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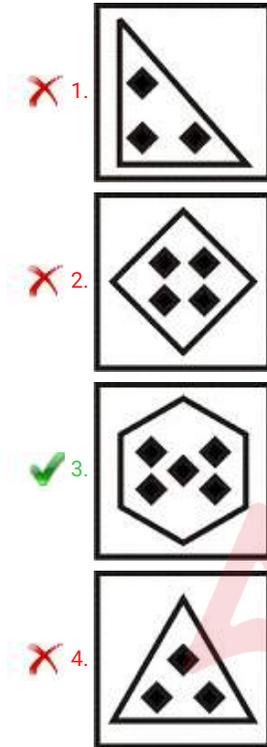
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Participant ID	
Participant Name	
Test Center Name	Ion Digital Zone IDZ1 Mundka
Test Date	06/11/2019
Test Time	12:30 PM - 2:30 PM
Subject	JUNIOR ENGINEER MECHANICAL

Section : Mental Ability

Q.1 In the following question, select the odd figure from the given alternatives.

Ans



Question ID : 54592780010

Q.2 A is father of B. B is son of Z. Z is mother of S. S is father of K. How is B related to K?

- Ans
- 1. Father
  - 2. Son
  - 3. Grandson
  - 4. Uncle

Question ID : 54592779999

Q.3 A series is given with one term wrong. Select that wrong term from the given alternatives.

PQ, RO, TM, UJ, XI, ZG

- Ans  1. TM

- 2. UJ
- 3. ZG
- 4. XI

Question ID : 54592779993

**Q.4** A team of 5 members is to be selected from A, B, C, D, E, F, G and H. A and B can only be selected together. C cannot be selected with E and E cannot be selected with H. Which of the following is a valid team selection?

- I. A, B, C, H, G
- II. A, B, E, F, H
- III. C, D, F, G, H

- Ans**
- 1. II and III
  - 2. I and III
  - 3. I, II and III
  - 4. I and II

Question ID : 54592780001

**Q.5** In the following question, select the related letters from the given alternatives.

NS : MT :: AB : ?

- Ans**
- 1. ZC
  - 2. BA
  - 3. BC
  - 4. ZA

Question ID : 54592779996

**Q.6** In the following question below are given some statements followed by some conclusions based on those statements. Taking the given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusion logically follows the given statements.

**Statements:**

- I. All A are B.
- II. No B is C.
- III. All B are D.

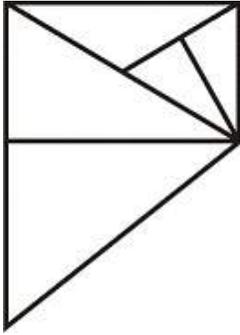
**Conclusions:**

- I. Some A are C.
- II. Some D are A.
- III. No D is C.

- Ans**
- 1. Neither conclusion follow
  - 2. Only conclusion III follows
  - 3. Only conclusion I follows
  - 4. Only conclusion II follows

Question ID : 54592780003

**Q.7** How many triangles are there in the given figure?



- Ans
- 1.7
  - 2.8
  - 3.9
  - 4.6

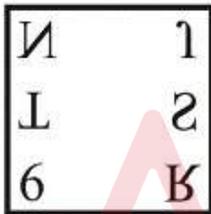
Question ID : 54592780011

Q.8 If a mirror is placed on the line AB, then which of the answer figures is the right image of the given figure?



Ans

1.



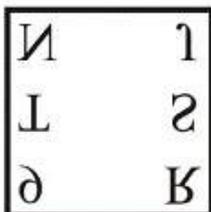
2.



3.



4.



Question ID : 54592780012

Q.9 In the following question below are given some statements followed by some conclusions based on those statements. Taking the given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusion logically follows the given statements.

Statements:

- I. All X are Y.  
II. All Y are Z.

Conclusions:

- I. Some Z are X.  
II. All X are Z.

- Ans  1. Only conclusion II follows  
 2. Only conclusion I follows  
 3. Neither I nor II  
 4. Both conclusion I and II follows

Question ID : 54592780002

Q.10 In the following question, select the odd word pair from the given alternatives.

- Ans  1. Bat – Play  
 2. Pen – Write  
 3. Travel – Car  
 4. Water – Drink

Question ID : 54592779995

Q.11 In the following question, select the related number from the given alternatives.

43 : 78 :: 136 : ?

- Ans  1. 167  
 2. 171  
 3. 173  
 4. 169

Question ID : 54592780004

Q.12 In a certain code language, 'PEN' is written as '35', 'TOM' is written as '48'. What is the code for 'CAL' in that code language?

- Ans  1. 16  
 2. 34  
 3. 18  
 4. 36

Question ID : 54592779998

Q.13 A goes towards North. He then turns right and walks some distance. He then turns left and walks some distance. He turns right and walks some distance. He then turns left and walks some distance. Which direction is he facing now?

- Ans  1. East

- 2. North
- 3. South
- 4. West

Question ID : 54592780007

Q.14 In the following question, select the odd figure from the given alternatives.

Ans

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

Question ID : 54592780009

Q.15 A car travels 20 km towards South. It then turns right and travels 60 km. If then turns right and travels 170 km. If then turns left and travels 20 km. How far and in which direction is car from its initial point?

- 1. 220 km, North West
- 2. 170 km, South West
- 3. 220 km, South West
- 4. 170 km, North West

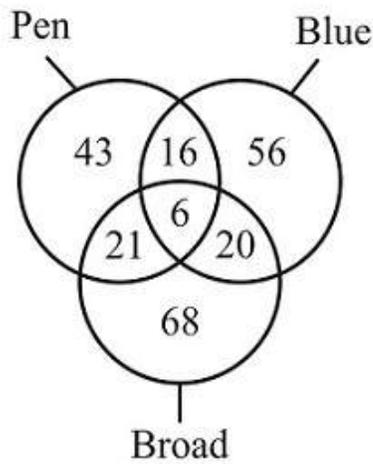
Question ID : 54592780008

Q.16 6 books are kept over the other. B1 and B2 are always kept together. 3 books are kept above B5. B6 cannot be at top or at bottom. B1 and B2 cannot be kept with B5. Which book is at the bottom?

- 1. B1 or B3
- 2. B1 or B4
- 3. B3 or B4
- 4. B2 or B3

Question ID : 54592780000

Q.17 How many pens are blue?



- Ans
- 1. 16
  - 2. 22
  - 3. 26
  - 4. 20

Question ID : 54592780006

Q.18 A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.

AD17, DH80, GL193, ?

- Ans
- 1. KP377
  - 2. JP364
  - 3. KP393
  - 4. JP356

Question ID : 54592779994

Q.19 In the following question, select the related word pair from the given alternatives.

Carpenter : Saw :: ? : ?

- Ans
- 1. Musician : Flute
  - 2. Actor : Acting
  - 3. Pen : Writer
  - 4. Dancer : Dance

Question ID : 54592779997

Q.20 If  $4 @ 9 \# 6 = 58$  and  $5 @ 8 \# 7 = 61$ , then  $6 @ 12 \# 3 = ?$

- Ans
- 1. 64
  - 2. 36
  - 3. 42
  - 4. 56

Question ID : 54592780005

## Section : General Awareness

Q.1 Who won Oscar 2019 in Best Director category?

- Ans
- 1. Alfonso Cuaron for 'Roma'
  - 2. Spike lee for 'Black klansmen'
  - 3. Pawel Pawlikowski for 'Cold War'
  - 4. Adam McKay for 'Vice'

Question ID : 54592780028

Q.2 The fuse wire used in Electrical Circuits is based on which principle?

- Ans
- 1. Ductility of wire
  - 2. Heating effect of electricity
  - 3. Magnetic effect of electricity
  - 4. Electromagnetic Induction

Question ID : 54592780018

Q.3 Which Cricket nation has been suspended by ICC for violation of its Constitution in 2019?

- Ans
- 1. Zimbabwe
  - 2. Kenya
  - 3. Ireland
  - 4. Nepal

Question ID : 54592780032

Q.4 Yanam, Part of Puducherry, is located in which Indian state?

- Ans
- 1. Karnataka
  - 2. Kerala
  - 3. Tamil Nadu
  - 4. Andhra Pradesh

Question ID : 54592780021

Q.5 भारत में भाषा के प्रचार और संरक्षण के लिए भाषाई अधिकारी की नियुक्ति कौन करता है?

- Ans
- 1. संसद
  - 2. राष्ट्रपति
  - 3. भारत के मुख्य न्यायाधीश
  - 4. प्रधानमंत्री

Question ID : 54592780030

Q.6 Which is the highest plateau in the world?

- Ans
- 1. East African Plateau
  - 2. Tibetan Plateau

- 3. Deccan Plateau
- 4. Western Plateau, Australia

Question ID : 54592780020

Q.7 To eliminate malaria from India by 2030, Indian council of Medical Research has launched \_\_\_\_\_.

- Ans
- 1. 'Say no to Malaria'
  - 2. 'MERA India'
  - 3. 'Malaria Mukh Bharat'
  - 4. 'Goodbye Malaria'

Question ID : 54592780026

Q.8 The property of metals by which they can be beaten into thin sheets is called \_\_\_\_\_.

- Ans
- 1. Malleability
  - 2. Electrical conductivity
  - 3. Sonorous
  - 4. Ductility

Question ID : 54592780017

Q.9 किस मुगल शासक ने आगरा का किला बनवाया?

- Ans
- 1. जहांगीर
  - 2. अकबर
  - 3. औरंगजेब
  - 4. शाहजहाँ

Question ID : 54592780013

Q.10 Which of the following rivers is a west – flowing river?

- Ans
- 1. Godavari
  - 2. Krishna
  - 3. Mahanadi
  - 4. Narmada

Question ID : 54592780022

Q.11 Hiuen Tsang came to India from which country?

