Test Date	10/11/2018
Test Time	12:30 PM - 2:30 PM
Subject	Executive Civil

Dfccil 2018

Section : General Knowledge

Q.1 The force of friction always _____ the applied forces.

Ans
- ✗ 1. reflects
- ✔ 2. opposes
- ✗ 3. conducts
- ✗ 4. adds up to

Question ID : 1860451875
Status : **Answered**
Chosen Option : **2**

Q.2 Which of the following Articles of the Constitution of India provides provisions for a joint sitting of both Houses of Parliament?

Ans
- ✗ 1. Article 122
- ✗ 2. Article 93
- ✗ 3. Article 126
- ✔ 4. Article 108

Question ID : 1860451869
Status : **Answered**
Chosen Option : **2**

Q.3 Who has been appointed as the current Chief Justice of India and took over the office on 3rd October, 2018?

Ans
- ✗ 1. Justice Jasti Chelameswar
- ✔ 2. Justice Ranjan Gogoi
- ✗ 3. Justice Madan Lokur
- ✗ 4. Justice Kurian Joseph

Question ID : 1860451871
Status : **Not Answered**
Chosen Option : --

Q.4 While connecting an LED to a circuit, the longer lead is always connected to the _____ terminal of the battery and the shorter lead is connected to the other terminal of the battery.

Ans
- ✗ 1. equal
- ✗ 2. negative
- ✗ 3. neutral
- ✔ 4. positive

Question ID : 1860451876
Status : **Not Answered**
Chosen Option : --

Q.5 The Education Minister of a State Government is appointed by the _____ on the advice of the _____.

Ans
- ✗ 1. Chief Minister; Prime Minister

Question ID : 1860451870
Status : **Answered**
Chosen Option : **2**

    ✘ 2. President; Governor

    ✔ 3. Governor; Chief Minister

    ✘ 4. Chief Minister; Governor

Q.6 Which among the following was the capital of Bahmani Sultanate?

Ans ✘ 1. Bellary

    ✘ 2. Golkonda

    ✘ 3. Berar

    ✔ 4. Gulbarga

Question ID : 1860451867
Status : **Not Answered**
Chosen Option : --

Q.7 यूनेस्को द्वारा विश्व धरोहर घोषित भीमबेटका शैलाश्रय किस राज्य में स्थित हैं?

Ans ✘ 1. कर्नाटक

    ✔ 2. मध्य प्रदेश

    ✘ 3. आंध्र प्रदेश

    ✘ 4. गुजरात

Question ID : 1860451868
Status : **Answered**
Chosen Option : 4

Q.8 संक्षेप में, नई छाता योजना का नाम क्या है जिसका उद्देश्य किसानों को उनके उपज के लिए लाभकारी मूल्य सुनिश्चित करना है?

Ans ✘ 1. पीएम-न्याय (PM-NYAAY)

    ✔ 2. पीएम-आशा (PM-AASHA)

    ✘ 3. पीएम- समता (PM-SAMTA)

    ✘ 4. पीएम- सद्भाव (PM-SADBHAV)

Question ID : 1860451872
Status : **Answered**
Chosen Option : 2

Q.9 The Government of India has proposed to merge Dena Bank and Vijaya Bank along with which of the following banks?

Ans ✘ 1. Bank of India

    ✔ 2. Bank of Baroda

    ✘ 3. Punjab National Bank

    ✘ 4. Central Bank of India

Question ID : 1860451873
Status : **Answered**
Chosen Option : 2

Q.10 निम्नलिखित में से कौन सी नदी अरब सागर में मिलती है?

Ans ✘ 1. लूनी

    ✔ 2. साबरमती

    ✘ 3. कृष्णा

    ✘ 4. गोदावरी

Question ID : 1860451866
Status : **Not Answered**
Chosen Option : --

Q.11 Who is the Chairman and Managing Director of Small Industries Development Bank of India (SIDBI) as of October 2018?

Ans ✔ 1. Mohammad Mustafa

    ✘ 2. Badruddin Ajmal

    ✘ 3. Ajay Kumar Kapur

Question ID : 1860451874
Status : **Not Answered**
Chosen Option : --

✗ 4. Manoj Mittal

Q.12 निम्नलिखित में से किस देश ने एशिया कप 2018 क्रिकेट टूर्नामेंट की मेज़बानी की थी?

Ans
✗ 1. पाकिस्तान

✗ 2. बांग्लादेश

✓ 3. संयुक्त अरब अमीरात

✗ 4. श्रीलंका

Section : **General Aptitude Reasoning**

Q.1 Choose the alternative from the given options that will complete the given number series.
72, 83, 105, 138, 182, _____

Ans
✓ 1. 237

✗ 2. 258

✗ 3. 278

✗ 4. 224

Q.2 Some equations are solved on the basis of a certain system. Find the correct answer for the unsolved equation on that basis.

$4 + 25 = 81; 9 + 49 = 256; 7 + 16 = ?$

Ans
✗ 1. 16

✗ 2. 256

✗ 3. 88

✓ 4. 121

Q.3 Consider the given question and decide which of the statement(s) given below it is/are sufficient / necessary to answer the question.

Question:

Which year was Sudhanshu born in?

Statements:

1. Sudhanshu is 6 years younger than his brother as of today.
2. Sudhanshu's mother, who was born in 1970, is 24 years older than Sudhanshu's brother.

