

## HPCL-01st & 04th Nov 22

me	
ame	
	04/11/2022
	2:00 PM - 4:30 PM
	MECHANICAL ENGINEER

Language

Most appropriate antonym of the given word.

- s
- red
- rful
- nant

Question ID : 8401605732  
Status : Answered  
Chosen Option : 3

Most appropriate option to fill in the blank.

Mahmud Gazni \_\_\_\_\_ an attack on the Somnath temple in order \_\_\_\_\_  
that had gathered within the temple.

- rch ; stealing
- h ; stole
- hing ; steal
- hed ; to steal

Question ID : 8401605742  
Status : Answered  
Chosen Option : 4

Most appropriate option to fill in the blank.

\_\_\_\_\_ different from her mother.

- ry
- lvery

Question ID : 8401605747  
Status : Answered

Most appropriate meaning of the given idiom.

to come down

to be firm about something

to crush an insect

to make a great effort

to get into trouble

Question ID : 8401605737  
Status : Answered  
Chosen Option : 3

Most appropriate option to fill in the blank.

The ship was \_\_\_\_\_ by the king's soldiers but the other one \_\_\_\_\_.

captured ; deserted

captured ; arrived

captured ; escaped

captured ; broke

Question ID : 8401605741  
Status : Answered  
Chosen Option : 3

Here are four jumbled sentences. Select the option that gives their correct order to form a meaningful and coherent paragraph.

1. Since no sarcophagus has ever been found, it may be possible to retrieve the ancient sarcophagus.  
2. In 1838, English military officer Howard Vyse explored the Giza pyramids.  
3. He took the sarcophagus to England in 1838 aboard the merchant ship.  
4. The ship sank during its journey and took the ornate sarcophagus down.

Choose a number of discoveries at Giza, including an ornate sarcophagus found in a pyramid.

A

B

C

Question ID : 8401605740  
Status : Answered  
Chosen Option : 3

Most appropriate option to fill in the blank.

Next week, they \_\_\_\_\_ in Canada.

will be seen

will be seen

Most appropriate option to fill in the blank.

She was quite prepared that day \_\_\_\_\_ the demolition of the Supertech Twin  
Tower in Gurgaon.

Question ID : 8401605745  
Status : Answered  
Chosen Option : 3

Most appropriate synonym of the given word.

- Impetuous
- Impetuous
- Impetuous
- Impetuous

Question ID : 8401605735  
Status : Answered  
Chosen Option : 3

Most appropriate option to fill in the blank.

Manish is one year \_\_\_\_\_ than your brother Rohit.

Older

Younger

Question ID : 8401605746  
Status : Answered  
Chosen Option : 3

Most appropriate meaning of the given idiom.

- Get out of trouble
- Get out of trouble
- Get out of trouble
- Get out of trouble

Question ID : 8401605736

tion which is NOT an antonym of another word by way of adding the prefix

erable

nsive

ous

table

Question ID : 8401605733  
Status : Answered  
Chosen Option : 3

ost appropriate option to fill in the blank.

her homework yet; she cannot go out to play.

not finish

ot finish

ot finished

finishing

Question ID : 8401605744  
Status : Answered  
Chosen Option : 3

rrrect option to fill in the blanks.

istory, fantastic treasures from various cultures have been stolen or  
e missing.

iously

erously

riously

eriously

Question ID : 8401605738  
Status : Answered  
Chosen Option : 4

ost appropriate synonym of the given word.

r

.t

le

ate

Question ID : 8401605734  
Status : Answered  
Chosen Option : 4

gment which has a spelling error in the given sentence. If there is no error, ror'.

Education Policy, 2020, is based on the foundational principals of access, y, affordability and accountability..

ress, equity, quality, affordability and accountability..

ational Education Policy, 2020

ror

sed on the foundational principals

Question ID : 8401605739  
Status : Answered  
Chosen Option : 3

tion that completes the given proverb correctly.

ll trades is master of none.

aker

k

j

rkman

Question ID : 8401605748  
Status : Answered  
Chosen Option : 2

ive Aptitude

ar fraction of  $0.\overline{32} + 0.\overline{26} - 0.\overline{53}$  is:

Adda247

Question ID : 8401605752  
Status : Not Answered  
Chosen Option : --

are drawn in succession from a box containing 10 red, 30 white, 20 blue  
e marbles. Find the probability that the first drawn marble is red and the  
n marble is white.

Question ID : 8401605777  
Status : Answered  
Chosen Option : 2

Length of tape to be used to measure a room's sides, whose distances are  
1m 52 cm and 16m 20 cm is:

Question ID : 8401605751  
Status : Answered  
Chosen Option : 2

He gains 25% profit on selling his goods at Rs.2,355. The cost price of the goods

- 88
- 148
- 384
- 184

Adda247

Question ID : 8401605760  
Status : Answered  
Chosen Option : 3

A cube is  $6\sqrt{3}$  ft. If 1 kg paint covers 12 sq ft, how much will it cost to paint the exterior of the cube if  
per kg is Rs.320?

- 760
- 570
- 706
- 507

Question ID : 8401605780

rs are in the ratio 3 : 5 and their LCM is 45, then the sum of those numbers

Question ID : 8401605750  
Status : Answered  
Chosen Option : 4

salary of teaching and non-teaching staff at a college is in the ratio of 5 :  
to contribute 3% and 2% of their salaries to a welfare society. If each non-  
f member contributes Rs.390, then the teaching staff salary is:

- Rs.500
- Rs.050
- Rs.200
- Rs.020

Question ID : 8401605765  
Status : Answered  
Chosen Option : 2

train A is 100 m more than the length of a platform. What is the time taken  
cross train B travelling in the opposite direction if the speed of train B is 70  
speed of train A is 90 km/h and the time taken by train A and B to cross  
form is 24 seconds and 36 seconds, respectively?

- 120 seconds
- 100 seconds
- 120 seconds
- 100 seconds

Question ID : 8401605770  
Status : Answered  
Chosen Option : 2

between two stations, Mathura and Haridwar, is 356 km. Train ABC  
ch is running at a speed of 72 km/h, leaves Mathura station at 10:50 p.m.  
press, which is running at the speed of 82 km/h, leaves Haridwar station at  
what time will ABC Express and XYZ Express meet each other?

