Indian Institute of Technology, Madras - Centre for Continuing Education

Notations :

1.Options shown in green color and with ✔ icon are correct.

2.Options shown in red color and with ✖ icon are incorrect.

Question Paper Name :	IIT M DAD DP QUALIFIER EXAM QPA 07 Aug 2022
Subject Name :	2022 Aug: IIT M DAD DP QUALIFIER EXAM QPA
Creation Date :	2022-08-03 15:34:34
Duration :	180
Total Marks :	100
Display Marks:	Yes
Share Answer Key With Delivery Engine :	Yes
Actual Answer Key :	Yes
Calculator :	Scientific
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console?	Yes
Change Font Color :	No

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

Group I

Group Number :	1
Group Id :	6406538838
Group Maximum Duration :	0
Group Minimum Duration :	90
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	100
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

English

Section Id :	64065322402

Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	14
Number of Questions to be attempted :	14
Section Marks :	25
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 :	64065352256
Question Shuffling Allowed :	No

Question Number : 1 Question Id : 640653359062 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 "QUALIFIER: ENGLISH "

MANDATORILY YOU HAVE TO ATTEND ALL THE SECTIONS.

Options :

6406531189786. ✔ Yes

6406531189787. ✖ No

Sub-Section Number :	2
Sub-Section Id :	64065352257
Question Shuffling Allowed :	No

Question Id : 640653359063 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A

Question Numbers : (2 to 3)

Question Label : Comprehension

Read the following passage and answer the given subquestions:

On weekends, there is hardly any elbow room on Shanghumugham Beach in Kerala's capital, Thiruvananthapuram. The smell of roasted corn hangs in the air, vendors mill around the walkway that leads to the beach, families lounge around a 35m-long sculpture of a reclining naked woman — 'Jalakanyaka' by Kanaayi Kunhiraman — that seems to strain against Kerala's conservative ethos yet has come to be one of the most recognised landmarks in the city. It is a familiar beach scene.

The only problem is — there isn't much beach left.

"Every year, I feel the sea is drawing closer," says Indu, a 44-year-old Thiruvananthapuram resident who has been coming to Shanghumugham since her childhood. "The beach is so much smaller than it used to be. We would come here to get away from the congestion in the city, and now look how congested the beach has become."

She points to a row of fishing boats lined up along a part of the shore usually reserved for people. The boats were moved after vast tracts of the Shangumugham shoreline were eroded following Cyclone Ockhi, which hit the Kerala coast in December 2017. A nearby road, which runs parallel to the beach, bears testimony to Ockhi's fury — rope and traffic cones cordon off the traffic from long sections of the road that were washed away by the waves.

Even now, the waves are visibly rough — but they do not deter visitors. Beach-goers play a game of racing back to the shore before the water reaches their ankles, laughing aloud when the wave beats them to it. Others try to venture into the water, holding hands with their friends but lose balance when the wave pulls back into the sea. The whistles of coastguards pierce the air, instructing the crowds to move away from the water. Families with toddlers are turned away from the water.

—Rihan Najib, *The Hindu Business Line*

Sub questions

Question Number : 2 Question Id : 640653359064 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

Which of the following options best summarise the given article excerpt?

Options :

6406531189788. ✳ The article is about a beach in Kerala.

6406531189789. ✔ The article is about a beach in Thiruvananthapuram, which is diminishing.

6406531189790. ✳ The article is about the history of the people who lived along the coastline of Kerala's beaches.

6406531189791. ✳ The article is about a Cyclone that hit Thiruvananthapuram in 2017.

Question Number : 3 Question Id : 640653359065 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

Which of the following sentences uses the phrase "*cordon off*" incorrectly?

Options :

6406531189792. ✳ The crime scene was cordoned off.

6406531189793. ✳ The police cordon off the street to prevent the mob from entering.

6406531189794. ✔ I cordoned off Valerie for being too rude.

6406531189795. ✳ Due to the ongoing construction, the children's playground has been cordoned off.

Sub-Section Number :	3
Sub-Section Id :	64065352258
Question Shuffling Allowed :	No

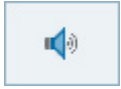**Question Id : 640653359066 Question Type : COMPREHENSION Sub Question Shuffling**

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

Question Numbers : (4 to 6)

Question Label : Comprehension

Listen to the audio sample and answer the given subquestions:

🔊 885_640653_0_1984128_dir100endaaudio.mp3

Sub questions

Question Number : 4 Question Id : 640653359067 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

Fill in the blanks: The stoics believed that everything operates around us operates according to a web of _____ and _____.