- Ans
- 1. China
  - 2. Spain
  - 3. Persia
  - 4. England

Question ID : 54592780023

Q.12 नाट्य शास्त्र में, वायु संगीत वाद्ययंत्रों को \_\_\_\_\_ के अंतर्गत वर्गीकृत किया जाता है।

- Ans
- 1. घन वाद्य
  - 2. अवनद्ध वाद्य
  - 3. तत् वाद्य
  - 4. सुषिर वाद्य

Question ID : 54592780014

Q.13 गंभीर और लंबे समय तक मंदी से जूझ रही अर्थव्यवस्था को \_\_\_\_\_ की स्थिति में कहा जाता है।

- Ans
- 1. अवमूल्यन
  - 2. मूल्यहास
  - 3. अपस्फीति
  - 4. महामंदी

Question ID : 54592780015

Q.14 Feather star belongs to \_\_\_\_\_

- Ans
- 1. Mollusca
  - 2. Echinodermata
  - 3. Arthropoda
  - 4. Protochordata

Question ID : 54592780019

Q.15 A facility under which Scheduled Commercial Banks can borrow additional amount of overnight money from Reserve Bank of India by dipping into their statutory liquidity ratio upto a limit at penal rate of interest is called \_\_\_\_\_

- Ans
- 1. Repo rate
  - 2. Marginal Standing Facility
  - 3. Bank rate
  - 4. Liquidity Adjustment Facility

Question ID : 54592780016

Q.16 राष्ट्रकूट साम्राज्य की स्थापना किसने की?

- Ans
- 1. दन्तिदुर्ग
  - 2. कीर्तिवर्मन
  - 3. पुलकेशिन
  - 4. सिमुका

Question ID : 54592780024

Q.17 Who won the 2019 Pulitzer prize for fiction?

- Ans
- 1. Tommy Orange for 'There There'
  - 2. Richard Powers for 'The Overstory'
  - 3. Rebecca Makkai for 'The great Believers'
  - 4. Andrew Sean Greer for 'Less'

Question ID : 54592780027

Q.18 Which athlete won Khel Ratna 2019 in para – athletics?

- Ans
- 1. Swapna Burman
  - 2. Harmeet Rajul Desai
  - 3. Sonia Lather
  - 4. Deepa Malik

Question ID : 54592780031

Q.19 1920 - 22 के बीच असहयोग किसके नेतृत्व में हुआ?

- Ans
- 1. गोपाल कृष्ण गोखले
  - 2. लाला लाजपत राय
  - 3. मोतीलाल नेहरू
  - 4. महात्मा गांधी

Question ID : 54592780025

Q.20 Under which Article of the constitution of India, special provisions regarding state of Mizoram are mentioned?

- Ans
- 1. Article 371 E
  - 2. Article 371 F
  - 3. Article 371 D
  - 4. Article 371 G

Question ID : 54592780029

Section : Arithmetic Ability

Q.1 The sum of circumference and the radius of a circle is 102 cm. What is the area of the circle?

- Ans
- 1. 628 cm<sup>2</sup>
  - 2. 621 cm<sup>2</sup>
  - 3. 724 cm<sup>2</sup>
  - 4. 616 cm<sup>2</sup>

Question ID : 54592780049

Q.2 If 45682P is divisible by 12, then what is the value of P?

- Ans
- 1. 8
  - 2. 2
  - 3. 4
  - 4. 0

Question ID : 54592780034

Q.3 What is the average of first 20 whole numbers?

- Ans
- 1. 10
  - 2. 9.5
  - 3. 10.5
  - 4. 9

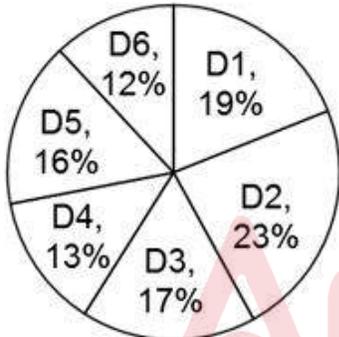
Question ID : 54592780038

Q.4 A work was finished by Rahul, Mohan and Gagan together. Rahul and Mohan together finished 75 percent of the work and Mohan and Gagan together finished 65 percent of the work. Who among the three is most efficient?

- Ans
- 1. Gagan
  - 2. All one equally efficient
  - 3. Mohan
  - 4. Rahul

Question ID : 54592780047

Q.5 नीचे दिया गया वृत्त चित्र एक कंपनी द्वारा विभिन्न विभागों पर किये खर्चों को दर्शाता है। खर्चों को कंपनी के कुल खर्चों के प्रतिशत के रूप में दर्शाया गया है।

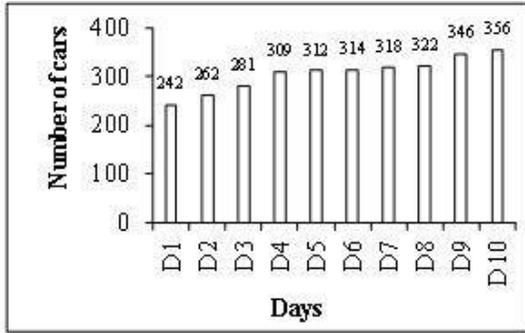


खण्ड D2 तथा D3 द्वारा बनाये गए केंद्रीय कोण के बीच का अंतर क्या है?

- Ans
- 1.  $18.6^\circ$
  - 2.  $24.2^\circ$
  - 3.  $15.3^\circ$
  - 4.  $21.6^\circ$

Question ID : 54592780050

Q.6 The bar graph given below shows the number of cars parked on different days in a parking area.



Number of cars parked on D10 is how much percentage more than the number of cars parked on D1?

- Ans
- 1. 47.1 percent
  - 2. 57.1 percent
  - 3. 52.1 percent
  - 4. 42.1 percent

Question ID : 54592780051

Q.7 Find the value of:

$$2 + \frac{3}{1 + \frac{1}{1 + \frac{1}{1 + \frac{1}{1 + \frac{2}{3}}}}}$$

- Ans
- 1. 27/7
  - 2. 32/21
  - 3. 29/7
  - 4. 34/21



Question ID : 54592780036

Q.8 A train of length, 240 metres, takes 36 seconds to cross a 480 metres long platform. How much time will the train take to cross a 360 metres long platform?

- Ans
- 1. 35 seconds
  - 2. 25 seconds
  - 3. 20 seconds
  - 4. 30 seconds

Question ID : 54592780046

Q.9 Find the value of:

$$\frac{(3.2)^2 + 0.64 + 0.04}{(3.2)^3 - 0.008}$$

- Ans
- 1. 0.333
  - 2. 3.4

3. 3
4. 2.994

Question ID : 54592780037

Q.10 What is the compound interest on a sum of Rs 15000 for 3 years at the rate of 20 percent per annum compounded annually?

- Ans  1. Rs 11520
2. Rs 9980
3. Rs 10720
4. Rs 10920

Question ID : 54592780044

Q.11 On selling an article for Rs 390, a shopkeeper losses 40 percent. For how much he should sell the article in order to earn a profit of 20 percent?

- Ans  1. Rs 780
2. Rs 680
3. Rs 750
4. Rs 840

Question ID : 54592780041

Q.12 If area of a square increases by 32.25 percent, then what is the increase in its side?

- Ans  1. 15 percent
2. 11.5 percent
3. 35 percent
4. 25 percent

Question ID : 54592780040

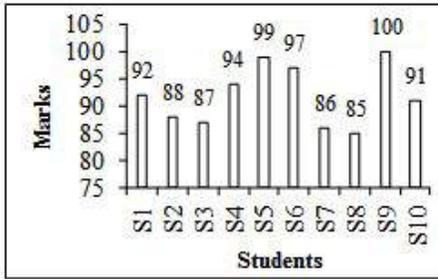
Q.13 Which of the following expression is/are true?

- I. Highest Common Factor of 36 and 24 is 12.
- II. Least Common Multiple of 27 and 36 is 216.
- III. 37030 is completely divisible by 15.

- Ans  1. I, II, and III
2. Only I
3. I and II
4. I and III

Question ID : 54592780035

Q.14 The bar graph given below shows the marks out of 100 obtained by 10 students in a subject.



What is the average marks by per student?

- Ans
- 1. 89.9
  - 2. 82.9
  - 3. 90.9
  - 4. 91.9

Question ID : 54592780052

Q.15 A train is running at the speed of 90 km/hr. How much time will it take to cover a distance of 1200 meter?

- Ans
- 1. 40 seconds
  - 2. 48 seconds
  - 3. 60 seconds
  - 4. 54 seconds

Question ID : 54592780045

Q.16 The lengths of two diagonals of a rhombus are 13 cm and 24 cm. What is the area of the rhombus?

- Ans
- 1. 315 cm<sup>2</sup>
  - 2. 234 cm<sup>2</sup>
  - 3. 156 cm<sup>2</sup>
  - 4. 78 cm<sup>2</sup>

Question ID : 54592780048

Q.17 If  $P : Q = 2 : 3$  and  $Q : R = 4 : 5$ , then what is  $(P + Q) : (Q + R)$ ?

- Ans
- 1. 8 : 15
  - 2. 20 : 27
  - 3. 2 : 3
  - 4. 25 : 27

Question ID : 54592780042

Q.18 Find the value of:

$$(72 + 12)^2 - (72 - 12)^2$$

- Ans
- 1. 3256

2. 3456

3. 3686

4. 3746

Question ID : 54592780033

**Q.19** The ratio of number of boys and girls in a class is 13 : 8. If 50 boys leave the class and 50 girls join the class, then their ratio will become 4 : 3. What is the final number of the girls in the class?

