



GOVT. OF NCT OF DELHI
Delhi Subordinate Services Selection Board
FC-18, Institutional Area, Karkardooma, Delhi – 110092.
www.dsssb.delhigovt.nic.in

Participant ID	
Participant Name	
Test Center Name	
Test Date	29/06/2022
Test Time	4:30 PM - 6:30 PM
Subject	Junior Engineer (Civil) or Section Officer (Civil)

Section : Mental Ability

Q.1 Choose the odd one out.

- Ans
- A. PBAQ
 - B. CHGD
 - C. NSRO
 - D. LFCM

Question ID: 1841223909

Q.2 In a certain code 'AVENUE' is written as 'FTODWZ'. How ill 'INDEPENDENCE' be written?

- Ans
- A. FBODEMFOFCOH
 - B. HOCFOFFBODEM
 - C. DOBEMFFOFCOH
 - D. HOCFOFMEDOFB

Question ID: 1841223904

Q.3 If $A \times B$ means A is the brother of B;
 $A + B$ means A is the father of B
 $A - B$ means A is the mother of B;
 $A \div B$ means A is the sister of B;

Which of the following mean that L is the grandfather of P.

- Ans
- A. $P - L + N \times M$
 - B. $L \times M + N - P$
 - C. $L + M + N \div P$
 - D. $M + L \times N + P$

Question ID: 1841223907

Q.4 What number should come next in the series?

6, 9, 7, 10, 8, 11, ?

- Ans
- A. 10
 - B. 7
 - C. 8
 - D. 9

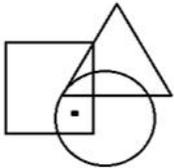
Question ID: 1841223916

Q.5 Ranjit is the brother of Sheila and Suresh is the father of Ranjit. Sumit is the brother of Vijay and maternal uncle of Sheila. What is the relationship between Vijay and Suresh?

- Ans
- A. Brother-in-law
 - B. Father-in-law
 - C. Nephew
 - D. Maternal Uncle

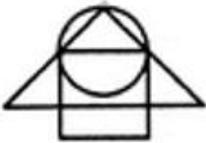
Question ID: 1841223906

Q.6 Select the figure which satisfies the same condition of the placement of dot as in the figure.



Ans

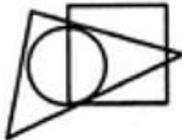
A.



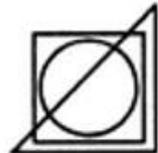
B.



C.



D.



Question ID: 1841223901

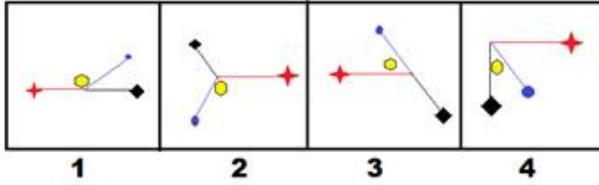
Q.7 Complete the missing series.

a 2 c 4 e 6 ? 8 i

- Ans
- A. H
 - B. D
 - C. F
 - D. G

Question ID: 1841223902

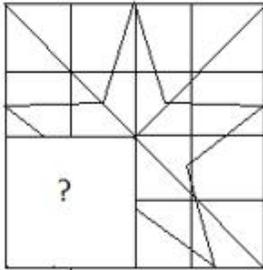
Q.8 Choose the figure which is different from the rest.



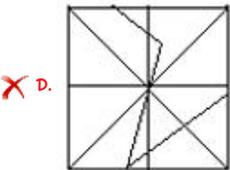
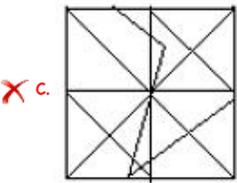
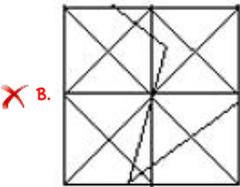
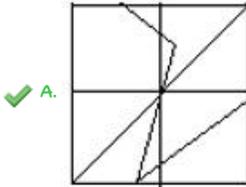
- Ans
- A. 1
 - B. 4
 - C. 2
 - D. 3

Question ID: 1841223913

Q.9 Find the figure that completes the pattern.



Ans



Question ID: 1841223915

Q.10 On 17th Feb 2009, it was a Wednesday. What was the day of the week on 17th Feb, 2008?

- Ans
- ✗ A. Wednesday
 - ✗ B. Sunday
 - ✗ C. Friday
 - ✓ D. Monday

Question ID: 1841223903

Q.11 Which option closely resembles the water-image of the word PALINDROME?

- Ans A. PALINDROME
 B. ROME PALIND
 C. PALINDROME
 D. ROME PALIND

Question ID: 1841223914

Q.12 Choose the pair in which the words are differently related from the rest.

- Ans A. Helmet : Soldier
 B. Knife : Chef
 C. Wrench : Plumber
 D. Shovel : Gardener

Question ID: 1841223910

Q.13 Choose an option which is a valid course of action for the below statements.

Statement I: Customers complained regarding the receipt of empty packages sent by the courier agency

Statement II: Customers were not happy with the behaviour of the delivery boys.

Course of action

I: The courier agency should ask the customers to open the packet and make a video.

II: The courier agency should replace the delivery boys against whom complaints were received.

- Ans A. Action I only
 B. Neither action I nor action II
 C. Action II only
 D. Both actions I and II

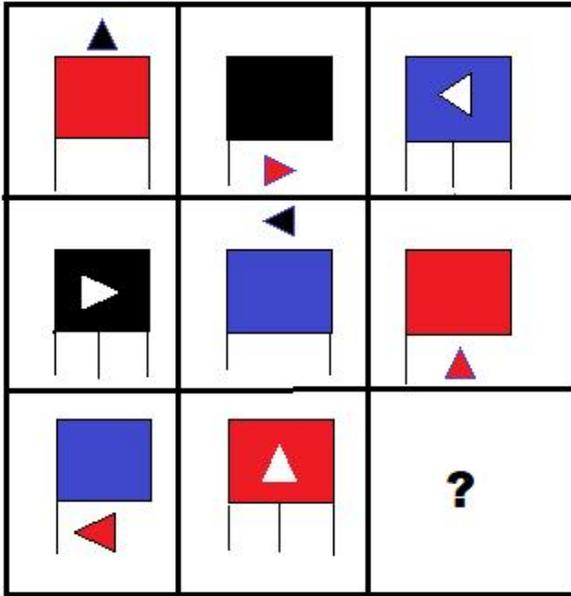
Question ID: 1841223911

Q.14 In a row of students, the position of Aniket from the left side is 17th and his position from the right side is 24th. What is the total number of students in the row?

- Ans A. 41
 B. 39
 C. 40
 D. 42

Question ID: 1841223899

Q.15 Select a suitable figure that would complete the figure matrix.



Ans

- A.
- B.
- C.
- D.

BYJU'S
EXAM PREP

Question ID: 1841223912

Q.16 Complete the missing pair.

SY : 19 25 :: GJ : ?

- A. 11 8
- B. 8 11
- C. 7 10
- D. 10 7

Question ID: 1841223908

Q.17 Satish walks 30 meters towards North. He turns right and walks for 20 meters. He suddenly turns right and keeps walking up to 45 meters. He makes a sharp left to walk 20 meters and finally turns left to walk for 15 meters. In which direction is Satish from the starting point?

- Ans
- A. South
 - B. West
 - C. East
 - D. North

Question ID: 1841223905

Q.18 Find the wrong term in number series.

24, 28, 16, 32, 38, 16, 40, 44, 16, 48, 52

- Ans
- A. 32
 - B. 16
 - C. 38
 - D. 40

Question ID: 1841223917

Q.19 Which two numbers should be interchanged to get a mathematically correct equation?

$$20 \div 2 + 8 - 6 + 4 = 9$$

- Ans
- A. 6 and 4
 - B. 20 and 8
 - C. 8 and 6
 - D. 2 and 4

Question ID: 1841223918

Q.20 In a row of girls, the position of Anna from the left side of the row is 25th and position of Beena from the right side of the row is 29th. Only one girl is sitting between Anna and Beena. What is the minimum number of girls who can be seated in this row?

- Ans
- A. 51
 - B. 53
 - C. 55
 - D. 52

Question ID: 1841223900

Section: General Awareness

Q.1 In which year, Industrial Finance Corporation of India (IFCI) was set up as Statutory Corporation?

- Ans
- A. 1949
 - B. 1948
 - C. 1950
 - D. 1952

Question ID: 1841223932

Q.2 Which district of Andhra Pradesh produces the best quality mica?

- Ans
- A. Vishakhapatnam
 - B. Nellore
 - C. Guntur
 - D. Kurnool

Question ID : 1841223933

Q.3 Which of these is situated to the south of the Lakshadweep Islands?

- Ans
- A. Bangladesh
 - B. Maldives
 - C. Sri Lanka
 - D. Myanmar

Question ID : 1841223926

Q.4 In which of the following states, Suwa or Soowa (parrot) Dance - a group dance performed by female dancers to please the Goddess of Wealth is performed?

- Ans
- A. Punjab
 - B. Himachal Pradesh
 - C. Rajasthan
 - D. Chhattisgarh

Question ID : 1841223929

Q.5 किस राज्य में एक संत गुग्गा पीर (गोगा पीर) के सम्मान में गुग्गा नौमी (गोगा नवमी) नामक त्योहार मनाया जाता है?

- Ans
- A. हरियाणा
 - B. उत्तर प्रदेश
 - C. महाराष्ट्र
 - D. राजस्थान

Question ID : 1841223930

Q.6 Netaji Subhas National Institute of Sports where Indian Grand Prix IV athletics event was held on 21st June 2021, is situated at _____.

- Ans
- A. Gachibowli, Telangana
 - B. Park Street, West Bengal
 - C. Patiala, Punjab
 - D. Colaba, Maharashtra

Question ID : 1841223923

Q.7 Which of these kings performed a ritual called hiranya-garbha (literally, the golden womb) in the mid-eighth century?

- Ans
- A. Samudragupta
 - B. Pulakeshin II
 - C. Nagaraja I
 - D. Dantidurga

Question ID: 1841223925

Q.8 Article 51A discusses about _____ fundamental duties.

- Ans
- A. 9
 - B. 11
 - C. 10
 - D. 12

Question ID: 1841223938

Q.9 In which year, Metro Railway, Kolkata was declared as New Zonal Railway?

- Ans
- A. 2010
 - B. 2011
 - C. 2009
 - D. 2012

Question ID: 1841223935

Q.10 Who launched CRICURU, India's first AI-enabled coaching website, to offer a personalised learning experience for the younger players?

