Exam Name

FINAL ANSWER KEY

Paper Name: SCIENTIST B (CIVIL ENGINEERING)	Paper Code: SB - CIVIL

Q. No.	Key	Q. No.	Key	Q. No.	Key	Q. No.	Key	Q. No.	Key	Q. No.	Key
01	B	**12**	A	**23**	B	**34**	C	**45**	B	**56**	B
02	B	**13**	A	**24**	D	**35**	A	**46**	B	**57**	C
03	C	**14**	A	**25**	B	**36**	B	**47**	B	**58**	B
04	B	**15**	B	**26**	C	**37**	D	**48**	D	**59**	A
05	A, C	**16**	A	**27**	A	**38**	C	**49**	C	**60**	A
06	B	**17**	A	**28**	B	**39**	B	**50**	B	**61**	B
07	A	**18**	B	**29**	D	**40**	D	**51**	A	**62**	A
08	B	**19**	D	**30**	D	**41**	A	**52**	C	**63**	C
09	B	**20**	C	**31**	C	**42**	D	**53**	C	**64**	B
10	C	**21**	B	**32**	D	**43**	B	**54**	A, D	**65**	D
11	D	**22**	A	**33**	C	**44**	B	**55**	A	**66**	C

Exam Name

Q. No.	Key	Q. No.	Key	Q. No.	Key	Q. No.	Key	Q. No.	Key	Q. No.	Key
67	D	**78**	A	**89**	D	**100**	A	**111**	C		
68	A	**79**	C	**90**	C	**101**	C	**112**	A		
69	D	**80**	D	**91**	A	**102**	D	**113**	A		
70	C	**81**	A	**92**	C	**103**	C	**114**	C		
71	A	**82**	B	**93**	B	**104**	A	**115**	C		
72	B	**83**	C	**94**	C	**105**	**MTA**	**116**	B		
73	C	**84**	B	**95**	D	**106**	A	**117**	A		
74	A	**85**	B	**96**	C	**107**	D	**118**	D		
75	A	**86**	B	**97**	A	**108**	B	**119**	D		
76	B	**87**	C	**98**	C	**109**	A	**120**	B		
77	D	**88**	A	**99**	A	**110**	D				

Note: **MTA** stands for **Marks To All**.

Question Paper

Question Paper Name :	Scientist B Civil Engineering
Subject Name :	Scientist B Civil Engineering
Creation Date :	2021-09-08 13:20:45
Duration :	120
Total Marks :	120
Display Marks:	Yes
Calculator :	Scientific
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console? (SA type of questions will be always auto saved) :	No

Scientist B Civil Engineering

Group Number :	1
Group Id :	267236129

Group Maximum Duration :	0
Group Minimum Duration :	120
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	120
Is this Group for Examiner? :	No

Scientist B Civil Engineering

Section Id :	267236257
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	120
Number of Questions to be attempted :	120
Section Marks :	120
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Sub-Section Number :	1
Sub-Section Id :	267236375
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 2672369981 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Noise pollution has been inserted as pollution in the Air Act in:

(A) 1981

(B) 1987

(C) 1986

(D) 1974

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 2 Question Id : 2672369982 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The Water (Prevention and Control of Pollution) Act was enacted in the year:

(A) 1981

(B) 1974

(C) 1986

(D) 2000

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 3 Question Id : 2672369983 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

What is the most abundant greenhouse gas in the atmosphere?

(A) Methane

(B) Nitrogen dioxide

(C) Water vapor

(D) Carbon dioxide

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 4 Question Id : 2672369984 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Which of the following is responsible for reducing global CFC production by half?

(A) Copenhagen Protocol

(B) Montreal Protocol

(C) Kyoto Protocol

(D) Convention on Long-Range Transboundary Air Pollution

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 5 Question Id : 2672369985 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

$NO_2 + O_2 \rightarrow 2NO$

$2NO + O_2 \rightarrow 2NO_2$

$NO_2 \rightarrow NO + O$

$O + O_2 \rightarrow O_3$

The above reactions describe the chemical process that forms:

(A) Photochemical smog

(B) Acid precipitation

(C) Ozone

(D) Peroxyacetyl nitrate

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 6 Question Id : 2672369986 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

5th June is observed as

(A) World forest day

(B) World environment day

(C) World wildlife day

(D) World population day

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 7 Question Id : 2672369987 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Which of the following types of electricity generation produces the least amount of greenhouse-gas emissions from cradle to grave?