Options :

6406531189796. ✖ Clause and affect

6406531189797. ✔ Cause and effect

6406531189798. ✖ Cause and affect

Question Number : 5 Question Id : 640653359068 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 ability to navigate complex situations in a logical, informed, and calm manner is called as _____.

Options :

6406531189799. ✔ Practical wisdom

6406531189800. ✖ Temperance

6406531189801. ✳ Justice

Question Number : 6 Question Id : 640653359069 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

What is the meaning of the word *'intrigued'*?

Options :

6406531189802. ✳ Irritated

6406531189803. ✔ Interested

6406531189804. ✳ Involved

Sub-Section Number :	4
Sub-Section Id :	64065352259
Question Shuffling Allowed :	Yes

Question Number : 7 Question Id : 640653359070 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

Which of these is correct?

Options :

6406531189805. ✳ Neither Reema nor John are going to the party today.

6406531189806. ✳ Neither Reema's friends nor John are going to the party today.

6406531189807. ✳ Either Reema or John are going to the party today.

6406531189808. ✔ Either Reema or John is going to the party today.

Question Number : 8 Question Id : 640653359071 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

Two pairs of scissors _____ missing since morning.

Options :

6406531189809. � Has been

6406531189810. ✓ Have been

Question Number : 9 Question Id : 640653359072 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

Solo traveling is ____ unique experience.

Options :

6406531189811. ✓ A

6406531189812. ✗ The

6406531189813. ✗ An

Question Number : 10 Question Id : 640653359073 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

My balcony _____ half a dozen plants.

Options :

6406531189814. ✓ Accommodates

6406531189815. ✗ Accommodate.

Question Number : 11 Question Id : 640653359074 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

Fill in the blank.

Come, Came, ___.

Options :

6406531189816. ✔ Come

6406531189817. ✻ Came

6406531189818. ✻ Comed

6406531189819. ✻ Camed

Question Number : 12 Question Id : 640653359075 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

Identify the adjective(s) in the following sentence.

Ameya was brilliant in today's class test.

Options :

6406531189820. ✻ Was, today

6406531189821. ✻ Brilliant, test

6406531189822. ✔ Brilliant, class

6406531189823. ✻ Today, class

Question Number : 13 Question Id : 640653359076 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

They talked to Ram, _____?

Options :

6406531189824. ✳ Didn't he

6406531189825. ✳ Did they

6406531189826. ✔ Didn't they

6406531189827. ✳ Do they

Question Number : 14 Question Id : 640653359077 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

Fill in the box (☐) in the following sentence with the appropriate punctuation mark.
"Frankly ☐ too much time on Instagram is not good for you."

Options :

6406531189828. ✳ Full stop

6406531189829. ✔ Comma

6406531189830. ✳ Exclamation mark

6406531189831. ✳ Question mark

Question Number : 15 Question Id : 640653359078 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

State whether the following sentence is grammatically correct.

He is working on the project for two years.

Options :

6406531189832. ✳ Yes

6406531189833. ✔ No

Question Number : 16 Question Id : 640653359079 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

State whether the following sentence is grammatically correct.

Does she have anything more to say?

Options :

6406531189834. ✔ Yes

6406531189835. ✖ No

Sub-Section Number :	5
Sub-Section Id :	64065352260
Question Shuffling Allowed :	Yes

Question Number : 17 Question Id : 640653359080 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

You have to renew your admission at college after a brief period of break. Write an email to your principal explaining your reason for the break and your wish to rejoin the college in 200 words.

Response Type : Alphanumeric

Evaluation Required For SA : No

Max Word Count : 200

Show Word Count : Yes

Min Word Count : 0

Highlight min word : Yes

Single Line Response : No

Number of Rows : 10

Number Of Columns : 70

Aptitude

Section Id :	64065322403
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	17
Number of Questions to be attempted :	17
Section Marks :	25
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 :	64065352261
Question Shuffling Allowed :	No

Question Number : 18 Question Id : 640653359081 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 "QUALIFIER: APTITUDE "

MANDATORILY YOU HAVE TO ATTEND ALL THE SECTIONS.