Ans
✓ 1.
Both statements 1 and 2 together are sufficient.

✗ 2.
Statement 1 alone is sufficient while statement 2 is insufficient.

✗ 3.
Statement 2 alone is sufficient while statement 1 is insufficient.

✗ 4. Either statement 1 or 2 is sufficient.

Q.4 Select the response that is DIFFERENT from the other three responses.

Ans
✗ 1. QTPU

✗ 2. EHDI

✗ 3. CFBG

✓ 4. SWTX

Q.5

Based on figures A and C, select the option that can replace the question mark (?) in figure B.

Ans
✗ 1. 81
✓ 2. 71
✗ 3. 67
✗ 4. 77

Q.6 यदि संख्या 341285769 के पहले और छठे अंक की स्थिति को परस्पर स्थानापन्न कर दिया जाए, उसी प्रकार दूसरे और सातवें अंक की स्थिति को परस्पर स्थानापन्न कर दिया जाए, तो निम्नलिखित में से कौन सा अंक बाएँ सिरे से सातवें अंक की बायीं ओर तीसरा अंक होगा?

Ans
✓ 1. 9
✗ 2. 7
✗ 3. 3
✗ 4. 2

Q.7 Identify the next logical letter pair in the given pattern.

HS, JQ, LO, NM, _____

Ans
✗ 1. KP
✗ 2. OL
✓ 3. PK
✗ 4. MN

Q.8 U, V, W, X and Y are five cousins. X is half the age of V; V is half the age of U. Y is half the age of X. If Y is 4 years old, what is the age of V?

Ans
✗ 1. 32 years
✗ 2. 8 years
✗ 3. 48 years
✓ 4. 16 years

Q.9 Which of the options depicts the correct mirror image of the following figure?

ASPIRE

Ans
✓ 1. ƎЯIꟼƧA
✗ 2. AƧꟼIЯƎ
✗ 3. ƎЯIꟼƧA
✗ 4. ƎЯIꟼƧA

Q.10 Select the number pair which is different from the other three responses?

Ans
✗ 1. 125 - 31
✗ 2. 77 - 19

3. ✓ 92 - 23

4. ✗ 157 - 39

Q.11 Sitting in a row, six Indian cricket fans K, L, M, N, O and P are watching an India versus Australia match. Of these, L, M, O and P are girls and the rest are boys. K, N and L have painted their faces while the rest are holding India Flags. N, O and P are wearing the Indian team Jerseys and the rest were wearing normal T-shirts. Which two people are girls, holding Indian Flag and wearing Indian team Jerseys?

Ans

1. ✗ M and O

2. ✗ L and M

3. ✓ O and P

4. ✗ L and P

Q.12 Hrithik starts walking towards East. After walking 50 m, he turns left and walks straight for 15 m. At this point, he again turns left and walks straight for 30 m and once again turns left and walks a distance of 15 m. How far is he from the starting point?

Ans

1. ✗ 30 m

2. ✓ 20 m

3. ✗ 45 m

4. ✗ 80 m

Section : **Surveying**

Q.1 Which of the following chains was originally used for land measurement with a length of 66 ft?

Ans

1. ✓ Gunter's Chain

2. ✗ Engineer's Chain

3. ✗ Metric Chain

4. ✗ Revenue Chain

Q.2 Which of the following levelling is necessary for carrying levelling across any obstacle requiring a long sight between two points so situated where no place is there for the setup of the level midway between two points?

Ans

1. ✗ Precise leveling

2. ✓ Reciprocal levelling

3. ✗ Differential leveling

4. ✗ Fly leveling

Q.3 A 30 m chain used for a survey was found to be 30.10 m at the beginning and 30.30 m at the end of the work. The area of the plan drawn to a scale of 1 cm = 8 m was measured with the help of planimeter and was found to be 42.50 sq. cm. What is true area of the field?

Ans

1. ✗ 2890.9 m^2

2. ✗ 3456.4m^2

3. ✗ 2567.0 m^2

4. ✓ 2756.4 m^2

Q.4 In plane table survey, both horizontal and vertical distances will be obtained directly using _____.

Ans

1. ✗ tacheometer

2. ✓ telescopic alidade

3. ✗ plane alidade

4. ✗ plumb bob

Q.5 The ruling principle of plane surveying is to work from:

Ans ✗ 1. part to whole.

✔ 2. whole to part.

✗ 3. higher level to lower level.

✗ 4. lower level to higher level.

Q.6 What is the main objective of providing tie line in chain survey?

Ans ✗ 1. To check the precision of the survey.

✔ 2. To take the details of the nearby objects.

✗ 3. To find the length of base line.

✗ 4. To find the horizontal angles.

Section : **Strength of material Structural Design & Drawing**

Q.1 The permissible error (E) for the Precise levelling type with distance (D) in kilometre is given by:

Ans ✗ 1. $E = \pm 0.025\sqrt{D}$

✔ 2. $E = \pm 0.006\sqrt{D}$

✗ 3. $E = \pm 0.100\sqrt{D}$

✗ 4. $E = \pm 0.012\sqrt{D}$

Q.2 The plane table survey works based on the principle of:

Ans ✗ 1. traversing

✗ 2. reconnaissance

✗ 3. triangulation

✔ 4. parallelism

Q.3 A fluid in which shear stress is more than yield value and shear stress is proportional to shear strain is known as _____ fluid.