- 11.30 a.m.
- 11.30 p.m.
- 11.30 a.m.
- 11.30 p.m.

Question ID : 8401605771  
Status : Answered

used a faulty weighing machine and measured 950 g instead of 1 kg and sold his goods at cost price. His profit percentage is:

- 5
- 6
- 7
- 6

Question ID : 8401605761  
Status : Answered  
Chosen Option : 2

Each installment will discharge a debt of Rs.1,431 due in three years at 6% interest?

- 15
- 30
- 30
- 50

Question ID : 8401605767  
Status : Answered  
Chosen Option : 4

Two persons are working in an IT company with salaries of Rs.23,500 and Rs.32,500. The chairman of the company wishes to give increments of 6% to their salaries. Their new salaries will be in the ratio of:

Adda247

Question ID : 8401605766  
Status : Answered  
Chosen Option : 2

A's income is two-fifth of B's income. The expenditure of A is 50% of B's income and the income, expenditures of B are Rs. 48250, 28% of the income of A. Then the savings of A is:

- 1,598
- 1,985
- 1,589
- 1,895



shows the increase in weight of a boy over the given years. Study the given chart and answer the following.



Percentage change in weight of the boy from 2018 to 2019?

Question ID : 8401605772  
Status : Answered  
Chosen Option : 2

Surface area of a right circular cylinder is  $3696 \text{ cm}^2$  and the circumference of its base is 88 cm, then find

- 56  $\text{cm}^3$
- 372  $\text{cm}^3$
- 118  $\text{cm}^3$
- 124  $\text{cm}^3$

Question ID : 8401605781  
Status : Answered  
Chosen Option : 2

How much water be mixed with milk to gain 20% by selling the mixture at cost

Question ID : 8401605755  
Status : Answered  
Chosen Option : 1

A and B take average wickets of 28 and 34 in a series of 8 and 12 matches respectively. If they took 5 wickets in the 9th match and 1 wicket in the 13th match, the average number of wickets of both the bowlers is:

Question ID : 8401605754  
Status : Answered  
Chosen Option : 1

A man's salary was increased by 8% in the first year and then increased by 9% in the second year. In the third year, he earned Rs.2,536 for working overtime. If his initial salary was Rs.2,000, his total salary drawn in the third year is:

Rs.2,975

Rs.2,795

Rs.1,579

Rs.1,979

Question ID : 8401605757  
Status : Answered  
Chosen Option : 2

The factorisation of the equation  $2x^2 + 7x + 6 = 0$  is:

$(x - 3)(x + 2) = 0$

$(x + 3)(x + 2) = 0$

$(x + 3)(x - 2) = 0$

$(x - 3)(x - 2) = 0$

Question ID : 8401605779  
Status : Answered  
Chosen Option : 2

The value of the percentage  $16\frac{2}{3}\%$  is:

Three trains travelling from Delhi to Ahmedabad at speeds of 45 km/h, 55 km/h in 3 hours, 2 hours and 1 hour, respectively. Their average speed is:

1/3 h

1/2 h

1/4 h

1/6 h

Question ID : 8401605769  
Status : Answered  
Chosen Option : 2

Three schemes running for products in his store. Which of the following has maximum discount percentage?

Scheme I: successive discounts of 15% and 20%

Scheme II:

Scheme III:

Schemes I and III

Scheme III

Scheme I

Question ID : 8401605764  
Status : Answered  
Chosen Option : 1

The value of  $\sqrt{14 + 2\sqrt{45}}$  is:

$2 + \sqrt{5}$

$2\sqrt{5}$

$2 - \sqrt{5}$

$2 - \sqrt{5}$

Question ID : 8401605749  
Status : Answered  
Chosen Option : 3

If the area of a circular field is  $3850 \text{ m}^2$ , then the cost of fencing it at the rate of Rs.52 per metre is:

440

230

220

560

Question ID : 8401605782

of 5-digit numbers that can be formed by the digits 2, 2, 3, 3 and 4 is:

Question ID : 8401605774  
Status : Answered  
Chosen Option : 2

o number in the ration 5 : 3. If the difference between the two numbers is  
arger number.

Question ID : 8401605776  
Status : Answered  
Chosen Option : 1

ser sells bananas and apples at a gain of 20% on bananas and at a loss of  
s. If the cost price of both fruits is Rs.5,000 and he earned 6% on the  
he cost price of bananas is:

- 200
- 300
- 320
- 500

Question ID : 8401605759  
Status : Answered  
Chosen Option : 1

ies to attend a party 150 km away from their home. They travel at an  
ed of 50 km/h and return at a speed of 75 km/h. Their average speed for  
rney is:

- 7/h
- 7/h
- 7/h
- 7/h

Question ID : 8401605753  
Status : Answered  
Chosen Option : 1

The nature of the roots of  $3x^2 - 6x + 5 = 0$  ?

Roots are real and more than 2.

Roots are real and distinct.

Roots are real and equal.

There are no real roots.

Question ID : 8401605778  
Status : Answered  
Chosen Option : 3

An instalment will discharge a debt of Rs.16550 due in three years at 10% interest annually?

556

665

1655

566

Question ID : 8401605768  
Status : Answered  
Chosen Option : 2

The accessory costs Rs.5,825. A customer requested a discount of 18%, in addition a discount of 5% already offered by the merchant. The cost of the merchandise after these discounts will be:

547.675

536.675

537.675

637.675

Question ID : 8401605763  
Status : Answered  
Chosen Option : 2

A merchant marked his goods at 20% above the cost price and offered a discount of 10%. Poor results, he again offered 8% discount and noticed a growth in his profit will be:

10%

8%

6%

6%

Question ID : 8401605762  
Status : Answered  
Chosen Option : 2

o, a man is six times as old as his daughter. Three years hence, thrice his  
qual to five times of his daughter' s age. The present age of his daughter

ars

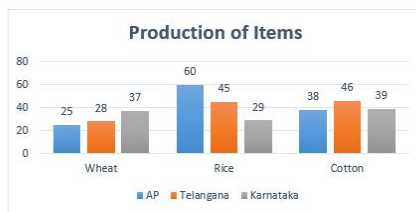
ars

ars

ars

Question ID : 8401605775  
Status : Answered  
Chosen Option : 1

chart and answer the question that follows.



ween the difference of rice in AP and Telangana to that of the difference of wheat in Karnataka and AP.