- Ans
- A. Rahul Dravid and Sanjay Bangar
 - B. Sachin Tendulkar and Saurav Ganguly
 - C. Saurav Ganguly and Virender Sehwag
 - D. Virender Sehwag and Sanjay Bangar

Question ID: 1841223924

Q.11 Which North-East state had the highest literacy rate as per census 2011?

- Ans
- A. Tripura
 - B. Mizoram
 - C. Manipur
 - D. Assam

Question ID: 1841223934

Q.12 Identify the angiosperm among the following.

- Ans
- A. Pinus
 - B. Cycas
 - C. Eucalyptus
 - D. Ginkgo

Question ID: 1841223937

Q.13 Who among the following launched India's first Virtual Science Lab for children?

- Ans
- A. Education Minister Shri Dharmendra Pradhan
 - B. Prime Minister Shri Narendra Modi
 - C. Science and Technology Minister, Dr. Jitendra Singh
 - D. Director-General of the Council of Scientific and Industrial Research (CSIR) Shri Shekhar C. Mande

Question ID: 1841223920

Q.14 Who among the following received 'International Lifetime Achievement Award in Neurosurgery' in 2021, conferred by the American Association of Neurological Surgeon?

- Ans
- A. Dr. Basant Kumar Misra
 - B. Dr. Keki Turel
 - C. Dr. Abhaya Kumar
 - D. Dr. Harshad Parekh

Question ID: 1841223919

Q.15 In which year Microfinance Institutions Network (MFIN) was established as an Industry Association for Non-Banking Financial Company - Micro Finance Institutions (NBFC-MFIs)?

- Ans
- A. 2005
 - B. 2000
 - C. 2009
 - D. 2014

Question ID: 1841223931

Q.16 The government launched a web portal in October 2021 to bring together technology providers, government stakeholders and urban local bodies to find solutions to India's waste problems. Name the portal.

- Ans
- A. Health is wealth
 - B. No more waste
 - C. Waste to wealth
 - D. Best from waste

Question ID: 1841223921

Q.17 At which of the following sites, the entire settlement was fortified, and sections within the town were also separated by walls?

- Ans A. Dholavira and Lothal (Gujarat)
 B. Mohenjodaro and Harappa
 C. Kalibangan and Lothal (Gujarat)
 D. Kalibangan and Mohenjodaro

Question ID: 1841223927

Q.18 Malliks of Darbhanga Gharana are the musical legends of _____.

- Ans A. Uttar Pradesh
 B. Uttarakhand
 C. Jharkhand
 D. Bihar

Question ID: 1841223928

Q.19 'Global Solidarity Shared Responsibility' was the theme for _____.

- Ans A. World AIDS Day 2019
 B. World AIDS Day 2018
 C. World AIDS Day 2021
 D. World AIDS Day 2020

Question ID: 1841223922

Q.20 In which year, the International Astronomical Union (IAU) adopted a new definition of a planet and Pluto no longer remained a planet of the solar system?

- Ans A. 2000
 B. 2005
 C. 2003
 D. 2006

Question ID: 1841223936

Section: Arithmetic Ability

Q.1 P can complete a work in 8 days working 12 hours a day while Q can complete the same work in 16 days working 7 hours per day. If they work together for 12 hours per day how long will they take to finish the work?

Ans

A. $4\frac{3}{8}$

B. $4\frac{7}{10}$

C. $4\frac{5}{12}$

D. $4\frac{4}{13}$

Question ID: 1841223950

Q.2 A fruit seller purchased 600 oranges @ ₹ 5 per orange anticipating a profit of 30% even if he sold 520 oranges and discarded the remaining ones. But he actually sold 560 oranges, find his profit percentage.

Ans

A. 40%

B. 45%

C. 50%

D. 35%

Question ID: 1841223946

Q.3 Two numbers are in the ratio 4 : 9. If both the numbers are increased by 12, the ratio becomes 7 : 12, Find the sum of the original numbers.

Ans

A. 64

B. 56

C. 52

D. 48

Question ID: 1841223945

Q.4 A hostel had food for 27 days for 500 students. After 3 days 300 more students arrived, how long will the food last?

Ans

A. 12 days

B. 14 days

C. 16 days

D. 15 days

Question ID: 1841223949

Q.5 Diva lends ₹ 6000 to two people such that one pays a simple interest of 9% pa on ₹ 3500. Find how much interest Diva should charge from the other on ₹ 2500 so as to get an average annual interest of $9\frac{1}{2}\%$.

- Ans
- A. 9.55%
 - B. 11.25%
 - C. 10.2%
 - D. 10.8%

Question ID: 1841223947

Q.6 Use BODMAS and simplify.

$$[17 - 24 \div (5 + 9 \text{ of } 2 - 17)] - 10$$

- Ans
- A. -3
 - B. 6
 - C. -6
 - D. 3

Question ID: 1841223943

Q.7 The perimeter of two squares are 28 cm and 48 cm. Find the perimeter of a third square whose area is equal to the difference of the areas of the two squares. (rounded off)

- Ans
- A. 39 cm
 - B. 36 cm
 - C. 33 cm
 - D. 30 cm

Question ID: 1841223953

Q.8 Solve: $4\frac{3}{4} - 2\frac{7}{8} + 3\frac{4}{5} \times \frac{25}{38}$

- Ans
- A. $6\frac{2}{5}$
 - B. $7\frac{23}{35}$
 - C. $5\frac{27}{40}$
 - D. $4\frac{3}{8}$

Question ID: 1841223940

Q.9 A hemispherical bowl of internal radius 12 cm contains water. If this water is to be emptied in cylindrical bottles of diameter 4 cm and height 6 cm, how many bottles will be needed?

- Ans
- A. 55
 - B. 45
 - C. 52
 - D. 48

Question ID: 1841223956

Q.10 The table shows three sections of standard 10 and the results for the exams.

Result	Number of students		
	Section A	Section B	Section C
Students passed in both exams	66	52	45
Students failed in both exams	7	10	12
Students who passed in half-yearly exams only	10	18	15
Students who passed in Annual exams only	8	9	11

How many students are there in standard 10 in total?

- Ans
- A. 275
 - B. 249
 - C. 263
 - D. 254

Question ID: 1841223957

Q.11 Two identical cylinders with base diameter 7 cm has a surface area of 847 sq.cm. Find the height.

- Ans
- A. 35 cm
 - B. 37 cm
 - C. 32 cm
 - D. 30 cm

Question ID: 1841223955

Q.12 The difference between two numbers is 54. The HCF and LCM of the numbers is 18 and 504, find the smaller of the two numbers.

- Ans
- A. 86
 - B. 72
 - C. 64
 - D. 80

Question ID: 1841223941

Q.13 The following is the chart depicting sale of television sets by five companies for two years and the total number of television sets produced in 2015 is 245000 and in 2020 is 280000.

What is the ratio of increase in production between M and O?



Ans A. 11 : 6

B. 34 : 23

C. 57 : 64

D. 16 : 9

Question ID: 1841223958

Q.14 What is 48% of 1.45 km in mm?

Ans A. 696000

B. 6960000

C. 6960

D. 69600

Question ID: 1841223944

Q.15 Find the compound interest at the rate of 10% p.a compounded half yearly for two years on that principal which yields a simple interest of ₹41880 for 3 years at 8% p.a.

Ans A. 35743

B. 39640

C. 37606

D. 38576

Question ID: 1841223948

Q.16 Two pants and three shirts cost ₹3040 and two shirts and three pants cost ₹3260. Find the cost of 1 pant and 5 shirts.

Ans A. ₹3550

B. ₹3460

C. ₹3600

D. ₹3340

Question ID: 1841223942

Q.17 A man covers first 210 km of his journey at 63 km/h and next 198 km at 72 km/h. Find the average speed for his whole journey. (rounded off to two decimal places)

- Ans
- A. 67.45 km/h
 - B. 67.94 km/h
 - C. 67.82 km/h
 - D. 67.07 km/h

Question ID: 1841223952

Q.18 If John bought 4.5 kilograms of tomato at ₹25.50 per kilogram, 2.4 kilograms of potato at ₹32 per kilogram, 3.3 kilograms of onion at ₹19 per kilogram, how much did John spend in all?

- Ans
- A. ₹263.40
 - B. ₹254.25
 - C. ₹261.35
 - D. ₹268.90

Question ID: 1841223939

Q.19 The area of a circular field is 18.865 hectares. Find the cost of fencing it at ₹4.30 per meter.

- Ans
- A. ₹6835
 - B. ₹6622
 - C. ₹6258
 - D. ₹6540

Question ID: 1841223954

Q.20 A train running at 60 kmph takes 18 seconds to pass a platform and 10 seconds to pass a man walking at 6 kmph in the same direction as the train. Find the length of the platform.

- Ans
- A. 125 m
 - B. 150 m
 - C. 160 m
 - D. 180 m

Question ID: 1841223951

Section: General English

Q.1 Fill in the blank with the CORRECTLY spelled word choosing from the options given below.

This storm has acquired a certain _____ for several reasons.

- Ans
- A. Notoreity
 - B. Notorety
 - C. Notority
 - D. Notoriety

Question ID: 1841223971

Q.2 Complete the sentence using an appropriate preposition choosing from the following options given.

Mrs. Chauhan taught at this school _____ two years.

- Ans
- A. in
 - B. since
 - C. for
 - D. of

Question ID: 1841223960

Q.3 Select the most appropriate meaning which best expresses the meaning of the Idiom/Phrase in the bold.

APPLE OF ONE'S EYE

- Ans
- A. A winner
 - B. Dishonest
 - C. Very dear
 - D. To resemble

Question ID: 1841223968

Q.4 Select the most appropriate SYNONYM of the given word.

AGHAST

- Ans
- A. Worried
 - B. Strange
 - C. Misery
 - D. Amazed

Question ID: 1841223966

Q.5 Put the verbs in brackets into correct or more suitable verb form (future tense) choosing from the options given below.

Namita wants to speak with you. Please convey to her that I _____ (call) her as soon as I'm free.

- Ans
- A. Will have called
 - B. Will call
 - C. Will have been calling
 - D. Will get her calling

Question ID: 1841223963

Q.6 Complete the sentence using an appropriate preposition choosing from the following options given.

The person _____ whom you were talking is my uncle.

- Ans
- A. In
 - B. at
 - C. To
 - D. on

Question ID: 1841223961

Q.7 Select the most appropriate option to fill in the blank.

There are many who are not educated but still live a good life. So, education is not about academics alone; it _____ one's interaction with the environment and sensitizes the mind.

- Ans
- A. Improves
 - B. Caters
 - C. Relieves
 - D. Saves

Question ID: 1841223973

Q.8 Select the most appropriate ANTONYM of the given word.

ACCOMPLICE

- Ans
- A. Brave
 - B. Innocent
 - C. Beautiful
 - D. Rival

Question ID: 1841223965

Q.9 Put the verbs in brackets into correct or more suitable verb form (past tense) choosing from the options given below.