Ans  1. 400

2. 350

3. 500

4. 450

Question ID : 54592780043

**Q.20** If  $P = 300$  and  $Q = 450$ , then  $P$  is how much percentage less than  $Q$ ?

Ans  1. 50 percent

2. 25 percent

3. 66.66 percent

4. 33.33 percent

Question ID : 54592780039

Section : General English

**Q.1** In the given question, four words are given out of which one word is correctly spelt. Choose the correctly spelt word

Ans  1. Rhyme

2. Rhime

3. Rhiyme

4. Riyme

Question ID : 54592780064

**Q.2** Rearrange the parts of the sentence in correct order. We would toast the.

P: manufactured mini-fire pit

Q: that was set up on our table

R: marshmallows over the

Ans  1. RPQ

2. PRQ

3. RQP

4. QRP

Question ID : 54592780059

**Q.3** Choose the word that is opposite in meaning to the given word.

Little

- Ans  1. Small  
 2. Glob  
 3. Inadequate  
 4. Few

Question ID : 54592780062

**Q.4 Find the part of the given sentence that has an error in it. If there is no error, choose 'No error'.**

**My advice to all those who (1)/ drive or ride in the city is to (2)/ stay by your lanes (3)/. No error (4)**

- Ans  1. 2  
 2. 3  
 3. 1  
 4. 4

Question ID : 54592780053

**Q.5 Choose the word that can substitute the given sentence.**

**A man who is womanish in his habits**

- Ans  1. Misanthrope  
 2. Effeminate  
 3. Uxorious  
 4. Heretic

Question ID : 54592780067

**Q.6 In the given question, four words are given out of which one word is correctly spelt. Choose the correctly spelt word**

- Ans  1. Lovely  
 2. Loveley  
 3. Lovaley  
 4. Lovly

Question ID : 54592780063

**Q.7 Find the part of the given sentence that has an error in it. If there is no error, choose 'No error'.**

**Bananas may not be overflowing (1)/ with calcium, but they are still helpful (2)/ keep in bones strong (3)/. No error (4)**

- Ans  1. 2  
 2. 3  
 3. 4  
 4. 1

Question ID : 54592780054

Q.8 Choose the word that means the same as the given word.

Brief

- Ans
- 1. Ample
  - 2. Concise
  - 3. Mislead
  - 4. Expansive

Question ID : 54592780061

Q.9 In the following question, out of the given four alternatives, select the alternative which best expresses the meaning of the Idiom/Phrase.

A MARE'S NEST

- Ans
- 1. A brief lecture
  - 2. Talking behind the curtain
  - 3. A small possession
  - 4. A complicated situation

Question ID : 54592780066

Q.10 Improve the bracketed part of the sentence. In case if there is no improvement, select no improvement.

The store will open (at) 27th August.

- Ans
- 1. over
  - 2. No Improvement
  - 3. on
  - 4. during

Question ID : 54592780056

Q.11 Improve the bracketed part of the sentence. In case if there is no improvement, select no improvement.

An elephant is (more stronger) than a camel.

- Ans
- 1. No Improvement
  - 2. more strongest
  - 3. stronger
  - 4. strongest

Question ID : 54592780055

Q.12 A sentence has been given with a blank to be filled with an appropriate word. Choose the correct alternative.

Has a novel \_\_\_\_\_ by Navya?

- Ans
- 1. been written
  - 2. been wrote
  - 3. being writing
  - 4. being written

Question ID : 54592780057

Q.13 In the following question, out of the given four alternatives, select the alternative which best expresses the meaning of the Idiom/Phrase.

A DIME A DOZEN

- Ans
- 1. Something that is impossible to be bought
  - 2. Very crucial part of something
  - 3. Something that is extremely common and valueless
  - 4. Far from the reach of rich people

Question ID : 54592780065

Q.14 Rearrange the parts of the sentence in correct order.

Coffee contains chemical :

P: our calorie intake, triggering acne

Q: properties that boost the

R: stress hormones which tend to increase

- Ans
- 1. RPQ
  - 2. QPR
  - 3. PRQ
  - 4. QRP

Question ID : 54592780060

Q.15 A sentence has been given with a blank to be filled with an appropriate word. Choose the correct alternative.

It is half past twelve \_\_\_\_\_ my watch.

- Ans
- 1. from
  - 2. in
  - 3. by
  - 4. on

Question ID : 54592780058

### Comprehension:

Read the following information carefully and answer the given questions.

Theatre had its origins in the earliest parts of human history. Before there were actual theatres and actors, the first form of theatre can be found in the development of dance culture. Dances were originally performed in commemoration of major events, celebrations and religious ceremonies. At first, they were very informal affairs with little practice, but dancing as rituals evolved into very sophisticated forms of artistry by the 3000B BCE era. The theme of religion that first originated in ritualistic dancing continued in theatre for more than four thousand years. Modern theatre has changed a lot since the time of traditional Greek Tragedies and Roman Theatrics. Today's theatre has many contrasting and diverse styles; it contains both higher levels of musical and acting talent. Greek theatre is where modern theatre draws its roots from. It is the start of the Western tradition of theatre because not only did the Greeks enjoy theatre as part of religion, but also saw it as an art form. The first steps towards Greek theatre occurred when dances and rituals to the ancient Greek God of Wine, Dionysus, became more sophisticated. The biggest change was the addition of style and theme that led to the development of plays, where spoken word was used rather than only song and dance. Formal Greek theatre is renowned for its style, themes and physical constructions. The great Greek playwrights were very interested in the development of a theme in their plays. Following Greek theatre, the next evolution of theatre occurred during the Roman era. Roman theatre was not extremely original because it took many of the elements of Greek theatre. Many Roman plays were adaptations or even direct copies of Greek plays but the biggest difference between the two is that Romans made theatre much more secular.

## SubQuestion No : 16

Q.16 What does the following phrase mean: 'Dances and rituals became very sophisticated'?

- Ans  1. Dances and rituals became more advanced
2. Dances and rituals became more widespread
3. Dances and rituals became more complicated
4. Dances and rituals became more problematic

Question ID : 54592780069

## Comprehension:

Read the following information carefully and answer the given questions.

Theatre had its origins in the earliest parts of human history. Before there were actual theatres and actors, the first form of theatre can be found in the development of dance culture. Dances were originally performed in commemoration of major events, celebrations and religious ceremonies. At first, they were very informal affairs with little practice, but dancing as rituals evolved into very sophisticated forms of artistry by the 3000B BCE era. The theme of religion that first originated in ritualistic dancing continued in theatre for more than four thousand years. Modern theatre has changed a lot since the time of traditional Greek Tragedies and Roman Theatrics. Today's theatre has many contrasting and diverse styles; it contains both higher levels of musical and acting talent. Greek theatre is where modern theatre draws its roots from. It is the start of the Western tradition of theatre because not only did the Greeks enjoy theatre as part of religion, but also saw it as an art form. The first steps towards Greek theatre occurred when dances and rituals to the ancient Greek God of Wine, Dionysus, became more sophisticated. The biggest change was the addition of style and theme that led to the development of plays, where spoken word was used rather than only song and dance. Formal Greek theatre is renowned for its style, themes and physical constructions. The great Greek playwrights were very interested in the development of a theme in their plays. Following Greek theatre, the next evolution of theatre occurred during the Roman era. Roman theatre was not extremely original because it took many of the elements of Greek theatre. Many Roman plays were adaptations or even direct copies of Greek plays but the biggest difference between the two is that Romans made theatre much more secular.

## SubQuestion No : 17

Q.17 What is the difference between Modern theatre and Greek theatre?

- Ans  1. Modern theatre is a place for everyday life whereas Greek theatre celebrated festivals and major events.
2. Modern theatre has a higher level of acting unlike Greek theatre.
3. Modern theatre focuses on music while Greek theatre focused on spoken words.
4. Modern theatre is seen as a religious place whereas Greek theatre was only considered as an art form.

Question ID : 54592780071

## Comprehension:

Read the following information carefully and answer the given questions.

Theatre had its origins in the earliest parts of human history. Before there were actual theatres and actors, the first form of theatre can be found in the development of dance culture. Dances were originally performed in commemoration of major events, celebrations and religious ceremonies. At first, they were very informal affairs with little practice, but dancing as rituals evolved into very sophisticated forms of artistry by the 3000B BCE era. The theme of religion that first originated in ritualistic dancing continued in theatre for more than four thousand years. Modern theatre has changed a lot since the time of traditional Greek Tragedies and Roman Theatrics. Today's theatre has many contrasting and diverse styles; it contains both higher levels of musical and acting talent. Greek theatre is where modern theatre draws its roots from. It is the start of the Western tradition of theatre because not only did the Greeks enjoy theatre as part of religion, but also saw it as an art form. The first steps towards Greek theatre occurred when dances and rituals to the ancient Greek God of Wine, Dionysus, became more sophisticated. The biggest change was the addition of style and theme that led to the development of plays, where spoken word was used rather than only song and dance. Formal Greek theatre is renowned for its style, themes and physical constructions. The great Greek playwrights were very interested in the development of a theme in their plays. Following Greek theatre, the next evolution of theatre occurred during the

Roman era. Roman theatre was not extremely original because it took many of the elements of Greek theatre. Many Roman plays were adaptations or even direct copies of Greek plays but the biggest difference between the two is that Romans made theatre much more secular.

**SubQuestion No : 18**

**Q.18 How is dancing related to theatres?**

- Ans
- 1. Dance was the reason people started going to the theatres.
  - 2. Ritual of dancing laid the foundation of the Greek theatre.
  - 3. Dance helped in expressing the themes of plays well.
  - 4. Theatre is responsible for the development of dance culture.

Question ID : 54592780070

**Comprehension:**

Read the following information carefully and answer the given questions.

Theatre had its origins in the earliest parts of human history. Before there were actual theatres and actors, the first form of theatre can be found in the development of dance culture. Dances were originally performed in commemoration of major events, celebrations and religious ceremonies. At first, they were very informal affairs with little practice, but dancing as rituals evolved into very sophisticated forms of artistry by the 3000B BCE era. The theme of religion that first originated in ritualistic dancing continued in theatre for more than four thousand years. Modern theatre has changed a lot since the time of traditional Greek Tragedies and Roman Theatrics. Today's theatre has many contrasting and diverse styles; it contains both higher levels of musical and acting talent. Greek theatre is where modern theatre draws its roots from. It is the start of the Western tradition of theatre because not only did the Greeks enjoy theatre as part of religion, but also saw it as an art form. The first steps towards Greek theatre occurred when dances and rituals to the ancient Greek God of Wine, Dionysus, became more sophisticated. The biggest change was the addition of style and theme that led to the development of plays, where spoken word was used rather than only song and dance. Formal Greek theatre is renowned for its style, themes and physical constructions. The great Greek playwrights were very interested in the development of a theme in their plays. Following Greek theatre, the next evolution of theatre occurred during the Roman era. Roman theatre was not extremely original because it took many of the elements of Greek theatre. Many Roman plays were adaptations or even direct copies of Greek plays but the biggest difference between the two is that Romans made theatre much more secular.