Ans ✔ 1. Ideal plastic

✗ 2. Non-Newtonian

✗ 3. Ideal fluid

✗ 4. Newtonian

Q.4 Which of the following is NOT an objective of seasoning timber?

Ans ✗ 1. Reduction in shrinkage and warping.

✔ 2. Reduction of natural defects in timber.

✗ 3. Increase in strength and durability.

✗ 4. Reduction of weight of the timber.

Q.5 Which one of the following is NOT a direct stream flow measurement technique?

Ans ✔ 1. Slope-area method

✗ 2. Area-velocity method

✗ 3. Ultrasonic method

✗ 4. Dilution method

Q.6 What is the radius of one degree curve?

Ans ✗ 1. 1619 m

✔ 2. 1719 m

✗ 3. 1729 m

✗ 4. 1769 m

Q.7 Which of the following statements is INCORRECT in the case of stiffness of wood?

Ans ✗ 1. Green timber is stiffer than when seasoned.

✗ 2. Wood is not a stiff material.

✗ 3. Denser wood is stiffer.

✔ 4.
Structural sizes of timber are stiffer than the clear small sticks.

Q.8 A hydraulic structure is constructed when a Full Supply Level (FSL) of a canal is much higher than High Flood Level (HFL) of the stream which in turn, is lower than the bottom of the canal trough. Such a structure is called as:

Ans ✗ 1. Inlets

✗ 2. Super passage

✔ 3. Aqueduct

✗ 4. Level crossing

Q.9 Mohr's scale is used to determine _____ of the stone.

Ans ✗ 1. toughness

✗ 2. durability

✔ 3. hardness

✗ 4. flakiness index

Q.10 The spacing between adjacent spurs in river training work is generally kept between _____ times the spur length.

Ans ✗ 1. 2.5 to 3.5

✗ 2. 1.5 to 2.5

✗ 3. 1 to 2

✔ 4. 2 to 2.5

Q.11 The principal chemical constituent present in argillaceous rock is:

Ans ✗ 1. SiO_2

✗ 2. Dolomite

✔ 3. Al_2O_3

✗ 4. Lime

Q.12 Generally, the swelling of wood along the length of fibres ranges from:

Ans ✅ 1. 0.1 to 0.8%
❌ 2. 13 to 15%
❌ 3. 6 to 12%
❌ 4. 3 to 5%

Q.13 A 6-hour rainfall of 6 cm at a place A was found to have a return period of 40 years. The probability that a 6 hour rainfall of this or larger magnitude will occur at least once in 20 successive years is:	Question ID : **1860451908**
Ans ❌ 1. 0.605	Status : **Not Answered**
❌ 2. 0.308	Chosen Option : --
✅ 3. 0.397	
❌ 4. 0.015	

Q.14 In the stability of floating bodies, the stable equilibrium is attained if the meta centre (M) point _____ the centre of gravity (G).	Question ID : **1860451907**
Ans ❌ 1. is parallel to	Status : **Answered**
❌ 2. coincides with	Chosen Option : **2**
❌ 3. lies below	
✅ 4. lies above	

Q.15 As per IS 456-2000, the minimum grade of concrete used for severe exposure condition should be:	Question ID : **1860451912**
Ans ❌ 1. M25	Status : **Answered**
✅ 2. M20	Chosen Option : **1**
❌ 3. M30	
❌ 4. M10	

Q.16 Water absorption of a good brick should NOT exceed _____ of its dry weight when kept immersed in water for 24 hours.	Question ID : **1860451900**
Ans ❌ 1. 25%	Status : **Answered**
✅ 2. 20%	Chosen Option : **2**
❌ 3. 10%	
❌ 4. 30%	

Q.17 The short- term modulus of elasticity of concrete (in N/mm^2) as per IS 456- 2000 is given by:	Question ID : **1860451913**
Ans ❌ 1. $3000 \sqrt{f}_{ck}$	Status : **Answered**
❌ 2. $3700 \sqrt{f}_{ck}$	Chosen Option : **4**
❌ 3. $5700 \sqrt{f}_{ck}$	
✅ 4. $5000 \sqrt{f}_{ck}$	

Q.18 In theodolites, the axis of rotation of telescope in the vertical plane indicates:	Question ID : **1860451898**
Ans ❌ 1. vertical axis	Status : **Answered**
❌ 2. line of collimation	Chosen Option : **1**
❌ 3. axis of telescope	
✅ 4. horizontal axis	

Section : **Buildings & Construction Material**

Q.1 According to IS 456-2000, the exposure condition of concrete surfaces to coastal environment completely is classified as:

Ans
- ✗ 1. Extreme
- ✗ 2. Very severe
- ✔ 3. Severe
- ✗ 4. Moderate

Question ID : 1860451918
Status : **Answered**
Chosen Option : **3**

Q.2 The relation between the effective modulus E_{ce}, short term static modulus E_{ce}, short term static modulus E_c and creep coefficient θ of concrete is given by:

Ans
- ✗ 1. $E_{ce} = \dfrac{\theta}{1+2E_c}$
- ✔ 2. $E_{ce} = \dfrac{E_c}{1+\theta}$
- ✗ 3. $E_{ce} = \dfrac{\theta}{1+E_\theta}$
- ✗ 4. $E_{ce} = \dfrac{E_c}{1+2\theta}$

Question ID : 1860451919
Status : **Answered**
Chosen Option : **2**

Q.3 The test which is NOT used to measure the workability of concrete is called _____ test.