The professor later _____ (doubt) the integrity of the test taken and gave it a fail mark.

- Ans
- A. Would doubt
 - B. doubted
 - C. Will doubt
 - D. Had doubt

Question ID: 1841223964

Q.10 Complete the sentence using an appropriate adverb choosing from the following options given.

He will _____ attend the meeting.

- Ans
- A. certainly
 - B. frankly
 - C. admirably
 - D. lately

Question ID: 1841223959

Q.11 Select the most appropriate meaning which best expresses the meaning of the given Idiom in the bold.

AT THE ELEVENTH HOUR

- Ans
- A. Precious moments
 - B. At the last moment
 - C. A request
 - D. Last words

Question ID: 1841223969

Q.12 Given below are five jumbled sentences select the option that gives their correct logical sequence.

- A. I too was excited about my last vacation and had many plans.
- B. A vacation is looked forward to as a time to relax and take a break from the routine that gets monotonous.
- C. That meant forced rest and confinement to bed.
- D. But destiny wished it otherwise as, on the last day of school, I met with an accident and my leg was put in a cast.
- E. I was upset, but my mother reminded me of those who had to be in bed for a lifetime.

- Ans
- A. AECDB
 - B. DBEAC
 - C. CDBAE
 - D. BADCE

Question ID: 1841223972

Q.13 Fill in the blank with the CORRECTLY spelled word choosing from the options given below.

It is respectful to show _____ to those who have passed away.

- Ans
- A. Reverence
 - B. Reveranse
 - C. Reverance
 - D. Revierance

Question ID: 1841223970

Q.14 Identify the Adverb/Adverbs in the following sentence choosing one among the options given.

_____ promptly the government acted!

- Ans
- A. How
 - B. What
 - C. When
 - D. Where

Question ID: 1841223962

Q.15 Read the sentence and select the homophone which will correctly complete the sentence.

The king's _____ did not last very long.

- Ans
- A. Range
 - B. Rain
 - C. Rein
 - D. Reign

Question ID: 1841223967

Comprehension:

Read the following passage and answer the questions given below.

Schools must impart purposeful education that aim at the overall outcome in each student.

LEARN:

This stage is of seeking and acquiring wherein a child would LEARN how to learn and understand the overwhelming information shoved at her/him from various sources both formal and informal. It is to be noted that learning is not restricted to classroom or school. Children actually learn everything every time from everywhere be it home, school, playground, street or whatever; they learn whether it's good or bad. Therefore, even more important than teaching or teaching how to learn, is that we help them think and analyse so that they differentiate between what's good and what's not and learn appropriately. While doing so, everything that has to be learnt in this phase should seem natural, seamless and integrated. Therefore, whether it is valued for the heart or health for the body, they should all be considered part of the curriculum and presented just like math, science or language for the mind. The key is to carefully define each subject individually with its own objectives but design syllabus in an inter-disciplinary style so that various disciplines/subjects refer to each other and represent an integrated whole of education to be learnt. Faith-based schools must also address spiritually and cater to the soul by helping students learn how to pray and realize the true spirit of being a human by unconditionally submit to the Almighty. And as far as values are concerned, they are not taught rather caught by the children from the ones they love and respect. Therefore, it's imperative that the value system is not just spoken but implemented by everyone who works in the school from principal to peon and parents need to be kept in the loop at all times.

SubQuestion No : 16

Q.16 What is the stage of seeking and acquiring information in a child's life known as?

- Ans
- A. Learn
 - B. Analyse
 - C. Understand
 - D. Integrate

Question ID: 1841223975

Comprehension:

Read the following passage and answer the questions given below.

Schools must impart purposeful education that aim at the overall outcome in each student.

LEARN:

This stage is of seeking and acquiring wherein a child would LEARN how to learn and understand the overwhelming information shoved at her/him from various sources both formal and informal. It is to be noted that learning is not restricted to classroom or school. Children actually learn everything every time from everywhere be it home, school, playground, street or whatever; they learn whether it's good or bad. Therefore, even more important than teaching or teaching how to learn, is that we help them think and analyse so that they differentiate between what's good and what's not and learn appropriately. While doing so, everything that has to be learnt in this phase should seem natural, seamless and integrated. Therefore, whether it is valued for the heart or health for the body, they should all be considered part of the curriculum and presented just like math, science or language for the mind. The key is to carefully define each subject individually with its own objectives but design syllabus in an inter-disciplinary style so that various disciplines/subjects refer to each other and represent an integrated whole of education to be learnt. Faith-based schools must also address spiritually and cater to the soul by helping students learn how to pray and realize the true spirit of being a human by unconditionally submit to the Almighty. And as far as values are concerned, they are not taught rather caught by the children from the ones they love and respect. Therefore, it's imperative that the value system is not just spoken but implemented by everyone who works in the school from principal to peon and parents need to be kept in the loop at all times.

SubQuestion No : 17

Q.17 Select the most appropriate meaning if the phrase 'kept in the loop'

- Ans
- A. To bribe
 - B. To become silent
 - C. To remain valid
 - D. Keep someone informed about

Question ID: 1841223979

Comprehension:

Read the following passage and answer the questions given below.

Schools must impart purposeful education that aim at the overall outcome in each student.

LEARN:

This stage is of seeking and acquiring wherein a child would LEARN how to learn and understand the overwhelming information shoved at her/him from various sources both formal and informal. It is to be noted that learning is not restricted to classroom or school. Children actually learn everything every time from everywhere be it home, school, playground, street or whatever; they learn whether it's good or bad. Therefore, even more important than teaching or teaching how to learn, is that we help them think and analyse so that they differentiate between what's good and what's not and learn appropriately. While doing so, everything that has to be learnt in this phase should seem natural, seamless and integrated. Therefore, whether it is valued for the heart or health for the body, they should all be considered part of the curriculum and presented just like math, science or language for the mind. The key is to carefully define each subject individually with its own objectives but design syllabus in an inter-disciplinary style so that various disciplines/subjects refer to each other and represent an integrated whole of education to be learnt. Faith-based schools must also address spiritually and cater to the soul by helping students learn how to pray and realize the true spirit of being a human by unconditionally submit to the Almighty. And as far as values are concerned, they are not taught rather caught by the children from the ones they love and respect. Therefore, it's imperative that the value system is not just spoken but implemented by everyone who works in the school from principal to peon and parents need to be kept in the loop at all times.

SubQuestion No : 18

Q.18 What is more important in teaching the child how to learn?

- Ans
- A. Seek and acquire
 - B. Think and analyse
 - C. Represent and realize
 - D. Seam and integrate

Question ID: 1841223976

Comprehension:

Read the following passage and answer the questions given below.

Schools must impart purposeful education that aim at the overall outcome in each student.

LEARN:

This stage is of seeking and acquiring wherein a child would LEARN how to learn and understand the overwhelming information shoved at her/him from various sources both formal and informal. It is to be noted that learning is not restricted to classroom or school. Children actually learn everything every time from everywhere be it home, school, playground, street or whatever; they learn whether it's good or bad. Therefore, even more important than teaching or teaching how to learn, is that we help them think and analyse so that they differentiate between what's good and what's not and learn appropriately. While doing so, everything that has to be learnt in this phase should seem natural, seamless and integrated. Therefore, whether it is valued for the heart or health for the body, they should all be considered part of the curriculum and presented just like math, science or language for the mind. The key is to carefully define each subject individually with its own objectives but design syllabus in an inter-disciplinary style so that various disciplines/subjects refer to each other and represent an integrated whole of education to be learnt. Faith-based schools must also address spiritually and cater to the soul by helping students learn how to pray and realize the true spirit of being a human by unconditionally submit to the Almighty. And as far as values are concerned, they are not taught rather caught by the children from the ones they love and respect. Therefore, it's imperative that the value system is not just spoken but implemented by everyone who works in the school from principal to peon and parents need to be kept in the loop at all times.

SubQuestion No : 19

Q.19 How are values to be instilled in a child at growing stage?

- Ans
- A. Implemented by everyone working in the school
 - B. Caught from the ones they do not love and respect
 - C. Taught only by the teacher
 - D. By just addressing their inner self and spirituality

Question ID: 1841223977

Comprehension:

Read the following passage and answer the questions given below.

Schools must impart purposeful education that aim at the overall outcome in each student.

LEARN:

This stage is of seeking and acquiring wherein a child would LEARN how to learn and understand the overwhelming information shoved at her/him from various sources both formal and informal. It is to be noted that learning is not restricted to classroom or school. Children actually learn everything every time from everywhere be it home, school, playground, street or whatever; they learn whether it's good or bad. Therefore, even more important than teaching or teaching how to learn, is that we help them think and analyse so that they differentiate between what's good and what's not and learn appropriately. While doing so, everything that has to be learnt in this phase should seem natural, seamless and integrated. Therefore, whether it is valued for the heart or health for the body, they should all be considered part of the curriculum and presented just like math, science or language for the mind. The key is to carefully define each subject individually with its own objectives but design syllabus in an inter-disciplinary style so that various disciplines/subjects refer to each other and represent an integrated whole of education to be learnt. Faith-based schools must also address spiritually and cater to the soul by helping students learn how to pray and realize the true spirit of being a human by unconditionally submit to the Almighty. And as far as values are concerned, they are not taught rather caught by the children from the ones they love and respect. Therefore, it's imperative that the value system is not just spoken but implemented by everyone who works in the school from principal to peon and parents need to be kept in the loop at all times.

SubQuestion No : 20

Q.20 How can the child be helped to realize the true spirit of being a human?

- Ans
- A. By implementing love and respect
 - B. By working on their spiritual self and catering to their soul.
 - C. By working on their language and curriculum
 - D. By defining each subject individually

Question ID : 1841223978

Section : General Hindi

Q.1 क्रियाओं के व्यापार की निरन्तरता को कहते हैं:

- Ans
- A. भूतकाल
 - B. समानान्तर काल
 - C. भविष्यत काल
 - D. वर्तमान काल

Question ID : 1841223991

Q.2 'नलिन' शब्द किसका पर्यायवाची है?