Options :

6406531189837. ✔ Yes

6406531189838. ✖ No

Question Number : 19 Question Id : 640653359082 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

Anil started walking 400 meters straight from his office. He then turned right and walked 300 meters. He turned right and walked another 100 meters to reach his house. If his house is South-East from his office, then in which direction did Anil start walking from the office?

Options :

6406531189839. ✱ South

6406531189840. ✱ North

6406531189841. ✱ West

6406531189842. ✔ East

Question Number : 20 Question Id : 640653359083 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

Ram is 16th from the left end in a row of boys and Shyam is 12th from the right end. If Shyam is immediate left of Ram, then how many boys are there in the row?

Options :

6406531189843. ✱ 25

6406531189844. ✔ 26

6406531189845. ✱ 27

6406531189846. ✱ 28

Question Number : 21 Question Id : 640653359084 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

Which of the following years is not a leap year?

Options :

6406531189847. ✹ 2004

6406531189848. ✹ 1944

6406531189849. ✹ 2000

6406531189850. ✔ 1900

Question Number : 22 Question Id : 640653359085 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 Chairman of the selection committee arrived at 14:00 h for conducting an interview. He came 20 minutes before the other members of the board, who were 30 minutes late for the interview. At what time was the interview scheduled?

Options :

6406531189851. ✹ 13:40 h
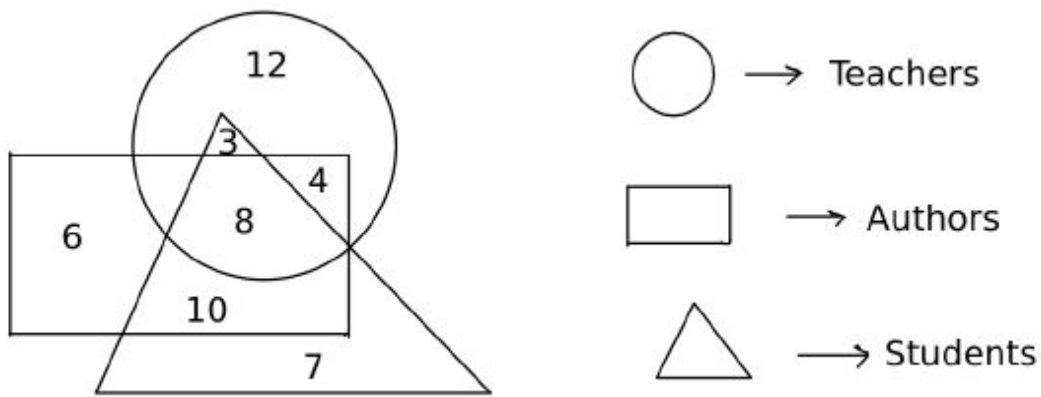
6406531189852. ✹ 14:10 h

6406531189853. ✔ 13:50 h

6406531189854. ✹ 14:20 h

Question Number : 23 Question Id : 640653359086 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

Study the following figure and answer the question given below.

How many Teachers are students but not Authors?

Options :

6406531189855. ✔ 3

6406531189856. ✳ 4

6406531189857. ✳ 12

6406531189858. ✳ 8

Question Number : 24 Question Id : 640653359087 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

In a certain code language, if ONLINE can be written as LMORMV, then how can PROGRAM be written?

Options :

6406531189859. ✳ JILSIZN

6406531189860. ✔ KILTIZN

6406531189861. ✳ KHLSHFO

6406531189862. ✳ JHLTHZN

Question Number : 25 Question Id : 640653359088 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

Suppose there are 4 members in a family. *A* is daughter of *B*. *C* is sister of *D* who is the son of *B*. How is *C*. related to *A*?

Options :

6406531189863. ✳ Daughter

6406531189864. ✳ Cousin

6406531189865. ✔ Sister

6406531189866. ✳ Niece

Question Number : 26 Question Id : 640653359089 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

If in a particular leap year 6th January is Sunday, then what day will be on 26th April of the same year?

Options :

6406531189867. ✔ Saturday

6406531189868. ✳ Sunday

6406531189869. ✳ Friday

6406531189870. ✳ Monday

Question Number : 27 Question Id : 640653359090 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

Two statements are given followed by two conclusions I and II. You have to consider the statements to be true even if they seem to contradict commonly known facts. You have to decide

which of the given conclusions follows from the given statements.