**SubQuestion No : 19**

**Q.19 Choose the word from the passage that is opposite in the meaning to 'identical'.**

- Ans
- 1. Diverse
  - 2. Renowned
  - 3. Sophisticated
  - 4. Informal

Question ID : 54592780073

**Comprehension:**

Read the following information carefully and answer the given questions.

Theatre had its origins in the earliest parts of human history. Before there were actual theatres and actors, the first form of theatre can be found in the development of dance culture. Dances were originally performed in commemoration of major events, celebrations and religious ceremonies. At first, they were very informal affairs with little practice, but dancing as rituals evolved into very sophisticated forms of artistry by the 3000B BCE era. The theme of religion that first originated in ritualistic dancing continued in theatre for more than four thousand years. Modern theatre has changed a lot since the time of traditional Greek Tragedies and Roman Theatrics. Today's theatre has many contrasting and diverse styles; it contains both higher levels of musical and acting talent. Greek theatre is where modern theatre draws its roots from. It is the start of the Western tradition of theatre because not only did the Greeks enjoy theatre as part of religion, but also saw it as an art form. The first steps towards Greek theatre occurred when dances and rituals to the ancient Greek God of Wine, Dionysus, became more sophisticated. The biggest change was the addition of style and theme that led to the development of plays, where spoken word was used rather than only song and dance. Formal Greek theatre is renowned for its style, themes and physical constructions. The great Greek playwrights were very interested in the development of a

theme in their plays. Following Greek theatre, the next evolution of theatre occurred during the Roman era. Roman theatre was not extremely original because it took many of the elements of Greek theatre. Many Roman plays were adaptations or even direct copies of Greek plays but the biggest difference between the two is that Romans made theatre much more secular.

SubQuestion No : 20

Q.20 Which of the following pair is incorrectly matched based on the information given in the passage?

- Ans
- 1. Dance – religious ceremonies
  - 2. Dionysus – Roman God
  - 3. Roman theatre – secular
  - 4. Greek theatre – style

Question ID : 54592780072

Section : General Hindi

Q.1 निम्नलिखित में से शुद्ध वर्तनी का चयन कीजिए।

- Ans
- 1. द्वीतिया
  - 2. दिवितया
  - 3. द्वितीया
  - 4. द्वीतीया

Question ID : 54592780079

Q.2 दिए गए शब्द का समानार्थी शब्द ज्ञात कीजिए।

कुसुम

- Ans
- 1. शशि
  - 2. पुष्प
  - 3. सरोज
  - 4. निशा

Question ID : 54592780081

Q.3 दिए गए वाक्य में उचित अव्यय का चयन करके रिक्त स्थान की पूर्ति कीजिए।

हमारे देश की \_\_\_\_\_ अत्यधिक प्रदूषित हो गई है।

- Ans
- 1. स्वतंत्रता
  - 2. सभ्यता
  - 3. नदियाँ
  - 4. उदासी

Question ID : 54592780078

Q.4 रिक्त स्थान में दिए गए चार विकल्पों में उस विकल्प का चयन करे जो दिए गए मुहावरे के अर्थ को सर्वश्रेष्ठ रूप से व्यक्त करता है।

जो सभी मनुष्यों को \_\_\_\_\_, वह सचमुच महान होता है।

- Ans
- 1. एक और एक ग्यारह

- 2. आँखे दिखाना
- 3. एक आँख से देखना
- 4. ओखली में सिर देना

Question ID : 54592780086

Q.5 दिए गए शब्द का संधि विच्छेद कीजिए।

दुष्कर्म

- Ans
- 1. दुषः + कर्म
  - 2. दुः + कर्म
  - 3. दुः + ष्कर्म
  - 4. दुष् + कर्म

Question ID : 54592780074

Q.6 निम्नलिखित में से कौन सा वाक्य सरल वाक्य है?

- Ans
- 1. दौड़ता हुआ कुत्ता रूक गया और मालिक को देखने लगा।
  - 2. दौड़ता हुआ कुत्ता मालिक को देखकर रूक गया।
  - 3. कुत्ते ने मालिक को देखा फिर दौड़ने लगा।
  - 4. दौड़ते हुए कुत्ते ने मालिक को देखा और रूक गया।

Question ID : 54592780085

Q.7 दिए गए शब्द का समास विग्रह ज्ञात कीजिए।

बिहारीरचित

- Ans
- 1. बिहारी पर रचित
  - 2. बिहारी से रचित
  - 3. बिहारी की रचित
  - 4. बिहारी के द्वारा रचित

Question ID : 54592780076

Q.8 निम्नलिखित में से कौन सा शब्द युग्म तत्सम - तद्भव का युग्म नहीं है?

- Ans
- 1. पय - दूध
  - 2. अग्नि - आग
  - 3. जल - पानी
  - 4. आम्र - आम

Question ID : 54592780077

Q.9 दिए गए वाक्य में किस विराम चिह्न का उपयोग किया गया है उसकी पहचान कीजिए।

'आतंकवाद: एक जटिल समस्या'

- Ans
- 1. उपविराम
  - 2. अल्पविराम
  - 3. पूर्णविराम

4. अर्धविराम

Question ID : 54592780088

Q.10 दिए गए शब्द में उपसर्ग ज्ञात कीजिए।

उद्धार

- Ans  1. उद् + हार  
 2. उत् + धार  
 3. उत् + हार  
 4. उद् + धार

Question ID : 54592780075

Q.11 दिए गए वाक्य का काल ज्ञात कीजिए।

वह स्कूल जा चुकी थी।

- Ans  1. पूर्ण भूतकाल  
 2. अपूर्ण भूतकाल  
 3. सामान्य भूतकाल  
 4. संदिग्ध भूतकाल

Question ID : 54592780083

Q.12 दिए गए शब्द का पर्यायवाची ज्ञात कीजिए।

प्रसून

- Ans  1. अजर  
 2. दृग  
 3. नभ  
 4. सुमन

Question ID : 54592780080

Q.13 दिए गए वाक्य के लिए उचित लोकोक्ति का चयन कीजिए।

सच्चा व्यक्ति किसी से नहीं डरता।

- Ans  1. साँच को आँच नहीं  
 2. सच्चे का बोलबाला  
 3. साँच बराबर तप नहीं  
 4. सच्चे से डरना क्या

Question ID : 54592780087

Q.14 दिए गए वाक्य का वाच्य ज्ञात कीजिए।

प्रिया नमकीन खा रही है।

- Ans  1. दृव्य वाच्य  
 2. कर्तृवाच्य  
 3. भाववाच्य

✓ 4. कर्मवाच्य

Question ID : 54592780084

Q.15 दिए गए वाक्य में किस प्रकार का पुरुष है ज्ञात कीजिए।

तुम सब कहाँ थे?

- Ans
- ✓ 1. मध्यम
  - ✗ 2. प्रथम
  - ✗ 3. उत्तम
  - ✗ 4. अन्य

Question ID : 54592780082

**Comprehension:**

गद्यांश को ध्यानपूर्वक पढ़ें तथा प्रत्येक प्रश्न में चार विकल्पों में से सही विकल्प चुने।

आधुनिक कंप्यूटर की गणना ही नहीं अपितु ढेर सारे काम करता है। रेलवे स्टेशन पर रिजर्वेशन, बड़ी-बड़ी कंपनियों की लाभ-हानि, लोगों की इच्छा-अनिच्छा क्या कुछ नहीं अब अगर ज्योतिष शास्त्र को देखें तो वह भी कंप्यूटर के बिना कुछ नहीं करता। स्वास्थ्य की जानकारी भी कंप्यूटर देता है, और तो और हम बच्चों के खेलों का साधन भी है। कंप्यूटर अब तो मनुष्य का दाया हाथ हो गया है कंप्यूटर की अपनी भाषा होती है और वे उसे ही समझता है। कंप्यूटर में वायरस भी आता है उसकी यह छूत की बीमारी जल्दी उसे जकड़ लेती है। कंप्यूटर का मिजाज जल्दी ही गर्म हो जाता है इसके लिए वातावरण को ठंडा रखना पड़ता है। 1970 तक के कंप्यूटर जितने बड़े लंबे-चौड़े आकार के होते थे वह अब इतने छोटे हो गये हैं कि ब्रीफकेस में ही समा जाता है एक अकेले व्यक्ति बिल गेट्स ने ही ऐसे सॉफ्टवेयर निर्मित किए हैं जिनसे पूरी दुनिया में तहलका मच गया। आजकल कंप्यूटर के बिना तो जैसे जीवन नीरस है चारों तरफ कंप्यूटर का ही महत्त्व है।

**SubQuestion No : 16**

Q.16 कंप्यूटर के द्वारा हम कौन सी जानकारी प्राप्त कर सकते हैं?