- Ans
- A. अश्व
 - B. कमल
 - C. इन्द्र
 - D. अग्नि

Question ID : 1841223986

Q.3 क्रिया के जिस रूप से यह पता चले कि वह भूतकाल में हो सकती थी, किन्तु किसी कारणवश नहीं हुई, उसे कहते हैं:

- Ans
- A. सामान्य भूत
 - B. हेतुहेतुमद्भूत
 - C. अपूर्ण भूत
 - D. आसन्न भूत

Question ID: 1841223992

Q.4 'गीता _____ पढ़ती है।'
रिक्त स्थान के लिए उचित क्रिया विशेषण का चयन कीजिये:

- Ans
- A. तड़ातड़ा
 - B. ध्यानपूर्वक
 - C. अकस्मात
 - D. ज़रा

Question ID: 1841223981

Q.5 'देह धरे के दण्ड हैं' लोकोक्ति का अर्थ है:

- Ans
- A. शरीर है तो कष्ट भी रहेगा।
 - B. कमज़ोर व्यक्ति किसी का सहारा लेते हैं।
 - C. दुराचारी को दण्ड अवश्य मिलता है।
 - D. नकलची व्यक्ति दण्ड का भागी होता है।

Question ID: 1841223990

Q.6 निम्नलिखित में अशुद्ध वाक्य है:

- Ans
- A. श्रीकृष्ण के अनेक नाम हैं।
 - B. इस समय आपकी आयु चालीस वर्ष है।
 - C. रेलवे के कई कर्मचारियों की गिरफ्तारी हुई।
 - D. वहाँ भारी भीड़ लगी थी।

Question ID: 1841223994

Q.7 'सरल' शब्द का विलोम नहीं है:

- Ans
- A. कुटिल
 - B. क्षुद्र
 - C. वक्र
 - D. कठिन

Question ID: 1841223988

Q.8 अधिकरण कारक के लिए प्रयुक्त विभक्ति चिह्न है:

- Ans
- A. के लिए
 - B. ने
 - C. में
 - D. को

Question ID: 1841223982

Q.9 'टाट उलटना' मुहावरे का अर्थ है:

- Ans
- A. बिस्तर समेटना
 - B. दिवाला निकलना
 - C. इज्जत उतारना
 - D. मृत्यु हो जाना

Question ID: 1841223989

Q.10 एक विचार पूर्णता से प्रकट करने वाले शब्द समूह को कहते हैं:

- Ans
- A. वर्ण
 - B. शब्द
 - C. वाक्य
 - D. अव्यय

Question ID: 1841223993

Q.11 'उच्चारण' शब्द है:

- Ans
- A. स्वर सन्धि
 - B. विसर्ग सन्धि
 - C. व्यंजन सन्धि
 - D. दीर्घ सन्धि

Question ID: 1841223984

Q.12 विधेय-विशेषण का उदाहरण है:

- Ans
- A. गुड़िया सुशील कन्या है।
 - B. क्षत्रिय बड़े साहसी होते हैं।
 - C. मेरी बिल्ली काली है।
 - D. उदयन चंचल बालक है।

Question ID: 1841223983

Q.13 'महर्षि' शब्द स्वर सन्धि के किस प्रकार का उदाहरण है?

- Ans
- A. दीर्घ सन्धि
 - B. यण सन्धि
 - C. वृद्धि सन्धि
 - D. गुण सन्धि

Question ID: 1841223985

Q.14 संज्ञा के जिस रूप से किसी वस्तु के अलग होने का भाव प्रकट होता है, उसे कहते हैं:

- Ans
- A. करणकारक
 - B. अपादानकारक
 - C. सम्प्रदानकारक
 - D. सम्बन्धकारक

Question ID: 1841223980

Q.15 'अज्ञ' का विलोम शब्द है:

- Ans
- A. प्रज्ञ
 - B. सुवज्ञ
 - C. अवज्ञ
 - D. कुवज्ञ

Question ID: 1841223987

Comprehension:

निम्नलिखित गद्यांश को ध्यानपूर्वक पढ़ते हुए सम्बन्धित प्रश्नों के उत्तर दीजिये:

मनुष्य एक सामाजिक प्राणी है। समाज से अलग उसके अस्तित्व की कल्पना भी नहीं की जा सकती है। परिचित तो बहुत होते हैं, पर मित्र बहुत कम हो पाते हैं, क्योंकि मैत्री एक ऐसा भाव है जिसमें प्रेम के साथ समर्पण और त्याग की भावना मुख्य होती है। मैत्री में सबसे आवश्यक है, परस्पर विश्वास। मित्र ऐसा सखा, गुरु और माता है जो सभी स्थानों को पूर्ण करता है।

SubQuestion No : 16

Q.16 गद्यांश के लिए उचित सारांश का चयन कीजिये।

- Ans
- A. मानव सह अस्तित्व में विश्वास करने वाला प्राणी है।
 - B. मानव मित्रता निभाने वाला प्राणी है।
 - C. मानव एक समाज में रहने वाला प्राणी है।
 - D. मानव रिश्तों की इज्जत करने वाला प्राणी है।

Question ID: 1841224000

Comprehension:

निम्नलिखित गद्यांश को ध्यानपूर्वक पढ़ते हुए सम्बन्धित प्रश्नों के उत्तर दीजिये:

मनुष्य एक सामाजिक प्राणी है। समाज से अलग उसके अस्तित्व की कल्पना भी नहीं की जा सकती है। परिचित तो बहुत होते हैं, पर मित्र बहुत कम हो पाते हैं, क्योंकि मैत्री एक ऐसा भाव है जिसमें प्रेम के साथ समर्पण और त्याग की भावना मुख्य होती है। मैत्री में सबसे आवश्यक है, परस्पर विश्वास। मित्र ऐसा सखा, गुरु और माता है जो सभी स्थानों को पूर्ण करता है।

SubQuestion No : 17

Q.17 'मित्र ऐसा सखा, गुरु और माता है' का तात्पर्य है:

- Ans
- A. यथावश्यक मित्र सखा, गुरु और माता की भावना से युक्त हो जाता है।
 - B. मैत्री में समर्पण की भावना प्रधान होती है।
 - C. मित्र के रहने पर सखा, गुरु और माता की आवश्यकता नहीं रह जाती है।
 - D. मैत्री में परस्पर विश्वास की भावना मुख्य होती है।

Question ID: 1841223997

Comprehension:

निम्नलिखित गद्यांश को ध्यानपूर्वक पढ़ते हुए सम्बन्धित प्रश्नों के उत्तर दीजिये:

मनुष्य एक सामाजिक प्राणी है। समाज से अलग उसके अस्तित्व की कल्पना भी नहीं की जा सकती है। परिचित तो बहुत होते हैं, पर मित्र बहुत कम हो पाते हैं, क्योंकि मैत्री एक ऐसा भाव है जिसमें प्रेम के साथ समर्पण और त्याग की भावना मुख्य होती है। मैत्री में सबसे आवश्यक है, परस्पर विश्वास। मित्र ऐसा सखा, गुरु और माता है जो सभी स्थानों को पूर्ण करता है।

SubQuestion No : 18

Q.18 मैत्री में परस्पर विश्वास बने रहने के लिए क्या आवश्यक है?

- Ans
- A. उसका पारिवारिक सदस्य होना
 - B. समर्पण की भावना
 - C. सामाजिक प्राणी होना
 - D. परिचित होना

Question ID : 1841223998

Comprehension:

निम्नलिखित गद्यांश को ध्यानपूर्वक पढ़ते हुए सम्बन्धित प्रश्नों के उत्तर दीजिये:

मनुष्य एक सामाजिक प्राणी है। समाज से अलग उसके अस्तित्व की कल्पना भी नहीं की जा सकती है। परिचित तो बहुत होते हैं, पर मित्र बहुत कम हो पाते हैं, क्योंकि मैत्री एक ऐसा भाव है जिसमें प्रेम के साथ समर्पण और त्याग की भावना मुख्य होती है। मैत्री में सबसे आवश्यक है, परस्पर विश्वास। मित्र ऐसा सखा, गुरु और माता है जो सभी स्थानों को पूर्ण करता है।

SubQuestion No : 19

Q.19 गद्यांश के लिए उपयुक्त शीर्षक है:

- Ans
- A. सह अस्तित्व
 - B. परस्पर विश्वास
 - C. समर्पण और त्याग
 - D. सच्चा मित्र

Question ID : 1841223996

Comprehension:

निम्नलिखित गद्यांश को ध्यानपूर्वक पढ़ते हुए सम्बन्धित प्रश्नों के उत्तर दीजिये:

मनुष्य एक सामाजिक प्राणी है। समाज से अलग उसके अस्तित्व की कल्पना भी नहीं की जा सकती है। परिचित तो बहुत होते हैं, पर मित्र बहुत कम हो पाते हैं, क्योंकि मैत्री एक ऐसा भाव है जिसमें प्रेम के साथ समर्पण और त्याग की भावना मुख्य होती है। मैत्री में सबसे आवश्यक है, परस्पर विश्वास। मित्र ऐसा सखा, गुरु और माता है जो सभी स्थानों को पूर्ण करता है।

SubQuestion No : 20

Q.20 'परस्पर' शब्द का अर्थ है:

- Ans
- A. जुड़ा हुआ
 - B. थोड़ी दूर पर
 - C. एक दूसरे के प्रति
 - D. नज़दीक

Question ID : 1841223999

Q.1 A cyclist riding on a level road has to turn a corner of radius 50 m. Find the maximum speed with which the cyclist can travel without the fear of skidding. Assume the co-efficient of friction between the tyres and track as 0.2. (Take acceleration due to gravity = 10 m/s^2)

- Ans
- A. 14.1 m/s
 - B. 10 m/s
 - C. 4.5 m/s
 - D. 12 m/s

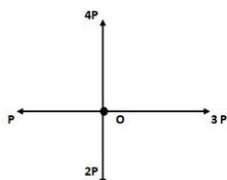
Question ID: 1841224014

Q.2 The molarity of a solution containing 5 gram of Sodium hydroxide (NaOH) in 500 millilitre solution is: (Take atomic weights of elements as: Na = 23, O = 16, H = 1)

- Ans
- A. 0.0625 mol/litre
 - B. 0.25 mol/litre
 - C. 0.025 mol/litre
 - D. 0.5 mol/litre

Question ID: 1841224004

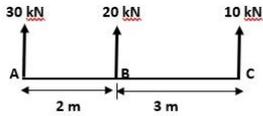
Q.3 Find the magnitude and direction of the resultant R of four concurrent forces (2P and 4 P in vertical directions; P and 3P in Horizontal directions) acting at a point O as shown in Figure.



- Ans
- A. $5P$, acting at 45° (anticlockwise dir.) with respect to $3P$ force
 - B. $5\sqrt{2}P$, acting at 45° (anticlockwise dir.) with respect to $4P$ force
 - C. $2\sqrt{2}P$, acting at 45° (anticlockwise dir.) with respect to $3P$ force
 - D. $3\sqrt{2}P$, acting at 45° (clockwise dir.) with respect to $2P$ force

Question ID: 1841224009

Q.4 Three like parallel forces 30 kN, 20 kN, and 10 kN are acting at points A, B, and C respectively on a straight line as in Figure. The distances are AB = 2 m, and BC = 3 m respectively. Determine the resultant force and its point of action from the end A.