Question ID : 8401605773  
Status : Answered  
Chosen Option : 2

al Potential Test

ng series of alphabet identify the letter pattern and fill the blank in the

ST, WDE, .....

Question ID : 8401605797  
Status : Answered  
Chosen Option : 2

ing by facing East and took a turn of 90 degree in the anti-clockwise  
l then he turns another 180 degrees in the same direction and then 90  
clockwise direction. Find which direction Amit is facing now ?

Question ID : 8401605801  
Status : Answered  
Chosen Option : 1

TAN::ACTION:?

DT

JN

CE

CA

Question ID : 8401605807  
Status : Answered  
Chosen Option : 4

owing words and arrange their numbers by observing a pattern.

ult 3. Child 4. Elder 5. Teenager

5,1

5,2

1,2

2,4

Question ID : 8401605796  
Status : Answered  
Chosen Option : 4

its:  $B \leq C < A \geq D, E > F \geq D$

ons: I.  $E \geq A$     II.  $F \leq C$     III.  $A > B$     IV.  $E \geq B$

ae of the above conclusions is correct?

II is true

II and IV are true

and IV are true

I, III and IV are true

Question ID : 8401605790  
Status : Answered

Number of people are sitting in a row by facing the North direction. R is sitting at one of the extreme ends and there are two people between R and Q. Equal number of people are sitting between U and R and U and S. Two persons are sitting between S and V. Number of persons are sitting to the right and left side of V. T is sitting in the middle of P and S. U is third to the left of Q who is sitting fourth from one of the ends of the row. P is sitting at one of the extreme ends of the row. U is sitting at any of the extreme ends of the row. Number of people sitting between P and Q is:

Number of people sitting between U and S?

Question ID : 8401605788  
Status : Answered  
Chosen Option : 3

Study the following numbers carefully and answer the questions as per direction given below:

268 245

Numbers are to be arranged in increasing order from left to right within the brackets. What will be the difference between the highest number and the lowest number obtained?

Question ID : 8401605793  
Status : Answered  
Chosen Option : 2

In each question, pairs of words are given in which the words of any three pairs have a similar relationship. Choose the pair of words which does not have that relationship.

Water

Load

Captain

Railway Track

Question ID : 8401605809  
Status : Answered  
Chosen Option : 3



question, set of pairs of alphabets are given out of which three pairs have a relationship. Choose the pair of which does not have that same relationship.

XW

QRW

DBU

JRW

Question ID : 8401605810  
Status : Answered  
Chosen Option : 4

gives the details of sales of different items sold by three different stores run by three women. Please refer to the table below and answer the question given at the end of table.

Items	Mahima Stores	Rohini Stores
12	234	453
31	211	342
56	765	889
109	2306	3212

Price of highest and lowest sale of coffee Mugs.

Question ID : 8401605813  
Status : Answered  
Chosen Option : 4

Garima is the mother of a woman, Sumit told to Garima that she is mother of only daughter of Sumit. What is the relationship between the pointed woman and Sumit?

Sister-in-law

Daughter-in-law

Brother

Question ID : 8401605805  
Status : Answered  
Chosen Option : 2

gives the details of sales of different items sold by three different stores run by three women. Please refer the table carefully and answer the question given at the end of table.

Ambika Stores	Mahima Stores	Rohini Stores
12	234	453
31	211	342
56	765	889
109	2306	3212

Number of Mobile Phones sold by all the three Stores.

Question ID : 8401605815  
Status : Answered  
Chosen Option : 3

gives the details of sales of different items sold by three different stores run by three women. Please refer the table carefully and answer the question given at the end of table.

Ambika Stores	Mahima Stores	Rohini Stores
12	234	453
31	211	342
56	765	889
109	2306	3212

Percentage of total number of Calculators sold by all the Rohini and Ambika Stores.

Adda247

Question ID : 8401605816  
Status : Answered  
Chosen Option : 2

F, G & H are eight friends sitting around a circular table by facing the center. A, B, C, D, E, F, G & H are sitting between A and D. A is sitting second to the left of B. H is sitting second to the right of B. F is sitting at the immediate left of C. D is not an immediate neighbor of F or E.

Who is sitting at the immediate right of C?

Mohit that the boy Golu who is playing in the ground is the younger among  
sisters of the daughter of my father's wife. What is relationship between the  
boy in the ground with Anuj?

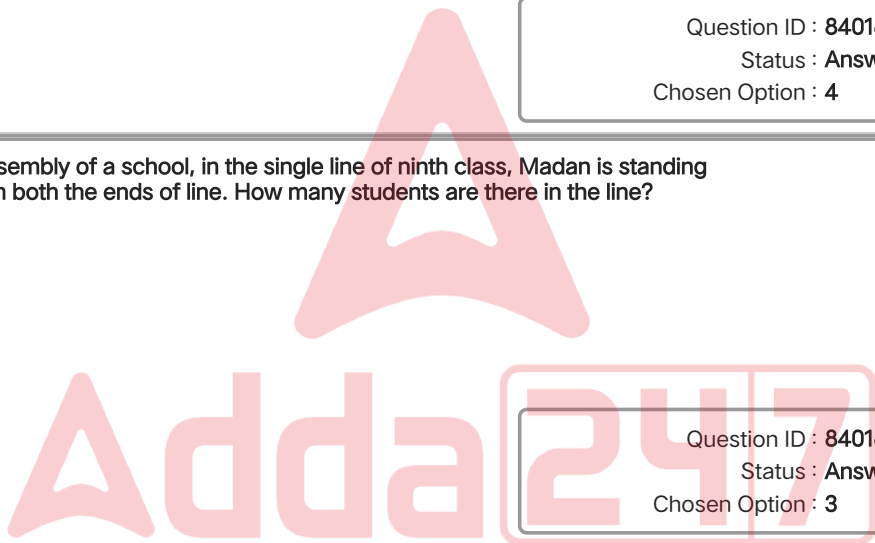
r  
father  
sister  
;

Question ID : 8401605804  
Status : Answered  
Chosen Option : 2

Series: 8, 13, 11, 16, 14, 19, ... carefully and suggest the number that should

Question ID : 8401605795  
Status : Answered  
Chosen Option : 4

During assembly of a school, in the single line of ninth class, Madan is standing  
from both the ends of line. How many students are there in the line?



