

# 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 IBA NS
Subject Name :	2022 Aug: IIT M DAD DP QUALIFIER EXAM QPA
Creation Date :	2022-08-03 15:31:25
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 :	6406538822
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 :	64065322260
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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 :	64065351232
Question Shuffling Allowed :	No

Question Number : 1 Question Id : 640653355087 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 :

6406531177593. ✓ Yes

6406531177594. ✗ No

Sub-Section Number :	2
Sub-Section Id :	64065351233
Question Shuffling Allowed :	No

Question Id : 640653355088 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 : (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 Shanghumugham 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 : 640653355089 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 :**

6406531177595. ✖ The article is about a beach in Kerala.

6406531177596. ✔ The article is about a beach in Thiruvananthapuram, which is diminishing.

6406531177597. ✖ The article is about the history of the people who lived along the coastline of Kerala's beaches.

6406531177598. ✖ The article is about a Cyclone that hit Thiruvananthapuram in 2017.

**Question Number : 3 Question Id : 640653355090 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 :**

6406531177599. ✖ The crime scene was cordoned off.

6406531177600. ✖ The police cordon off the street to prevent the mob from entering.

6406531177601. ✔ I cordoned off Valerie for being too rude.

6406531177602. ✖ Due to the ongoing construction, the children's playground has been cordoned off.

**Sub-Section Number :** 3

**Sub-Section Id :** 64065351234

**Question Shuffling Allowed :** No

**Question Id : 640653355091 Question Type : COMPREHENSION Sub Question Shuffling**

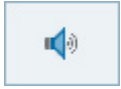
**Allowed : No Group Comprehension Questions : No Calculator : None Response Time : N.A**

**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 : 640653355092 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 :**

6406531177603. ✖ Clause and affect

6406531177604. ✔ Cause and effect

6406531177605. ✖ Cause and affect

**Question Number : 5 Question Id : 640653355093 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 :**

6406531177606. ✔ Practical wisdom

6406531177607. ✖ Temperance

6406531177608. ✖ Justice

**Question Number : 6 Question Id : 640653355094 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 :**

6406531177609. ✖ Irritated

6406531177610. ✔ Interested

6406531177611. ✖ Involved

**Sub-Section Number :**

4

**Sub-Section Id :**

64065351235

**Question Shuffling Allowed :**

Yes

**Question Number : 7 Question Id : 640653355095 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 :**

6406531177612. ✖ Neither Reema nor John are going to the party today.

6406531177613. ✖ Neither Reema's friends nor John are going to the party today.

6406531177614. ✖ Either Reema or John are going to the party today.

6406531177615. ✔ Either Reema or John is going to the party today.

**Question Number : 8 Question Id : 640653355096 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 :**

6406531177616. ✖ Has been

6406531177617. ✔ Have been

**Question Number : 9 Question Id : 640653355097 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 :**

6406531177618. ✔ A

6406531177619. ✖ The

6406531177620. ✖ An

**Question Number : 10 Question Id : 640653355098 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 :**

6406531177621. ✔ Accommodates

6406531177622. ✖ Accommodate.

**Question Number : 11 Question Id : 640653355099 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 :**

6406531177623. ✓ Come

6406531177624. ✗ Came

6406531177625. ✗ Comed

6406531177626. ✗ Camed

**Question Number : 12 Question Id : 640653355100 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 :**

6406531177627. ✗ Was, today

6406531177628. ✗ Brilliant, test

6406531177629. ✓ Brilliant, class

6406531177630. ✗ Today, class

**Question Number : 13 Question Id : 640653355101 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 :**

6406531177631. ✖ Didn't he

6406531177632. ✖ Did they

6406531177633. ✔ Didn't they

6406531177634. ✖ Do they

**Question Number : 14 Question Id : 640653355102 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 :**

6406531177635. ✖ Full stop

6406531177636. ✔ Comma

6406531177637. ✖ Exclamation mark

6406531177638. ✖ Question mark

**Question Number : 15 Question Id : 640653355103 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 :**

6406531177639. ✖ Yes

6406531177640. ✔ No

**Question Number : 16 Question Id : 640653355104 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 :**

6406531177641.  Yes

6406531177642.  No

**Sub-Section Number :** 5

**Sub-Section Id :** 64065351236

**Question Shuffling Allowed :** Yes

**Question Number : 17 Question Id : 640653355105 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

Text Areas : PlainText

## Aptitude

Section Id :	64065322261
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 :	64065351237
Question Shuffling Allowed :	No