- Ans
- A. 60 kN (↑) acting at a distance of 3 m
 - B. 60 kN (↓) acting at a distance of 2.5 m
 - C. 60 kN (↑) acting at a distance of 1.5 m
 - D. 60 kN (↑) acting at a distance of 3.5 m

Question ID: 1841224010

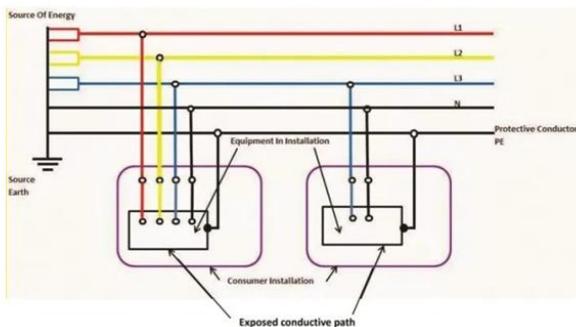
Q.5 A point charge $10 \mu\text{C}$ is located at origin ($x = 0, y = 0$) m, and another point charge $5 \mu\text{C}$ is placed on the point ($x = 6, y = 8$) m, in vacuum. Determine the electric force (in N units) on charge $5 \mu\text{C}$. Assume the value of permittivity of free space (vacuum) $\epsilon_0 = 9 \times 10^{-12} \text{ C}^2 \cdot \text{N}^{-1} \cdot \text{m}^{-2}$

- Ans
- A. 72π
 - B. $\frac{1}{72 \pi}$
 - C. $\frac{1}{18 \pi}$
 - D. $\frac{1}{36 \pi}$

Question ID: 1841224001

Q.6 Some features of an earthing system with figure showing details are given.

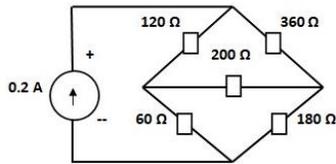
1. Safest system having separate neutral and protective conductors throughout the system.
2. Doesnot require earth electrode at site. Earth fault loop impedance is low. Electromagnetic Interference is also low.



- Ans
- A. Transformer neutral earthed, frame connected to neutral : TN-S Earthing system
 - B. Transformer neutral earthed and frame earthed : TT Earthing system.
 - C. Transformer neutral earthed, frame connected to neutral : TN-C Earthing system
 - D. Unearthed transformer neutral, earthed frame : IT System Earthing.

Question ID: 1841224019

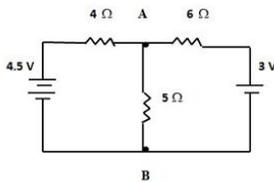
Q.7 A Wheatstone bridge with resistors as shown in figure is connected to a 0.2 A current source. Find the voltage across the 0.2 A current source, if the 200 Ω resistor is shorted.



- Ans A. 27 V
 B. 9 V
 C. 18 V
 D. 144 V

Question ID: 1841224002

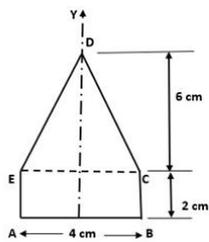
Q.8 Making use of Tevenin's theorem, estimate the current in 5 Ω resistor between terminals A and B as shown in Figure. Assume the internal resistance of batteries as zero.



- Ans A. 1.625 A
 B. 1.9 A
 C. 0.78 A
 D. 0.52 A

Question ID: 1841224018

Q.9 The figure shows a plane lamina and consist of a rectangular area ABCE and triangular area CDE. Find the distance to centroid of the section shown in figure from the base AB in the Y- direction.



- Ans A. 3.2 cm
 B. 2.5 cm
 C. 2.8 cm
 D. 2 cm

Question ID: 1841224011

Q.10 The following statements (S1, S2, S3) pertain to the transpose of matrices.
S1: The transpose of the transpose of a matrix coincides with itself.
S2: The transpose in the case of a symmetric matrix, $A^T = A$, and the transpose in the case of a skew symmetric matrix, $A^T = (-)A$
S3: The transpose of the product of two matrices A and B is equal to the product of their transposes [i.e. $(A B)^T = A^T B^T$]
Choose the correct statement(s).

- Ans
- A. S1 and S3 only
 - B. S1 and S2 only
 - C. S1 only
 - D. S2 and S3 only

Question ID: 1841224008

Q.11 The essential component of a electric comb is a resistor of 20 ohm which converts electric energy into work. How much current is drawn by the device at a voltage of 12 V? (Assume no losses)

- Ans
- A. 0.06 A
 - B. $\sqrt{0.6}$ A
 - C. 1.67 A
 - D. 0.6 A

Question ID: 1841224017

Q.12 The following statements (S1 and S2) pertain to Work and Energy associated with a particle.
S1: Gravity force is a non-conservative force, whereas frictional force is a conservative force.
S2: Work done by a force is zero, when the force acts normal to the direction of displacement.
Choose the correct option.

- Ans
- A. Both S1 and S2 are True
 - B. S1 is True and S2 is False
 - C. S1 is False and S2 is True
 - D. Both S1 and S2 are False

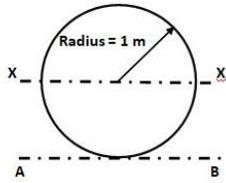
Question ID: 1841224015

Q.13 The sum to infinity of a Geometric Progression series is three times the first term. Find the common ratio of the progression.

- Ans
- A. $\frac{1}{3}$
 - B. $\frac{2}{3}$
 - C. $\frac{3}{4}$
 - D. $\frac{1}{4}$

Question ID: 1841224006

Q.14 Find the Moment of inertia of the circular lamina of diameter 2 m, as shown in figure about an axis AB tangential to circle, and parallel to the centroidal axis XX.



Ans

A. $\frac{7\pi}{4}$

B. $\frac{3\pi}{2}$

C. $\frac{5\pi}{4}$

D. $\frac{9\pi}{4}$

Question ID: 1841224012

Q.15 A body of weight 100 kN is placed on a rough horizontal plane. Determine the co-efficient of friction if a horizontal force of 30 kN just causes the body to slide over the horizontal plane.

Ans

A. 0.7

B. 0.3

C. 0.23

D. 0.77

Question ID: 1841224016

Q.16 A shaft runs at 80 rpm and drives another shaft at 150 rpm through a belt drive. Determine the velocity ratio. Neglect any slip between the belt and pulley, and consider the belt to be inelastic.

Ans

A. $\frac{15\pi}{8}$

B. $\frac{8\pi}{15}$

C. $\frac{15}{8}$

D. $\frac{15}{16}$

Question ID: 1841224020

Q.17 Identify the material whose thermal conductivity cannot be measured using Lee's disc method.

- Ans
- A. Copper
 - B. Natural rubber
 - C. Glass
 - D. Wood

Question ID: 1841224003

Q.18 The co-factor of the element u in the determinant A given is :

$$A = \begin{vmatrix} p & q & r \\ s & t & u \\ x & y & z \end{vmatrix}$$

- Ans
- A. $\begin{vmatrix} p & r \\ x & y \end{vmatrix}$
 - B. $(-)\begin{vmatrix} p & q \\ x & y \end{vmatrix}$
 - C. $\begin{vmatrix} p & q \\ x & y \end{vmatrix}$
 - D. $(-)\begin{vmatrix} p & q \\ s & t \end{vmatrix}$

Question ID: 1841224007

Q.19 The following statements (S1, S2, S3, S4) pertain to Dissolved oxygen in Surface water.

- S1: Warm water holds more dissolved oxygen than Cold water.
- S2: Respiration of organisms living in water as well as in sediments cause reduction in the available dissolved oxygen.
- S3: Water holds less oxygen at higher altitudes.
- S4: During day time, Photosynthesis activity in surface water leads to decrease in the Dissolved oxygen concentration.

Chosse the correct ststement(s)

- Ans
- A. S1, S4 only
 - B. S2, S3 only
 - C. S1 only
 - D. S2, S3, and S4 only

Question ID: 1841224005

Q.20 Consider the motion of a point on a circular trajectory. The acceleration in a linear motion (a) and the acceleration in angular motion (α), are related as: (Take r as the radius of circular trajectory)

- Ans
- A. $a = r^2 \alpha$
 - B. $a = \frac{r}{\alpha}$
 - C. $a = r \alpha^2$
 - D. $a = r \alpha$

Question ID: 1841224013

Q.1 Identify the Dickens formula used for the estimation of the peak rate of runoff Q_p (in cumec units), during a flood from a catchment area of A (in Km^2 units), (C_D – Dicken's constant)

- Ans
- A. $Q_p = C_D A^{\frac{1}{2}}$
 - B. $Q_p = C_D A^{\frac{2}{3}}$
 - C. $Q_p = C_D A^{\frac{3}{4}}$
 - D. $Q_p = C_D A^{\frac{3}{5}}$

Question ID: 1841224031

Q.2 The drawdown observed at the radius of influence of a pumping well (pumped at a constant steady rate) in an unconfined aquifer is :

- Ans
- A. Maximum drawdown
 - B. Zero
 - C. Any value of drawdown between maximum and minimum
 - D. Half the draw down value in the pumping well

Question ID: 1841224034

Q.3 Match the different types of irrigation application (List 1) in field with their salient features (List 2)

List 1	List 2
P. Check Flooding	1. Supply of water in the form of drops directly near the base of plants by pipelines.
Q. Furrow method	2. Supply water directly to root zone of crops through a network of buried perforated pipes.
R. Drip Irrigation	3. Water is conveyed to field by a system of supply channel (main ditch) and laterals.
S. Sub surface Irrigation	4. Consists of a narrow ditch between row of plants, with $\frac{1}{2}$ to $\frac{1}{5}$ of surface wetted, used for crops injured by direct contact with water.

- Ans
- A. P-4, Q-3, R-1, S-2
 - B. P-4, Q-3, R-2, S-1
 - C. P-2, Q-4, R-1, S-3
 - D. P-3, Q-4, R-1, S-2

Question ID: 1841224030

Q.4 In a worm gear, the relation between lead angle (λ) and the helix angle (ψ) is given by:

- Ans
- A. $\lambda - \psi = 45^\circ$
 - B. $\lambda + \psi = 90^\circ$
 - C. $\lambda - \psi = 90^\circ$
 - D. $\lambda + \psi = 180^\circ$

Question ID: 1841224021

Q.5 Determine the discharge through a 100 mm diameter external mouth piece fitted to the side of a large tank, if the head over the mouth piece is 5 m. Take the discharge co-efficient of mouth piece as 0.8. Assume no losses.