Question ID : 8401605785  
Status : Answered  
Chosen Option : 3



Given Venn diagram rectangle represents teachers, triangle artists and circle sports persons. Give the  
area represented by the all the three.

$\therefore T = U \leq S < Q = P > R$

Answers: 1)  $T > R$    2)  $P > T$    3)  $P < U$    4)  $R > S$

Which of the above conclusions is correct?

- 1
- 2 & 4
- 2

Question ID : 8401605791  
Status : Answered  
Chosen Option : 2

If MOHAN is coded as 13158114 and ROHIT is coded as 18158920 then what will be the code for ANUJ?

- 0
- 10
- 11
- 10

Question ID : 8401605799  
Status : Answered  
Chosen Option : 2

Given: '+' means addition, '-' means subtraction, '×' means multiplication and '÷' means division, then which of the following equations is correct?

- $28 - 4 \times 12 = 108$
- $24 \times 68 - 24 = 204$
- $88 - 24 + 20 = 92$
- $38 - 10 + 50 = 846$

Question ID : 8401605812  
Status : Answered  
Chosen Option : 2

If L and A is Mother of B and also L is father of K then what is relation of A to K?

- Brother
- Mother
- Sister
- Uncle

Question ID : 8401605806  
Status : Answered  
Chosen Option : 2

If 'x' stands for '+', '-' stands for '÷' and ÷ stands for '-', then  
 $4 + 12 - 6 \div 2 = ?$

Question ID : 8401605811  
Status : Answered  
Chosen Option : 2

Ashish and Mohit start moving in the opposite direction on a main road and 100 meters apart from each other. Ashish walks for 250 meters on the main road, then he turns right and then walks for another 150 meters. Then he turns left and then walks for another 250 meters and then turns in the direction to reach back to the main road. Meanwhile, Mohit could walk only 350 meters on the main road. What is the distance between both of them at this point?

1  
1  
1  
1

Question ID : 8401605802  
Status : Answered  
Chosen Option : 2

Statements:  $P = Q \geq R = S$ ,  $T > U \geq V = S$

Conclusions: I.  $U \geq P$     II.  $P \geq V$     III.  $T \geq Q$     IV.  $T > R$

Which of the above conclusions is correct?

I and III are true  
II and IV are true  
I, III and IV are true  
I is true

Question ID : 8401605792  
Status : Answered  
Chosen Option : 1

When Rohit showed a photograph of a male child, Rohit told to Amit that the child in the photograph is the son of the only son of my mother. How is Rohit related to the male child in the photograph?

1  
1

ed as 6821, THAT is coded as 7387 and PUT is coded as 457, what will be RAT?

Question ID : 8401605798  
Status : Answered  
Chosen Option : 3

East of Mohan which is in the North of Sushil. If Punit is in the South of Mohan in which direction of Rohit, is Punit?

- West
- West
- East
- East

Question ID : 8401605800  
Status : Answered  
Chosen Option : 3

If yesterday was Friday, when will Tuesday be?

- days after tomorrow
- after tomorrow
- 7
- morrow

Question ID : 8401605786  
Status : Answered  
Chosen Option : 4

Seven boxes named Mega, Meta, Rita, Docu, Gimu, Tina, Pina and Lopu of different colours, like; Black, Violet, Red, Blue, Yellow, White and Green but not necessarily in the same order. Only two boxes are kept between yellow colour box and violet colour box which is kept above yellow colour box. Box Docu is not of green colour. Box Pina is kept above violet colour box. Neither Box Rita nor Box Gimu is of green colour. Box Gimu is kept above box Tina. There are two boxes between box Pina and box Tina. Box Tina is kept immediately above box Lopu. Box Rita is kept either immediately above or immediately below green colour box. More than two boxes are kept between Box Pina and box Tina. Box Pina is kept immediately above box Tina. Box Mega is of red colour, which is neither kept at the top nor at the bottom. Box Mega is not of red colour. Only one box is kept between red colour box and violet colour box. Box Mega and box Gimu is not of white colour. Box Meta is of white colour and is not kept at the top and not at the bottom.

Which box is kept immediately on the top of Box Docu?

question sets of alphabets are given as options and these sets shares a similarity, whereas one is different. Choose the odd one out.

Question ID : 8401605808  
Status : Answered  
Chosen Option : 3

gives the details of sales of different items sold by three different stores run by three women. Please refer the table carefully and answer the question given at the end of table.

Ambika Stores	Mahima Stores	Rohini Stores
12	234	453
31	211	342
56	765	889
109	2306	3212

Percentage of total number of all the items sold by the Rohini and Ambika Stores. Mugs.

Question ID : 8401605814  
Status : Answered  
Chosen Option : 1

Beerbhan, Vaishali, Mohit, Nitin, Pallavi, Jyoti, Preeti and Sonu are nine friends sitting around a circular table by facing the centre of the table. Mohit is seated to the right of Pallavi. Only two people are sitting between Mohit and Preeti. Three people are sitting between Nitin and Amar. Neither Preeti nor Nitin are an immediate neighbor of Vaishali or Mohit. Only one person is sitting between Vaishali and Preeti. Preeti is an immediate neighbor of Nitin. Amar sits third to the left of Jyoti. Beerbhan is second to the right of Beerbhan.

Who is sitting on the immediate left of Vaishali?

Question ID : 8401605783  
Status : Answered  
Chosen Option : 2

Correct alternative from the given options which will continue the same  
Replace the question mark in the given number series.

7, .....?

