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Previous Year Paper
Civil
12 Jun, 2022

भारतीय अन्तर्देशीय जलमार्ग प्राधिकरण
पत्तन,पोत परिवहन और जलमार्ग मंत्रालय, भारत सरकार
Inland Waterways Authority of India
Ministry of Ports,Shipping and Waterways, Government of India

Participant Id	
Participant Name	
Test Center Name	
Test Date	12/06/2022
Test Time :	2:00 PM - 4:00 PM
Subject	Technical Assistant Civil

Section : **Quantitative Aptitude(Simple Maths)**

Q.1 **Machine X produces bulbs at a uniform rate of 100 in every 20 seconds and Machine Y produces those at a uniform rate of 180 in every 45 seconds. If the two machines work simultaneously, then how many seconds will the machines take to produce a total of 315 bulbs?**

Ans
✗ 1. 45
✗ 2. 36
✓ 3. 35
✗ 4. 40

Question ID : **97675535487**
Status : **Answered**
Chosen Option : **3**

Q.2 **सीता के वेतन में 10% की वृद्धि हुई। पहले वह अपनी आय के 10% की दर से आयकर का भुगतान करती थी। अब उसे वेतन की अतिरिक्त राशि पर 5% उच्चतर दर से आयकर का भुगतान करना होगा। उसकी कर देयता में हुई वृद्धि का प्रतिशत ज्ञात कीजिए।**

Ans
✗ 1. 25%
✗ 2. 5%
✗ 3. 20%
✓ 4. 15%

Question ID : **97675535488**
Status : **Answered**
Chosen Option : **4**

Q.3 **The rate of interest on a sum of money is 5% per annum for the first 3 years, 7% per annum for the next 5 years, and 9% per annum for the period beyond 8 years. If the simple interest on the sum over a total period of 10 years is Rs 1020, then what was the sum?**

Ans
✗ 1. ₹1,300
✗ 2. ₹1,900
✓ 3. ₹1,500
✗ 4. ₹1,700

Question ID : **97675535489**
Status : **Not Answered**
Chosen Option : **--**

Q.4 If a is a positive integer, $a(a+2)(a+4)$ is always divisible by:

Ans
✗ 1. 2
✗ 2. 6
✓ 3. 3
✗ 4. 9

Question ID : **97675535486**
Status : **Answered**
Chosen Option : **3**

Section : **Data Interpretation**

Q.1 Directions: Study the below table and answer the given question
Following table shows population of six different cities A, B, C, D, E and F and the ratio of Males to Females among them and the ratio of Adults to Children in the total population.

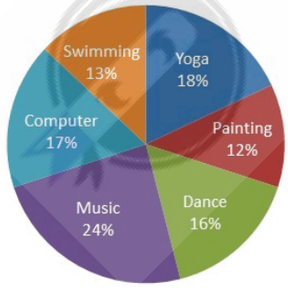
City	Population	Male : Female	Adult : Children
A	410400	13 : 11	5 : 3
B	369900	5 : 4	7 : 2
C	442800	5 : 7	7 : 5
D	465500	17 : 18	4 : 3
E	499500	5 : 4	5 : 4
F	424500	8 : 7	17 : 13

What is the difference between the total number of adult and the total number children population of city C?

Ans
✔ 1. 73800
✘ 2. 74800
✘ 3. 102600
✘ 4. 112600

Question ID : **97675535493**
Status : **Answered**
Chosen Option : **1**

Q.2 निर्देश: निम्नलिखित पाई चार्ट का ध्यानपूर्वक अध्ययन करें और निम्नलिखित प्रश्नों के उत्तर दें।
नीचे दिया गया पाई-चार्ट एक स्कूल, PQR के छात्रों की कुल संख्या को दर्शाता है, जिन्होंने शैक्षणिक वर्ष 2019-2020 के लिए विभिन्न मनोरंजन पाठ्यक्रम चुने हैं। स्कूल की पटसंख्या संख्या 1800 है।



पेंटिंग (Painting) का विकल्प चुनने वाले छात्रों की कुल संख्या का केंद्रीय कोण ज्ञात कीजिए?

Ans
✘ 1. 86.4°
✘ 2. 61.2°
✘ 3. 57.6°
✔ 4. 43.2°

Question ID : **97675535490**
Status : **Answered**
Chosen Option : **4**

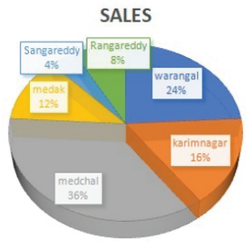
Q.3 निर्देश: निम्नलिखित ग्राफ का ध्यानपूर्वक अध्ययन

करें और उसके नीचे दिए गए प्रश्न का उत्तर दें।

निम्नलिखित पाई-चार्ट तेलंगाना राज्य में जिला सेवा

बसों के प्रतिशत वितरण को दर्शाता है।

बसों की कुल संख्या = 8400



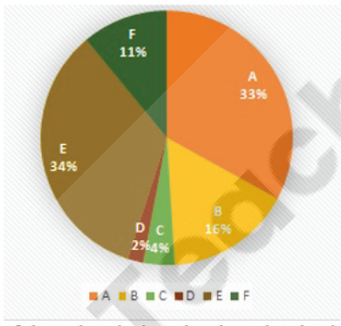
मेडचल (medchal) , मेडक (medak) और संगारेड्डी (Sangareddy) जिलों में एक साथ

चलने वाली बसों की औसत संख्या क्या है?

Ans
✗ 1. 1080
✓ 2. 1456
✗ 3. 936
✗ 4. 1624

Question ID : **97675535491**
Status : **Answered**
Chosen Option : **2**

Q.4 The following pie chart shows the subscriptions for a children's magazine by different schools namely A, B, C, D, E and F.



If the subscriptions by the school F is 3388, then what will be the subscriptions of the schools both A and E?

Ans
✓ 1. 20636
✗ 2. 34562
✗ 3. 98761
✗ 4. 45321

Question ID : **97675535492**
Status : **Answered**
Chosen Option : **1**

Section : **Analytical Reasoning**

Q.1 **'L + M' means L is daughter of M,**
'L – M' means L is wife of M,
'L × M' means L is the son of M,

If A × B + P – Q, then how is A related to P.

Ans
✗ 1. Son
✗ 2. Daughter
✓ 3. Grandson
✗ 4. Grandfather

Question ID : **97675535496**
Status : **Answered**
Chosen Option : **3**

Q.2 Four numbers are given, three are similar in some manner except one number. Choose the odd number.

Ans
✗ 1. 2345
✗ 2. 6453
✗ 3. 4567
✓ 4. 5789

Question ID : **97675535495**
Status : **Answered**
Chosen Option : **4**

Q.3 What will be the next term in the given number series?

24, 35, 48, 63, _____.

Ans
✓ 1. 80
✗ 2. 72
✗ 3. 78
✗ 4. 64

Question ID : **97675535497**
Status : **Answered**
Chosen Option : **1**

Q.4 Select the option that is related to the third number in the same way as the second number is related to the first number.

23 : 72 :: 31 : ?