- I. कंपनियों की लाभ-हानि
- II. स्वास्थ्य की जानकारी
- III. वायरस
- IV. रेलवे स्टेशन का रिजर्वेशन

- Ans
- ✗ 1. III, IV तथा II
  - ✗ 2. I, II तथा III
  - ✗ 3. I, III तथा IV
  - ✓ 4. I, II तथा IV

Question ID : 54592780091

**Comprehension:**

गद्यांश को ध्यानपूर्वक पढ़ें तथा प्रत्येक प्रश्न में चार विकल्पों में से सही विकल्प चुने।

आधुनिक कंप्यूटर की गणना ही नहीं अपितु ढेर सारे काम करता है। रेलवे स्टेशन पर रिजर्वेशन, बड़ी-बड़ी कंपनियों की लाभ-हानि, लोगों की इच्छा-अनिच्छा क्या कुछ नहीं अब अगर ज्योतिष शास्त्र को देखें तो वह भी कंप्यूटर के बिना कुछ नहीं करता। स्वास्थ्य की जानकारी भी कंप्यूटर देता है, और तो और हम बच्चों के खेलों का साधन भी है। कंप्यूटर अब तो मनुष्य का दाया हाथ हो गया है कंप्यूटर की अपनी भाषा होती है और वे उसे ही समझता है। कंप्यूटर में वायरस भी आता है उसकी यह छूत की बीमारी जल्दी उसे जकड़ लेती है। कंप्यूटर का मिजाज जल्दी ही गर्म हो जाता है इसके लिए वातावरण को ठंडा रखना पड़ता है। 1970 तक के कंप्यूटर जितने बड़े लंबे-चौड़े आकार के होते थे वह अब इतने छोटे हो गये हैं कि ब्रीफकेस में ही समा जाता है एक अकेले व्यक्ति बिल गेट्स ने ही ऐसे सॉफ्टवेयर निर्मित किए हैं जिनसे पूरी दुनिया में तहलका मच गया। आजकल कंप्यूटर के बिना तो जैसे जीवन नीरस है चारों तरफ कंप्यूटर का ही महत्त्व है।

**SubQuestion No : 17**

Q.17 कंप्यूटर को मनुष्य क्या मानता है?

- Ans
- ✗ 1. जीवन
  - ✗ 2. वातावरण

3. दायां हाथ  
 4. खेल

Question ID : 54592780090

**Comprehension:**

गद्यांश को ध्यानपूर्वक पढ़ें तथा प्रत्येक प्रश्न में चार विकल्पों में से सही विकल्प चुने।

आधुनिक कंप्यूटर की गणना ही नहीं अपितु ढेर सारे काम करता है। रेलवे स्टेशन पर रिजर्वेशन, बड़ी-बड़ी कंपनियों की लाभ-हानि, लोगों की इच्छा-अनिच्छा क्या कुछ नहीं अब अगर ज्योतिष शास्त्र को देखें तो वह भी कंप्यूटर के बिना कुछ नहीं करता। स्वास्थ्य की जानकारी भी कंप्यूटर देता है, और तो और हम बच्चों के खेलों का साधन भी है। कंप्यूटर अब तो मनुष्य का दाया हाथ हो गया है कंप्यूटर की अपनी भाषा होती है और वे उसे ही समझता है। कंप्यूटर में वायरस भी आता है उसकी यह छूत की बीमारी जल्दी उसे जकड़ लेती है। कंप्यूटर का मिजाज जल्दी ही गर्म हो जाता है इसके लिए वातावरण को ठंडा रखना पड़ता है। 1970 तक के कंप्यूटर जितने बड़े लंबे-चौड़े आकार के होते थे वह अब इतने छोटे हो गये हैं कि ब्रीफकेस में ही समा जाता है एक अकेले व्यक्ति बिल गेट्स ने ही ऐसे सॉफ्टवेयर निर्मित किए हैं जिनसे पूरी दुनिया में तहलका मच गया। आजकल कंप्यूटर के बिना तो जैसे जीवन नीरस है चारों तरफ कंप्यूटर का ही महत्त्व है।

**SubQuestion No : 18**

Q.18 बच्चों के लिए कंप्यूटर का साधन क्या है?

- Ans  1. खेलों  
 2. अशिक्षित  
 3. बीमारी  
 4. लड़ाई

Question ID : 54592780093

**Comprehension:**

गद्यांश को ध्यानपूर्वक पढ़ें तथा प्रत्येक प्रश्न में चार विकल्पों में से सही विकल्प चुने।

आधुनिक कंप्यूटर की गणना ही नहीं अपितु ढेर सारे काम करता है। रेलवे स्टेशन पर रिजर्वेशन, बड़ी-बड़ी कंपनियों की लाभ-हानि, लोगों की इच्छा-अनिच्छा क्या कुछ नहीं अब अगर ज्योतिष शास्त्र को देखें तो वह भी कंप्यूटर के बिना कुछ नहीं करता। स्वास्थ्य की जानकारी भी कंप्यूटर देता है, और तो और हम बच्चों के खेलों का साधन भी है। कंप्यूटर अब तो मनुष्य का दाया हाथ हो गया है कंप्यूटर की अपनी भाषा होती है और वे उसे ही समझता है। कंप्यूटर में वायरस भी आता है उसकी यह छूत की बीमारी जल्दी उसे जकड़ लेती है। कंप्यूटर का मिजाज जल्दी ही गर्म हो जाता है इसके लिए वातावरण को ठंडा रखना पड़ता है। 1970 तक के कंप्यूटर जितने बड़े लंबे-चौड़े आकार के होते थे वह अब इतने छोटे हो गये हैं कि ब्रीफकेस में ही समा जाता है एक अकेले व्यक्ति बिल गेट्स ने ही ऐसे सॉफ्टवेयर निर्मित किए हैं जिनसे पूरी दुनिया में तहलका मच गया। आजकल कंप्यूटर के बिना तो जैसे जीवन नीरस है चारों तरफ कंप्यूटर का ही महत्त्व है।

**SubQuestion No : 19**

Q.19 उपर्युक्त गद्यांश का उपयुक्त शीर्षक क्या होगा?

- Ans  1. खेलों का साधन  
 2. कंप्यूटर का मिजाज  
 3. बड़े लंबे - चौड़े आकार वाले कंप्यूटर  
 4. कंप्यूटर का महत्त्व

Question ID : 54592780094

**Comprehension:**

गद्यांश को ध्यानपूर्वक पढ़ें तथा प्रत्येक प्रश्न में चार विकल्पों में से सही विकल्प चुने।

आधुनिक कंप्यूटर की गणना ही नहीं अपितु ढेर सारे काम करता है। रेलवे स्टेशन पर रिजर्वेशन, बड़ी-बड़ी कंपनियों की लाभ-हानि, लोगों की इच्छा-अनिच्छा क्या कुछ नहीं अब अगर ज्योतिष शास्त्र को देखें तो वह भी कंप्यूटर के बिना कुछ नहीं करता। स्वास्थ्य की जानकारी भी कंप्यूटर देता है, और तो और हम बच्चों के खेलों का साधन भी है। कंप्यूटर अब तो मनुष्य का दाया हाथ हो गया है कंप्यूटर की अपनी भाषा होती है और वे उसे ही समझता है। कंप्यूटर में वायरस भी आता है उसकी यह छूत की बीमारी जल्दी उसे जकड़ लेती है। कंप्यूटर का मिजाज जल्दी ही गर्म हो जाता है इसके लिए वातावरण को ठंडा रखना पड़ता है। 1970 तक के कंप्यूटर जितने बड़े लंबे-चौड़े आकार के होते थे वह अब इतने छोटे हो गये हैं कि ब्रीफकेस

में ही समा जाता है एक अकेले व्यक्ति बिल गेट्स ने ही ऐसे सॉफ्टवेयर निर्मित किए हैं जिनसे पूरी दुनिया में तहलका मच गया। आजकल कंप्यूटर के बिना तो जैसे जीवन नीरस है चारों तरफ कंप्यूटर का ही महत्त्व है।

SubQuestion No : 20

Q.20 कंप्यूटर के लिए कैसा वातावरण रखना पड़ता है?

- Ans
- 1. अत्यधिक गर्म
  - 2. वर्षा
  - 3. ठंडा
  - 4. गर्म

Question ID : 54592780092

Section : Discipline1

Q.1 The relationship for helical spring between mean shear stress ( $S_m$ ) mean force ( $F_m$ ), mean diameter (D) and wire diameter (d):

- Ans
- 1.  $S_m \propto 16F_m D/\pi d^4$
  - 2.  $S_m \propto 16F_m D/\pi d^3$
  - 3.  $S_m \propto 8F_m D/\pi d^3$
  - 4.  $S_m \propto 8F_m D/\pi d^4$

Question ID : 54592780105

Q.2 If two cap screw of same material has equivalent stiffness of threaded portion and first cap screw threaded portion has cross sectional area twice of second cap screw threaded portion. Then find the relationship between their threaded portion lengths (where  $k$  = stiffness,  $A$  = cross sectional area,  $E$  = young's modulus,  $L$  = length, axial load =  $P$ . All for threaded portion of cap screw):

- Ans
- 1.  $L_1 = 8L_2$
  - 2.  $L_1 = 2L_2$
  - 3.  $L_1 = 4L_2$
  - 4.  $L_1 = L_2$

Question ID : 54592780099

Q.3 It is not the theory of failure:

- Ans
- 1. Octahedral shear stress theory
  - 2. Mohr's theory
  - 3. Guest's theory
  - 4. Stefan's theory

Question ID : 54592780109

Q.4 A material will be called theoretically ideal material:

- Ans
- 1. Elastic properties are same at each and every point of body
  - 2. If a material is equally elastic in all direction
  - 3. If it has different elasticity in different direction
  - 4. If it has same composition throughout the body

Question ID : 54592780111

Q.5 The relation for finding bending moment of a slender column under the action of eccentric load  $P$  with eccentricity  $e$  and deflection  $\delta$  curve is concave in positive  $y$  direction:

- Ans
- 1.  $M = P(\delta - e - y)$
  - 2.  $M = -P(\delta - e - y)$
  - 3.  $M = -P(\delta + e - y)$
  - 4.  $M = P(\delta + e - y)$

Question ID : 54592780106

Q.6 According to Grashof's law following is true:

- Ans
- 1.  $S + L \geq P + Q$
  - 2.  $S + L < P + Q$
  - 3.  $S + L > P + Q$
  - 4.  $S + L \leq P + Q$

Question ID : 54592780096

Q.7 The unit of elastic sectional modulus:

- Ans
- 1.  $\text{mm}^2$
  - 2.  $\text{mm}^3$
  - 3.  $\text{mm}$
  - 4.  $\text{mm}^4$

Question ID : 54592780108

Q.8 In stress - strain diagram for cast iron, this relationship is correct:

- Ans
- 1. There is no definite yield point
  - 2. Yield point is below ultimate point
  - 3. Yield point and ultimate point are at same point
  - 4. Yield point is above ultimate point

Question ID : 54592780107

Q.9 The relationship between two suns and two planets gears to achieve flexibility in speed ratio:

- Ans
- 1.  $S_1 - P_1 = S_2 + P_2$
  - 2.  $S_1 + P_1 = S_2 + P_2$
  - 3.  $S_1 + P_1 = S_2 - P_2$
  - 4.  $S_1 - P_1 = S_2 - P_2$

Question ID : 54592780100

Q.10 A 50 kg brick is resting on a floor without any movement. What is the normal force and work done by it?