Ans
- ✔ 1. Le-chateliers
- ✗ 2. Compacting factor
- ✗ 3. Vee-Bee
- ✗ 4. Slump

Question ID : 1860451916
Status : **Answered**
Chosen Option : **1**

Q.4 According to IS 456-2000, the slump value (in mm) of the concrete used in ordinary RCC work for beams and slabs etc. is in the range of:

Ans
- ✗ 1. 20 to 30
- ✗ 2. 25 to 50
- ✔ 3. 50 to 100
- ✗ 4. 75 to 150

Question ID : 1860451917
Status : **Answered**
Chosen Option : **1**

Q.5 Water-cement ratio is the ratio of:

Ans
- ✗ 1. cement to water by weight
- ✔ 2. water to cement by weight
- ✗ 3. water to cement by volume
- ✗ 4. cement to water by volume

Question ID : 1860451915
Status : **Answered**
Chosen Option : **1**

Q.6 Steel Bbeam theory is the method used to analysze and in the design of a design of:

Ans
- ✗ 1. Column structures only
- ✔ 2. Doubly reinforced sections
- ✗ 3. Singly reinforced sections
- ✗ 4. Both singly & doubly reinforced section

Question ID : 1860451914
Status : **Not Attempted and Marked For Review**
Chosen Option : --

Section : **Soil mechanics & Foundation Engineering**

Q.1 The guidelines for Pre-stressed concrete is given by which of the following Bureau of Indian Standard codes?

Ans

✗ 1. IS 2116 - 1980

✗ 2. IS 269 - 2015

✔ 3. IS 1343-1980

✗ 4. IS 456-2000

Q.2 The analysis of pre-stressed concrete members is based on which of the following concepts?

Ans

✗ 1. Shear stresses

✗ 2. Principle stresses

✔ 3.

Combined stresses due to direct load and bending stresses

✗ 4. Overhead stresses

Q.3 Which of the following coagulants is most commonly used in sedimentation process in water treatment plant?

Ans

✗ 1. Albuminoidal nitrogen

✔ 2. Aluminium sulphate

✗ 3. Nitric sulphate

✗ 4. Potassium sulphate

Q.4 According IS 456-2000, the nominal cover provided for the concrete surfaces exposed to very severe environmental conditions shall NOT be less than:

Ans

✔ 1. 50 mm

✗ 2. 30 mm

✗ 3. 75 mm

✗ 4. 45 mm

Q.5 Which of the following systems is used for pre-tensioning?

Ans

✗ 1. Freyssinet system

✗ 2. Magnel-Blaton system

✗ 3. Gifford-Udall system

✔ 4. Hoyer's long line system

Q.6 Which of the following post tensioning system adopts metallic sandwich plates, flat wedges and distribution plate for anchoring the wires?

Ans

✔ 1. Magnel-Balton

✗ 2. Freyssinet

✗ 3. Lee-McCall

✗ 4. Gifford-Udall

Q.7 The upward deflection of a pre-stressed beam with a straight tendon at a uniform eccentricity below the centroidal axis is given by-----, where P-effective pre-stressing force, e-eccentricity, L-length of the beam, E-Modulus of elasticity, I – moment of inertia:

Ans

✔ 1. $-PeL^2/8EI$

✗ 2. $-PeL^2/14EI$

✗ 3. $-PeL^2/4EI$

✗ 4. $-PeL^2/16EI$

Q.8 As per IS 1343-1980, the minimum 28 day compressive strength for pre-tensioned members is:

Ans
✔ 1. $40\ N/mm^2$

✗ 2. $50\ N/mm^2$

✗ 3. $25\ N/mm^2$

✗ 4. $30\ N/mm^2$

Question ID : 1860451924
Status : **Answered**
Chosen Option : **2**

Q.9 Which of the following is a disadvantage in the case of Freyssinet system of post tensioning?

Ans
✗ 1. Safeguarding of wires is economical

✗ 2. Rapid attainment of stretching force

✔ 3. Stresses in the wires are not similar

✗ 4. Projection of plug left in concrete

Question ID : 1860451928
Status : **Not Answered**
Chosen Option : --

Q.10 A concrete beam is pre-stressed by a cable carrying an initial pre-stressing force of 300 kN, area is 300 mm². What is the percentage of loss of stress due to shrinkage in pre-tensioned members?

Ans
✔ 1. 6.3%

✗ 2. 4 %

✗ 3. 2.3%

✗ 4. 5.3%

Question ID : 1860451931
Status : **Not Answered**
Chosen Option : --

Q.11 As per IS 10500: 1991, what is the permissible limit in the absence of alternate sources for the total hardness of drinking water?

Ans
✔ 1. 600 mg/l

✗ 2. 500 mg/l

✗ 3. 800 mg/l

✗ 4. 300 mg/l

Question ID : 1860451933
Status : **Answered**
Chosen Option : **1**

Q.12 The maximum spacing of shear reinforcement along the axis of the member shall NOT exceed _____ times the effective depth of the section for vertical strips

Ans
✗ 1. 1.20

✔ 2. 0.75

✗ 3. 0.65

✗ 4. 0.50

Question ID : 1860451921
Status : **Not Answered**
Chosen Option : --

Q.13 A rectangular concrete beam of 250 mm wide and 600 mm deep is pre-stressed by means of four 10 mm diameter high tensile bars located at 200 mm from the soffit of the beam. If the effective stress in the wires is 500 N/mm². What is maximum bending moment that can be applied to the section WITHOUT causing tension at soffit of the beam?