- Ans
- A. 40π litre/s
 - B. 20π litre/s
 - C. 25π litre/s
 - D. 10π litre/s

Question ID: 1841224039

Q.6 A hydraulic press has an input cylinder 5 cm diameter and an output cylinder 20 cm diameter. Assuming 100% efficiency, determine the force exerted by the output piston when a force of 10 kN is applied to the input piston. (Note: the cylinders are connected to the respective cylinders)

- Ans
- A. 50 kN
 - B. 160 kN
 - C. 40 kN
 - D. 200 kN

Question ID: 1841224037

Q.7 Shorings are temporary support given to existing buildings so as to avoid damage to persons from collapse of structure. Identify the one, which does not belong to the type of shoring, given to existing buildings.

- Ans
- A. Flying shoring
 - B. Raking shoring
 - C. Buffer shoring
 - D. Dead shoring

Question ID: 1841224025

Q.8 Arrange the following fluids in the increasing order of specific weights (low to high values) under same pressure and temperature conditions:
Fresh Water (F), Kerosene (K), Mercury (M), Air (A), Sea Water (S)
Use codes in the answer options.

- Ans
- A. K, F, A, S, M
 - B. A, K, F, S, M
 - C. A, F, K, S, M
 - D. M, S, F, K, A

Question ID: 1841224036

Q.9 The following statements S1 and S2 pertain to Louvered doors:
S1: when natural ventilation is desired along with privacy, these types of doors are preferable.
S2: Louvers in the door are arranged such that the upper back edge of any louver is higher than the lower front edge of the louver just above it.
Choose the correct answer.

- Ans
- A. S1 and S2 are True
 - B. S1 is False and S2 is True
 - C. S1 is True and S2 is False
 - D. S1 and S2 are False

Question ID: 1841224027

Q.10 In India, according to the classification of buildings based on occupancy, the buildings or part of a building, where groups of people congregate or gather for amusement, recreation, social, religious, patriotic, civil, travel and similar purposes are known as:

- Ans
- A. Assembly buildings
 - B. Business buildings
 - C. Mercantile buildings
 - D. Institutional buildings

Question ID: 1841224022

Q.11 The critical value of one of the following non-dimensional numbers is made use of in the classification of flow through a pipe as laminar flow or turbulent flow.

- Ans
- A. Froude number
 - B. Reynolds number
 - C. Euler number
 - D. Mach number

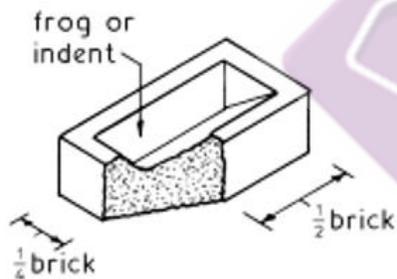
Question ID: 1841224038

Q.12 Identify the type of foundation that doesnot come under the class of Deep foundation.

- Ans
- A. Pile foundation
 - B. Raft foundation
 - C. Well foundation
 - D. Caissons

Question ID: 1841224023

Q.13 Identify the type of brick cut shown in Figure, which is used in brick masonry work.



- Ans
- A. Queen Closer
 - B. King Closer
 - C. Snap Closer
 - D. Bevelled closer

Question ID: 1841224024

Q.14 Identify the type of scaffolding which is suitable to satisfy the following three site conditions:

1. When it is not possible to fix the standards into the ground in the usual manner in scaffolding.
2. Where Scaffolding is to be provided on the side of a busy street without obstructing the traffic on road.
3. Where scaffolding is required for construction operations of upper storeys of a tall building.

- Ans
- A. Trestle Scaffolding
 - B. Cantilever scaffolding
 - C. Ladder Scaffolding
 - D. Double Scaffolding

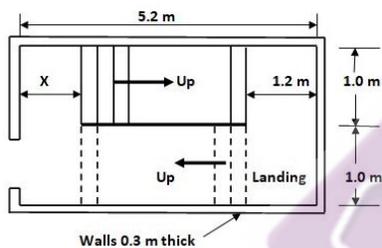
Question ID: 1841224028

Q.15 An aquifer which is confined between two impervious beds such as aquicludes, having water held at a pressure greater than atmospheric pressure is known as:

- Ans
- A. Artesian aquifer
 - B. Perched aquifer
 - C. Phreatic aquifer
 - D. Water table aquifer

Question ID: 1841224033

Q.16 A staircase room of dimensions 5 m X 2 m for a building is shown in Figure, connects the Ground floor with the first floor. The Ground floor level is +0.0 m and the first floor level is +3.0 m. The steps have to provided with a rise = 15 cm and tread = 30 cm, with equal number of steps in both flights, and a landing of 1.2 m width in between the flights. What is the distance X at the Ground floor marked in Figure for the staircase room?



- Ans
- A. 1.0 m
 - B. 1.1 m
 - C. 1.4 m
 - D. 1.3 m

Question ID: 1841224029

Q.17 If the culturable command area of an irrigation field is 2 km², out of which 1.4 km² of the land is cultivated during Kharif season and 1 km² of the land is cultivated during the Rabi season, determine the yearly intensity of irrigation.

- Ans
- A. 120%
 - B. 100%
 - C. 50%
 - D. 70%

Question ID: 1841224032

Q.18 Find out the value of wetted perimeter, for carrying the maximum discharge at :corresponding to the depth of flow = 1.5 m, for the most economical rectangular cross section of an open channel

- Ans A. 6 m
 B. 1.5 m
 C. 3 m
 D. 9 m

Question ID: 1841224040

Q.19 The inner curve of the arch is known as :

- Ans A. Arcade
 B. Springer Curve
 C. Extradados
 D. Intrados

Question ID: 1841224026

Q.20 For a prismatic irrigation canal of wetted area A, having a bed slope S and hydraulic radius R, the chezy's formula for computing the average velocity of flow through the canal v is given as : (Take C as Chezy's coefficient)

- Ans A. $v = C \sqrt{RS}$
 B. $v = C \sqrt{\frac{R}{S}}$
 C. $v = \frac{1}{C} \sqrt{RS}$
 D. $v = C \sqrt{\frac{S}{R}}$

Question ID: 1841224035

Section: Discipline3

Q.1 The extract of the sample of sieve analysis conducted on fine aggregate soil is given below. Weight of the sample of Fine aggregate taken is 1 kg. Estimate the fineness modulus of fine aggregate.

IS sieve	Weight retained (kg)	Cumulative % retained
2.36 mm	0.15	15
1.18 mm	0.15	30
600 micron	0.2	50
300 micron	0.25	75
150 mm	0.2	95

- Ans A. 2.5
 B. 0.95
 C. 2.65
 D. 1.7

Question ID: 1841224046

Q.2 An example of an application specific operating system, that doesnot belong to the Real Time Operating System (RTOS) type is :

- Ans
- A. Vx Works
 - B. Ubuntu
 - C. QNX
 - D. RT Linux

Question ID: 1841224042

Q.3 According to IS 1172 : 1993, for the computation of water requirement for factories where bathrooms are required to be provided, the percapita water requirement is to be takeas :

- Ans
- A. 30 litre per head/day
 - B. 45 litre per head/day
 - C. 70 litre per head/day
 - D. 135 litre per head/day

Question ID: 1841224056

Q.4 The relationship between theelastic modulus (E) and shear modulus (N) of a material is given by $E = 3N$. Determine the poisson's ratio of the material.

- Ans
- A. 0.5
 - B. 0.75
 - C. 0.3
 - D. 0.25

Question ID: 1841224050

Q.5 Euler's Crippling load for a column of length L with one end fixed and the other end hinged is given by : (Assume uniform flexural rigidity EI for the column Section)

- Ans
- A. $\frac{\pi^2 EI}{L^2}$
 - B. $\frac{4\pi^2 EI}{L^2}$
 - C. $\frac{\pi^2 EI}{4L^2}$
 - D. $\frac{2\pi^2 EI}{L^2}$

Question ID: 1841224055

Q.6 The following statements (S1 and S2) pertain to Filtration process for water treatment.
S1: In most types of filtration, particles are removed mainly by straining.
S2: Slow sand filters have more operating problems and require frequent back washing when compared to rapid sand filters.
Check the validity of the statements as True or False and choose the best answer.

- Ans
- A. S1 is False and S2 is True.
 - B. S1 is True and S2 is False
 - C. Both S1 and S2 are True
 - D. Both S1 and S2 are False

Question ID: 1841224060

Q.7 Arrange the cement compounds in Portland cements, in the increasing order (minimum to maximum value) of heat of hydration (and its rate) of cement. Use Symbols as : C_3S : Tricalcium silicate, C_2S : Dicalcium silicate, C_3A : Tricalcium Aluminate, C_4AF : TetracalciumAlumino ferrite, for answering.

- Ans
- A. C_2S, C_4AF, C_3S, C_3A
 - B. C_3S, C_3A, C_2S, C_4AF
 - C. C_3A, C_3S, C_4AF, C_2S
 - D. C_4AF, C_3S, C_3A, C_2S

Question ID: 1841224045

Q.8 Given below are six chemicals (with codes for identification) that are used in water treatment process. Identify the chemicals that cannot be used as coagulants in coagulation process.
P - Aluminium sulphate, Q - calcium hypochlorite ; R - Ferric Chloride ; S - Sodium hydroxide ; T - Potassium aluminum Sulphate ; U - Ammonium Sulphate
Use codes for answering.

- Ans
- A. Q and S
 - B. Q, S, U
 - C. S and T
 - D. P, R, T

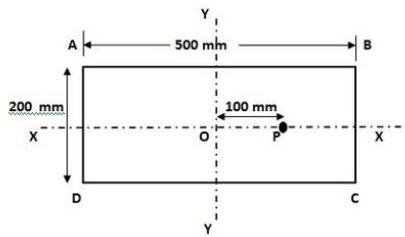
Question ID: 1841224059

Q.9 As per IS 10500 : 2012, in drinking water, the permissible limits of Turbidity in the absence of alternate source is :

- Ans
- A. 7.5 NTU
 - B. 10 NTU
 - C. 1 NTU
 - D. 5 NTU

Question ID: 1841224058

- Q.10 A rectangular short column ABCD of 500 mm X 200 mm cross section carries a load of 10 kN which is off the geometric axis by 100 mm in the vertical plane bisecting the thickness, at point P as shown in figure. Which faces of the section have the maximum and minimum intensity of stress induced in it? (Use codes MX to indicate maximum stress, and MN to indicate minimum stress in options)



- Ans
- A. MX on AB ; MN on DC
 - B. MX on BC ; MN on AB
 - C. MX on BC ; MN on AD
 - D. MX on CD ; MN on AD

Question ID: 1841224053

- Q.11 The following statements (S1 and S2) pertain to the effect of factors affecting the workability of concrete.

S1: High ratio of volume of coarse aggregate to fine aggregate results in higher workability of the concrete mix (keeping all other parameters of mix constant).