Ans
✓ 1. 96
✗ 2. 76
✗ 3. 124
✗ 4. 83

Question ID : **97675535494**
Status : **Not Answered**
Chosen Option : **--**

Section : **Logical Reasoning**

Q.1 Complete the given number series.

17, 23, 16, 24, ____

Ans
✗ 1. 14
✓ 2. 15
✗ 3. 26
✗ 4. 25

Question ID : **97675535500**
Status : **Answered**
Chosen Option : **2**

Q.2 What will be the next term in the given letter-pair series?

XN, CS, HX, MC, _____.

Ans
✓ 1. RH
✗ 2. SI
✗ 3. RI
✗ 4. QG

Question ID : **97675535499**
Status : **Answered**
Chosen Option : **1**

Q.3 निम्नलिखित प्रश्न में एक कथन और उसके बाद दो कार्यवाहियां दी गई हैं। कार्यवाही कथन में दी गई जानकारी के आधार पर लिया गया निर्णय या फ़ैसला है। कथन में दी गई समस्त जानकारी को सत्य मानते हुए विचार करें और तय करें कि सुझाई गई दो कार्यवाहियों में से कौन सी कथन का तार्किक रूप से पालन करती हैं?

कथन : एक दूधवाला ग्राहकों को मिलावटी दूध बेचते हुए रंगे हाथ पकड़ा गया।
कार्यवाही:
I. उसे शहर छोड़कर जाने और वहां एक नई दुकान खोलने के लिए मजबूर किया जाना चाहिए।
II. संबंधित अधिकारियों द्वारा उस पर जुर्माना लगाया जाना चाहिए, और उसकी दुकान को सील कर दिया जाना चाहिए।

Ans
✔ 1. केवल कार्यवाही II पालन करती है।
✘ 2. कार्यवाहियां I और II दोनों पालन करती हैं।
✘ 3. केवल कार्यवाही I पालन करती है।
✘ 4. न तो कार्यवाही I और न ही II पालन करती है।

Question ID : **97675535501**
Status : **Answered**
Chosen Option : **1**

Q.4 निम्नलिखित प्रश्न में दो कथन दिए गए हैं। ये कथन या तो स्वतंत्र कारण हो सकते हैं या इनके बीच कारण एवं प्रभाव संबंध हो सकता है या स्वतंत्र कारणों के प्रभाव हो सकते हैं। दोनों कथनों को पढ़िए और तय कीजिए कि कौन सा विकल्प इन दोनों कथनों के बीच के सही संबंध को दर्शाता है?

कथन I: शीतल का स्वास्थ्य अच्छा है।
कथन II: उसके पिता उसके भोजन के बारे में बहुत सावधानी रखते हैं।

Ans
✘ 1. कथन I और II, दोनों स्वतंत्र कारण हैं।
✘ 2. कथन I और II, दोनों स्वतंत्र कारणों के प्रभाव हैं।
✘ 3. कथन I कारण है, और कथन II इसका प्रभाव है।
✔ 4. कथन II कारण है, और कथन I इसका प्रभाव है।

Question ID : **97675535498**
Status : **Answered**
Chosen Option : **4**

Section : **Simple English**

Q.1 Select the correct sentence.

Ans
✔ 1. I , and no one else, am late.
✘ 2. I, and no one else, were late.
✘ 3. I, and no one else , are late.
✘ 4. I, and no one else, is late.

Question ID : **97675535502**
Status : **Answered**
Chosen Option : **4**

Comprehension:

Read the following passage and answer the Questions Given Below:

Dhyan Chand's credentials as a hockey player were so well established that the Indian Hockey Federation selected him for the 1928 Los Angeles Olympics without any selection trials. The only player to be selected without trial , this was an honour that would have gladdened the heart of any other player. But the sporting spirit in this great player did not relish this. He observed," Even though I was assured that I would be included in the team without undergoing trials, I had a feeling that it was not altogether fair. I felt it was an unenviable sort of preference shown to me when many of my friends who accompanied me to the 1928 Olympics were fighting badly for a place and had to prove their mettle in the inter provincial tournament.
He was only a soldier hailing from a humble background. Dhyan Chand said about the moment he learned of his selection for the new Zealand tour in 1926, " I ran like a hare to reach my barracks and communicated the good news to my fellow soldiers." His immediate concern was whether he had good clothing and equipment to undertake the tour. Eventually, he clothed as inexpensively as possible. His main personal outfit was his military uniform.

However, so spectacular were his field exploits that the crown of captaincy could not be denied to him for long and he earned the exalted status in the Western Asiatic games in 1934.But in the very next assignment, he had to bow out in favour of a prince! He did not utter a word and took things in his stride. Needless to say, the entire history of Indian sports has not seen one so gifted, yet so modest.

What was of utmost importance to him was the game, the rest made no difference. It was precisely for this reason that when he was asked to step aside to accommodate a ruling elite, who was truly struggling in form in the seat of captaincy just before the 1936 Olympics, he did so without a word of protest. After all safeguarding the interests of hockey and the country can be done in more ways than one and Dhyan Chand proved it better than anyone else could.

SubQuestion No : 2

Q.2 The passage is an extract from_____.

Ans

✗ 1. an autobiography

✓ 2. a biography

✗ 3. a news item

✗ 4. a folk tale

Question ID : **97675535504**
Status : **Answered**
Chosen Option : **2**

Comprehension:

Read the following passage and answer the Questions Given Below:

Dhyan Chand's credentials as a hockey player were so well established that the Indian Hockey Federation selected him for the 1928 Los Angeles Olympics without any selection trials. The only player to be selected without trial , this was an honour that would have gladdened the heart of any other player. But the sporting spirit in this great player did not relish this. He observed," Even though I was assured that I would be included in the team without undergoing trials, I had a feeling that it was not altogether fair. I felt it was an unenviable sort of preference shown to me when many of my friends who accompanied me to the 1928 Olympics were fighting badly for a place and had to prove their mettle in the inter provincial tournament.
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SubQuestion No : 3

Q.3 Choose the right option to complete the sentence:

Dhyan Chand's was in spirit a true sportsman dedicated to his game. This is evident from the fact that he _____.

Ans

✓ 1. considered game more important than the post

✗ 2. came from a humble background

✗ 3. was the only player to be selected without trials

✗ 4. captained his team at both the Olympic and the Asiatic games

Question ID : **97675535506**
Status : **Answered**
Chosen Option : **3**

Comprehension:

Read the following passage and answer the Questions Given Below:

Dhyan Chand's credentials as a hockey player were so well established that the Indian Hockey Federation selected him for the 1928 Los Angeles Olympics without any selection trials. The only player to be selected without trial , this was an honour that would have gladdened the heart of any other player. But the sporting spirit in this great player did not relish this. He observed," Even though I was assured that I would be included in the team without undergoing trials, I had a feeling that it was not altogether fair. I felt it was an unenviable sort of preference shown to me when many of my friends who accompanied me to the 1928 Olympics were fighting badly for a place and had to prove their mettle in the inter provincial tournament.
He was only a soldier hailing from a humble background. Dhyan Chand said about the moment he learned of his selection for the new Zealand tour in 1926, " I ran like a hare to reach my barracks and communicated the good news to my fellow soldiers." His immediate concern was whether he had good clothing and equipment to undertake the tour. Eventually, he clothed as inexpensively as possible. His main personal outfit was his military uniform.