(A) Nuclear

(B) Natural gas

(C) Biomass

(D) Oil

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 8 Question Id : 2672369988 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

In which of the following ecosystems do tree roots serve as important havens for biodiversity?

(A) Coral reefs

(B) Mangrove forests

(C) Estuaries

(D) Freshwater wetlands

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 9 Question Id : 2672369989 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The total salary of A, B, C is Rs. 444. If they spend 80%, 85%, 75% of their salaries, respectively, their savings are as 7 : 6 : 9. The salary of B is

(A) Rs. 140

(B) Rs. 160

(C) Rs. 144

(D) Rs. 156

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 10 Question Id : 2672369990 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A sum of money invested at compound interest amounts to Rs. 650 at the end of first year and Rs. 676 at the end of second year. The sum of money is:

(A) Rs. 600

(B) Rs. 540

(C) Rs. 625

(D) Rs. 560

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 11 Question Id : 2672369991 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

What is the height of a solid cylinder of radius 5 cm and total surface area is 660 sqcm?

(A) 10 cm

(B) 12 cm

(C) 15 cm

(D) 16 cm

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 12 Question Id : 2672369992 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

In a test paper there are total 10 questions. In how many different ways can you choose 6 questions to answer?

(A) 210

(B) 540

(C) 336

(D) None of these

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 13 Question Id : 2672369993 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A box contains 5 defective and 15 non-defective bulbs. Two bulbs are chosen at random. Find the probability that both the bulbs are non-defective.

(A) 21/38

(B) 3/20

(C) 5/19

(D) None of these

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 14 Question Id : 2672369994 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The average rainfall in the months of January and February is 6 cm and in the months of March to June is 5 cm and July to October is 10 cm and, in the months of November and December, it is 6 cm. The average rainfall for the whole year is:

(A) 7

(B) 5.5

(C) 7.5

(D) None of these

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 15 Question Id : 2672369995 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The average age of all the 100 employees in an office is 29 years, where 2/5 employees are ladies and the ratio of average age of men to women is 5 : 7. The average age of female employees is:

(A) 18 years

(B) 35 years

(C) 25 years

(D) 27 years

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 16 Question Id : 2672369996 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The Narendra Modi Stadium was previously known as

(A) Motera Stadium

(B) Ahmed Patel Stadium

(C) Ahmedabad Stadium

(D) Morar ji Stadium

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 17 Question Id : 2672369997 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Carbon dioxide constitutes about _____ percentage of the air?

(A) 0.03

(B) 0.3

(C) 3

(D) 30

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 18 Question Id : 2672369998 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

When India got independence, the Prime Minister of England was:

(A) Winston Churchill

(B) Clement R. Atlee

(C) Neville Chamberlain

(D) Harold Macmillan

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 19 Question Id : 2672369999 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Gandhiji's Champaran Movement was for:

(A) The security of rights of Harijans

(B) Maintaining the unity of Hindu Society

(C) Civil Disobedience Movement

(D) Solving the problem of the indigo workers

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 20 Question Id : 26723610000 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

India liberated Goa from Portuguese in

(A) 1950

(B) 1965

(C) 1961

(D) 1947

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 21 Question Id : 26723610001 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Who among the following won the highest number of National film awards in acting?

(A) Amitabh Bachhan

(B) Shabana Azmi

(C) Satyajit Ray

(D) Kamal Haasan

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 22 Question Id : 26723610002 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Which among the following is the largest Hindu temple in the world?

(A) Angkorwat (Cambodia)

(B) Akshardham (Delhi)

(C) Belur Math (Howrah)

(D) Brihadeshwar (Jhanjavar)

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 23 Question Id : 26723610003 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Tsunami is the result of?

(A) Shrining of Earth's crust

(B) Submarine Earthquakes

(C) Cyclones

(D) Tides

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 24 Question Id : 26723610004 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The instrument used for recording earthquake wavers is:

(A) Barograph

(B) Hydrograph

(C) Pantograph

(D) Seismograph

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 25 Question Id : 26723610005 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The Tropic of Cancer does not pass through:

(A) Gujarat

(B) Odisha

(C) Tripura

(D) West Bengal

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 26 Question Id : 26723610006 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Water stored in a dam possesses:

(A) No energy

(B) Kinetic energy

(C) Potential energy

(D) Electrical energy

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 27 Question Id : 26723610007 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Which of the following is best conductor of electricity?