- Ans
- 1. 0 N and 0 J

- 2. 490 N and 0 J
- 3. 490 N and 490 J
- 4. 0 N and 490 J

Question ID : 54592780112

**Q.11 Not the principle method of computing the deflection of beam:**

- Ans
- 1. Conjugate beam method
  - 2. Shear stress method
  - 3. Strain energy method
  - 4. Moment area method

Question ID : 54592780113

**Q.12 Deflection of beam during cantilever with point load at the free end:**

- Ans
- 1.  $WL^3/8EI$
  - 2.  $WL^3/48EI$
  - 3.  $WL^3/6EI$
  - 4.  $WL^3/3EI$

Question ID : 54592780114

**Q.13 For quick return mechanism, advance to return time stroke ratio should be:**

- Ans
- 1. Less than 1
  - 2. Greater than 1
  - 3. No relation
  - 4. Equal to 1

Question ID : 54592780098

**Q.14 If we push the break of car then car will begin to slide when:**

- Ans
- 1. Braking torque is higher than limiting friction force from the road
  - 2. Braking torque is equal to limiting friction force from the road
  - 3. They don't have any relation
  - 4. Braking torque is less than limiting friction force from the road

Question ID : 54592780104

**Q.15 For worm and gear assembly if worm diameter and rotation speed is 5 mm and 500 rpm respectively while gear diameter and rotational speed is 4 mm and 300 rpm. Therefore, find input power if, output power is 280 W with efficiency 80 percent.**

- Ans
- 1. 350 W
  - 2. 320 W
  - 3. 360 W
  - 4. 370 W

Question ID : 54592780101

Q.16 Helical pair has degree of freedom:

- Ans
- 1. 2
  - 2. 3
  - 3. 4
  - 4. 1

Question ID : 54592780095

Q.17 Which type of gear we will use to modify the direction of drive in perpendicular direction?

- Ans
- 1. Compound gear
  - 2. Rack and pinion gear
  - 3. Spur gear
  - 4. Bevel gear

Question ID : 54592780097

Q.18 There is following relation of surface stresses with sliding friction and existence of lubricant:

- Ans
- 1. Directly
  - 2. Affected
  - 3. Inversely
  - 4. Unaffected

Question ID : 54592780102

Q.19 For disk and pad arrangement, increase of braking torque is not dependent on:

- Ans
- 1. Radius of center of pad contact from axis of disk rotation
  - 2. Number of pads
  - 3. Increase the pad contact area
  - 4. Number of disk

Question ID : 54592780103

Q.20 A steel bar is sandwiched between two copper bar and both ends are fixed, for temperature rise how much tension or compressive stress on steel bar will be found:

- Ans
- 1. Tensile stress twice of copper bar
  - 2. Compressive stress half of copper bar
  - 3. Tensile stress half of copper bar
  - 4. Compressive stress twice of copper bar

Question ID : 54592780110

Section : Discipline2

Q.1 Which thermocouple will be used to measure temperature range -150 to -10 °C?

- Ans
- 1. silver in glass thermocouple

- 2. silver resistance thermocouple
- 3. mercury in glass thermocouple
- 4. platinum resistance thermocouple

Question ID : 54592780124

**Q.2 What is the unit of inductance?**

- Ans
- 1. Henry
  - 2. Farad
  - 3. Tesla
  - 4. Weber

Question ID : 54592780130

**Q.3 This cycle is not consists of the reversible processes:**

- Ans
- 1. Sterling cycle
  - 2. Brayton cycle
  - 3. Carnot cycle
  - 4. Ericsson cycle

Question ID : 54592780129

**Q.4 Entropy of the universe is:**

- Ans
- 1. constant
  - 2. zero
  - 3. increasing
  - 4. decreasing

Question ID : 54592780132

**Q.5 What will be the modulus of elasticity (E) of equivalent bar with area (A) which has same elongation and length of compound bar? Compound bar elasticity are  $E_1, E_2$  and areas are  $A_1, A_2$ .**

- Ans
- 1.  $E = \left( \frac{A_1 E_1 + A_2 E_2}{A_1 - A_2} \right)$
  - 2.  $E = \left( \frac{A_1 E_1 + A_2 E_2}{A_1 + A_2} \right)$
  - 3.  $E = \left( \frac{A_1 E_1 - A_2 E_2}{A_1 + A_2} \right)$
  - 4.  $E = \left( \frac{A_1 E_1 - A_2 E_2}{A_1 - A_2} \right)$

Question ID : 54592780123

**Q.6 For throttling device this relation is correct:**

Ans

- 1. internal energy is constant
- 2. Workdone is zero
- 3. enthalpy is constant
- 4. Workdone is constant

Question ID : 54592780128

Q.7 No heat transfer through the boundary of system is called:

- Ans
- 1. adiabatic process
  - 2. isothermal process
  - 3. isobaric process
  - 4. isochoric process

Question ID : 54592780125

Q.8 If the modulus of elasticity is 130 GPa and Poisson's ratio is 0.3 of steel then what will be the approximate value of modulus of rigidity of steel in MPa?

- Ans
- 1. 110
  - 2. 110000
  - 3. 50
  - 4. 50000

Question ID : 54592780121

Q.9 The strain energy (U) of the prismatical bar for deflection  $\delta$ , cross section area A, young's modulus E and length of bar l:

- Ans
- 1.  $U = \frac{A^2 E \delta^2}{2l^2}$
  - 2.  $U = \frac{A^2 E \delta^2}{2l}$
  - 3.  $U = \frac{AE \delta^2}{2l^2}$
  - 4.  $U = \frac{AE \delta^2}{2l}$

Question ID : 54592780120

Q.10 The internal energy during the free expansion process:

- Ans
- 1. maximum
  - 2. constant
  - 3. zero
  - 4. minimum

Question ID : 54592780134

Q.11 In dual gas cycle heat rejection takes place during:

- Ans
- 1. constant temperature process
  - 2. isentropic process
  - 3. constant volume process
  - 4. constant pressure process

Question ID : 54592780126

Q.12 One torr is equal to how much pascal?

- Ans
- 1. 133
  - 2. 1.013
  - 3. 1.33
  - 4. 101.3

Question ID : 54592780131

Q.13 What will be the cross sectional area in  $\text{mm}^2$  of prismatical bar of length 5 mm and weight per unit volume of bar is  $5 \text{ N/mm}^3$  and applied load at the end is 50 N. Where working stress is 50 MPa and ultimate stress is 100 MPa.

- Ans
- 1. 2
  - 2. 4
  - 3. 6
  - 4. 1

Question ID : 54592780122

Q.14 For spherical shell, what is the thickness of plate (t) if p is internal pressure, D is diameter of shell,  $\sigma_{at}$  is permissible stress at plate in axial tension and  $\eta$  is the efficiency of riveted joint:

- Ans
- 1.  $t = \frac{pD}{4\eta \sigma_{at}}$
  - 2.  $t = \frac{pD}{2\eta \sigma_{at}}$
  - 3.  $t = \frac{pD}{\eta \sigma_{at}}$
  - 4.  $t = \frac{pD}{8\eta \sigma_{at}}$

Question ID : 54592780115

Q.15 The isothermal process is associated with:

- Ans
- 1. Avogadro's law
  - 2. Gay-Lussac law
  - 3. Boyle's law
  - 4. Charles' law

Question ID : 54592780127

Q.16 If two aluminum bar have different length ( $L_1 = 2L_2$ ) and diameter ( $d_1 = 2d_2$ ) with identical angle of twist then, find torque value for bar 1, If bar 2 torque value is 50 N-m.

- Ans
- 1. 12.5 N-m
  - 2. 6.25 N-m
  - 3. 400 N-m
  - 4. 200 N-m

Question ID : 54592780118

Q.17 What is exergy of a reversible engine at temperature T into which Q heat is supplied and heat is rejected to the sink at dead state  $T_0$ ?

- Ans
- 1.  $Q \left( \frac{1 + T_0}{T} \right)$
  - 2.  $Q \left( \frac{1 - T}{T_0} \right)$
  - 3.  $Q \left( \frac{1 + T}{T_0} \right)$
  - 4.  $Q \left( \frac{1 - T_0}{T} \right)$

Question ID : 54592780133

Q.18 If effective length of aluminum ( $E = 70$  GPa) column is two times of steel ( $E = 190$  Gpa) and Euler buckling load of aluminum is 5000 KN, then what will be the Euler buckling load (in KN) for steel with equivalent moment of inertia?

- Ans
- 1. 27143
  - 2. 13572
  - 3. 6786
  - 4. 54286

Question ID : 54592780117

Q.19 For uniformly distributed load (w) acting on the beam with one end hinged and one end free if length of beam is L, distance from left hand is x, young's modulus E and moment of inertia is I then find the maximum deflection ( $\delta_{\max}$ ) of beam:

- Ans
- 1.  $\delta_{\max} = \frac{wL^4}{8EI}$
  - 2.  $\delta_{\max} = \frac{wL^3}{16EI}$
  - 3.  $\delta_{\max} = \frac{wL^4}{16EI}$
  - 4.  $\delta_{\max} = \frac{wL^3}{8EI}$

Question ID : 54592780119

Q.20 What will be the factor of safety for steel if working stress is  $100 \text{ N/mm}^2$  yield stress is  $150 \text{ N/mm}^2$  and ultimate stress is  $200 \text{ N/mm}^2$ ?