However, so spectacular were his field exploits that the crown of captaincy could not be denied to him for long and he earned the exalted status in the Western Asiatic games in 1934.But in the very next assignment, he had to bow out in favour of a prince! He did not utter a word and took things in his stride. Needless to say, the entire history of Indian sports has not seen one so gifted, yet so modest.

What was of utmost importance to him was the game, the rest made no difference. It was precisely for this reason that when he was asked to step aside to accommodate a ruling elite, who was truly struggling in form in the seat of captaincy just before the 1936 Olympics, he did so without a word of protest. After all safeguarding the interests of hockey and the country can be done in more ways than one and Dhyan Chand proved it better than anyone else could.

SubQuestion No : 4

Q.4 To 'take things in ones stride' means to_____.

Ans
- ✔ 1. deal with a difficult situation in a calm and peaceful way
- ✘ 2. run around in big strides in order to outperform others
- ✘ 3. to accept things as ones destiny
- ✘ 4. to do things according to ones capacity

Question ID : **97675535505**
Status : **Not Answered**
Chosen Option : **--**

Section : **Domain Knowledge**

Q.1 The effective length of a compression member that is effectively held in position at both ends and restrained against rotation at one end is:

Ans
- ✘ 1. 2.0*length of the member
- ✘ 2. 0.5*length of the member
- ✘ 3. 1.2*length of the member
- ✔ 4. 0.7*length of the member

Question ID : **97675535602**
Status : **Answered**
Chosen Option : **4**

Q.2 A sample of aggregate passing through 20 mm and retaining on 16 mm is collected. If an aggregate in this sample is said to be elongated aggregate, its maximum dimension should be greater than _____.

Ans
- ✔ 1. 32.40 mm
- ✘ 2. 40.50 mm
- ✘ 3. 27.00 mm
- ✘ 4. 20.00 mm

Question ID : **97675535586**
Status : **Answered**
Chosen Option : **1**

Q.3 Which of the following approximate oxide composition limit of ordinary Portland cement is INCORRECT?

Ans
- ✔ 1. $Fe_2O_3 = 6\% - 10\%$
- ✘ 2. $CaO = 60\% - 67\ \%$
- ✘ 3. $Al_2O_3 = 3\% - 8\%$
- ✘ 4. $SiO_2 = 17\% - 25\%$

Question ID : **97675535511**
Status : **Answered**
Chosen Option : **1**

Q.4 The maximum spacing recommended for sewer inlets on straight roads is:

Ans
✗ 1. 120 m
✓ 2. 30 m
✗ 3. 60 m
✗ 4. 90 m

Question ID : **97675535569**
Status : **Not Answered**
Chosen Option : **--**

Q.5 What does the warning sign in the given figure indicate?

Ans
✗ 1. No parking
✗ 2. No entry
✗ 3. No stopping
✓ 4. Cross road

Question ID : **97675535557**
Status : **Answered**
Chosen Option : **4**

Q.6 Which of the following is an example of artificial stone?

Ans
✓ 1. Ransom stone
✗ 2. Peridotite
✗ 3. Gabbro
✗ 4. Andesite

Question ID : **97675535508**
Status : **Not Answered**
Chosen Option : **--**

Q.7 The whole circle bearing of a line is found to be 289 degrees 34'. Calculate its bearing in quadrantal bearing system.

Ans
✗ 1. S 70 degrees 26' W
✓ 2. N 70 degrees 26' W
✗ 3. N 70 degrees 26' E
✗ 4. S 70 degrees 26' E

Question ID : **97675535524**
Status : **Answered**
Chosen Option : **2**

Q.8 The type of soil that is deposited primarily through the action of gravitational force is termed as _____.

Ans
✗ 1. alluvial soil
✗ 2. lacustrine soil
✗ 3. aeolian soil
✓ 4. colluvial soil

Question ID : **97675535529**
Status : **Answered**
Chosen Option : **4**

Q.9 If the shorter span of an RCC slab = 2.5 m, then what should be the minimum span (in given options) in longer direction to consider RCC slab as two way?

Ans
✗ 1. 4.8 m
✗ 2. 5.5 m
✗ 3. 5.2 m
✓ 4. 3.2 m

Question ID : **97675535596**
Status : **Answered**
Chosen Option : **4**

Q.10 **Which of the following Indian Standard Code provisions provides test procedure for 'determination of transverse strength of natural building stones'?**

Ans

✗ 1. IS-12269:2013 (part III) (Reaffirmed 2015)

✗ 2. IS-516:2000 (Reaffirmed 2015)

✗ 3. IS-456:2000 (Reaffirmed 2003)

✓ 4. IS:1121 (part II) -1974 (Reaffirmed 2003)

Question ID : **97675535507**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.11 Estimate the quantity of earthwork for a portion of road using Trapezoidal formula. Consider the distance between the sections of the road D = 30 m and cross-sectional area values as $A_0 = 5.5$ $A_2 = 17$ m^2 and $A_3 = 24.5$ m^2.

Ans

✓ 1. $1305\ m^3$

✗ 2. $1672.5\ m^3$

✗ 3. $1050\ m^3$

✗ 4. $877.5\ m^3$

Question ID : **97675535521**
Status : **Not Answered**
Chosen Option : **--**

Q.12 **According to IS 2386 -part 4, which of the following grades of aggregate can be used in Los Angeles abrasion test?**

Ans

✗ 1. OPC 53 grade

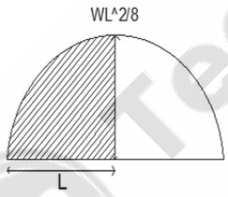
✗ 2. M20 grade

✗ 3. Zone I

✓ 4. Grade A

Question ID : **97675535588**
Status : **Answered**
Chosen Option : **3**

Q.13 Calculate the area (A) and locate the centroid (X) from the left end of the shaded portion of parabolic curve in the given figure.



Ans

✓ 1. $A = WL^3/12,\ \underline{X} = 5L/8$

✗ 2. $A = WL^3/24,\ \underline{X} = 2L/3$

✗ 3. $A = WL^4/24,\ \underline{X} = 5L/8$

✗ 4. $A = WL^5/24,\ \underline{X} = 2L/3$

Question ID : **97675535578**
Status : **Answered**
Chosen Option : **1**

Q.14 **The water flowing through a pipe has pressure head and kinetic head of 25 m and 0.15 m, respectively. Calculate the total head of the water at a cross-section that is 3.5 m above the datum line.**

Ans

✗ 1. 8.65 m

✗ 2. 28.35 m

✓ 3. 28.65 m

✗ 4. 21.65 m

Question ID : **97675535539**
Status : **Answered**
Chosen Option : **3**

Q.15 The non-scouring limiting velocity in cement concrete sewers and drains should be in the range of _____.