Ans
✗ 1. 26.5 kNm

✗ 2. 38.5 kNm

✗ 3. 24.5 kNm

✔ 4. 31.5 kNm

Question ID : 1860451930
Status : **Not Answered**
Chosen Option : --

Q.14 The minimum reinforcement used in either direction of the slabs shall NOT be _____ of the total cross sectional area for Fe 250 grade steel.

Ans
✗ 1. < 0.2 %

✗ 2. < 0.1 %

Question ID : 1860451922
Status : **Answered**
Chosen Option : **1**

❌ 3. < 0.25 %

✔️ 4. < 0.15 %

Q.15 In limit state design, the values of consideration of factor of safety for concrete and steel, respectively, in limit state design are:

Ans
❌ 1. 2.00 and 1.70

✔️ 2. 1.50 and 1.15

❌ 3. 1.50 and 1.50

❌ 4. 1.50 and 1.17

Question ID : **1860451920**
Status : **Answered**
Chosen Option : **2**

Q.16 Which of the statements is correct in the case of slow sand filters?

Ans
✔️ 1. They are relatively simple to operate.

❌ 2. They require low turbidity water.

❌ 3. They have a large land requirement.

❌ 4. They are labour-intensive.

Question ID : **1860451936**
Status : **Answered**
Chosen Option : **3**

Q.17 The population forecasting method which that is based on the assumption that the percentage increase in population from one decade to the other decade remains constant is called _____ method.

Ans
❌ 1. incremental increase

✔️ 2. geometrical increase

❌ 3. decrease rate of growth

❌ 4. arithmetical increase

Question ID : **1860451937**
Status : **Answered**
Chosen Option : **2**

Q.18 The pipes which that are frequently used in green building projects for water supply are called _____ pipes.

Ans
❌ 1. Chlorinated polyvinyl chloride

❌ 2. Polybutylene

❌ 3. Polyethylene

✔️ 4. Polypropylene

Question ID : **1860451934**
Status : **Answered**
Chosen Option : **1**

Section : **Concrete Technology Reinforced & Pre-stressed concrete**

Q.1 In a simple stress–strain test, the volumetric strain is equal to _____ strain.

Ans
❌ 1. three times the shear

❌ 2. two times the shear

❌ 3. two times the linear

✔️ 4. three times the linear

Question ID : **1860451946**
Status : **Answered**
Chosen Option : **4**

Q.2 The strain energy stored in a body with sudden load application, the maximum stress induced is twice the stress induced when:

Ans
❌ 1. the torque of same load is applied.

✔️ 2. the same load is applied gradually.

❌ 3. the same load is applied suddenly.

❌ 4. the same load is applied by an impact.

Question ID : **1860451950**
Status : **Answered**
Chosen Option : **1**

Q.3 Elongation of a bar due to its self-weight is computed by _____, where L- length of the bar, E - Young's modulus of elasticity and W- total weight the bar material.

Question ID : **1860451948**

Ans

  ✗ 1. WL/8E

  ✗ 2. $WL^2/2E$

  ✗ 3. WL/4E

  ✓ 4. WL/2E

Q.4 What will be the Sludge Volume Index (SVI) if 100 ml of sludge collected in 30 mins on drying weighs 800 mg?

Ans

  ✗ 1. 115

  ✗ 2. 78

  ✗ 3. 100

  ✓ 4. 125

Q.5 The tensile stresses at a point across two mutual perpendicular planes are 150 N/mm² and 75 N/mm². What is the normal stress on the plane inclined at 35° to axis of the minor stresses?

Ans

  ✗ 1. $115 \ N/mm^2$

  ✗ 2. $128.64 \ N/mm^2$

  ✗ 3. $120.50 \ N/mm^2$

  ✓ 4. $125.33 \ N/mm^2$

Q.6 For the sludge digestion system to work effectively, the pH of the sludge should be between:

Ans

  ✗ 1. $8.5 - 10$

  ✓ 2. $6.5 - 7.4$

  ✗ 3. $10 - 12$

  ✗ 4. $3.5 - 5.5$

Q.7 What does Chemical Oxygen Demand (COD) indicate?

Ans

  ✓ 1. Biodegradability of the waste water

  ✗ 2. Strength of a sewage

  ✗ 3. Age of the sewage

  ✗ 4. Potential for recycling of the wastewater

Q.8 Which of the following characterises biochemical treatments of sewage effluents?

Ans

  ✓ 1. Oxidation

  ✗ 2. Sulphonification

  ✗ 3. Chlorination

  ✗ 4. Redox

Q.9 For the clamped - free column, the effective length is equal to:

Ans

  ✗ 1. 0.7 times the actual length

  ✗ 2. the actual length

  ✗ 3. 0.5 times the actual length

  ✓ 4. twice the actual length

Q.10 In the case of a triangular section, the shear stress is maximum at the:

Ans ✔ 1. Height of h/2

✗ 2. Height of 2h/3

✗ 3. Neutral axis

✗ 4. Centre of gravity

Q.11 Removal of excess chlorine resulting from super chlorination, in part, or completely, is called:

Ans ✗ 1. Re-chlorination

✔ 2. De-chlorination

✗ 3. Pre-chlorination

✗ 4. Post-chlorination

Q.12 When does contra flexure point occur on a beam?