Statements:

• All cats are dogs.

• All cats are white.

Conclusions:

I. All dogs are white.

II. Some dogs are not white.

Options :

6406531189871. ✖ Only conclusion I.

6406531189872. ✖ Only conclusions II.

6406531189873. ✖ Both conclusions I and II.

6406531189874. ✔ Neither conclusion I nor conclusion II.

Question Number : 28 Question Id : 640653359091 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

Suppose one page is torn from a booklet whose pages are numbered in the usual manner starting from the first page as 1. If the sum of the numbers on the remaining pages is 44, then the torn page contains which of the following numbers?

Options :

6406531189875. ✔ 5,6

6406531189876. ✖ 6,7

6406531189877. ✖ 3,4

6406531189878. ✖ 11,12

Sub-Section Number :	3
Sub-Section Id :	64065352263
Question Shuffling Allowed :	Yes

Question Number : 29 Question Id : 640653359092 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

In a certain code language, 'lo ka pi bi' means 'direct entry to diploma', 'bi lu ko ka' means 'exam for direct entry', 'lu ka se pi' means 'diploma level entry exam'. Which word in that language means 'exam'?

Options :

6406531189879. ✷ pi

6406531189880. ✷ ka

6406531189881. ✔ lu

6406531189882. ✷ ko

Question Number : 30 Question Id : 640653359093 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

A bottle contains 16 litres of liquid *S*. 4 litres of liquid *S* is taken out of it and replaced same quantity of liquid *L*. Again 4 litres of the mixture is taken out and replaced by same quantity of liquid *L*. What is the ratio of quantity of liquid *L* to that of liquid *S* in the final mixture?

Options :

6406531189883. ✔ 7 : 9

6406531189884. ✷ 9 : 7

6406531189885. ✷ 1 : 1

6406531189886. ✷ 4 : 5

Question Number : 31 Question Id : 640653359094 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

A frog tries to come out of a dried well which is 5 meters deep with slippery walls. Every time the frog jumps 20 cm, it slides down 6 cm. What is the number of jumps required for the frog to come out of the well?

Options :

6406531189887. ✻ 35

6406531189888. ✔ 36

6406531189889. ✻ 37

6406531189890. ✻ 38

Question Number : 32 Question Id : 640653359095 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

Two statements S_1 and S_2 are given below with regard to two numbers followed by a question.

Statements:

S_1: Their product is 21.

S_2: Their sum is 10.

Question:

What are the two numbers?

Which of the following is true with respect to the above statements and the question?

Options :

6406531189891. ✻ S_1 alone is sufficient to answer the question.

6406531189892. ✻ S_2 alone is sufficient to answer the question.

6406531189893. ✔ S_1 and S_2 together are sufficient to answer the question.

6406531189894. ✻ S_1 and S_2 together are not sufficient to answer the question.

Question Number : 33 Question Id : 640653359096 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

In adult population of a city, 50% men and 40% women are married. If no man marries more than one woman and no woman marries more than one man and no two from the same gender marry each other, and there are no widows and widowers, then what is the percentage of married adult population?

Options :

6406531189895. ✖ $43\frac{8}{9}\%$

6406531189896. ✔ $44\frac{4}{9}\%$

6406531189897. ✖ 45%

6406531189898. ✖ 50%

Sub-Section Number :	4
Sub-Section Id :	64065352264
Question Shuffling Allowed :	No

Question Id : 640653359097 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (34 to 38)

Question Label : Comprehension

Study the information carefully and answer the given subquestions:

Zaitoon, a multi cuisine restaurant stays open every Monday to Saturday but is closed on all

Sundays. In every week, lunch is served only on Monday, Tuesday and Friday. On Wednesdays, Thursdays and Saturdays, just dinner is served. The restaurant's floors are polished and plants are watered only on these six days, according to the following schedule:

• Plants are watered two days each week, but never on consecutive days and never on the same day that floors are polished.

• Floors are polished on Monday and two other days each week, but never on consecutive days and never on the same day that plants are watered.