Ans
✗ 1. 0.5-1.0 m/sec
✓ 2. 2.5-3.0 m/sec
✗ 3. 1.5-1.8 m/sec
✗ 4. 4.0-4.5 m/sec

Question ID : **97675535568**
Status : **Answered**
Chosen Option : **1**

Q.16 Which of the following is an example of a drier used in varnish?

Ans
✗ 1. Amber
✗ 2. Mastic
✓ 3. Lead acetate
✗ 4. Shellac

Question ID : **97675535514**
Status : **Not Answered**
Chosen Option : **--**

Q.17 Consider the given statements with respect to type of fluids.

Statement A: An ideal fluid is incompressible in nature and has no viscosity.
Statement B: The shear stress is directly proportional to the rate of shear strain in case of Newtonian fluids.
Select the option that applies.

Ans
✓ 1. Both the statements are true
✗ 2. Statement A is true but B is false
✗ 3. Statement B is true but A is false
✗ 4. Both the statements are false

Question ID : **97675535538**
Status : **Answered**
Chosen Option : **1**

Q.18 Which of the following methods is NOT an empirical approach of flexible pavement design?

Ans
✗ 1. California Bearing Ration method
✗ 2. Stabilometer and McLeod method
✗ 3. Group Index method
✓ 4. Burmister method

Question ID : **97675535556**
Status : **Answered**
Chosen Option : **4**

Q.19 The constant head permeability test is more suitable for _____ among the following types of soil.

Ans
✗ 1. silt
✗ 2. clay
✓ 3. gravelly sand
✗ 4. fine sand

Question ID : **97675535532**
Status : **Answered**
Chosen Option : **3**

Q.20 Read the following statements:

i) Effect of sulphur dioxide (SO_2) may lead to photochemical smog in some areas by oxidising the hydrocarbons.
ii) Breathing high levels of carbon monoxide gas (CO) causes headaches and drowsiness.
iii) Annoyance, sleeplessness, communication interference are the effects of noise pollution.
Select the option that applies.

Ans
✗ 1. Only statements ii and iii are true
✗ 2. Only statements i and ii are true
✓ 3. Only statements i and iii are true
✗ 4. All the statements are true

Question ID : **97675535566**
Status : **Answered**
Chosen Option : **1**

Q.21 **Ridge canal is also called as:**

Ans
✗ 1. side slope canal
✗ 2. contour canal
✓ 3. watershed canal
✗ 4. alluvial canal

Question ID : **97675535548**
Status : **Answered**
Chosen Option : **3**

Q.22 **In which water supply system is water supplied to the consumers only during some fixed hours of the day?**

Ans
✓ 1. Intermittent system
✗ 2. Regular system
✗ 3. Continuous system
✗ 4. Pumping system

Question ID : **97675535570**
Status : **Answered**
Chosen Option : **1**

Q.23 An ISHB 300 is used as a short column with b_f = 250 mm, t_f = 10.6 mm, D = 300 mm, R = 11.0 mm, t_w = 7.6 mm, A = 7480 mm^2. Assuming Fe410 steel with 250N/mm^2 yield strength, the design strength of the column is _____. Given limiting values for b/t and d/t are 15.7 and 42, respectively.

Ans
✗ 1. 2100 kN
✗ 2. 1850 kN
✓ 3. 1700 kN
✗ 4. 1500 kN

Question ID : **97675535605**
Status : **Not Answered**
Chosen Option : **--**

Q.24 **Which of the following test apparatus is used in ductility test on bitumen?**

Ans
✗ 1. Pycnometer
✗ 2. Penetrometer
✗ 3. Tar viscometer
✓ 4. Briquette mould

Question ID : **97675535515**
Status : **Answered**
Chosen Option : **4**

Q.25 **Select the odd one out with respect to methods used for estimation of evaporation.**

Ans
✗ 1. Mass transfer method
✗ 2. Energy balance method
✗ 3. Water budget method
✓ 4. Lysimeter method

Question ID : **97675535546**
Status : **Answered**
Chosen Option : **1**

Q.26 **A lap joint has to be provided between two plates of thickness 12 mm and 16 mm to transmit a factored load of 110 kN. The number of M16 bolts of grade 4.6 required to make the connection is _____. Assume grade of plate as 410.**

Ans
✗ 1. 2
✓ 2. 4
✗ 3. 3
✗ 4. 1

Question ID : **97675535601**
Status : **Not Answered**
Chosen Option : **--**

Q.27 A solid shaft of 120 mm diameter is used to transmit torque. Calculate the maximum torque transmitted by the shaft if the maximum shear stress induced to the shaft is 50 N/mm^2.

Ans
✗ 1. 22.50 kN.m
✗ 2. 45.00 kN.m
✗ 3. 12.20 kN.m
✓ 4. 17.00 kN.m

Question ID : **97675535573**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.28 **The value of property or structures becomes less by its becoming out of date in style, in structure, in design, etc. This is termed as _____.**

Ans
✗ 1. market value
✗ 2. scrap value
✓ 3. obsolescence
✗ 4. salvage value

Question ID : **97675535522**
Status : **Answered**
Chosen Option : **3**

Q.29 **Pensky-Martens closed-cup apparatus is used in ____ on bitumen.**

Ans
✗ 1. softening point test
✓ 2. flash and fire point test
✗ 3. ductility test
✗ 4. specific gravity test

Question ID : **97675535555**
Status : **Answered**
Chosen Option : **2**

Q.30 The plastic section modulus of a beam with maximum bending moment of 200 kN-m and of grade 410 with f_y=250 is:

Ans
✗ 1. 660x10^3 mm^3
✗ 2. 768x10^3 mm^3
✗ 3. 536x10^3 mm^3
✓ 4. 880x10^3 mm^3

Question ID : **97675535603**
Status : **Not Answered**
Chosen Option : **--**

Q.31 **According to IS 12269-2013, the time elapsed between the moment at which water is added to Ordinary Portland cement and the moment at which Ordinary Portland cement starts to lose its plasticity should NOT be less than _____.**

Ans
✗ 1. 10 minutes
✓ 2. 30 minutes
✗ 3. 600 minutes
✗ 4. 300 minutes

Question ID : **97675535510**
Status : **Answered**
Chosen Option : **2**

Q.32 **Calculate the extra widening to be provided for a pavement on a horizontal curve of radius 250 m.**
Take wheel base length of vehicle as 7.0 m, design speed 70 km/h and width of pavement as 7 m.

Ans
✗ 1. 0.78 m
✓ 2. 0.66 m
✗ 3. 0.46 m
✗ 4. 0.55 m

Question ID : **97675535552**
Status : **Answered**
Chosen Option : **2**

Q.33 **A trapezoidal cross-section of road embankment in banking has a formation width of 12 m, side slopes of 2 : 1 (H : V) and average depth of 1.7 m. Calculate the quantity of earthwork for 45 m length. Assume that there is no transverse slope.**

Ans

✗ 1. $1365.32\ m^3$

✓ 2. $1178.10\ m^3$

✗ 3. $1465.32\ m^3$

✗ 4. $1564.32\ m^3$

Question ID : **97675535528**
Status : **Answered**
Chosen Option : **2**

Q.34 There are 4 flow channels in a flow net and 16 equipotential drops. Calculate the quantity of seepage, if the head loss is 3 m and permeability of the soil is 2×10^{-5} m/s.