(A) Silver

(B) Mercury

(C) Platinum

(D) Copper

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 28 Question Id : 26723610008 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

-40° Fahrenheit is equal to:

(A) -20° centigrade

(B) -40° centigrade

(C) -10° centigrade

(D) -80° centigrade

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 29 Question Id : 26723610009 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A family consists of six members. There is at least one married couple in the family.

I. Venkat is not the husband of Savita.
II. Charan is the brother of Jyothi.
III. Jyothi is not the wife of Ravi.
IV. Sekhar is the grandfather of Charan.
V. Jyothi is Savita's daughter.
VI. Savita's husband is living with her.

If Sekhar has his two children living with him, which of the following pairs can be siblings?

(A) Ravi & Venkat

(B) Sekhar & Ravi

(C) Venkat & Savita

(D) Either A or C

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 30 Question Id : 26723610010 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Seven villages A, B, C, D, E, F and G are situated as follows:
E is 2km to the west of B.
F is 2km to the north of A.
C is 1km to the west of A.
D is 2km to the south of G.
G is 2km to the east of C.
D is exactly in the middle of B and E.

A is in the middle of:

(A) E and C

(B) F and E

(C) F and G

(D) G and C

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 31 Question Id : 26723610011 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The statement given below is followed by two arguments numbered I and II. You have to decide which of the following arguments a "strong" argument is and which a "weak" argument is.

Statement: Should the Government introduce Gross Happiness Index on the lines of that introduced in Bhutan?

Arguments: I. Yes. It will greatly help India in becoming a prosperous nation.
II. No. Bhutan has not gone anywhere even after introducing GHI over four decades ago.

(A) If only argument I is strong

(B) If only argument II is strong

(C) If neither I nor II is strong

(D) If both I and II are strong

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 32 Question Id : 26723610012 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Choose the most appropriate answer

Statement (1): Due to deforestation, the chances of flooding have increased in city X.
Statement (2): City X suffered from disrupted water flow.

(A) I is the cause and II is the effect

(B) II is the cause and I is the effect

(C) Both I and II are independent causes

(D) Both I and II are effects of common causes

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 33 Question Id : 26723610013 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

In the following questions, the first and the last parts of the sentence are numbered 1 and 6. The rest of the sentence is split into four parts and named P, Q, R, and S. These four parts are not given in their proper order. Read the sentence and find out which of the four combinations is correct. Then find the correct answer.

1.A dictionary
P.arranged words
Q.about which information
R.containing alphabetically
S.is a book
6.is given.

(A) RPQS

(B) RPSQ

(C) SRPQ

(D) SPRQ

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 34 Question Id : 26723610014 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Choose the option that exhibits the same analogy.
Artist : Canvas ::

(A) Driver : Car

(B) Pedestrian : Road

(C) Composer : Symphony

(D) Surgeon : Operation

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 35 Question Id : 26723610015 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Choose the alternative which best expresses the meaning of the idiom/.phrase printed in bold type.

To hold somebody to ransom

(A) To keep captive and demand concession

(B) To humiliate somebody

(C) To offer bribe

(D) To blackmail and extract money

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 36 Question Id : 26723610016 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

In following questions, groups of words are given. In each group, one word is correctly spelt. Find the correctly spelt word.

(A) Asassin

(B) Assassin

(C) Assasin

(D) Assassen

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 37 Question Id : 26723610017 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Consider the following properties:

1. Temperature
2. Viscosity
3. Specific entropy
4. Thermal conductivity

Which of the above properties of a system is/are intensive?

(A) 1 only

(B) 2 and 3 only

(C) 2,3 and 4 only

(D) 1, 2, 3 and 4

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 38 Question Id : 26723610018 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Earliest finish of an activity is always

(A) greater than earliest event time of the following node

(B) less than earliest event time of the following node

(C) less than or equal to earliest event time of the following node

(D) greater than or equal to earliest event time of the following node

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 39 Question Id : 26723610019 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Free float is mainly used to

(A) identify the activities which can be delayed without affecting the total float of preceding activity.

(B) identify the activities which can be delayed without affecting the total float of succeeding activity.

(C) establish priorities

(D) identify the activities which can be delayed without affecting the total float of either preceding or succeeding activities.

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 40 Question Id : 26723610020 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A new temperature scale in degrees N is to be defined. The boiling and freezing points of water on this scale are 400° N and 100° N respectively. What will be the reading on new scale corresponding to 60°C?