Sub questions

Question Number : 34 Question Id : 640653359098 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

According to a schedule, the restaurant's floors are polished on either _____

Options :

6406531189899. �ս Wednesday or Friday

6406531189900. ✔ Wednesday or Thursday

6406531189901. ✶ Thursday or Friday

6406531189902. ✶ Wednesday or Saturday

Question Number : 35 Question Id : 640653359099 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

If dinner is served on the same day as plants are watered, then on which day neither plants are watered nor floors are cleaned?

Options :

6406531189903. ✔ Tuesday

6406531189904. ✶ Wednesday

6406531189905. ✱ Thursday

6406531189906. ✱ Friday

Question Number : 36 Question Id : 640653359100 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

If dinner is served on the same day as plants are watered, then on which days floors are cleaned?

Options :

6406531189907. ✱ Wednesday and Saturday

6406531189908. ✱ Tuesday and Thursday

6406531189909. ✔ Wednesday and Friday

6406531189910. ✱ Monday and Saturday

Question Number : 37 Question Id : 640653359101 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

If the plants are watered on Wednesday, then on which day floors must be cleaned?

Options :

6406531189911. ✔ Saturday

6406531189912. ✱ Friday

6406531189913. ✱ Tuesday

6406531189914. ✱ None of these

Question Number : 38 Question Id : 640653359102 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

If the floors are cleaned on Thursday, then plants must be watered on _____

Options :

6406531189915. � Wednesday

6406531189916. � Tuesday

6406531189917. � Saturday

6406531189918. ✔ Friday

Basic Mathematics

Section Id :	64065322404
Section Number :	3
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 :	64065352265
Question Shuffling Allowed :	No

Question Number : 39 Question Id : 640653359103 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

Options :

6406531189919. ✔ Yes

6406531189920. ✖ No

Question Number : 40 Question Id : 640653359104 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

Instructions:

- There are some questions which have functions with discrete valued domains (such as day, month, year etc). For simplicity, we treat them as continuous functions.

- For NAT type question, enter only one right answer even if you get multiple answers for that particular question.

- Notations:

  - $\mathbb{R}=$ Set of real numbers

  - $\mathbb{Q}=$ Set of rational numbers

  - $\mathbb{Z}=$ Set of integers

  - $\mathbb{N}=$ Set of natural numbers

Options :

6406531189921. ✔ Useful Data has been mentioned above.

6406531189922. ✖ This data attachment is just for a reference & not for an evaluation.

Sub-Section Number :	2
Sub-Section Id :	64065352266
Question Shuffling Allowed :	Yes

Question Number : 41 Question Id : 640653359113 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

Correct Marks : 2

Question Label : Multiple Select Question

Consider the function $f(x) = 5|x| - 20$

Options :

6406531189939. ✔ Slope of the function $f(x)$ at every point is -5 for $x < 0$.

6406531189940. ✔ The minimum value of $f(x)$ is -20.

6406531189941. ✔ The $y-$intercept of $f(x)$ is -20.

6406531189942. ✖ The minimum value of $f(x)$ is 0.

Sub-Section Number :	3
Sub-Section Id :	64065352267
Question Shuffling Allowed :	Yes

Question Number : 42 Question Id : 640653359114 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

You have been closely monitoring your bike's mileage recently. Here is a table showing two rows representing the amount paid for fuel(in ₹) and the corresponding mileage (in Km). Consider y to be the amount paid and x to be the corresponding mileage in Km. You have noted down the distance travelled each time when the fuel meter falls back to a fixed reference mark and predicted that the equation of the best fit line as $y = 5x - 22$. What will be the value of SSE w.r.t the best fit line?

Recall: SSE is $\sum (y_{predicted\ value} - y_{actual\ value})^2$

Amount paid (in ₹)	80	50	60	100	50
Distance (in Km)	20	15	16	25	14

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText
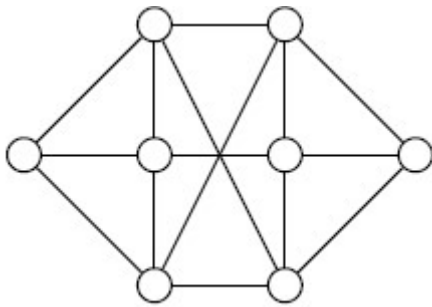
Possible Answers :

30

Question Number : 43 Question Id : 640653359115 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

A ballistic missile is launched from a fighter jet flying at a height of 40 m from the ground. The missile hits the tank which is present on the ground, shown in figure. The function $h(t) = -2x^2 + 16x + 20$ represents the height (in meters) of the missile after t seconds.