Ans

✓ 1. $1.5 \times 10^{-5}\ m^3/s$

✗ 2. $0.5 \times 10^{-5}\ m^3/s$

✗ 3. $2.06 \times 10^{-3}\ m^3/s$

✗ 4. $1.1 \times 10^{-5}\ m^3/s$

Question ID : **97675535536**
Status : **Answered**
Chosen Option : **1**

Q.35 **A field channel has culturable command area of 500 ha. The intensity of irrigation for wheat is 40 percent and duty 800 ha/cumec. Calculate the discharge of field channel required.**

Ans

✗ 1. 1.00 cumec

✗ 2. 0.5 cumec

✗ 3. 1.50 cumec

✓ 4. 0.25 cumec

Question ID : **97675535545**
Status : **Answered**
Chosen Option : **4**

Q.36 In a surveying work, what message does the signal in the following figure give?

Ans

✗ 1. Move to my right and then little left

✗ 2. Lower the height of staff

✓ 3. Establish the position

✗ 4. Return to me

Question ID : **97675535526**
Status : **Not Answered**
Chosen Option : **--**

Q.37 **According to IRC standards, when applying grade compensation correction on horizontal curves, the gradients need NOT be eased beyond _____.**

Ans

✓ 1. 4 percent

✗ 2. 6 percent

✗ 3. 10 percent

✗ 4. 8 percent

Question ID : **97675535553**
Status : **Answered**
Chosen Option : **1**

Q.38 **Consider the given statements.**

Statement A: The area up to which irrigation canals are capable of supplying water for irrigation purposes is termed as culturable command area.
Statement B: The ratio of cultivated areas under Rabi crops and under Kharif crops is known as crop ratio.
Select the option that applies.

Ans
✔ 1. Statement B is true but A is false
✘ 2. Statement A is true but B is false
✘ 3. Both the statements are true
✘ 4. Both the statements are false

Question ID : **97675535544**
Status : **Answered**
Chosen Option : **4**

Q.39 **Which of the following methods is best suited for stress analysis in stratified soil?**

Ans
✘ 1. Meyerhof's method
✘ 2. Housel's method
✘ 3. Teng's method
✔ 4. Westergaard's method

Question ID : **97675535535**
Status : **Answered**
Chosen Option : **4**

Q.40 Bending moment coefficients for slabs spanning in two directions at right angle and simply supported on all four sides are:

α_x	0.062	0.074	0.084
α_y	0.062	0.061	0.059
L_y/L_x	1.0	1.1	1.2

If effective longer and shorter span of the slab are 4.8 m and 4 m, respectively, and factored load acting is 5 kN/m^2, then the ultimate bending moment per metre width — acting in both the directions — will be:

Ans
✘ 1. 6.72 kN-m and 4.72 kN-m
✔ 2. 4.65 kN-m and 3.64 kN-m
✘ 3. 8.97 kN-m and 6.97 kN-m
✘ 4. 7.69 kN-m and 5.49 kN-m

Question ID : **97675535598**
Status : **Not Answered**
Chosen Option : **--**

Q.41 **As per IRC standards, what should be the minimum roadway width on a single lane bridge?**

Ans
✘ 1. 5.5 m
✔ 2. 4.25 m
✘ 3. 3.5 m
✘ 4. 7.5 m

Question ID : **97675535551**
Status : **Answered**
Chosen Option : **2**

Q.42 **What is the maximum free water- cement ratio for M30 grade of concrete used in reinforced cement concreting work, when the exposure condition is severe?**

Ans
✔ 1. 0.45
✘ 2. 0.6
✘ 3. 0.55
✘ 4. 0.5

Question ID : **97675535581**
Status : **Answered**
Chosen Option : **1**

Q.43 **Calculate the number of sleepers required for a railway track of 800 m long BG section. Take sleeper density as M+5.**

Ans
✘ 1. 326
✔ 2. 1125
✘ 3. 1350
✘ 4. 650

Question ID : **97675535559**
Status : **Not Answered**
Chosen Option : **--**

Q.44 **Hirakud Dam is built across the river: _____.**

Ans
- ✗ 1. Kosi
- ✓ 2. Mahanadi
- ✗ 3. Ganga
- ✗ 4. Krishna

Question ID : **97675535549**
Status : **Answered**
Chosen Option : **2**

Q.45 Match the following.

1) Storm water inlets	a) Provided to admit the surface runoff to the seweRs.
2) Catch Basins	b) Provided at the head of the seweRs.
3) Flushing Manholes	c) Provided to stop the entry of heavy debris present in the storm water into the seweRs.

Ans
- ✗ 1. 1 - c, 2 - b, 3 - a
- ✓ 2. 1 - a, 2 - c, 3 - b
- ✗ 3. 1 - a, 2 - b, 3 - c
- ✗ 4. 1 - c, 2 - a, 3 - b

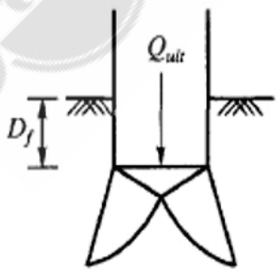
Question ID : **97675535565**
Status : **Answered**
Chosen Option : **4**

Q.46 **A simply supported beam of length L is carrying a uniformly varying load from 0 at each end to w per unit length at the centre. The maximum bending moment is:**

Ans
- ✗ 1. $wL^3/12$
- ✓ 2. $wL^2/12$
- ✗ 3. $wL^3/24$
- ✗ 4. $wL^2/24$

Question ID : **97675535576**
Status : **Not Attempted and Marked For Review**
Chosen Option : **--**

Q.47 Identify the mode of bearing capacity failure in the given figure.



Ans
- ✗ 1. Buckling failure
- ✗ 2. General shear failure
- ✗ 3. Local shear failure
- ✓ 4. Punching shear failure

Question ID : **97675535533**
Status : **Answered**
Chosen Option : **2**

Q.48 Which of the following constant factors relates to stress in the steel linearly with stress in adjoining concrete?

Ans
✗ 1. Young's modulus
✗ 2. Shear modulus
✓ 3. Modular ratio
✗ 4. Poisson's ratio

Question ID : **97675535592**
Status : **Answered**
Chosen Option : **3**

Q.49 According to IS 7861 part 1(1975) (Reaffirmed 2011), any operation of concreting done at atmospheric temperature above _____ is understood as hot weather concreting.

Ans
✗ 1. 25 °C
✗ 2. 35 °C
✗ 3. 30 °C
✓ 4. 40 °C

Question ID : **97675535583**
Status : **Not Answered**
Chosen Option : **--**

Q.50 A cantilever beam of length 3 m supported at the left end carries a UDL of 2 kN/m over a length of 2 m from its free end. The shear force and bending moment at the fixed end are _____ and _____, respectively.