- Ans
- 1. 1.5
  - 2. 1.33
  - 3. 1
  - 4. 2

Question ID : 54592780116

Section : Discipline3

Q.1 Kelvin- Planck's law gives the relationship for:

- Ans
- 1. conversation of work into heat
  - 2. conversation of heat into entropy
  - 3. conversation of heat into work
  - 4. conversation of entropy into heat

Question ID : 54592780139

Q.2 In a plain turning operation on steel by using cemented carbide single point cutting tool combination having a Taylor exponent is 0.25, if the cutting speed is halved, then the tool life becomes:

- Ans
- 1. two times
  - 2. eight times
  - 3. sixteen times
  - 4. one forth

Question ID : 54592780150

Q.3 Copper becomes hard and brittle when mechanically worked, but it can be made soft again by annealing. Within what temperature range must you heat it to anneal it?

- Ans
- 1.  $500^\circ\text{F}$  to  $600^\circ\text{F}$
  - 2.  $700^\circ\text{F}$  to  $900^\circ\text{F}$
  - 3.  $900^\circ\text{F}$  to  $1100^\circ\text{F}$
  - 4.  $600^\circ\text{F}$  to  $700^\circ\text{F}$

Question ID : 54592780154

Q.4 Coefficient of performance for a reversible heat pump will be:

- Ans
- 1.  $\frac{(T_1 - T_2)}{T_2}$
  - 2.  $\frac{(T_1 - T_2)}{T_1}$

✓ 3.  $\frac{T_1}{(T_1 - T_2)}$

✗ 4.  $\frac{T_2}{(T_1 - T_2)}$

Question ID : 54592780137

Q.5 Which reason is responsible for the formation of Continuous chip with built up edge?

- Ans
- ✓ 1. High friction between Tool & chip
  - ✗ 2. large rake angle with low feed rate
  - ✗ 3. High cutting speed
  - ✗ 4. Sharp cutting edges

Question ID : 54592780149

Q.6 Which form of iron can be produced by reduction of iron ore into blast furnace?

- Ans
- ✗ 1. pure iron
  - ✗ 2. cast iron
  - ✗ 3. direct reduced iron
  - ✓ 4. pig iron

Question ID : 54592780142

Q.7 What is the primary cause of distortion and cracking of the heat-treated steel part?

- Ans
- ✗ 1. heating one section of the part more rapidly than other parts
  - ✗ 2. increasing the soaking temperature too slowly
  - ✗ 3. heating the part too slowly
  - ✓ 4. uneven expansion due to carbon deposits in the part

Question ID : 54592780152

Q.8 It is not the Maxwell's equation:

- Ans
- ✗ 1.  $\left(\frac{\partial p}{\partial T}\right)_V = \left(\frac{\partial S}{\partial V}\right)_T$
  - ✗ 2.  $\left(\frac{\partial T}{\partial V}\right)_S = -\left(\frac{\partial p}{\partial S}\right)_V$
  - ✓ 3.  $\left(\frac{\partial T}{\partial S}\right)_V = \left(\frac{\partial V}{\partial p}\right)_S$
  - ✗ 4.  $\left(\frac{\partial V}{\partial T}\right)_p = -\left(\frac{\partial S}{\partial p}\right)_T$

Question ID : 54592780141

**Q.9** What is the relation between characteristics gas constant (R) and specific heat at constant pressure ( $C_p$ ) for ideal gas? (Adiabatic index =  $\gamma$ )

Ans

1.  $C_p = \frac{R}{(\gamma - 1)}$

2.  $C_p = \frac{(R - 1)}{(\gamma - 1)}$

3.  $C_p = \frac{\gamma^2 R}{(\gamma - 1)}$

4.  $C_p = \frac{\gamma R}{(\gamma - 1)}$

Question ID : 54592780138

**Q.10** In which welding process, Wire electrode is used?

Ans

1. Gas metal arc welding

2. submerged arc welding

3. TIG welding

4. electric resistance welding

Question ID : 54592780151

**Q.11** Shrinkage and weld stress in casting is responsible for which welding defect?

Ans

1. Rat tail

2. Lamellar tearing

3. Shrinkage void

4. Incomplete fusion

Question ID : 54592780147

**Q.12** Which material has highest capacity to absorb the maximum stress for an infinite number of cycles?

Ans

1. bronze

2. titanium

3. brass

4. chilled cast iron

Question ID : 54592780143

**Q.13** For irreversible process, which relation is correct?

Ans

1. loss of exergy is indirectly proportional to rate of entropy generation

2. loss of exergy is directly proportional to rate of entropy generation

3. loss of exergy has no relation with rate of entropy generation

4. loss of exergy is equals to rate of entropy generation

Question ID : 54592780135

Q.14 What is the value of fatigue notch sensitivity for a fully sensitive material?

- Ans  1. 1  
 2. infinity  
 3. 0  
 4. 0.5

Question ID : 54592780145

Q.15 How do you determine the soaking period when parts are uneven in cross section?

- Ans  1. by the largest section  
 2. by the lightest section  
 3. by the total weight  
 4. by the number of parts

Question ID : 54592780153

Q.16 The ratio of the strain in a direction orthogonal to the direction of stress to the strain in the direction of stress is known as:

- Ans  1. Poisson's ratio  
 2. Elastic limit  
 3. Volumetric strain  
 4. Shear modulus

Question ID : 54592780144

Q.17 Which property of material is necessary to produce spiral elements?

- Ans  1. resilience  
 2. ductility  
 3. stiffness  
 4. malleability

Question ID : 54592780146

Q.18 Stirling cycle have these processes:

- Ans  1. Two reversible isobarics and two reversible isentropics  
 2. Two reversible isobarics and two reversible isotherms  
 3. Two reversible isochores and two reversible isentropics  
 4. Two reversible isochores and two reversible isotherms

Question ID : 54592780140

Q.19 Which cutting technology principle is used for drilling of holes in a metallic substrate?

- Ans  1. oblique cutting  
 2. straight cutting  
 3. uniform cutting

4. orthogonal cutting

Question ID : 54592780148

Q.20 If 40 kJ heat is transferred from gas and work done to compress gas is 20 kJ then what is the change in internal energy?

- Ans
- 1. 60 kJ increase
  - 2. 60 kJ decrease
  - 3. 20 kJ increase
  - 4. 20 kJ decrease

Question ID : 54592780136

Section : Discipline4

Q.1 Boundary layer thickness is the distance from the boundary to the point where velocity of the fluid is

- Ans
- 1. equal to 90 percent of free stream velocity
  - 2. equal to 10 percent of free stream velocity
  - 3. equal to 50 percent of free stream velocity
  - 4. equal to 99 percent of free stream velocity

Question ID : 54592780162

Q.2 Find out the correct relation between Bulk modulus (K), Shear modulus (G) and Poisson's ratio ( $\nu$ ).

- Ans
- 1.  $G = \frac{3K(1-\nu)}{(1+\nu)}$
  - 2.  $G = \frac{9K(\nu-K)}{(3K+\nu)}$
  - 3.  $G = \frac{3K-2\nu}{2(1+\nu)}$
  - 4.  $G = \frac{3K(1-2\nu)}{2(1+\nu)}$

Question ID : 54592780167

Q.3 What will be the value of diameter of big end in mm for tapered job if diameter of small end and length of job is 60mm and 1m respectively? Given half taper angle is equal to 12.4 degrees. (given  $\tan 12.4 = 0.22$ )

- Ans
- 1. 400
  - 2. 500
  - 3. 600
  - 4. 300

Question ID : 54592780161

Q.4 Which component of the surface force is acting in case of the inviscid fluid?

- Ans
- 1. normal component
  - 2. tangential component
  - 3. component at an angle  $\theta$
  - 4. both normal and tangential component

Question ID : 54592780163

Q.5 Which of the following can be used to reverse the direction of lead screw relative to the direction of spindle movement?

- Ans
- 1. Speed lever
  - 2. Feed Lever
  - 3. Tumbler gear lever
  - 4. Friction clutch

Question ID : 54592780158

Q.6 One of which NDT method is used to detect internal weld defect/discontinuities:

- Ans
- 1. liquid penetration testing
  - 2. magnetic particle testing
  - 3. radiographic testing
  - 4. eddy current testing

Question ID : 54592780155

Q.7 If Specific volume of any material is  $0.000112 \text{ m}^3/\text{kg}$ , then calculate the specific gravity of that material.

- Ans
- 1. 7.8
  - 2. 8.92
  - 3. 9.81
  - 4. 8.52

Question ID : 54592780168

Q.8 Which statement is wrong when a tubular product with an encircling coil sample is inspecting by eddy current method?

- Ans
- 1. ID discontinuities can be found
  - 2. Axial discontinuity locations can be noted
  - 3. Circumferential discontinuity locations can be noted
  - 4. OD discontinuities can be found

Question ID : 54592780156

Q.9 Which dimensionless number provides the relationship between pressure force and inertia number on a fluid element?

- Ans
- 1. Weber number
  - 2. Euler number

3. Reynolds number

4. Froude number

Question ID : 54592780165

Q.10 What is Darcy-Weisbach formula for heat loss due to friction? Where,  $f$  = Darcy's coefficient of friction:

Ans

1.  $h_f = \frac{(f l V^2)}{2gd}$

2.  $h_f = \frac{(16f l V^2)}{2gd}$

3.  $h_f = \frac{(f l V^2)}{gd}$

4.  $h_f = \frac{(4f l V^2)}{2gd}$

Question ID : 54592780164

Q.11 In the case of steady flow, which relation is correct for stream line, streak line and path line?