8

33

30

34

Question ID : 8401605794  
Status : Answered  
Chosen Option : 2

Knowledge

Controlling force equation of a spring-controlled governor is given by  $F = p \cdot r + q$   
(where  $r$  is the radius of rotation of governor balls), then the governor is:

isostatic

isostatic

isostatic

isostatic

Question ID : 8401605833  
Status : Answered  
Chosen Option : 3

Two wires S1 and S2, with mean diameters of 90 mm and 75 mm, respectively, are  
of equal lengths of hardened steel wires of the same diameter. The ratio  
of the extension of S1 to that of S2 is:

16

5

25

;

Question ID : 8401605849  
Status : Answered  
Chosen Option : 3

The maximum value of swaying couple is achieved when  $\theta$  is:

and  $225^\circ$

and  $270^\circ$

and  $180^\circ$

and  $135^\circ$

Question ID : 8401605835  
Status : Answered  
Chosen Option : 4



energy reservoir at 1200 K supplies 500 kJ of heat to a reversible heat engine E1. Engine E1 rejects heat  $Q_2$  to a reversible heat engine E2 at temperature  $T_2$ . Engine E2 rejects heat to a thermal energy reservoir at temperature 300 K. If the efficiency of E1 and E2 is the same, then  $T_1 : T_2 : T_3$  is:

1.414

1 : 1

0.5

14 : 1

Question ID : 8401605875  
Status : Answered  
Chosen Option : 3

the metal parts are joined by means of a fusible alloy which is composed

of Lead and Tin

of Lead and Copper

of Lead and Aluminium

of Lead and Tin

Question ID : 8401605892  
Status : Answered  
Chosen Option : 1

A car of mass 1000 kg is moving on a straight level road with the speed of 10 m/s when the traffic light turns from green to amber. The driver applies the brakes 20 m before the light turns red. The car manages to stop on the line. The force applied to stop the car is:

1000 N

2000 N

10000 N

20000 N

Question ID : 8401605820  
Status : Answered  
Chosen Option : 3

If the arrival rate in a queue is 13/hr and the average service rate is 20/hr, then the average number of customers in the line (including the customer being served) will

Question ID : 8401605898  
Status : Answered  
Chosen Option : 3

It is placed in two arrangements:

1. Parallel horizontal, and  
2. Perpendicular horizontal.

Compared to the beam in arrangement (i), the beam in arrangement (ii) is \_\_\_\_\_.

11.4% more stronger than in (i)

57.3% more stronger than in (i)

Both arrangements have equal strength

41.4% more stronger than in (ii)

Question ID : 8401605821  
Status : Answered  
Chosen Option : 1

The values of critical compressibility factor ( $Z_c$ ) for most gases fall in a narrow range of \_\_\_\_\_.

0.2

0.1

0.3

1.0

Question ID : 8401605874  
Status : Answered  
Chosen Option : 2

Which of the following mechanisms converts rotary motion to sliding motion?

Eccentric strap mechanism

Oldham's mechanism

Oldham's mechanism

Oldham's mechanism

Question ID : 8401605828  
Status : Answered  
Chosen Option : 2

Which of the following statements regarding heat treatment processes is/are correct?

Tempering is a process of annealing bainite at low temperatures.

Tool guideways are hardened by flame hardening.

Full annealing is to reduce ductility and resilience.

Castings of lathe beds are hardened by carburising.

How many of the given statements are INCORRECT?

4

4

3

4

floats at the interface of mercury of specific gravity of 13.6 and water such that 40% of its volume is in mercury and 60% in water. The density ( $kg/m^3$ ) of the metallic body is approximately \_\_\_\_\_.

Question ID : 8401605860  
Status : Answered  
Chosen Option : 3

"In equilibrium under the action of three forces, then each force is proportional to the sine of the angle between the other two forces." This statement is

- is Law
- is Law
- is Theorem
- is Principle

Question ID : 8401605819  
Status : Answered  
Chosen Option : 3

Which of the following statements about Wien's displacement law:

- spectral emissive power is displaced to longer wavelengths with increase in temperature.
- spectral emissive power increases with decrease in temperature.
- spectral emissive power is displaced to shorter wavelengths with increase in temperature.
- spectral emissive power decreases with decrease in temperature.

How many of the given statements are correct?

- 4
- 2
- 3
- 3

Question ID : 8401605869  
Status : Answered  
Chosen Option : 1

A load that ranges from 50 kN in compression to 150 kN in tension is applied at the end of a forged steel rod with a uniform diameter of 30 mm. Assume that the material has a tensile, yield and endurance strength of 600, 420 and 240 MPa, respectively. In accordance with Soderberg's criterion, the factor of safety is:

t capacity analysis is valid for bodies for which the value of \_\_\_\_\_.

- > 0.1
- < 0.1
- < 0.1
- < 1

Question ID : 8401605864  
Status : Answered  
Chosen Option : 2

following statements is correct regarding the term 'Reduced Pressure'?  
presented by the ordinate (Y axis) of generalised compressibility chart.  
ie difference between the critical pressure and the existing pressure of a  
ie ratio of the existing pressure to the critical pressure of a substance.  
it is MPa.

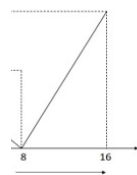
Question ID : 8401605872  
Status : Answered  
Chosen Option : 4

bar stays' of a boiler are pitched at 0.35 m horizontally and vertically. The steam pressure is 10 bar. If  
of the material is  $60 \text{ N/mm}^2$ , then the core diameter will be close to:

- n
- n
- n
- n

Question ID : 8401605843  
Status : Answered  
Chosen Option : 1

time diagram of motion of a particle is shown in the given figure. If the initial velocity of the particle  
displacement of the particle till the end of 16<sup>th</sup> second is:



- . m
- 3 m
- 0 m
- 5 m

inertia, rotational kinetic energy, and angular momentum is given by M, K,

$2LM$

$\sqrt{2MK}$

$K/L$

$MK$

Question ID : 8401605901  
Status : Answered  
Chosen Option : 1

velocity in a horizontal pipe with a 30 mm diameter is measured using a Pitot-static probe with a 15 mm throat diameter. When frictional losses are neglected and the pressure difference between the pipe and the throat sections is 20 kPa, the flow

1/s

m/s

1/s

m/s

Question ID : 8401605858  
Status : Answered  
Chosen Option : 2

Column A has both its ends fixed, and column B has one end fixed and the other end free. The ratio of the buckling load of column A to that of column B is:

Question ID : 8401605822  
Status : Answered  
Chosen Option : 2

A governor is a/an \_\_\_\_\_ governor.

Centrifugal type

Electromagnetic type

Spring-loaded type

Weight type

Question ID : 8401605832  
Status : Answered  
Chosen Option : 3

following statements regarding limit gauges:

3 is used to check hole size.  
2 is used to measure the external diameter of a shaft.  
and plug gauges are available in two designs, 'GO' and 'NO-GO' .

given statements are correct?