Ans
✗ 1. 2 kN, -4 kN.m
✓ 2. 4 kN, -8 kN.m
✗ 3. 8 kN, -4 kN.m
✗ 4. 4 kN, -2 kN.m

Question ID : **97675535575**
Status : **Answered**
Chosen Option : **2**

Q.51 As per IS 875 part-2, live load (imposed loads) to be considered in the design of staircases, fire escapes and store rooms in dwelling houses shall be:

Ans
✗ 1. $2\ kN/m^2$
✗ 2. $5\ kN/m^2$
✓ 3. $3\ kN/m^2$
✗ 4. $1.5\ kN/m^2$

Question ID : **97675535597**
Status : **Not Answered**
Chosen Option : **--**

Q.52 An area measured in a plan with the help of a plain meter was found to be 30 cm^2. Find the true area of the field if the area of the plan is drawn to a scale of 1 cm = 7 m.

Ans
✗ 1. $210m^2$
✗ 2. $860\ m^2$
✗ 3. $1562\ m^2$
✓ 4. $1470\ m^2$

Question ID : **97675535523**
Status : **Answered**
Chosen Option : **4**

Q.53 As per IS-800, the minimum size of fillet weld is:

Ans
✓ 1. 3 mm
✗ 2. 7 mm
✗ 3. 5 mm
✗ 4. 10 mm

Question ID : **97675535600**
Status : **Answered**
Chosen Option : **1**

Q.54 The deflection for a simply supported beam of span 6 m carrying a load of 20 kN at mid-point is _____.

Take E = 200 $\times 10^6$ kN/m^2 and I=25$\times 10^{-4}$ m^4.

Ans

✗ 1. 0.08 mm

✗ 2. 0.26 mm

✗ 3. 0.04 mm

✓ 4. 0.18 mm

Question ID : **97675535572**
Status : **Answered**
Chosen Option : **4**

Q.55 **A specimen has a modulus of elasticity of 150 GPa and modulus of rigidity of 50 GPa. The Poisson's ratio of the material is:**

Ans

✗ 1. $\frac{1}{3}$

✗ 2. 3

✓ 3. $\frac{1}{2}$

✗ 4. 2

Question ID : **97675535571**
Status : **Answered**
Chosen Option : **3**

Q.56 **Read the following statements with respect to size and shape of aggregates.**

Statement A: As the size of aggregates increases in an aggregates' sample, the overall surface area of aggregates increases.
Statement B: As the size of aggregates decreases in an aggregates' sample, the overall surface area of aggregates increases.
Select the option that applies.

Ans

✗ 1. Both the statements are false

✓ 2. Statement B is true but A is false

✗ 3. Statement A is true but B is false

✗ 4. Both the statements are true

Question ID : **97675535584**
Status : **Answered**
Chosen Option : **2**

Q.57 **A sample of aggregate passing through 50 mm and retaining on 40 mm is collected. If an aggregate in this sample is said to be flaky aggregate, its least dimension should be less than _____.**

Ans

✗ 1. 45 mm

✓ 2. 27 mm

✗ 3. 36 mm

✗ 4. 40 mm

Question ID : **97675535585**
Status : **Answered**
Chosen Option : **2**

Q.58 Calculate the design yield strain of Fe 500 grade reinforcement steel used in RCC structures as per limit state method of design. Take E_s as modulus of elasticity of steel.

Ans

✗ 1. $500/(1.5xE_s)$

✗ 2. $500/E_s$

✗ 3. $426.6/E_s$

✓ 4. $435/E_s$

Question ID : **97675535593**
Status : **Answered**
Chosen Option : **4**

Q.59 Calculate the bulk modulus of a material whose Young's Modulus is 2.1X105N/mm2 and Poisson's ratio 0.25.

Ans
✗ 1. 0.23×10^5 N/mm^2
✗ 2. 0.81×10^4 N/mm^2
✓ 3. 1.4×10^5 N/mm^2
✗ 4. 0.45×10^4 N/mm^2

Question ID : **97675535574**
Status : **Answered**
Chosen Option : **3**

Q.60 According to IS 456-2000, what is the permissible limit for suspended matter present in water that is to be used in making concrete?

Ans
✓ 1. 2000 mg/l
✗ 2. 3000 mg/l
✗ 3. 4000 mg/l
✗ 4. 1000 mg/l

Question ID : **97675535589**
Status : **Answered**
Chosen Option : **1**

Q.61 IS 12592-2002 deals with:

Ans
✓ 1. specifications for precast concrete manhole cover and frame
✗ 2. specifications for manhole covers and frames
✗ 3. design aids for reinforced concrete to IS 456-2000
✗ 4. code of practice for building drainage

Question ID : **97675535562**
Status : **Not Answered**
Chosen Option : **--**

Q.62 निम्न में से कौन-सा प्रतिधारक दीवारों (retaining walls) और कंक्रीट स्तंभों के प्लास्टर की गई सतह के लिए जल संसाधन की एक उपयुक्त विधि है?

Ans
✗ 1. निमंज्जन (Immersion)
✗ 2. जलावरोधन (Ponding)
✓ 3. छिड़काव या कूहायन/कोहरा (Spraying or fogging)
✗ 4. भाप संसाधन (Steam curing)

Question ID : **97675535587**
Status : **Answered**
Chosen Option : **3**

Q.63 According to Mohs' Hardness Scale, the hardness value of Quartz is _____.

Ans
✗ 1. 10
✗ 2. 5
✗ 3. 2
✓ 4. 7

Question ID : **97675535509**
Status : **Answered**
Chosen Option : **4**

Q.64 Read the following statements with respect to the methods of valuation.

i) In the rental method of valuation, the net income by way of rent is found out by deducting all outgoings from the gross rent.
ii) In the development method of valuation, the building should be divided into four parts, that is, walls, roofs, floor and doors/windows.
Select the option that applies.

Ans
✗ 1. Both the statements are true.
✗ 2. Both the statements are false.
✓ 3. Only statement i is true.
✗ 4. Only statement ii is true.

Question ID : **97675535520**
Status : **Not Answered**
Chosen Option : **--**

Q.65 In a hydroelectric power plant, the head available (net) is 335 m and the power availability with an overall efficiency of 86 percent is 15500 kW. Calculate the flow rate.

Ans

✗ 1. $3.654\ m^3/s$

✗ 2. $8.650\ m^3/s$

✓ 3. $5.484\ m^3/s$

✗ 4. $2.698\ m^3/s$

Question ID : **97675535540**
Status : **Not Answered**
Chosen Option : **--**

Q.66 In a conjugate beam, which is loaded by M/EI, its shear diagram gives _____ and the moment diagram gives _____ of a real beam.

Ans

✗ 1. rigidity, stability

✗ 2. shear rigidity, flexural rigidity

✓ 3. slope, deflection

✗ 4. deflection, slope

Question ID : **97675535579**
Status : **Answered**
Chosen Option : **3**

Q.67 Consider an ISLB 350 with h = 350 mm, b = 165 mm, t_f = 11.4 mm, R = 16 mm, t_w = 7.4 mm. Assume f_y = 250. According to IS 800, the section is classified as:

Ans

✗ 1. semi-compact

✓ 2. plastic

✗ 3. rigid

✗ 4. semi-rigid

Question ID : **97675535606**
Status : **Not Answered**
Chosen Option : **--**

Q.68 The approximate length of the Bhakra-Nangal dam is _____.