Ans ✔ 1. When bending moment changes its sign.

✗ 2. When shear force is constant.

✗ 3. When bending moment is maximum.

✗ 4.
When shear force is zero after changing its sign.

Q.13 The best method for controlling taste and odor problems in water is through _____ process.

Ans ✔ 1. oxidation

✗ 2. reduction

✗ 3. hydration

✗ 4. coagulation

Q.14 What is the section modulus for a rectangle beam of size 200 mm × 350 mm?

Ans ✗ 1. 5.6×10^6 mm^3

✔ 2. 4.08×10^6 mm^3

✗ 3. 4.34×10^6 mm^3

✗ 4. 5.21×10^6 mm^3

Q.15 A rectangular steel bar, which is of 2.8 m long and 15 mm thick, is subjected to an axial tensile load of 40 kN. If width of the bar varies from 75 mm at one end to 30 mm at the other end, then what is the extension of the bar if $E = 2 \times 10^6$ N/mm2?

Ans ✗ 1. 0.36 mm

✔ 2. 0.76 mm

✗ 3. 0.50 mm

✗ 4. 0.86 mm

Q.16 The deflection of the centre of the simply supported beam carrying point load at the centre is given by:

Ans ✗ 1. $-5WL^2/384EI$

✔ 2. $-WL^3/48EI$

✗ 3. $-WL^2/24EI$

✗ 4. $-WL^3/3EI$

Q.17 A cylinder is considered to be a 'thin cylinder', if the thickness to internal diameter of the cylindrical shell is:

Ans
✗ 1. less than 1/10

✔ 2. less than 1/20

✗ 3. greater than 1/20

✗ 4. greater than 1/10

Q.18 The effective size of the sand particles used in the top layer of slow sand filter is in the range of:

Ans
✗ 1. 0.45 to 0.70 mm

✔ 2. 0.20 to 0.30 mm

✗ 3. 0.40 to 0.60 mm

✗ 4. 0.35 to 0.55 mm

Section : **Hydraulics Hydrology & Hydraulics Structures**

Q.1 The speed factor for the speed above 100 km/h given by German formula, which is adopted in Indian railways after 1966 is:

Ans
✔ 1. $\dfrac{4.5V^2}{10^5} - \dfrac{1.5V^3}{10^7}$

✗ 2. $\dfrac{V}{\sqrt[3]{\mu}}$

✗ 3. $\dfrac{V^2}{30000}$

✗ 4. $\dfrac{4.5V^3}{10^7} - \dfrac{1.5V^3}{10^5}$

Q.2 As per Indian railway standards, the width of the broad gauge is:

Ans
✔ 1. 1676 mm

✗ 2. 1000 mm

✗ 3. 1435 mm

✗ 4. 1524 mm

Q.3 The load per unit rail length required to produce one unit depression in the rail bottom is called _____ modulus.

Ans
✗ 1. Ballast

✗ 2. Elastic

✔ 3. Track

✗ 4. Shear

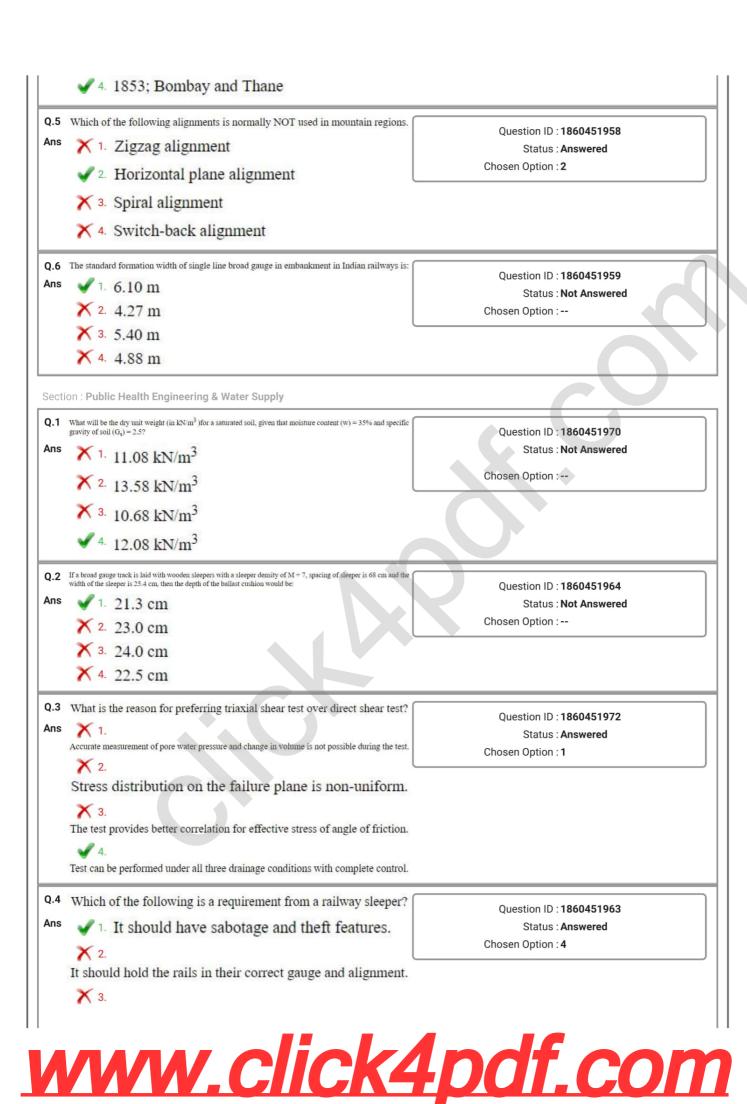**Q.4** The first Indian railway train started in the year _____ and travelled between _____.