3

and 3

3

2

Question ID : 8401605894  
Status : Answered  
Chosen Option : 4

in permissible twisting moment in a circular shaft, according to the shear stress theory of failure, is 'T' . According to the maximum principal stress theory of failure, the permissible twisting moment for the same shaft is:

T

Question ID : 8401605848  
Status : Answered  
Chosen Option : 2

following statements regarding Heisler Chart:

1 is used to determine temperature distribution and transient heat flow

2 is used to determine temperature distribution and steady heat flow rate.

3 is used when conduction and convection resistances are almost of same.

4 is used when conduction resistance is higher than convection

given statements are correct?

3

3

4

and 4

Question ID : 8401605863  
Status : Answered  
Chosen Option : 3

A rectangular sluice gate is installed on the vertical wall of a lock. If the vertical side of the gate is 'd' metres and its centroid is 'p' metres below the water surface, then the depth of the water is:

(d<sup>2</sup>/12p)

(d<sup>2</sup>/6p)

(d<sup>2</sup>/p)

(3d<sup>2</sup>/4p)

Question ID : 8401605852  
 Status : Answered  
 Chosen Option : 1

Which of the following statements regarding project management:

- 1. PERT is probabilistic and CPM is deterministic.
- 2. Network slack on various events is calculated, whereas in CPM, floats are not.
- 3. Activity duration is normally distributed and project duration is beta distributed.
- 4. The critical path of a network is the path that takes the shortest time.

Which of the given statements are INCORRECT?

- 1. 2
- 2. 3 and 4
- 3. 1 and 4
- 4. 3

Question ID : 8401605899  
 Status : Answered  
 Chosen Option : 3

The critical path ratio number is mathematically expressed as:

1.  $\frac{t_p - t_o}{t_p}$

2.  $\frac{t_p - t_o}{t_o}$

3.  $\frac{t_p - t_o}{t_p - t_o}$

4.  $\frac{t_p - t_o}{t_p}$

Question ID : 8401605876  
 Status : Answered  
 Chosen Option : 2

following statements regarding the effect of alloying elements in steel:

Improves machinability in free cutting steel  
Mn - Forms abrasion resisting particles  
Ni - Improves Corrosion resistance  
- Increases fatigue strength

Which of the following given statements are INCORRECT?

4

3

4

2

Question ID : 8401605886  
Status : Answered  
Chosen Option : 1

A mass-spring system consists of a mass of 5 kg and two springs of stiffness 8 N/mm.  
1. The system is arranged in different manners, that is:

(i) The mass is suspended at the bottom of two springs in series, and the top of the springs is fixed between two springs.

(ii) The mass is suspended at the bottom of two springs in parallel, and the top of the springs is fixed between two springs.  
The natural frequencies of case (ii) to those of case (i) is approximately

0.5

Question ID : 8401605840  
Status : Answered  
Chosen Option : 3

Which of the following is the correct order of cooling media for increasing cooling rate?

(a) Water, Air, Fused salt and Oil

(b) Fused salt, Oil and Water

(c) Fused salt, Air and Water

(d) Fused salt, Oil, Water and Air

Question ID : 8401605879  
Status : Answered  
Chosen Option : 2

Three estimates of a PERT activity, i.e. optimistic time, pessimistic time and most likely time, are 7 min, 13 min and 9 min, respectively. The expected time (in min) and the variance of the activity will be:

(a) 9 and 1.5

(b) 9 and 1.5

(c) 9 and 1.5

(d) 9 and 1.5



following statements regarding the stress strain diagram:

- law is followed up to the elastic limit.
- at which a material elongates without an increase in load is called as yield
- is usually represented by the area under a stress strain curve.

given statements are correct?

- 3
- 1
- 2
- 3

Question ID : 8401605884  
Status : Answered  
Chosen Option : 1

meter 100 mm is suddenly enlarged to a diameter of 200 mm. If the flow is 200 litres/s, then the loss of head is:

- n of water
- n of water
- m of water
- n of water

Question ID : 8401605856  
Status : Answered  
Chosen Option : 3

following statements is correct?

- rd Fe-Fe<sub>3</sub>C diagrams are both non-equilibrium diagrams.
- igram is an equilibrium diagram, but Fe-Fe<sub>3</sub>C diagram is a non-igram.
- nd Fe-Fe<sub>3</sub>C diagrams are both equilibrium diagrams.
- liagram is a non-equilibrium diagram, but Fe-Fe<sub>3</sub>C diagram is an iagram.

Question ID : 8401605883  
Status : Answered  
Chosen Option : 2

ergy is transferred from a heat reservoir at 1050 K to a heat reservoir at 550 K. The loss of available energy due to heat transfer is:

- kJ
- kJ
- 3 kJ
- kJ

System having a mass of 30 kg is supported by 4 springs, each having a stiffness of 1000 N/mm. The system runs at 420 rpm. If only 10% of the shaking force is allowed to be transmitted to the supporting structure, then the value of stiffness k will be close to:

- 1000 N/mm
- 2000 N/mm
- 3000 N/mm
- 4000 N/mm

Question ID : 8401605837  
 Status : Answered  
 Chosen Option : 3

Which of the following heat exchangers gives parallel and linear temperature profile for both hot and cold fluids?

- Parallel flow with unequal heat capacities
- Counter flow with equal heat capacities
- Parallel flow with equal heat capacities
- Counter flow with unequal heat capacities

Question ID : 8401605865  
 Status : Answered  
 Chosen Option : 4

In a parallel flow heat exchanger, if the hot and cold fluids enter at  $T_1$  and  $T_2$ , and leave at  $T_3$  and  $T_4$ , then LMTD is

- $\frac{(T_1 - T_3) - (T_2 - T_4)}{\ln \frac{(T_1 - T_3)}{(T_2 - T_4)}}$
- $\frac{(T_1 - T_2) + (T_3 - T_4)}{\ln \frac{(T_1 - T_2)}{(T_3 - T_4)}}$
- $\frac{(T_1 - T_2) - (T_3 - T_4)}{\ln \frac{(T_1 - T_2)}{(T_3 - T_4)}}$
- $\frac{(T_1 - T_3) - (T_4 - T_2)}{\ln \frac{(T_1 - T_3)}{(T_4 - T_2)}}$

Question ID : 8401605866  
 Status : Answered  
 Chosen Option : 3

following statements about the thermal diffusivity of a substance:

- 1) proportional to density.
  - 2) inversely proportional to specific heat.
  - 3) inversely proportional to thermal conductivity.
  - 4) proportional to thermal conductivity.
- Which of the given statements are INCORRECT?