Ans

✗ 1. 798.32 m

✗ 2. 1365 m

✗ 3. 265.5 m

✓ 4. 518.25 m

Question ID : **97675535550**
Status : **Not Answered**
Chosen Option : **--**

Q.69 Which of the following IS codes prescribes test methods for determination of sulphates in water and waste water?

Ans

✗ 1. IS2386(part1)-1963 (Reaffirmed 2002)

✓ 2. IS3025(part24)-1986 (Reaffirmed 2009)

✗ 3. IS4031(part4)-1988 (Reaffirmed 2005)

✗ 4. IS383-2016

Question ID : **97675535590**
Status : **Not Answered**
Chosen Option : **--**

Q.70 The collapse load of a fixed beam of span L with concentrated load W at the mid span is _____, where M_p is the plastic moment.

Ans

✗ 1. $16\ M_p/L$

✓ 2. $8\ M_p/L$

✗ 3. $3\ M_p/45L$

✗ 4. $5\ M_p/64L$

Question ID : **97675535604**
Status : **Answered**
Chosen Option : **1**

Q.71 In the design of a flexural member, it requires 628.31 mm^2 of longitudinal reinforcement at the bottom side of cross-section. Which of the following configurations is suitable to meet the requirement?

Ans

✗ 1. 2 numbers of 12 mm diameter bars

✗ 2. 4 numbers of 12 mm diameter bars

✓ 3. 2 numbers of 20 mm diameter bars

✗ 4. 2 numbers of 16 mm diameter bars

Question ID : **97675535599**
Status : **Answered**
Chosen Option : **3**

Q.72 **Calculate the quantity of earthwork using Mid Sectional Area Method for 180 m length of a portion of a road. Height of banks at the two ends of the road are 1.00 m and 1.50 m. Formation width = 10 m, Side slopes = 2 : 1 (H : V).**

Ans

✓ 1. 2812.50 m^3

✗ 2. 1413.75 m^3

✗ 3. 2698.70 m^3

✗ 4. 2768.50 m^3

Question ID : **97675535518**
Status : **Not Answered**
Chosen Option : **--**

Q.73 **When an aggregate sample was tested for its angularity, it was found that the solid volume of aggregate was 59 percent. Calculate its angularity number.**

Ans

✓ 1. 8

✗ 2. 10

✗ 3. 6

✗ 4. 4

Question ID : **97675535554**
Status : **Not Answered**
Chosen Option : **--**

Q.74 **An old building was purchased by a person at a cost of Rs. 32,500/- excluding the cost of land. Calculate the amount of annual sinking fund at 4 percent interest, assuming the future life as 15 years and the scrap value of the building as 15 percent.**

Ans

✗ 1. Rs. 1,623.00

✗ 2. Rs. 243.50

✗ 3. Rs. 613.50

✓ 4. Rs. 1,380.00

Question ID : **97675535519**
Status : **Not Answered**
Chosen Option : **--**

Q.75 **निम्न में से किस प्रकार की मिट्टी में क्षययुक्त वनस्पति पदार्थ के महीन टुकड़ों का रेशेदार समुच्चय होता है?**

Ans

✗ 1. शेल (Shale)

✗ 2. दुमट (Loam)

✗ 3. मार्ल (Marl)

✓ 4. पीट (Peat)

Question ID : **97675535530**
Status : **Answered**
Chosen Option : **4**

Q.76 Given Ixx=30 x 104 cm4, Iyy=50 x 104 cm4, Ixy=30 x 104 cm4, calculate the principal moments of inertia.

Ans

✓ 1. 73.17 x 10^4 cm^4 and 6.83 x 10^4 cm^4

✗ 2. 12.5 x 10^4 cm^4 and 8.5 x 10^4 cm^4

✗ 3. 52.6 x 10^4 cm^4 and 25.3 x 10^4 cm^4

✗ 4. 74.3 x 10^4 cm^4 and 22.6 x 10^4 cm^4

Question ID : **97675535577**
Status : **Not Answered**
Chosen Option : **--**

Q.77 According to IS 10262:2009, in making cement concrete, the water content required for 25 mm-50 mm slump range was found to be 186 litres. What would be the volume of water if the slump requirement is 175 mm, keeping other parameters constant?

Ans
✗ 1. 197.00 litres
✗ 2. 213.90 liters
✗ 3. 202.74 litres
✓ 4. 208.67 litres

Question ID : **97675535582**
Status : **Not Answered**
Chosen Option : **--**

Q.78 What is the unit of payment in MKS system for earthwork in banking, cutting, road and irrigation channel?

Ans
✗ 1. Tons
✗ 2. Per m^2
✓ 3. $\text{Per \% m}^3$
✗ 4. Per m

Question ID : **97675535517**
Status : **Answered**
Chosen Option : **3**

Q.79 निम्न में से कौन दृढ़ पृष्ठीय नहर अस्तर (canal lining) का एक प्रकार नहीं है?

Ans
✗ 1. ईंट अस्तर (Brick lining)
✗ 2. प्लास्टिक अस्तर (Plastic lining)
✗ 3. सीमेंट कंक्रीट अस्तर (Cement concrete lining)
✓ 4. मिट्टी प्ररूप अस्तर (Earthen type lining)

Question ID : **97675535547**
Status : **Answered**
Chosen Option : **4**

Q.80 The recommended value of weaving length in a rotary intersection for a design speed of 40 km/h is _____.

Ans
✗ 1. 20-40 m
✓ 2. 45-90 m
✗ 3. 90-110 m
✗ 4. 30-60 m

Question ID : **97675535558**
Status : **Not Answered**
Chosen Option : **--**

Q.81 Consider the given statements with respect to open channel flow.

Statement A: The driving force is mainly the component of gravity along the flow direction.
Statement B: The hydraulic gradient line is above the free surface of water.
Select the option that applies.

Ans
✓ 1. Statement A is true but B is false
✗ 2. Both the statements are false
✗ 3. Statement B is true but A is false
✗ 4. Both the statements are true

Question ID : **97675535543**
Status : **Answered**
Chosen Option : **1**

Q.82 In the design of RCC structures, the limit state of collapse deals with:

Ans
✓ 1. strength of the structure under maximum design load
✗ 2. leakage of water in structure
✗ 3. loss of durability
✗ 4. discomfort due to excessive deflection

Question ID : **97675535591**
Status : **Answered**
Chosen Option : **1**

Q.83 **A back sight taken on a benchmark (point A) is found to be 1.535 m, and the foresight at the next point (point B) is 2.650 m. If the reduced level at point A is 936.00 m, then calculate the reduced level at point B.**

Ans

✗ 1. 936.540 m

✓ 2. 934.885 m

✗ 3. 940.185 m

✗ 4. 933.350 m

Question ID : **97675535525**
Status : **Answered**
Chosen Option : **2**

Q.84 **Consider the given statements with respect to functions of ballast.**

Statement A: It provides effective drainage to the track.
Statement B: It transfers and distributes load from the sleepers to a large area of the formation.
Select the option that applies.