Ans
✗ 1. 1875; Kachiguda and Secunderabad

✗ 2. 1850; Bombay and Pune

✗ 3. 1880; Delhi and Agra

✔ 4. 1853; Bombay and Thane

Q.5 Which of the following alignments is normally NOT used in mountain regions.

Ans ✘ 1. Zigzag alignment

✔ 2. Horizontal plane alignment

✘ 3. Spiral alignment

✘ 4. Switch-back alignment

Q.6 The standard formation width of single line broad gauge in embankment in Indian railways is:

Ans ✔ 1. 6.10 m

✘ 2. 4.27 m

✘ 3. 5.40 m

✘ 4. 4.88 m

Section : **Public Health Engineering & Water Supply**

Q.1 What will be the dry unit weight (in kN/m^3)for a saturated soil, given that moisture content (w) = 35% and specific gravity of soil (G_s) = 2.5?

Ans ✘ 1. $11.08 \ kN/m^3$

✘ 2. $13.58 \ kN/m^3$

✘ 3. $10.68 \ kN/m^3$

✔ 4. $12.08 \ kN/m^3$

Q.2 If a broad gauge track is laid with wooden sleepers with a sleeper density of M + 7, spacing of sleeper is 68 cm and the width of the sleeper is 25.4 cm, then the depth of the ballast cushion would be:

Ans ✔ 1. 21.3 cm

✘ 2. 23.0 cm

✘ 3. 24.0 cm

✘ 4. 22.5 cm

Q.3 What is the reason for preferring triaxial shear test over direct shear test?

Ans ✘ 1.

Accurate measurement of pore water pressure and change in volume is not possible during the test.

✘ 2.

Stress distribution on the failure plane is non-uniform.

✘ 3.

The test provides better correlation for effective stress of angle of friction.

✔ 4.

Test can be performed under all three drainage conditions with complete control.

Q.4 Which of the following is a requirement from a railway sleeper?

Ans ✔ 1. It should have sabotage and theft features.

✘ 2.

It should hold the rails in their correct gauge and alignment.

✘ 3.

It should give a firm and even support to the rails.

✗ 4.
It should transfer the load evenly from the rails to a wider area of the ballast.

Q.5 The coefficient of curvature from the grain size distribution curve is given by:

Ans

✔ 1. $\dfrac{D_{30}^2}{D_{60}D_{10}}$

✗ 2. $\dfrac{D_{30}}{D_{10}}$

✗ 3. $\dfrac{D_{60}}{D_{10}}$

✗ 4. $\dfrac{D_{60}^2}{D_{10}D_{30}}$

<div>
Question ID : 1860451968
Status : Answered
Chosen Option : 4
</div>

Q.6 The stability of the formation slope railway line is generally determined by the _____ method.

Ans

✗ 1. Least square

✗ 2. Rankine's

✗ 3. Mohr circle

✔ 4. Slip circle

<div>
Question ID : 1860451965
Status : Answered
Chosen Option : 4
</div>

Q.7 The distance between the gauge faces of the stock rail and the tongue rail at the heel of the switch is called:

Ans

✔ 1. Heel divergence

✗ 2. Switch angle

✗ 3. Flange way clearance

✗ 4. Throw of the switch

<div>
Question ID : 1860451967
Status : Not Answered
Chosen Option : --
</div>

Q.8 The function of a fish plate is to hold two rails together in:

Ans

✗ 1. Vertical plane only

✔ 2. Both the horizontal and vertical planes

✗ 3. Oblique plane only

✗ 4. Horizontal plane only

<div>
Question ID : 1860451966
Status : Answered
Chosen Option : 2
</div>

Q.9 The relative density of granular soils is given by the relation:

Ans

✗ 1. $\dfrac{e_{min} - e}{e_{max} + e_{min}} \times 100$

✗ 2. $\dfrac{e_{max} + e}{e_{max} - e_{min}} \times 100$

✔ 3. $\dfrac{e_{max} - e}{e_{max} - e_{min}} \times 100$

✗ 4. $\dfrac{e_{max} - e}{e_{max} + e_{min}} \times 100$

<div>
Question ID : 1860451969
Status : Answered
Chosen Option : 3
</div>

Q.10 As per Indian railway standards, the length of rail used in broad gauge is:

Question ID : 1860451962

Ans	✗ 1. 10 m ✗ 2. 11 m ✔ 3. 13 m ✗ 4. 12 m	Status : **Answered** Chosen Option : **4**

Q.11 The Mohr–Coulomb failure criterion, which is defined by shear strength (s) consisting of effective normal stress (σ'), cohesion (c') and effective stress angle of friction (φ'), is given by:

Ans

✗ 1. $s = c'tan\varphi' + \sigma'$

✔ 2. $s = c' + \sigma'tan\varphi'$

✗ 3. $s = c' - \sigma'tan\varphi'$

✗ 4. $s = \sigma' + c'tan\varphi'$

Question ID : **1860451973**
Status : **Answered**
Chosen Option : **2**

Q.12 According to standard test method ASTM D-4318, the moisture content (the liquid limit of a soil) is determined by Casagrande's liquid device, at which a groove closure of _____ occurs at _____ blows.