1) 3

2) 3

3) 2

4) 3

Question ID : 8401605861  
Status : Answered  
Chosen Option : 3

In a crank mechanism, the velocity of piston becomes maximum when:

- 1) crank is at an angle of  $120^\circ$  with the line of stroke
- 2) crank is perpendicular to the line of stroke of the piston
- 3) crank and the connecting rod are mutually perpendicular
- 4) crank and the connecting rod are in line with each other

Question ID : 8401605829  
Status : Answered  
Chosen Option : 2

A differential fluid element rotates like a rigid body, and at a point within the element the normal pressure is 1 unit. What is the radius of Mohr's circle, characterising the stress at that point?

1) 1

2) 2

3) 3

Question ID : 8401605823  
Status : Answered  
Chosen Option : 2

following statements regarding linear programming:

Programming problem with three variables and two constraints cannot be solved by graphical method.  
In the simplex method, when the artificial variable leaves the basis, its column can be deleted from the subsequent tables.  
If a constraint line comes parallel to the objective function line, LPP will have no feasible solution.

How many of the given statements are correct?

3

2

3

and 3

Question ID : 8401605896  
Status : Answered  
Chosen Option : 2

The velocity components in the x and y directions are given by:

$$u = x^2 - (y^2) \times y \text{ and } v = x \times (y^2) - \frac{2}{3} \times (y^3)$$

In a two-dimensional incompressible flow, the value of  $\lambda$  is:

Adda247

Question ID : 8401605853  
Status : Answered  
Chosen Option : 1

In a boundary layer, the flow is:

laminar and rotational

turbulent and rotational

turbulent and irrotational

laminar and irrotational

Question ID : 8401605855  
Status : Answered  
Chosen Option : 2

ment is subjected to the following bi-axial state of stress:

$$\sigma_y = 30 \text{ MPa}; \tau_{xy} = 40 \text{ MPa.}$$

rength of the material is 100 MPa, then the factor of safety as per Tresca's theory is:

Question ID : 8401605847  
Status : Answered  
Chosen Option : 2

tum correction factor' for a laminar flow through a circular pipe is:

Question ID : 8401605854  
Status : Answered  
Chosen Option : 2

following components can be made by powder metallurgy technique?

aring

ades

and 2

nd 4

nd 3

nd 4

Question ID : 8401605891  
Status : Answered  
Chosen Option : 3

emand of a product in a company is 79 units. Previous forecast and  
smoothing factor are 84 units and 0.25, respectively. What will be the  
he product units) for the next period?

Question ID : 8401605895  
Status : Answered  
Chosen Option : 3

occupied cells must a transportation matrix with 8 rows and 7 columns have  
IS NOT degenerate?

Question ID : 8401605897  
Status : Answered  
Chosen Option : 2

following are the features of submerged arc welding?

ng speeds  
tion hazard  
sition rate  
ty of Weld

nd 4

nd 4

nd 3

l and 3

Question ID : 8401605893  
Status : Answered  
Chosen Option : 1

following processes are irreversible?

nsion  
f electricity through a resistor  
fer through a finite temperature difference  
l expansion in a Stirling cycle  
wo ideal gases at constant pressure

l and 5

l and 4

l and 5

l and 5

el has 40 teeth and a pitch diameter of 240 mm. If the pressure angle of  $20^\circ$ , then the axial pitch of the worm will be close to:

mm

n

n

mm

Question ID : 8401605831  
Status : Answered  
Chosen Option : 3

s, the 'loss of head' term is incorporated in Bernoulli's equation. This is related with fluid's \_\_\_\_\_.

compressibility

viscosity

density

surface tension

Question ID : 8401605857  
Status : Answered  
Chosen Option : 3

is rolled from a thickness of 36 mm to 20 mm using a two-high mill having a diameter of 400 mm. The approximate value of the coefficient of friction for the roll will be:

Question ID : 8401605890  
Status : Answered  
Chosen Option : 1

equation  $p_v = ZRT$ , depending on the values of temperature and pressure is, the value of Z \_\_\_\_\_.

It always be greater than unity

It can be less than, greater than or equal to unity

It always be equal to unity

It always be less than unity

Question ID : 8401605871  
Status : Answered  
Chosen Option : 2

Which of the following is NOT a pure substance?

Ice of air (gas phase) and liquid air

Combustion product of a fuel

Spherical air

Mixtures of ammonia

Question ID : 8401605870  
Status : Answered  
Chosen Option : 2

Which of the following is used to measure:

Shear strength

Compressive strength

Tensile strength

Bearing strength

Question ID : 8401605825  
Status : Answered  
Chosen Option : 2

Which of the following statements about contact ratio is correct?

Addendum and base circle diameter have influence on contact ratio.

Addendum has no effect on contact ratio.

Increasing the addendum results in a higher value of contact ratio.

Decreasing the addendum results in a higher value of contact ratio.

Question ID : 8401605830  
Status : Answered  
Chosen Option : 3

Along a fin, if the parameter  $m = \sqrt{\frac{hP}{kA}}$  increases, the other parameters being maintained constant, then

Temperature drop along the length will be steeper

Temperature profile will remain the same

Temperature drop along the length will be at a low rate

The heat flow rate will be increased without any effect on the temperature

Question ID : 8401605862  
Status : Answered  
Chosen Option : 4



A drop of molten metal of radius 3 mm was found to solidify in 12 seconds. A drop of radius 7 mm would solidify in:

seconds

conds

3 seconds

12 seconds

Question ID : 8401605889  
Status : Answered  
Chosen Option : 2

Which method for the analysis of heat exchanger is used when:

temperatures of both fluids are known but inlet temperatures are unknown

temperatures of both fluids are known but outlet temperatures are

temperatures of any one fluid is known

temperatures of any one fluid is known

Question ID : 8401605867  
Status : Answered  
Chosen Option : 1

A uniform shaft of length  $L$  fixed at its upper end and carrying a disc of moment of inertia  $I$  at its lower end. The disc is twisted about the vertical axis and  $f_a$  is the natural frequency of the system when the shaft is assumed as a cantilever and  $f_b$  is the natural frequency of the system when the shaft is considered as a simply supported beam. Find the ratio  $f_a/f_b$ .