Ans

✓ 1. Both the statements are true

✗ 2. Statement A is true but B is false

✗ 3. Both the statements are false

✗ 4. Statement B is true but A is false

Question ID : **97675535560**
Status : **Answered**
Chosen Option : **1**

Q.85 Estimate the quantity of plastering (for two faces) required in a wall 4 m long, 3 m high and 30 cm thick. Also calculate the cost of plastering, if the rate of plastering is Rs. 8 per m^3.

Ans

✗ 1. 1.2 m^2 and Rs. 9.60

✗ 2. 12 m^2 and Rs. 96

✗ 3. 2.4 m^2 and Rs. 19.20

✓ 4. 24 m^2 and Rs. 192

Question ID : **97675535516**
Status : **Answered**
Chosen Option : **4**

Q.86 **In a standard penetration test on soil, from a certain depth, it took 5, 8 and 11 number of blows for penetration of split spoon sampler to a depth of 15 cm, 30 cm and 45 cm, respectively, measured from driving tip. The observed value of N is equal to:**

Ans

✓ 1. 19

✗ 2. 13

✗ 3. 24

✗ 4. 8

Question ID : **97675535531**
Status : **Answered**
Chosen Option : **1**

Q.87 **Identify the correct statement with respect to reinforcement requirement in columns.**

Ans

✗ 1. The minimum number of longitudinal bars provided in a rectangular columns shall be six.

✓ 2. Spacing of longitudinal bars measured along the periphery of the column shall not exceed 300 mm.

✗ 3. The cross-sectional area of longitudinal reinforcement shall not be less than 0.4 per cent of the gross cross-sectional area of the column.

✗ 4. The maximum diameter of longitudinal reinforcement bars shall not be less than 16 mm.

Question ID : **97675535595**
Status : **Answered**
Chosen Option : **2**

Q.88 A circular sector has radius r and makes a semi-vertical angle ? from the centre of the sector. The centre of gravity of this circular sector measured along the central axis is ____.

Ans
✗ 1. $\frac{3\sin(2\alpha)}{2r}$
✓ 2. $\frac{2r\sin\alpha}{3\alpha}$
✗ 3. $\frac{2\alpha\sin\alpha}{3r}$
✗ 4. $\frac{2\sin(3\alpha)}{2r}$

Question ID : **97675535580**
Status : **Not Answered**
Chosen Option : **--**

Q.89 A pitot-static tube is used to measure the velocity of water in a pipe. Calculate the velocity of flow assuming the coefficient of tube as 0.98 and difference in pressure head 2 m.

Ans
✗ 1. 10.56 m/sec
✗ 2. 4.68 m/sec
✗ 3. 7.98 m/sec
✓ 4. 6.13 m/sec

Question ID : **97675535542**
Status : **Answered**
Chosen Option : **4**

Q.90 Calculate the mid-ordinate height of a simple circular curve of radius 60 m, with deflection angle 60 degrees.

Ans
✗ 1. 16.06 m
✓ 2. 8.03 m
✗ 3. 24.09 m
✗ 4. 32.12 m

Question ID : **97675535527**
Status : **Answered**
Chosen Option : **2**

Q.91 Consider the given statements.

Statement A: According to Terzaghi's analysis, the ultimate bearing capacity of purely cohesive soils is independent of the width of footing.
Statement B: According to Terzaghi's analysis, the ultimate bearing capacity of purely cohesive soils is independent of the depth of footing.
Select the option that applies.

Ans
✓ 1. Statement B is true but A is false
✗ 2. Statement A is true but B is false
✗ 3. Both the statements are false
✗ 4. Both the statements are true

Question ID : **97675535534**
Status : **Answered**
Chosen Option : **2**

Q.92 Calculate the surface tension in a bubble of 30 mm diameter when the inside pressure is 4 N/m^2 above atmospheric pressure.

Ans
✓ 1. 0.015 N/m
✗ 2. 0.069 N/m
✗ 3. 1.200 N/m
✗ 4. 0.120 N/m

Question ID : **97675535537**
Status : **Answered**
Chosen Option : **1**

Q.93 Calculate the limiting depth of neutral axis of a singly reinforced rectangular beam section of size 200 × 300 mm at ultimate limit state of flexure. Take grade of steel used as Fe250.

Ans
✗ 1. 196 mm
✗ 2. 126 mm
✗ 3. 250 mm
✓ 4. 159 mm

Question ID : **97675535594**
Status : **Answered**
Chosen Option : **2**

Q.94 **Consider the given statements with respect to vertical plane surface submerged in liquid.**

Statement A: The centre of pressure lies above the centre of gravity of the vertical surface
Statement B: The distance of centre of pressure from free surface of liquid mainly depends on density of liquid.
Select the option that applies.

Ans
✗ 1. Statement B is true but A is false
✓ 2. Both the statements are false
✗ 3. Both the statements are true
✗ 4. Statement A is true but B is false

Question ID : **97675535541**
Status : **Answered**
Chosen Option : **2**

Q.95 **Consider the given statements with respect to asbestos molecules.**

Statement A: Asbestos molecules are strongly bound together only in one direction, whereas the lateral bond with adjacent molecules is quite weak.
Statement B: Asbestos molecules are strongly bound together in all directions.
Select the option that applies.

Ans
✗ 1. Both the statements are true
✓ 2. Statement A is true but B is false
✗ 3. Statement B is true but A is false
✗ 4. Both the statements are false

Question ID : **97675535512**
Status : **Answered**
Chosen Option : **3**

Q.96 A settling tank has an overflow rate of 4000 litres/m^2/hour and horizontal area of the tank is 1 m^2. Calculate the settling velocity.

Ans
✗ 1. 0.080 cm/sec
✗ 2. 0.265 cm/sec
✗ 3. 0.369 cm/sec
✓ 4. 0.111 cm/sec

Question ID : **97675535567**
Status : **Answered**
Chosen Option : **4**

Q.97 **Methaemoglobinemia is caused in children mainly because of the presence of:**

Ans
✗ 1. excess of calcium in water
✗ 2. excess of chlorides in water
✗ 3. excess of fluoride in water
✓ 4. excess of nitrates in water

Question ID : **97675535563**
Status : **Answered**
Chosen Option : **4**

Q.98 **Read the following statements carefully:**

A) Softeners do not remove contamination in the water supply.
B) A filter should be placed ahead of a softener if the water is turbid.
Select the option that applies.

Ans
✗ 1. Only statement A is true.
✓ 2. Both the statements A and B are true.
✗ 3. Only statement B is true.
✗ 4. Both the statements A and B are false.

Question ID : **97675535564**
Status : **Answered**
Chosen Option : **2**

Q.99 **As per Indian Railway Standards, a diamond crossing should consist of _____ noses.**

Ans
✗ 1. 12
✗ 2. 9
✓ 3. 6
✗ 4. 3

Question ID : **97675535561**
Status : **Not Answered**
Chosen Option : **--**

Q.100 The decomposed and discoloured central portion of the wooden log resulting from decay is termed as:

Ans
✔ 1. heart rot
✗ 2. Burl
✗ 3. Flute
✗ 4. Check

Question ID : **97675535513**
Status : **Answered**
Chosen Option : **1**