Question Number : 18 Question Id : 640653355106 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 :

6406531177644. ✓ Yes

6406531177645. ✗ No

**Sub-Section Number :** 2  
**Sub-Section Id :** 64065351238  
**Question Shuffling Allowed :** Yes

**Question Number : 19 Question Id : 640653355107 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 :**

6406531177646. ✖ South

6406531177647. ✖ North

6406531177648. ✖ West

6406531177649. ✔ East

**Question Number : 20 Question Id : 640653355108 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 16<sup>th</sup> from the left end in a row of boys and Shyam is 12<sup>th</sup> from the right end. If Shyam is immediate left of Ram, then how many boys are there in the row?

**Options :**

6406531177650. ✖ 25

6406531177651. ✔ 26

6406531177652. ✖ 27

6406531177653. ✖ 28

**Question Number : 21 Question Id : 640653355109 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 :**

6406531177654. ✖ 2004

6406531177655. ✖ 1944

6406531177656. ✖ 2000

6406531177657. ✔ 1900

**Question Number : 22 Question Id : 640653355110 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 :**

6406531177658. ✖ 13:40 h

6406531177659. ✖ 14:10 h

6406531177660. ✔ 13:50 h

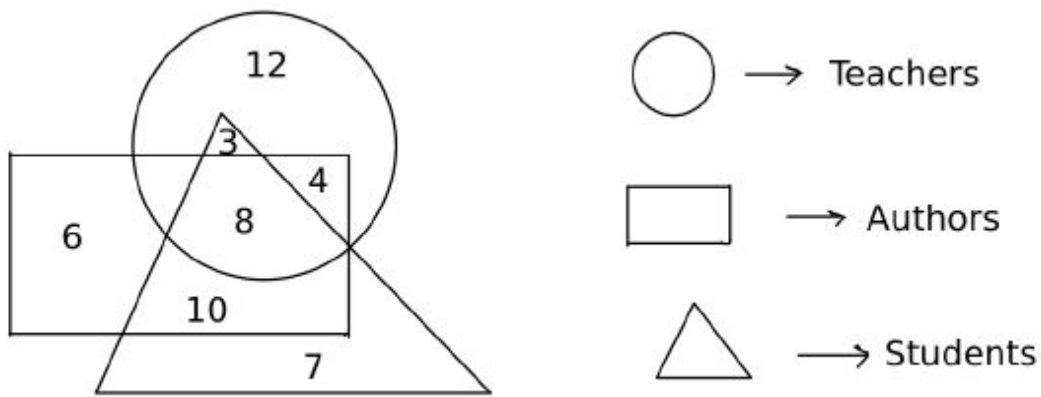
6406531177661. ✖ 14:20 h

**Question Number : 23 Question Id : 640653355111 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 :**

6406531177662. ✓ 3

6406531177663. ✗ 4

6406531177664. ✗ 12

6406531177665. ✗ 8

**Question Number : 24 Question Id : 640653355112 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 :**

6406531177666. ✗ JILSIZN

6406531177667. ✓ KILTIZN

6406531177668. ✗ KHLSHFO

6406531177669. ✗ JHLTHZN

**Question Number : 25 Question Id : 640653355113 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 :**

6406531177670. ✖ Daughter

6406531177671. ✖ Cousin

6406531177672. ✔ Sister

6406531177673. ✖ Niece

**Question Number : 26 Question Id : 640653355114 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 :**

6406531177674. ✔ Saturday

6406531177675. ✖ Sunday

6406531177676. ✖ Friday

6406531177677. ✖ Monday

**Question Number : 27 Question Id : 640653355115 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 :**

6406531177678. ✖ Only conclusion I.