Assume the dimension of the tank and the fighter jet is negligible.
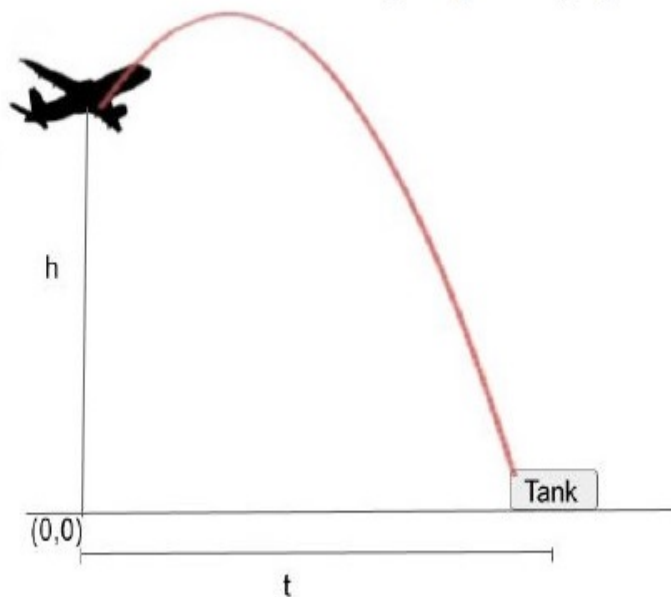
Figure: M1G3T5-2

Find out the maximum height(in meters) attained by the missile.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText
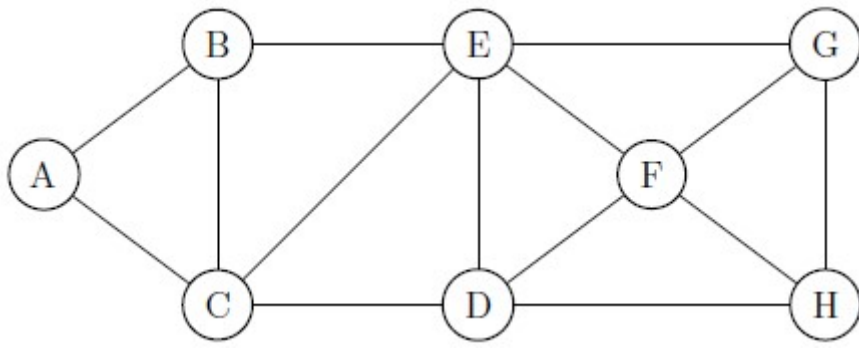
Possible Answers :

52

Question Number : 44 Question Id : 640653359116 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

The cardinality of the maximum independent set of the graph given below is

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

3

Question Number : 45 Question Id : 640653359117 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

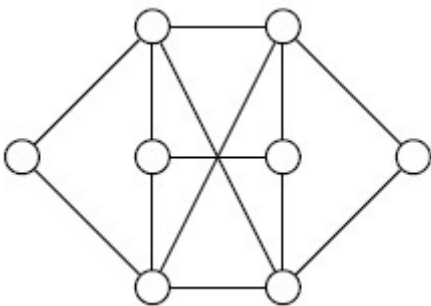**Answers Type :** Equal

Text Areas : PlainText

Possible Answers :

3

Question Number : 46 Question Id : 640653359118 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

The cardinality of the minimum vertex cover of the graph given below is

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

4

Sub-Section Number :	4
Sub-Section Id :	64065352268
Question Shuffling Allowed :	Yes

Question Number : 47 Question Id : 640653359106 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

On an average, a video lecture in our online degree course has 200 views on the same day that it is posted. It is verified that the total number of views increases exponentially according to the function $y = 200 \times 5^{0.1t}$, where t represents the number of days since the video was posted ($t = 0$ on the day of posting the video). How many days does it take for 1000 people to view the video?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Sub-Section Number :	5
Sub-Section Id :	64065352269
Question Shuffling Allowed :	Yes

Question Number : 48 Question Id : 640653359108 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4

Question Label : Multiple Select Question

Consider a relation R defined on the set $A = \{4, 6, 8, 10, 12\}$ as R= $\{(x,y) : y = x + 2\}$. Which among the following is(are) correct?

Options :

6406531189932. ✔ R is neither reflexive, nor symmetric and nor transitive.