(A) 120° N

(B) 180° N

(C) 220° N

(D) 280° N

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 41 Question Id : 26723610021 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Rainfall of 20 mm/h intensity occurred over a watershed of 100 ha area for a duration of 6 h. Measured direct runoff volume in the stream draining the watershed was found to be 30,000 m^3. The precipitation not available to runoff in this case is

(A) 9 cm

(B) 3 cm

(C) 17.5 mm

(D) 5 mm

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 42 Question Id : 26723610022 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

An isohyet is a line joining points having

(A) Equal evaporation value

(B) Equal barometric pressure

(C) Equal height above the MSL

(D) Equal rainfall depth in a given duration

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 43 Question Id : 26723610023 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The rainfall on five successive days on a catchment was 2, 6, 9, 5 and 3 cm. If the ψ-index for the storm can be assumed to be 3 cm/day, the total direct runoff from the catchment is

(A) 20 cm

(B) 11 cm

(C) 10 cm

(D) 22 cm

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 44 Question Id : 26723610024 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A hydrograph is a plot of

(A) Rainfall intensity against time

(B) Stream discharge against time

(C) Cumulative rainfall against time

(D) Cumulative runoff against time

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 45 Question Id : 26723610025 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The basic assumptions of the unit-hydrograph theory are

(A) Peak discharge

(B) Rainfall duration

(C) Direct runoff

(D) The time base of direct runoff

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 46 Question Id : 26723610026 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A catchment consists of 30% area with runoff coefficient of 0.4 with remaining 70% area with runoff coefficient of 0.60. The equivalent runoff coefficient of the catchment will be

(A) 0.48

(B) 0.54

(C) 0.63

(D) 0.76

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 47 Question Id : 26723610027 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A flood wave with a known inflow hydrograph is routed through a large uncontrolled reservoir. The outflow hydrograph will have

(A) Attenuated peak with reduced time base

(B) Attenuated peak with increase time base

(C) Increased peak with increased time base

(D) Increased peak with reduced time base

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 48 Question Id : 26723610028 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The van der Waals equation:

1. The mass of each molecule of the gas
2. The volume of each molecule of the gas
3. The attractive forces between molecules of the gas

(A) 1 and 3 only

(B) 2 and 3 only

(C) 1 and 2 only

(D) 1, 2 and 3 only

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 49 Question Id : 26723610029 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Water is considered unfit for drinking if total hardness is more than 0.004 $CaCO_3$ equivalents per 1 litre. A 100ml sample is tested for total hardness by Complexometric Titration method. 30ml of 0.02M EDTA is used to achieve end point. How much distilled water must be added per 1 litre of sample to make it fit for consumption?

(A) 0.33 litres

(B) 0.5 litres

(C) 2 litres

(D) Already fit

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 50 Question Id : 26723610030 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Refraction correction

(A) Completely eliminates curvature correction

(B) partially eliminates curvature correction

(C) adds to the curvature correction

(D) has no effect on curvature correction

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 51 Question Id : 26723610031 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Match list-1 with list-2 and choose the correct answer from code given bellow

List-1 (Air Pollutant)	**List -2 (Sources/ Activity)**
(a) Carbon monoxide	1. Coal burning
(b) Nitrogen Oxide	2. Cigarette smoking
(c) Sulphur dioxide with VOCs	3. Chemical reaction
(d) Ozone	4. Power and industrial Plant

Codes:

(A)

(a)	(b)	(c)	(d)
2	4	1	3

(B)

(a)	(b)	(c)	(d)
1	2	3	4

(C)

(a)	(b)	(c)	(d)
3	1	4	2

(D)

(a)	(b)	(c)	(d)
4	3	2	1

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 52 Question Id : 26723610032 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

For a constant value of coefficient of lateral friction, the value of required super elevation increases with

(A) increase with both speed and radius of curve

(B) decrease with both speed and radius of curve

(C) increase in speed and with decrease in radius of curve

(D) decrease in speed and with increase in radius of curve

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 53 Question Id : 26723610033 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

With increase in speed of the traffic stream, the maximum capacity of the lane

(A) increase

(B) decrease

(C) first increase and then decreases after reaching a maximum value at optimum speed

(D) first decrease and then increases after reaching a minimum value at optimum speed.