S2: As the placing time of concrete increases, the workability of the mix decreases.

- Ans
- A. S1 is True and S2 is False
 - B. S1 is False and S2 is True
 - C. Both S1 and S2 are True
 - D. Both S1 and S2 are False

Question ID: 1841224048

- Q.12 The following statements (S1 and S2) pertain to the compiler in a computer.

S1: It is a system software to convert source language program into target language program.

S2: It validates the input program to the source language specification - produces error messages /warnings.

Chosse the correct option

- Ans
- A. S1 is False and S2 is True
 - B. Both S1 and S2 are False
 - C. S1 is True and S2 is False
 - D. Both S1 and S2 are True

Question ID: 1841224043

- Q.13 Estimate the power transmitted (in kW units) by a solid circular shaft of diameter 200 mm at 120 rpm if the torque on the shaft is 80000 Nm.

- Ans
- A. 320 π
 - B. 160 π
 - C. 80 π
 - D. 640 π

Question ID: 1841224054

Q.14 Consider an Arithmetic and Logic Unit (ALU) of a computer is having four arithmetic operations: Addition, subtraction, multiplication and division. Also consider that the ALU is having four logical operations: OR, AND, NOT & EX-OR. How many control lines are necessary to identify any one of the above eight operations?

- Ans A. 3
 B. 4
 C. 8
 D. 2

Question ID: 1841224041

Q.15 Among the different intakes to draw water, multiple inlets at different depths are not provided in this type of intake; identify it:

- Ans A. Reservoir Intake
 B. River Intake
 C. Canal Intake
 D. Weir Intake

Question ID: 1841224057

Q.16 The following beam sections are subjected to bending with load acting from the top. (i) Rectangular beam (width $b = 300$ mm and depth $d = 500$ mm) with load acting on top face of width b (ii) a T section (flange 100 mm \times 20 mm, and web 130 mm \times 20 mm) with flange on top and load acting on the flange face. The intensity of shear stress due to bending will be maximum for the sections as:

- Ans A. At the top face ($d = 0$) for the rectangular beam; at top face of flange for the T section
 B. At a distance of $0.25 d$ from the top face for the rectangular beam; at a point on the web (within a distance of 65 cm from the bottom end of web) for the T section
 C. At a distance of $0.5 d$ from the top face for the rectangular beam; at a point on the flange (within a distance of 20 mm from the flange top) for the T section
 D. At a distance of $0.5 d$ from the top face for the rectangular beam; at a point on the web (within a distance of 85 cm from the flange top) for the T section

Question ID: 1841224052

Q.17 The adding of fibres to concrete thereby making fibre reinforced concrete and the associated effects are given. Choose the incorrect answer.

- Ans A. Improves the Impact strength of concrete
 B. Reduces the shrinkage of concrete
 C. Workability of mix increases as fibre content increases.
 D. Improves Fatigue strength of concrete

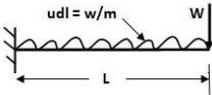
Question ID: 1841224047

Q.18 The addition of Admixtures in the form of Plasticizers (Water reducers) are done to concrete to achieve some desired properties, and are listed as options. Identify the False /incorrect answer.

- Ans A. To have a delay in the setting time of concrete, so as to achieve a delay in hardening, when concreting is done in hot weather.
- B. To achieve higher strength by decreasing the water cement ratio at the same workability as an admixture- free mix.
- C. To achieve the same workability by decreasing the cement content so as to reduce the heat of hydration in mass concrete.
- D. To increase the workability so as to ease placing in inaccessible locations.

Question ID: 1841224049

Q.19 The shear force diagram for a cantilever beam of span L as shown in figure, subjected to a concentrated load W at the free end and a uniformly distributed load of intensity w /m length is :



- Ans A. Trapezium with parallel sides of W at the free end and $(W + 0.5 w \cdot L^2)$ at the fixed end
- B. Rectangular with parallel sides of $(W + w \cdot L)$ at the two ends.
- C. Trapezium with parallel sides of W at the free end and $(W + w \cdot L)$ at the fixed end
- D. Right angled Triangle with zero value at the free end and $(W + w \cdot L)$ at the fixed end.

Question ID: 1841224051

Q.20 As per IS 12600 : 1989) specification for initial setting time of Low heat Portland Cement (LHPC), when tested by the Vicat apparatus method described in IS 4031 (Part 5): 1988, of the following statement is given.

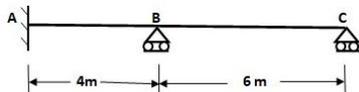
"The initial setting time of LHPC, shall not be less than 30 minutes"
Check whether the statement is correct. If incorrect, give the correct statement.

- Ans A. Correct statement. No modification
- B. Incorrect statement ; "The initial setting time of LHPC, shall not be less than 20 minutes"
- C. Incorrect statement ; "The initial setting time of LHPC, shall not be less than 60 minutes"
- D. Incorrect statement ; "The initial setting time of LHPC shall not be greater than 60 minutes"

Question ID: 1841224044

Section: Discipline4

Q.1 The degree of freedom (or kinematically indeterminate) of the continuous beam ABC shown in Figure, with support A as fixed and supports B and C hinged is :



- Ans A. 3
- B. 4
- C. 5
- D. 2

Question ID: 1841224077

Q.2 As per Central Public Health and Environmental Engineering Organization (CPHEEO), the minimum velocity at ultimate peak flow and maximum velocity of flow to be adopted in the design of gravity sewers shall be respectively :

- Ans
- A. 0.4 m/s and 2.0 m/s
 - B. 0.8 m/s and 3 m/s
 - C. 0.6 m/s and 3.5 m/s
 - D. 0.45 m/s and 1.5 m/s

Question ID: 1841224063

Q.3 A three hinged parabolic arch of span 20 m and rise 4 m, carries a concentrated load of 100 kN at 4 m from left support 'A'. Calculate the vertical reaction (V_A) and the horizontal thrust (H_A) at support 'A'.

- Ans
- A. $V_A = 100$ kN and $H_A = 75$ kN
 - B. $V_A = 40$ kN and $H_A = 25$ kN
 - C. $V_A = 80$ kN and $H_A = 50$ kN
 - D. $V_A = 50$ kN and $H_A = 40$ kN

Question ID: 1841224080

Q.4 According to IS 15489 : 2004, the thinner used in plastic emulsion paints is:

- Ans
- A. Varnish
 - B. Water
 - C. Alcohol
 - D. Naptha

Question ID: 1841224069

Q.5 Identify the type of water distribution system with the following features:

1. The entire area is divided into various zones and one reservoir is provided at the centre of each zone.
2. Water is taken from the water mains, and pumped into distribution reservoirs at different centers. Water is supplied through radially laid distribution pipes.
3. System ensure high pressures and efficient water distribution, and only small area will be affected during repair.

- Ans
- A. Radial System
 - B. Ring System
 - C. Grid Iron System
 - D. Dead End System

Question ID: 1841224062

Q.6 As per IS 1141 : 1993, a quick method of seasoning of timber with arrangements for heating and humidifying the drying air to the desired conditions of temperature and relative humidity and its circulation over the surfaces of timber stacked is :

- Ans
- A. Refractory Seasoning
 - B. Air seasoning
 - C. Fire seasoning
 - D. Kiln Seasoning

Question ID: 1841224068

Q.7 The type of soil formation due to deposition in lake beds is known as :

- Ans A. Lacustrine soil
 B. Glacial soil
 C. Aeolian soil
 D. Marine soil

Question ID: 1841224070

Q.8 The samples of burnt clay bricks from five different agencies (S1 to S5) are tested and the results are tabulated as follows. The criteria to be adopted (% water absorption and compressive strength) correspond to the usage of bricks of class designation 15 and above, as per IS 1077: 1992. Which samples are recommended for wall construction?

Id	Water absorption (%)	Average Compressive strength (kN/m ²)
S1	20	18000
S2	12	15700
S3	24	10100
S4	10	22500
S5	13	12100

- Ans A. S1, S3 and S5 only
 B. S2 and S4 only
 C. S1, S2, S3 and S5 only
 D. S3 and S5 only

Question ID: 1841224065

Q.9 A beam PQ is hinged at the end P and fixed at end Q. A clockwise moment M is applied at end P. What is the carry over factor to be used in Moment distribution method in the determination of moment at the support Q?

- Ans A. 0.5
 B. 0.25
 C. 0.333
 D. 1

Question ID: 1841224079

Q.10 Based on geological classification, six rock types are given below. Identify the rock types which do not fall under the category of Metamorphic rocks.

Rock types: Gneiss, Slate, Granite, Marble, Quartzite, Dolomite

- Ans A. Granite, Dolomite
 B. Marble, Quartzite
 C. Slate, Marble
 D. Gneiss, Slate

Question ID: 1841224064

Q.11 The porosity of a partially saturated soil sample is 0.4. Determine the void ratio of soil sample.

Ans

A. $\frac{2}{7}$

B. $\frac{1}{3}$

C. $\frac{2}{3}$

D. 1.5

Question ID: 1841224071

Q.12 What is the chlorine demand in mg/l of given water, which leaves a residual of 0.5 mg/l, when dosed at the rate of 2.6 mg/l ?

Ans

A. 0.5

B. 2.6

C. 2.1

D. 3.1

Question ID: 1841224061

Q.13 A field test used to determine the shear strength of soils is :

Ans

A. Unconfined compression Test

B. Double Shear Test

C. Triaxial test

D. Penetration Test

Question ID: 1841224075

Q.14 Two statements (S1 and S2) associated with the Compression index of soils is given as follows:

S1: Compression index is a meaningful parameter only for Normally consolidated soils.

S2: Higher the compression index value, smaller the resulting vertical deformation in a clay soil.

Check the validity of the statements as True or False and choose the appropriate answer.

Ans

A. S1 is False and S2 is True

B. Both S1 and S2 are True

C. S1 is True and S2 is False

D. Both S1 and S2 are False

Question ID: 1841224074

Q.15 Making use of the Moment area theorem, the difference of slope between any two points on a continuous elastic curve of a beam is equal to the :

Ans

A. Square root of the area under the M / EI curve between these points.

B. Moment of the area under the M / EI curve between these points, about one of the points.

C. Reciprocal of the area under the M / EI curve between these points.

D. Area under the M / EI curve between these points.

Question ID: 1841224076

Q.16 The association between Discharge velocity (v) and seepage velocity (v_s) through soils are given below as options.

Choose the correct one.

Ans A.

Discharge velocity (v) and seepage velocity (v_s) are related as $v_s = n.v$; where n is the void ratio of soil

B.

Seepage velocity (v_s) is always less than discharge velocity (v)

C.