6406531189933. ✔ R is an anti-symmetric relation.

6406531189934. ✖ R is an identity relation.

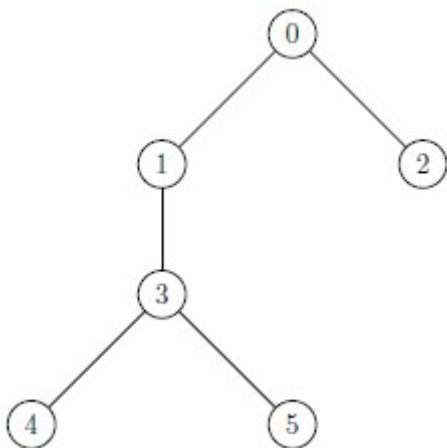6406531189935. ✖ R is an equivalence relation.

Question Number : 49 Question Id : 640653359119 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4

Question Label : Multiple Select Question

Suppose we obtain the following BFS tree rooted at node 0 for an undirected graph with vertices {0, 1, 2, 3, 4, 5}.

Which of the following cannot be an edge in the original graph?

Options :

6406531189948. ✔ (1, 4)

6406531189949. ✔ (0, 4)

6406531189950. ✖ (2, 3)

6406531189951. ✔ (2, 5)

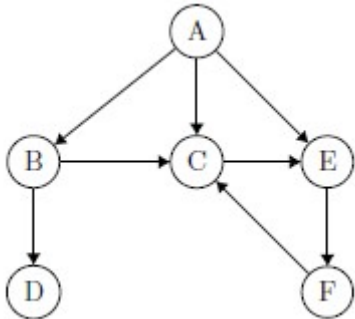**Question Number : 50 Question Id : 640653359120 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

Time : 0

Correct Marks : 4

Question Label : Multiple Select Question

Consider the following directed graph.

Suppose DFS of this graph is performed from node A, such that when we visit a vertex, we explore its unvisited neighbours in alphabetical order.

Which of the following options are correct?

Options :

6406531189952. ✔ *AE* is a forward edge.

6406531189953. ✖ *BC* is a backward edge.

6406531189954. ✖ *BD* is a forward edge.

6406531189955. ✔ *FC* is a backward edge.

Sub-Section Number :	6
Sub-Section Id :	64065352270
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 640653359105 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 5

Question Label : Multiple Select Question

Let $f(x) = e^{a(x^2 - 7x + 6)}$, $a \in \mathbb{R}$ then choose the set of correct options.

Options :

6406531189923. ✔ $f(x)$ will be positive for $x \in (-20, 10)$ if $a > 0$.

6406531189924. ✔ $f(x)$ will be positive for $x \in (10, 20)$ if $a < 0$.

6406531189925. ✘ $f(x)$ is a one-to-one (injective) function.

6406531189926. ✘ If $a = 1$, then $f(x)$ will have two X-intercepts.

Sub-Section Number :	7
Sub-Section Id :	64065352271
Question Shuffling Allowed :	No

Question Id : 640653359109 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (52 to 54)

Question Label : Comprehension

The polynomial $p(x) = a(x-4)(x-6)(x-8)(x-10)$ passes through the vertex of the quadratic function $q(x) = -(x-7)^2 - 18$. Based on this information, answer the given sub-questions.

Sub questions

Question Number : 52 Question Id : 640653359110 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

Enter the $x-$coordinate of the vertex of $q(x)$.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

7

Question Number : 53 Question Id : 640653359111 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

Enter the y−coordinate of the vertex of $q(x)$.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

-18

Question Number : 54 Question Id : 640653359112 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

Enter 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

Sub-Section Number :   8

Question Number : 55 Question Id : 640653359107 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 7

Question Label : Multiple Select Question

Choose the set of correct options.

Options :

6406531189928. ✔ There is no asymptote for the function $\log (x^2 - x + 20)$

6406531189929. ✔ $f(x) = \dfrac{1}{x^4 + 3}$ is a bounded function.

6406531189930. ✘ The inverse of $f(x) = x^2 - 9$ is $g(x) = \pm\sqrt{(x+9)}$

6406531189931. ✔ The domain of the function $f(x) = \dfrac{3}{9-x^2} + \log (x^3 - x)$ is $(-1,0)\cup(1,3)\cup(3,\infty)$.