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 54 Question Id : 26723610034 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The Environmental lapse rate during day time is governed by
(i) Wind speed (ii) Sunlight
(iii) Topographical Feature (iv) Cloud cover
The correct answer is

(A) (i) and (ii) only

(B) (ii) and (iii) only

(C) (i) and (iv) only

(D) (i) and (ii) only

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 55 Question Id : 26723610035 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Sequence of a typical sewage treatment plant operation processes will be

(A) Aeration > Flocculation >Sedimentation > Recarbonation > Filtration> Disinfection

(B) Aeration > Sedimentation > Flocculation > Filtration> Recarbonation > Disinfection

(C) Flocculation >Aeration > Recarbonation >Sedimentation > Filtration> Disinfection

(D) Sedimentation > Flocculation > Aeration > Filtration> Recarbonation > Disinfection

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 56 Question Id : 26723610036 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

5 days standard BOD is approximately x% of total BOD were x is about

(A) 58 %

(B) 68%

(C) 78%

(D) 88%

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 57 Question Id : 26723610037 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Which of the pairs of terms used in groundwater hydrology are not synonymous?

(A) Permeability and hydraulic conductivity

(B) Storage coefficient and storativity

(C) Actual velocity of flow and discharge velocity

(D) Water table aquifer and unconfined aquifer

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 58 Question Id : 26723610038 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Match List I and List II and select the correct answer:

List I		List II	
A	Reynolds number	1	Film coefficient, pipe diameter, thermal conductivity
B	Prandtl number	2	Flow velocity, acoustic velocity
C	Nusselt number	3	Heat capacity, dynamic viscosity, thermal conductivity
D	Mach number	4	Flow velocity, pipe diameter, kinematic viscosity

(A) A-4, B-1, C-3, D-2

(B) A-4, B-3, C-1, D-2

(C) A-2, B-3, C-1, D-4

(D) A-2, B-1, C-3, D-4

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 59 Question Id : 26723610039 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

When the axis of load lies in the plane of rivet group, then the rivets are subjected to

(A) only shear stresses

(B) only tensile stresses

(C) both (a) and (b)

(D) none of the above

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 60 Question Id : 26723610040 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A stream with a flow of 0.2 m^3/sec and a chloride concentration of 50 mg/L receives a discharge of mine drainage water with a flow of 0.05 m^3/sec and chloride concentration of 1500 mg/L. The downstream concentration of chloride is:

(A) 340 mg/L

(B) 180 mg/L

(C) 314 mg/L

(D) 95 mg/L

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 61 Question Id : 26723610041 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Number of seismic zones in which the country has been divided are

(A) 3

(B) 5

(C) 6

(D) 7

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 62 Question Id : 26723610042 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Assume the dilution factor *p* for an unseeded mixture of waste and water is 0.03. The DO of the mixture is initially 9.0 mg/L and after 5 days, it has dropped to 3.0 mg/L. The reaction rate constant 'K' has been found to be 0.22/day. Find the value of BOD_5.

(A) 200 mg/L

(B) 180 mg/L

(C) 270 mg/L

(D) 110 mg/L

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 63 Question Id : 26723610043 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A wastewater treatment plant treats 50,000 m^3 wastewater generated per day. For an average flow rate of 25 $m^3/day/m^2$, what should be the diameter of the circular primary settling tank?

(A) 100.8 m

(B) 125.2 m

(C) 50.4 m

(D) 80.7 m

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 64 Question Id : 26723610044 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Term of reference is fixed at which stage of EIA processes?

(A) Screening stage

(B) Scoping stage

(C) Detailed EIA stage

(D) Project appraisal

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 65 Question Id : 26723610045 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The water for domestic consumption should have a pH between 6.5 to 8.5. Given a 1 litre sample of water with pH 6 obtained from a natural Himalayan spring, neutral water is added to it to make it fit for consumption. What amount of neutral water is required to make the sample fit?

(A) Already fit

(B) 0.5 litre

(C) 1 litre

(D) 10 litres

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 66 Question Id : 26723610046 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

In a pipe network

(A) the algebraic sum of discharges around each elementary circuit must be zero

(B) the head at each node must be the same

(C) the algebraic sum of the piezometric head drops around each elementary circuit is zero.