6406531177679. ✖ Only conclusions II.

6406531177680. ✖ Both conclusions I and II.

6406531177681. ✔ Neither conclusion I nor conclusion II.

**Question Number : 28 Question Id : 640653355116 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 :**

6406531177682. ✔ 5,6

6406531177683. ✖ 6,7

6406531177684. ✖ 3,4

6406531177685. ✖ 11,12

**Sub-Section Number :**

3

**Sub-Section Id :**

64065351239

**Question Shuffling Allowed :**

Yes

**Question Number : 29 Question Id : 640653355117 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 :**

6406531177686. ✖ pi

6406531177687. ✖ ka

6406531177688. ✔ lu

6406531177689. ✖ ko

**Question Number : 30 Question Id : 640653355118 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 :**

6406531177690. ✔ 7 : 9

6406531177691. ✖ 9 : 7

6406531177692. ✖ 1 : 1

6406531177693. ✖ 4 : 5

**Question Number : 31 Question Id : 640653355119 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 :**

6406531177694. ✖ 35

6406531177695. ✔ 36

6406531177696. ✖ 37

6406531177697. ✖ 38

**Question Number : 32 Question Id : 640653355120 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 :**

6406531177698. ✖  $S_1$  alone is sufficient to answer the question.

6406531177699. ✖  $S_2$  alone is sufficient to answer the question.

6406531177700. ✔  $S_1$  and  $S_2$  together are sufficient to answer the question.

6406531177701. ✖  $S_1$  and  $S_2$  together are not sufficient to answer the question.

**Question Number : 33 Question Id : 640653355121 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 :**

6406531177702. ✖  $43\frac{8}{9}\%$

6406531177703. ✔  $44\frac{4}{9}\%$

6406531177704. ✖ 45%

6406531177705. ✖ 50%

**Sub-Section Number :** 4

**Sub-Section Id :** 64065351240

**Question Shuffling Allowed :** No

**Question Id : 640653355122 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 : 640653355123 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 :**

6406531177706. ✖ Wednesday or Friday

6406531177707. ✔ Wednesday or Thursday

6406531177708. ✖ Thursday or Friday

6406531177709. ✖ Wednesday or Saturday

**Question Number : 35 Question Id : 640653355124 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 :**

6406531177710. ✔ Tuesday

6406531177711. ✖ Wednesday

6406531177712. ✖ Thursday

6406531177713. ✖ Friday

**Question Number : 36 Question Id : 640653355125 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 :**

6406531177714. ✖ Wednesday and Saturday

6406531177715. ✖ Tuesday and Thursday

6406531177716. ✔ Wednesday and Friday

6406531177717. ✖ Monday and Saturday

**Question Number : 37 Question Id : 640653355126 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 :**

6406531177718. ✔ Saturday

6406531177719. ✖ Friday

6406531177720. ✖ Tuesday

6406531177721. ✖ None of these

**Question Number : 38 Question Id : 640653355127 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 :

6406531177722. ✖ Wednesday

6406531177723. ✖ Tuesday

6406531177724. ✖ Saturday

6406531177725. ✔ Friday

## Basic Mathematics

Section Id :	64065322262
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 :	64065351241
Question Shuffling Allowed :	No

Question Number : 39 Question Id : 640653355128 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 " BASIC MATHEMATICS "

MANDATORILY YOU HAVE TO ATTEND ALL THE SECTIONS.

Options :

6406531177726. ✓ Yes

6406531177727. ✗ No

Question Number : 40 Question Id : 640653355129 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 :

6406531177728. ✓ Useful Data has been mentioned above.

6406531177729. ✗ This data attachment is just for a reference & not for an evaluation.

Sub-Section Number :

2

Sub-Section Id :

64065351242

Question Shuffling Allowed :

Yes

Question Number : 41 Question Id : 640653355138 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 :

6406531177746. ✓ Slope of the function  $f(x)$  at every point is  $-5$  for  $x < 0$ .

