653565368 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 : (17 to 18)

Question Label : Comprehension

Answer the given subquestions

Sub questions

Question Number : 17 Question Id : 640653565369 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

If $x + a$ is one of the factors of
$p(x) = 2x^2 + 2ax + 5x + 10,$
then 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 : 18 Question Id : 640653565370 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 polynomial $p(x) = 4x^3 + 9x^2 + 3x + 2$.
If $p(x) = (x + 2)(ax^2 + bx + c)$, then find the value of $a + b + c$.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

6

Question Id : 640653565372 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 21)

Question Label : Comprehension

Answer the given subquestions

Sub questions

Question Number : 19 Question Id : 640653565373 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

If $A = \{3, 5, 7, 9, 10\}$, $B = \{7, 9, 10, 13\}$, and $C = \{10, 13, 15\}$ then find the cardinality of $(A \cap B) \cap (B \cup C)$.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

3

Question Number : 20 Question Id : 640653565374 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

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

$$f(x) = \begin{cases} x & \text{if } x \in \mathbb{Q} \\ 0 & \text{if } x \in \mathbb{R} \setminus \mathbb{Q}. \end{cases}$$

Then the range of the function f is

Options :

6406531889843. ✖ $\{0\}$

6406531889844. ✖ $(\mathbb{R} \setminus \mathbb{Q}) \cup \{0\}$

6406531889845. ✖ $\mathbb{R} \setminus \mathbb{Q}$

6406531889846. ✔ $\mathbb{Q}$

Question Number : 21 Question Id : 640653565375 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Multiple Choice Question

The function $f : \mathbb{R} \to \mathbb{R}$ given by $f(x) = \sin x$ is

Options :

6406531889847. ✖ one-one.

6406531889848. ✖ onto.

6406531889849. ✖ onto but not one-one.

6406531889850. ✔ none of these

Sub-Section Number :	11
Sub-Section Id :	64065380774
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 22 Question Id : 640653565371 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4

Question Label : Short Answer Question

Consider a quadratic function $f(x) := ax^2 + bx + c$ which is symmetric about the line $x = -3$. The maximum value of f is 12 and it passes through the point $(0, 0)$. What is the value of $3a + b + c$?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

Sem2 Statistics2

Section Id :	64065338383
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	12
Number of Questions to be attempted :	12
Section Marks :	40
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 :	64065380775
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 23 Question Id : 640653565379 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 2: STATISTICS FOR DATA SCIENCE 2 (COMPUTER BASED EXAM)"

ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?