(D) the piezometric head loss in each line of a circuit is the same

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 67 Question Id : 26723610047 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Bernouli equation is applicable between any two points

(A) in any rotational flow of an incompressible fluid

(B) in any type of ir-rotational flow of fluid

(C) in steady rotational flow of an incompressible

(D) in steady, irrotational flow of an incompressible fluid

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 68 Question Id : 26723610048 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

When subjected to shear force, a fluid

(A) deforms continuously no matter how small the shear stress may be

(B) deforms continuously only for large shear forces

(C) undergoes static deformation

(D) deforms continuously only for small shear stresses

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 69 Question Id : 26723610049 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

For a hydraulic efficient rectangular channel of bed width 4.0 m, the depth of flow is

(A) 4.0 m

(B) 8.0 m

(C) 1.0 m

(D) 2.0 m

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 70 Question Id : 26723610050 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

If two pumps identical in all respects and each capable of delivering a discharge Q against a head H are connected in series, the resulting discharge is

(A) 2Q against a head 2H

(B) 2Q against a head H

(C) **Q against a head 2H**

(D) √Q against a head √2H

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 71 Question Id : 26723610051 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Crippling load for a column having one end fixed and another end hinged is expressed as:

(A) $P = \frac{2\Pi^2 EI}{l^2}$

(B) $P = \frac{\Pi^2 EI}{l^2}$

(C) $P = \frac{\Pi^2 EI}{4l^2}$

(D) $P = \frac{4\Pi^2 EI}{l^2}$

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 72 Question Id : 26723610052 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Slenderness ratio of the column is expressed as:

(A) effective length/maximum radius of

(B) effective length/least radius of gyration

(C) least radius of gyration/ effective length

(D) maximum radius of gyration/ effective length

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 73 Question Id : 26723610053 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Hoop stress in a thin cylinder is expressed as:

(A) pd/(8t)

(B) pd/(4t)

(C) pd/(2t)

(D) pd/t

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 74 Question Id : 26723610054 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Strain energy stored by the spring is given by the expression as:

(A) $32\frac{W^2R^3n}{Cd^4}$

(B) $16\frac{W^2R^3n}{Cd^4}$

(C) $64\frac{WR^3n}{Cd^4}$

(D) $16\frac{WR^3n}{Cd^4}$

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 75 Question Id : 26723610055 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Poisson's ratio is given by:

(A) $= \frac{3K - 2C}{6K + 2C}$

(B) $= \frac{6K - 2C}{6K + 2C}$

(C) $= \frac{3K - 2C}{3K + 2C}$

(D) $= \frac{K - C}{6K + 2C}$

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 76 Question Id : 26723610056 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Which of the following statement(s) is/are correct:

(i) maximum hourly consumption of the maximum day is called peak demand
(ii) the peak demand depends on the pressure in the distribution system
(iii) peak factor tends to reduce with the increasing population

(A) only (i)

(B) both (i) and (iii)

(C) both (ii) and (iii)

(D) all of the above

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 77 Question Id : 26723610057 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The distribution system in water supplies, is designed on the basis of

(A) average daily demand

(B) peak hourly demand

(C) coincident draft

(D) greater of B and C

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 78 Question Id : 26723610058 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Ground water is generally free from

(A) suspended impurities

(B) dissolved impurities

(C) metal ions

(D) none of the above

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 79 Question Id : 26723610059 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A ranney well, largely used for tapping ground water for public supplies, receives ground water from

(A) its bottom

(B) its vertical permeable sides

(C) radial horizontal collectors

(D) none of these

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 80 Question Id : 26723610060 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

109. Turbidity of water is measured as
(i) NTU
(ii) JTU
(iii) FTU

(A) only (i)

(B) only (ii)

(C) (i) and (ii)

(D) all the three

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 81 Question Id : 26723610061 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

While designing sewers, the flow velocity at full design depth, is generally kept at about

(A) 1.0 m/sec

(B) 0.5 m/sec

(C) 1.5 m/sec

(D) none of these

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 82 Question Id : 26723610062 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Eutrophication of water bodies is caused by

(i) Excessive discharge of chlorides
(ii) Excessive discharge of nutrients
(iii) Excessive discharge of suspended solids

The correct answer is

(A) only (i)

(B) only (ii)

(C) both (i) and (ii)

(D) all of the above

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 83 Question Id : 26723610063 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The percentage of water in sewage is

(A) 90%

(B) 99%

(C) 99.9%

(D) 95% – 99%

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 84 Question Id : 26723610064 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A given sludge with 99% moisture is x times more bulky than with 98% moisture where x is