6406531177747. ✓ The minimum value of  $f(x)$  is  $-20$ .

6406531177748. ✓ The  $y$ -intercept of  $f(x)$  is  $-20$ .

6406531177749. ✗ The minimum value of  $f(x)$  is  $0$ .

Sub-Section Number : 3

Sub-Section Id : 64065351243

Question Shuffling Allowed : Yes

Question Number : 42 Question Id : 640653355139 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  $\sum (y_{\text{predicted value}} - y_{\text{actual value}})^2$

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 :** 640653355140 **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  $h(t) = -2t^2 + 16t + 20$  represents the height (in meters) of the missile after  $t$  seconds.

Assume the dimension of the tank and the fighter jet is negligible.

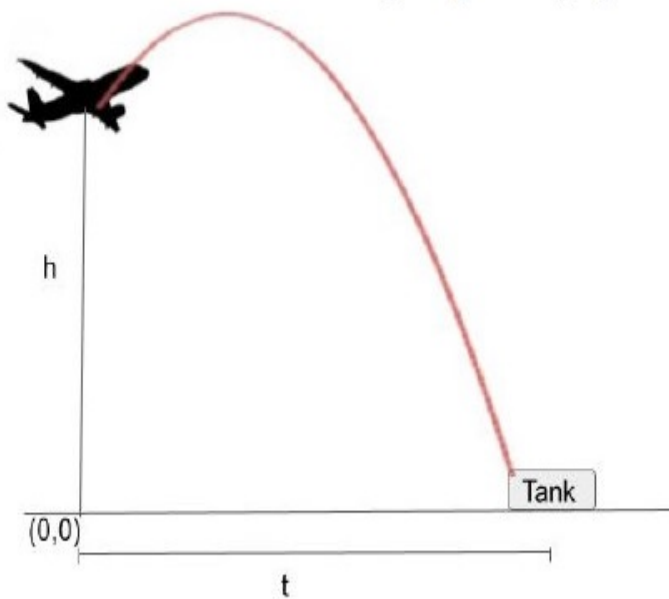


Figure: M1G3T5-2

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

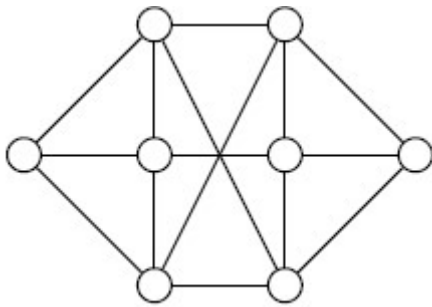
**Question Number : 44 Question Id : 640653355141 Question Type : SA Calculator : None**

**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

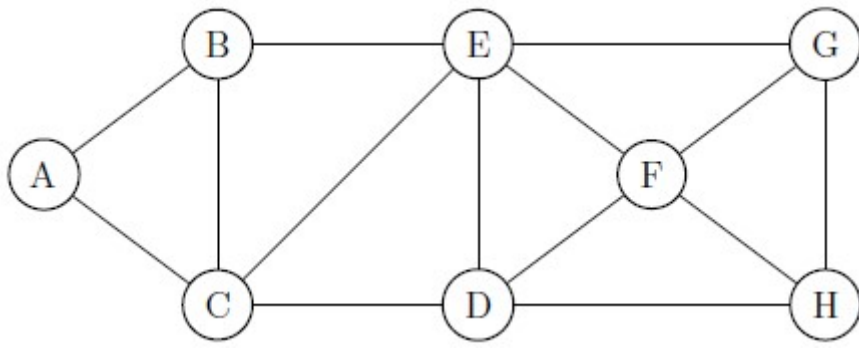
**Question Number : 45 Question Id : 640653355142 Question Type : SA Calculator : None**