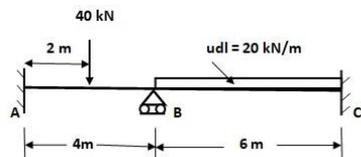
Seepage velocity (v_s) is always greater than discharge velocity (v)

D.

Discharge velocity (v) and seepage velocity (v_s) are related as $v = e.v_s$, where e is the void ratio of soil

Question ID: 1841224073

Q.17 A two span continuous beam with loadings as shown in Figure, with supports A and C as fixed and support B as roller. Assume Young's modulus of material and moment of inertia of sections constant throughout. The slope deflection equations formulated for the span AB are : (Notations : M indicates moment and θ indicates the slope at the respective points)



Ans A.

$$M_{AB} = 0.5EI \theta_B + EI \theta_A - 20 ; M_{BA} = 2EI \theta_B + EI \theta_A + 20$$

B. $M_{AB} = 0.5EI \theta_B - 20 ; M_{BA} = EI \theta_B + 20$

C. $M_{AB} = EI \theta_B - 20 ; M_{BA} = 2EI \theta_B + 20$

D.

$$M_{AB} = 2EI \theta_B + EI \theta_A - 20 ; M_{BA} = EI \theta_B + 0.5EI \theta_A + 20$$

Question ID: 1841224078

Q.18 Among the four major compounds present in Ordinary Portland Cement : Tricalcium aluminate (C_3A), Tetracalcium aluminato ferrite (C_4AF), Tricalcium silicate (C_3S) and Dicalcium silicate (C_2S), identify the compound(s) responsible for the development of strength is/are:

Ans A. C_3A and C_4AF

B. C_3S and C_2S

C. C_3A

D. C_4AF

Question ID: 1841224066

Q.19 As per Indian Standard Soil Classification identify the soil type with the following details: Fine grained soil with more than 50% passing through 75 micron IS sieve; Has liquid limit value between 35% and 50%; Atterberg limit plots above the A - line.

- Ans
- A. OH
 - B. MI
 - C. OI
 - D. CI

Question ID: 1841224072

Q.20 As per IS 712 -1984, the lime used for structural purposes (for making mortar and concrete for construction and foundation works) having an initial setting time of 2 hours (minimum) and final setting time of 48 hours (maximum) is :

- Ans
- A. Class C - Fat lime
 - B. Class A - Eminently hydraulic lime
 - C. Class F - Silicious Dolomitic lime
 - D. Class D - Magnesium/Dolomitic lime

Question ID: 1841224067

Section: Discipline5

Q.1 In a railway track it is necessary to transfer railway vehicles from one track to another using Turnout. The component of a turnout with a pair of tongue and stock rails along with the necessary connections and fittings is known as _____.

- Ans
- A. Cross over
 - B. Crossing
 - C. Triangle
 - D. Switch

Question ID: 1841224091

Q.2 The following statements pertain to the Salvage value for a property.
S1: Salvage value is the value of a property at the end of utility period without being dismantled.
S2: Salvage value include the cost of removal of property and/or its sale.
Check for the validity of statements as True or False and choose the best answer option.

- Ans
- A. Both S1 and S2 are False
 - B. S1 is False and S2 is True
 - C. Both S1 and S2 are True
 - D. S1 is True and S2 is False

Question ID: 1841224099

Q.3 Estimate the stopping sight distance for two way traffic in a two way lane highway road, given the following details : Speed of vehicle = 72 km/h (20 m/s) ; frictional co-efficient = 0.4, reaction time of driver = 2.5 s. Take acceleration due to gravity as 10 m/s^2

- Ans
- A. 100 m
 - B. 150 m
 - C. 200 m
 - D. 50 m

Question ID: 1841224087

Q.4 A rolled ISMB 350 section (depth = 350 mm, width of flange = 140 mm, thickness of web = 8.1 mm, thickness of flange = 14.2 mm) is used as a compression member. Considering the buckling about Y-Y axis as per IS 800 : 2007, the corresponding buckling class to which the beam belongs to is:

- Ans
- A. a
 - B. d
 - C. c
 - D. b

Question ID: 1841224096

Q.5 The statements pertain to the professional involvement/actions of three engineers E1, E2, and E3 working in construction organizations.

E1: In the fulfillment of the professional duties, holds paramount the safety, health and welfare of the public, with zero tolerance for bribery, fraud and corruption.

E2: On insisting by the client/employer of the firm, E2 signs, or seal plans and/or specifications that are not of a design safe to the public health and welfare and in conformity with accepted engineering standards.

E3: Engineer holds paramount the safety, health and welfare of public in the performance of duties, has given confidential documents related to tender evaluation (like quotes by other agencies involved in tender etc) by collecting bribery from a firm which he has acquaintance with.

On evaluating their actions, identify the engineer(s) having professional integrity/ethics to profession.

- Ans
- A. E1 only
 - B. E1 and E3 only
 - C. E1 and E2 only
 - D. E2 only

Question ID: 1841224083

Q.6 A trapezoidal canal of bottom width B, depth d, having a side slope of z : 1 (Horizontal : Vertical) is formed in cutting for a length of L. The volume of earthwork to be excavated in forming the canal for the length L is:

- Ans
- A. $L(B + 2d\sqrt{z^2 + 1})$
 - B. $(B + zy + zy^2)L$
 - C. $(B + 2zy + zy^2)L$
 - D. $(B + 0.5zy + zy^2)L$

Question ID: 1841224098

Q.7 In AUTOCAD, to create the basic double line plan of a building with one room having walls 20 cm thick, the commands to be used are :

- Ans
- A. LINE, OFFSET, TRIM
 - B. RAY, OFFSET
 - C. DONUT, TRIM
 - D. RAY, TRIM

Question ID: 1841224085

Q.8 The design of "a tension member in which a reversal of direct stress occurs due to loads other than wind or seismic forces" was done with a maximum effective slenderness ratio of 350. Following IS 800 : 2007, check whether the design is correct; if incorrect, what is the maximum effective slenderness ratio that has to be adopted in design.

- Ans
- A. Incorrect ; 300
 - B. Incorrect ; 250
 - C. Incorrect ; 180
 - D. Correct ; No modification

Question ID: 1841224094

Q.9 Identify the type of road, which donot fall under the Classification of roads in India as per Nagpur plan in 1943.

- Ans
- A. National Highways
 - B. Arterial Roads
 - C. Village Roads
 - D. District Roads

Question ID: 1841224086

Q.10 According to IS 6509 : 1985, the recommended maximum spacing of expansion (E) and contraction (C) joints in Unreinforced cement concrete pavements of thickness 0.15 m are : (codes E and C used to indicate joints in answer options)

- Ans
- A. E - 25 m ; C - 4 m
 - B. E - 36 m ; C - 4.5 m
 - C. E - 20 m ; C - 3.5 m
 - D. E - 27 m ; C - 4.5 m

Question ID: 1841224089

Q.11 The command used in AUTOCAD to indicate the action done on figure on left part of arrow to get the output figure on the right part of arrow (i.e. to create the rounded corner connecting the two lines)shown below is:



- Ans
- A. EXPLODE
 - B. FILLET
 - C. BLOCK
 - D. STRTCH

Question ID: 1841224084

Q.12 A mechanized construction site has planned to make use of Tower Cranes for transport of materials / components. The locality has a 220 KV overhead power line passing through it. According to IS 8969 : 1978, as a precautionary measure of safety, the minimum vertical clearance of any member of the crane with respect to the overhead power line shall be:

- Ans
- A. 6.5 m
 - B. 3.6 m
 - C. 5.7 m
 - D. 2.5 m

Question ID: 1841224082

Q.13 A water treatment system has been installed in a community at a cost of Rs. 5,20,000. Assuming the life of the system as 15 years, work out the amount of annual instalment of sinking fund required to accumulate the whole amount at 4% interest. The sinking fund factor at 4% interest for 15 year = 0.05; and the capital recovery factor at 4% for 15 year = 0.09 respectively. Assume a Scrap value of Rs. 20,000 for the system after 15 years.

- Ans
- A. 45000
 - B. 25000
 - C. 33333
 - D. 20000

Question ID: 1841224100

Q.14 According to IS 800 : 2007, the modulus of rigidity of structural steel irrespective of its grade may be taken as:

- Ans
- A. $0.895 \times 10^5 \text{ MPa}$
 - B. $0.769 \times 10^5 \text{ MPa}$
 - C. $2 \times 10^5 \text{ MPa}$
 - D. $0.571 \times 10^5 \text{ MPa}$

Question ID: 1841224093

Q.15 According to IS 800 : 2007, the effective length of a prismatic compression member of unsupported length L, with the boundary end conditions as follows is:
At one end : Restrained against both translation and rotation.
At the other end : Restrained against translation and free for rotation.

- Ans
- A. 0.65 L
 - B. 2 L
 - C. 0.8 L
 - D. 1.2 L

Question ID: 1841224095

Q.16 Match the items in List 1 (Property of Aggregate) with those under List 2 (Test on aggregate) and select the correct matching answer. Use codes in lists.

List 1	List 2
P. Shape	1. Soundness Test
Q. Resistance to Wearing	2. Aggregate Impact Test
R. Resistance to Weathering	3. Angularity Number
S. Toughness	4. Abrasion Test

- Ans
- A. P - 3, Q - 4, R - 1, S - 2
 - B. P - 1, Q - 4, R - 2, S - 3
 - C. P - 3, Q - 2, R - 1, S - 4
 - D. P - 3, Q - 1, R - 4, S - 2

Question ID: 1841224088

Q.17 Identify the category of classification of Broad gauge routes of India having a maximum permissible speed of 160 km/h, by the Railway board.

- Ans
- A. Group C lines
 - B. Group D and D spl lines
 - C. Group A lines
 - D. Group B lines

Question ID: 1841224090

Q.18 The unit for the estimation of quantity for one of the works is different from the others. Identify the work.

- Ans
- A. Damp Proof Course in Cement Concrete (Thickness specified)
 - B. Reinforced cement concrete, without steel
 - C. Random rubble masonry
 - D. Wood work for door and Window frames

Question ID: 1841224097

Q.19 Two wheel loads 8 kN and 20 kN spaced 2 m apart move along a girder of span 16 m. Find the maximum shear force (absolute value) at a section 4 m from the left end of beam. Any wheel load can lead the other.

- Ans
- A. 20 kN
 - B. 6 kN
 - C. 18.5 kN
 - D. 16.5 kN

Question ID: 1841224081

Q.20 It is necessary to construct a railway bridge across a river with foundation piers resting on river bed. Geophysical Investigation indicated hard strata at a depth of 5 m below the stream bed. The type of foundation not recommended for the site is :

- Ans
- A. Pier foundation
 - B. Well Foundation
 - C. Isolated footing
 - D. Pile foundation

Question ID: 1841224092