Ans

✔ 1. 12.7 mm, 25

✗ 2. 12.7 mm, 20

✗ 3. 11.7 mm, 20

✗ 4. 11.7 mm, 25

Question ID : **1860451971**
Status : **Answered**
Chosen Option : **1**

Section : **Railway Engineering & Railway Track**

Q.1 In a modified proctor test for compaction of soils, the mass of the rammer is of _____ and dropped at a height of _____.

Ans

✗ 1. 2.6 kg; 310mm

✔ 2. 4.89 kg; 450 mm

✗ 3. 2.6 kg; 450 mm

✗ 4. 4.89 kg; 310 mm

Question ID : **1860451984**
Status : **Answered**
Chosen Option : **1**

Q.2 For a soil, if the sensitivity value varies from 2.0 to 4.0, then such a soil is these soils are classified as:

Ans

✔ 1. Moderately sensitive

✗ 2. Extra sensitive

✗ 3. Sensitive

✗ 4. Little sensitive

Question ID : **1860451977**
Status : **Answered**
Chosen Option : **1**

Q.3 According to Rankine's formula, the minimum depth of foundation (h) computed with gross bearing capacity (p), density of soil (γ) and angle repose (φ) is:

Ans

✗ 1. $h = (p/\gamma) [(1-sin\varphi)/(1+tan\varphi)]^2$

✗ 2. $h = (\gamma/p) [(1-sin\varphi)/(1+sin\varphi)]^2$

✗ 3. $h = (p/\gamma) [(1+sin\varphi)/(1-sin\varphi)]^2$

✔ 4. $h = (p/\gamma) [(1-sin\varphi)/(1+sin\varphi)]^2$

Question ID : **1860451981**
Status : **Answered**
Chosen Option : **4**

Q.4 If the capillary rise in a soil A with an effective size of 0.02 mm was 60 cm, then what would be the capillary rise in the similar soil B with an effective size of 0.04 mm?

Ans

✗ 1. 40 cm

✗ 2. 35 cm

Question ID : **1860451979**
Status : **Not Answered**
Chosen Option : **--**

✗ 3. 20 cm

✔ 4. 30 cm

Q.5 Lime stabilisation is most commonly used for stabilizing:

Ans
✔ 1. Clays

✗ 2. Cement

✗ 3. Sands

✗ 4. Bitumen

Question ID : **1860451985**
Status : **Answered**
Chosen Option : **4**

Q.6 The intensity of vertical stress (σ_z) of the soil just below the load point is given by _____, where Z- vertical distance between point load and the polar stress and Q- point load.

Ans
✗ 1. $0.4775 \dfrac{Q}{Z}$

✔ 2. $0.4775 \dfrac{Q}{Z^2}$

✗ 3. $0.4775 \dfrac{Z}{Q}$

✗ 4. $0.4775 \dfrac{Z}{Q^2}$

Question ID : **1860451982**
Status : **Answered**
Chosen Option : **2**

Q.7 According to Terzaghi's bearing capacity theory for foundations, a foundation is shallow if:

Ans
✗ 1. Depth is greater than 2 times the width

✗ 2. Depth is greater than width

✔ 3. Depth is less than or equal to width

✗ 4.
Depth is greater than or equal to 2 times the width

Question ID : **1860451975**
Status : **Answered**
Chosen Option : **3**

Q.8 Unified soil classification system is almost similar to _____ classification.

Ans
✔ 1. IS soil

✗ 2. MIT

✗ 3. Textural

✗ 4. AASHTO

Question ID : **1860451978**
Status : **Answered**
Chosen Option : **1**

Q.9 Which one of the following is a DEMERIT of triaxial test?

Ans
✔ 1.
The consolidation of the specimen is isotropic in the test but anisotropic in the field.

✗ 2.
The stress distribution on the failure plane is uniform.

✗ 3.
The pore pressure and volumetric changes can be measured directly.

✗ 4.
The specimen is free to fail on the weakest plane.

Question ID : **1860451983**
Status : **Not Answered**
Chosen Option : **--**

Q.10 For flow-through soils, the flow is laminar when the Reynold number is:

Ans
- ✔ 1. less than unity
- ✗ 2. less than 2500
- ✗ 3. greater than 2000
- ✗ 4. greater than unity

Question ID : **1860451980**
Status : **Answered**
Chosen Option : **2**

Q.11 The liquid limit is determined from Casagrande apparatus. The apparatus consists of a semispherical brass cup that is repeatedly dropped onto a hard rubber base from a height of:

Ans
- ✗ 1. 15 mm
- ✗ 2. 5 mm
- ✗ 3. 20 mm
- ✔ 4. 10 mm

Question ID : **1860451976**
Status : **Answered**
Chosen Option : **1**

Q.12 The load per unit area of the foundation at which shear failure in soil occurs is called the:

Ans
- ✗ 1. Shear resistance
- ✗ 2. Punching shear failure
- ✗ 3. Degree of consolidation
- ✔ 4. Ultimate bearing capacity

Question ID : **1860451974**
Status : **Answered**
Chosen Option : **2**