**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

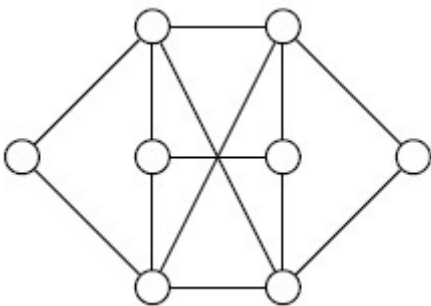
**Question Number :** 46 **Question Id :** 640653355143 **Question Type :** SA **Calculator :** None

**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 : 64065351244  
Question Shuffling Allowed : Yes

Question Number : 47 Question Id : 640653355131 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 : 64065351245  
Question Shuffling Allowed : Yes

Question Number : 48 Question Id : 640653355133 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 :**

6406531177739. ✓ R is neither reflexive, nor symmetric and nor transitive.

6406531177740. ✓ R is an anti-symmetric relation.

6406531177741. ✗ R is an identity relation.

6406531177742. ✗ R is an equivalence relation.

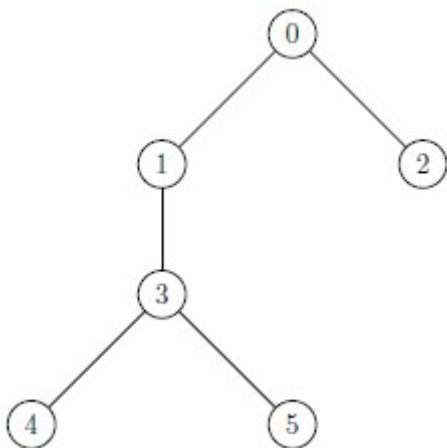
**Question Number : 49 Question Id : 640653355144 Question Type : MSQ Is Question**

**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 :**

6406531177755. ✓ (1, 4)

6406531177756. ✓ (0, 4)

6406531177757. ✗ (2, 3)

6406531177758. ✓ (2, 5)

**Question Number : 50 Question Id : 640653355145 Question Type : MSQ Is Question**

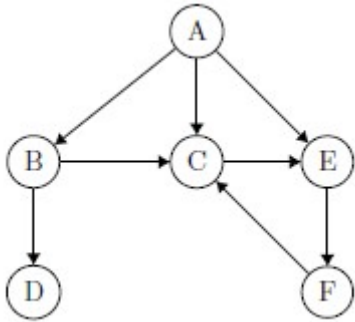
**Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction**

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 :

6406531177759. ✓ AE is a forward edge.

6406531177760. ✗ BC is a backward edge.

6406531177761. ✗ BD is a forward edge.

6406531177762. ✓ FC is a backward edge.

Sub-Section Number :

6

Sub-Section Id :

64065351246

Question Shuffling Allowed :

Yes

Question Number : 51 Question Id : 640653355130 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 :

6406531177730. ✓  $f(x)$  will be positive for  $x \in (-20, 10)$  if  $a > 0$ .

6406531177731. ✓  $f(x)$  will be positive for  $x \in (10, 20)$  if  $a < 0$ .

6406531177732. ✖  $f(x)$  is a one-to-one (injective) function.

6406531177733. ✖ If  $a = 1$ , then  $f(x)$  will have two  $X$ -intercepts.

Sub-Section Number : 7

Sub-Section Id : 64065351247

Question Shuffling Allowed : No

Question Id : 640653355134 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 : 640653355135 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 : 640653355136 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 : 640653355137 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 Id :

64065351248

Question Shuffling Allowed :

Yes

Question Number : 55 Question Id : 640653355132 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 :

6406531177735. ✓ There is no asymptote for the function  $\log(x^2 - x + 20)$

6406531177736. ✓  $f(x) = \frac{1}{x^4 + 3}$  is a bounded function.

6406531177737. ✖ The inverse of  $f(x) = x^2 - 9$  is  $g(x) = \pm\sqrt{(x + 9)}$

6406531177738. ✓ The domain of the function  $f(x) = \frac{3}{9-x^2} + \log(x^3 - x)$  is  $(-1, 0) \cup (1, 3) \cup (3, \infty)$ .