Ans

1. all three lines coincide

2. stream line is parallel to path line but perpendicular to streak line

3. all three lines are parallel to each other

4. stream line is parallel to streak line but perpendicular to path line

Question ID : 54592780170

Q.12 When a body is floating in a liquid, is displaced slightly by external mean then this body will oscillate about which point?

Ans

1. Center of buoyancy

2. Meta center

3. Center of pressure

4. Center of Gravity

Question ID : 54592780166

Q.13 Which pair of hydraulic turbine you will choose, if the operating condition of head is more than 400 m and for part load operation respectively?

Ans

1. Pelton wheel turbine, Kaplan turbine

2. Francis turbine and propeller turbine

3. Francis turbine and Kaplan turbine

4. Bulb turbine and Deriaz turbine

Question ID : 54592780174

Q.14 For the measurement of flow rate of liquid, the method used is:

Ans

1. Bourdon tube

- 2. Coriolis method
- 3. Thermal mass flow measurement
- 4. Conveyor-based methods

Question ID : 54592780171

Q.15 What is the water pressure on the sea bottom at a depth of 6500 m? The specific gravity of sea water is assumed to be 1.03.

- Ans
- 1. 70 MPa
  - 2. 65 MPa
  - 3. 60 MPa
  - 4. 75 MPa

Question ID : 54592780169

Q.16 Select the correct pair of expression which defines the specific speed of hydraulic turbine and hydraulic pump.

- Ans
- 1.  $N_s = \frac{N\sqrt{Q}}{H^{3/4}}$  and  $N_s = \frac{N\sqrt{P}}{H^{5/4}}$
  - 2.  $N_s = \frac{N\sqrt{P}}{H^{3/4}}$  and  $N_s = \frac{N\sqrt{Q}}{H^{5/4}}$
  - 3.  $N_s = \frac{N\sqrt{Q}}{H^{5/4}}$  and  $N_s = \frac{N\sqrt{P}}{H^{3/4}}$
  - 4.  $N_s = \frac{N\sqrt{P}}{H^{5/4}}$  and  $N_s = \frac{N\sqrt{Q}}{H^{3/4}}$

Question ID : 54592780173

Q.17 A compound pipe of diameter  $d_1$ ,  $d_2$  and  $d_3$  having lengths  $l_1$ ,  $l_2$  and  $l_3$  is to be replaced by an equivalent pipe of uniform diameter  $d$  and of the same length ( $l$ ) as that of the compound pipe. The size of the equivalent pipe is given by:

- Ans
- 1.  $\frac{l}{d^3} = \left(\frac{l_1}{d_{1^3}}\right) + \left(\frac{l_2}{d_{2^3}}\right) + \left(\frac{l_3}{d_{3^3}}\right)$
  - 2.  $\frac{l}{d^2} = \left(\frac{l_1}{d_{1^2}}\right) + \left(\frac{l_2}{d_{2^2}}\right) + \left(\frac{l_3}{d_{3^2}}\right)$
  - 3.  $\frac{l}{d^4} = \left(\frac{l_1}{d_{1^4}}\right) + \left(\frac{l_2}{d_{2^4}}\right) + \left(\frac{l_3}{d_{3^4}}\right)$
  - 4.  $\frac{l}{d^5} = \left(\frac{l_1}{d_{1^5}}\right) + \left(\frac{l_2}{d_{2^5}}\right) + \left(\frac{l_3}{d_{3^5}}\right)$

Question ID : 54592780172

Q.18 Which of the following can produce both external as well as internal threads?

Ans

- 1. Thread chasing with multiple-rib chasers
- 2. Thread tapping with taps
- 3. Die threading with self-opening die heads
- 4. Thread milling and multiple-thread cutters

Question ID : 54592780160

Q.19 A round billet made of 70-30 brass is extruded at a temperature of 675 °C ( $k = 250$  MPa). The billet diameter is 100 mm, and the diameter of the extrusion is 50 mm. Calculate the extrusion force required. (given  $\ln 2.5 = 0.92$ )

- Ans
- 1. 6.6 MN
  - 2. 5 MN
  - 3. 4.6 MN
  - 4. 5.6 MN

Question ID : 54592780157

Q.20 If cutting tool travel 1000mm in the direction of feed motion with work piece rotational speed of 500 rpm and feed rate of 0.2 mm/rev, machining time in minutes will be:

- Ans
- 1. 2
  - 2. 8
  - 3. 10
  - 4. 6

Question ID : 54592780159

Section : Discipline5

Q.1 Which of the following generator will be preferred if they are required to be run in parallel?

- Ans
- 1. Series generators
  - 2. Compound generators
  - 3. Shunt generators
  - 4. Shunt and series generators

Question ID : 54592780192

Q.2 Permanent magnets are normally made of:

- Ans
- 1. cast iron
  - 2. copper
  - 3. alnico alloy
  - 4. wrought iron

Question ID : 54592780187

Q.3 The resistor which is nonlinear in nature is called as:

- Ans
- 1. Resistance
  - 2. Varistor

- 3. specific resistance
- 4. Thermistor

Question ID : 54592780186

Q.4 If the field of the synchronous motor is overexcited then its power factor will be:

- Ans
- 1. Lagging
  - 2. Zero
  - 3. Unity
  - 4. Leading

Question ID : 54592780193

Q.5 With a bank of two single phase transformers connected in V - V fashion supplying a balanced three phase load with  $\text{Cos}\phi$  as power factor. The power factor of the two transformers is given by:

- Ans
- 1.  $\text{Cos}(30-\theta)$ ,  $\text{Cos}(30+\theta)$
  - 2.  $\text{Cos}\theta$ ,  $\text{Cos}(30+\theta)$
  - 3.  $\text{Cos}\theta$ ,  $\text{Cos}(30-\theta)$
  - 4.  $\text{Cos}\theta$ ,  $\text{Cos}\theta$

Question ID : 54592780190

Q.6 In which case Cavitation phenomenon occurs?

- Ans
- 1. Francis turbine
  - 2. Centrifugal pump
  - 3. Both Francis turbine and reciprocating pump
  - 4. Reciprocating pump

Question ID : 54592780175

Q.7 Which of the following parameters is used for distinguishing between a large signal and a small signal amplifier?

- Ans
- 1. Amplifier
  - 2. Input/Output impedances
  - 3. Harmonic distortion
  - 4. Frequency response

Question ID : 54592780185

Q.8 Which feature of D.C. motors is essential for traction applications?

- Ans
- 1. The torque is proportional to armature current
  - 2. Torque and speed are inversely proportional to armature current
  - 3. The speed is inversely proportional to the torque and the torque is proportional to square of armature current
  - 4. The torque is proportional to square root of armature current

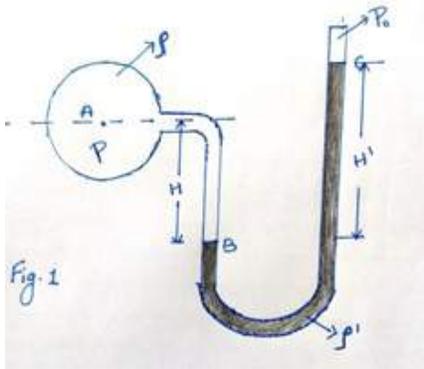
Question ID : 54592780191

Q.9 Fitting of air vessel to reciprocating pump is recommended for saving of work done and power. How much amount we can save in case of double acting reciprocating pump?

- Ans  1. 39.2 percent  
 2. 49.2 percent  
 3. 84.8 percent  
 4. 68.8 percent

Question ID : 54592780176

Q.10 Obtain the pressure difference 'P-P<sub>0</sub>' in figure1.



- Ans  1.  $g(2\rho'H' + \rho H)$   
 2.  $g(\rho'H' + \rho^2 H^2)$   
 3.  $g(\rho'H' + 2\rho H)$   
 4.  $g(\rho'H' + \rho H)$

Question ID : 54592780177

Q.11 P-type extrinsic semiconductor doped with impurity having how much valence electron?

- Ans  1. 5  
 2. 1  
 3. 3  
 4. 2

Question ID : 54592780179

Q.12 In case of semiconductor, forbidden energy gap between valence band and conduction band is nearly?

- Ans  1. 1.5ev  
 2. 2.5ev  
 3. 2ev  
 4. 1ev

Question ID : 54592780178

Q.13 The transformer Utilization factor of a bridge rectifier is approximately:

- Ans  1. 0.41  
 2. 1.1

3. 0.81 4. 0.61

Question ID : 54592780184

**Q.14 Which galvanometer is highly sensitive in nature?**Ans  1. Double galvanometer 2. Vibration galvanometer 3. Spot ballistic galvanometer 4. Elastic galvanometer

Question ID : 54592780189

**Q.15 Find out the correct conversion of hexadecimal number represented by "D" into binary number**Ans  1. 1100 2. 1010 3. 1111 4. 1101

Question ID : 54592780182

**Q.16 Current amplifiers are made of which type of semiconductor device?**Ans  1. BJT 2. JFET 3. MOSFET 4. LED

Question ID : 54592780181

**Q.17 In an R-L circuit connected to an alternating sinusoidal voltage, size of transient current primarily depends on:**Ans  1. the instant in the voltage cycle at which circuit is closed 2. the circuit impedance 3. the peak value of steady-state current 4. the voltage frequency

Question ID : 54592780194

**Q.18 Which type of instrument is used to measure very small currents of high frequency?**Ans  1. Thermocouple type 2. PMMC type ammeter 3. Dynamometer type 4. Inductance type

Question ID : 54592780188

**Q.19 Zener diode works under which region of V-I characteristics of the semiconductor diode?**

- Ans
- 1. forward biasing
  - 2. Reverse biasing
  - 3. No biasing
  - 4. Zero external voltage

Question ID : 54592780180

Q.20 The algebraic function of "NOR" Logic Gate is expressed as:

- Ans
- 1.  $F = (xy' + x'y)$
  - 2.  $F = (x-y)'$
  - 3.  $F = (x+y)'$
  - 4.  $F = (xy)'$

Question ID : 54592780183