1/3)

3/4)

Question ID : 8401605841  
Status : Answered  
Chosen Option : 4

In the following processes is the Widmanstätten structure encountered?

annealing

quenching

normalizing

tempering

Question ID : 8401605881  
Status : Answered  
Chosen Option : 2

following statements about determining the natural frequency of a shaft  
under various loads. Identify the correct option.

Rayleigh's method is semi-empirical and simple.

Rayleigh's method provides accurate results.

Rayleigh method involves fewer calculations in comparison to Dunkerley's

Rayleigh method provides approximate results.

Question ID : 8401605839

Status : Answered

Chosen Option : 2

Which of the following is correct regarding crystal structure:

Face centered Cubic - Manganese

Face centered Cubic - Copper

Face centered Cubic - Alpha Iron at room temperature

Body centered Cubic - Zinc

How many of the above matches are correct?

3

4

4

2

Question ID : 8401605887

Status : Answered

Chosen Option : 2

Which of the following does not behave like an ideal gas when:

Pressure approaches 100 kPa and temperature approaches infinity

Pressure approaches zero and temperature approaches infinity

Pressure and temperature approach infinity

Pressure approaches infinity and temperature approaches 300 K

Question ID : 8401605873

Status : Answered

Chosen Option : 2

To avoid seizure in hydrodynamic bearings, the operating value of the bearing

Sommerfeld number should be at least \_\_\_\_ times the bearing modulus.

Question ID : 8401605846

Status : Answered

g is characterised by a basic static capacity of 12000 N and a dynamic 7000 N. This bearing is subjected to an equivalent static load of 5000 N. Loading ratio and life in million revolutions, respectively, are:

and 54.87

and 13.82

and 39.30

and 34.96

Question ID : 8401605844  
Status : Answered  
Chosen Option : 2

A mass of 10 kg completes 40 oscillations in 20 seconds in a single-degree of freedom system. The stiffness of the spring is approximately \_\_\_\_\_.

1000 N/mm

100 N/mm

10000 N/mm

100000 N/mm

Question ID : 8401605838  
Status : Answered  
Chosen Option : 4

Which of the following phases of steel is NOT present in the Fe-Fe<sub>3</sub>C phase diagram?

γ

δ-ferrite

ε-ferrite

δ-ferrite

Question ID : 8401605882  
Status : Answered  
Chosen Option : 1

Two pipes of diameter 5 cm and 15 cm, are used to drain water from a reservoir. If the head losses in both pipes are equal, then the ratio of discharge through the larger pipe to that through the smaller pipe will be:

3

3

Question ID : 8401605859  
Status : Answered  
Chosen Option : 4

degree of freedom viscous damped system, if the frequency ratio is greater than  $\sqrt{2}$ , it implies that:

- transmitted force is more than the exciting force
- transmitted force is equal to the exciting force
- transmitted force is less than the exciting force
- transmitted force is infinite

Question ID : 8401605836  
Status : Answered  
Chosen Option : 1

speed of a rotating shaft depends on its \_\_\_\_\_.

- mass and stiffness
- mass, stiffness and eccentricity
- mass and eccentricity
- mass and stiffness

Question ID : 8401605842  
Status : Answered  
Chosen Option : 2

Which of the following patterns is used for a casting where some portions of the structure are weak and likely to break by the force of ramming?

- split board pattern
- top pattern
- blind pattern
- piece pattern

Question ID : 8401605888  
Status : Answered  
Chosen Option : 2

A projectile is launched at an angle of  $60^\circ$  with the horizontal. If the horizontal range is 2 km, then the velocity of projection is \_\_\_\_\_.

- $100\sqrt{3}$  m/s
- $100\sqrt{2}$  m/s
- $100$  m/s
- $100$  m/s

Question ID : 8401605818  
Status : Answered  
Chosen Option : 2

ring having clearance to radius ratio of 1/100, using a lubricant with absolute viscosity  $\mu = 28 \times 10^{-3}$   
: shaft journal running at  $N = 2400$  rpm. If the bearing pressure is 1.4 MPa, then the Sommerfeld number

- 3
- $10^{-3}$
- $3 \times 10^{-6}$
- $10^{-5}$

Question ID : 8401605845  
Status : Answered  
Chosen Option : 4

medium between the heat source and the receiver is NOT affected during  
of heat transmission by \_\_\_\_\_.

- Radiation
- Conduction as well as convection
- Convection
- Conduction

Question ID : 8401605868  
Status : Answered  
Chosen Option : 1

appropriate follower motion plan for high-speed engines is:

- Cycloidal
- Uniform velocity
- Uniform acceleration and deceleration
- Simple harmonic motion

Question ID : 8401605834  
Status : Answered  
Chosen Option : 1

following hardness tests is best suitable for brittle materials such as

- Rockwell hardness test
- Vickers hardness test
- Brinell hardness test
- Shorewell hardness test

Question ID : 8401605826  
Status : Answered  
Chosen Option : 2

Centre of buoyancy, G is the centre of gravity and M is the metacentre of a body, then the body will be in stable equilibrium if \_\_\_\_\_.

- J
- 0
- below G
- above G

Question ID : 8401605851  
Status : Answered  
Chosen Option : 4

The number of instantaneous centres with 5 links is:

Question ID : 8401605827  
Status : Answered  
Chosen Option : 1

Which of the following is the property of a material by virtue of which strain increases with constant load?

- Creep
- Elasticity
- Plasticity
- Strain hardening

Question ID : 8401605885  
Status : Answered  
Chosen Option : 1

A rectangular bar of 50 mm × 50 mm section is subjected to a tensile load of 400 kN. The extension over a 200 mm gauge length is found to be 0.2 mm, and the decrease in diameter is 0.012 mm. The value of Poisson's ratio is:

Question ID : 8401605824  
Status : Answered  
Chosen Option : 1