(A) 99/98

(B) 2

(C) 1 + 98/99

(D) 1 + 99/98

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 85 Question Id : 26723610065 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The sewage treatment units which work on the aerobic decomposition of organic matter is

(A) Sludge digestion tank

(B) Rotating biological contactors

(C) Imhoff tank

(D) none of the above

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 86 Question Id : 26723610066 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The usual adopted range of sludge volume index (SVI) is

(A) 0 – 50 ml/gm

(B) 50 - 150 ml/gm

(C) 150 – 300 ml/gm

(D) 25 – 60 ml/gm

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 87 Question Id : 26723610067 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The sewage treatment units which work on the anaerobic decomposition of organic matter is

(A) activated sludge units

(B) oxidation ponds

(C) Imhoff tanks

(D) none of the above

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 88 Question Id : 26723610068 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A sheet of paper moistened with lead acetate is inserted inside a sewer and is kept there for 4 – 6 minutes. After that sheet of paper is taken out. It has been found that sheet of paper has turned black. It indicates the presence of which of the gas inside the sewer.

(A) hydrogen sulphide

(B) sulphur dioxide

(C) carbon dioxide

(D) all of the above

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 89 Question Id : 26723610069 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The stress strain curve for brittle material does not have

(A) elastic limit

(B) yield point

(C) rupture strength

(D) Both A and B

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 90 Question Id : 26723610070 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The relation between poisons ratio (v), modulus of elasticity (E) and bulk modulus (k)

(A) $E = 2k(2 - v)$

(B) $E = 3k(1 - v)$

(C) $E = 3k(1 - 2v)$

(D) $E = 3k(1 - 3v)$

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 91 Question Id : 26723610071 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A beam of length (*l* + 2a)m has supports '*l*'m apart with equal overhang of length '*a*' meter on both sides, and carries a concentrated load W at each free end, the maximum bending moment produced in beam is equal to

(A) *wa* and hogging through out

(B) *wa* and sagging through out

(C) *wa/2* and sagging through out

(D) $wa^2/2$and hogging through out

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 92 Question Id : 26723610072 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

In a beam cross section the bending stress is zero at

(A) top fibre

(B) bottom fibre

(C) neutral axis

(D) none of these

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 93 Question Id : 26723610073 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

In the method of section's used for analysis of trusses the section taken should not pass more than

(A) 2 member

(B) 3 member

(C) 4 member

(D) 5 member

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 94 Question Id : 26723610074 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

When a uniformly distributed load longer than the span moves from left to right then maximum bending moment at a section occurs when

(A) head of load is at the section

(B) tail of the load is at the section

(C) whole span is loaded

(D) none of the above

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 95 Question Id : 26723610075 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A three hinged parabolic arch has a span of 30 m and a rise of 4 m. A single wheel load of 30 kN moves across the span from left to right. The absolutely maximum positive bending moment is given by

(A) 60.15 kNm

(B) 75.26 kNm

(C) 79.72 kNm

(D) 86.40 kNm

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 96 Question Id : 26723610076 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Base failure of a finite slope

(A) occurs when soil below the level of toe is strong

(B) occurs when there is a relatively weak zone in upper part of the slope

(C) occurs when soil below the toe is relatively soft and weak

(D) is a most common failure

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 97 Question Id : 26723610077 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

In a 'CU' test on loose sand, the sample volume during shear

(A) reduces due to elastic compression

(B) increases

(C) remains unchanged

(D) cannot be stated

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 98 Question Id : 26723610078 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

If the uniformity coefficient $C_u = 3$ and coefficient of curvature $C_c = 1.33$ for a soil then D_{30}/D_{10} for the soil is

(A) 4

(B) ¼

(C) 2

(D) ½

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 99 Question Id : 26723610079 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

At liquid limit, all soils possess

(A) same shear strength of small magnitude

(B) same shear strength of larger magnitude

(C) different shear strength of small magnitude

(D) shear strength of zero

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 100 Question Id : 26723610080 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Fine sand has

(A) no plasticity at all

(B) limited plasticity

(C) reasonable plasticity

(D) good plasticity

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 101 Question Id : 26723610081 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

An undisturbed soil sample has a plastic limit 25%, a natural moisture content of 50% and liquidity index of 50%. Its liquidity limit is

(A) 25%

(B) 50%

(C) 75%

(D) 100%

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 102 Question Id : 26723610082 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The ratio of submerged unit weight of a soil to its dry unit weight having specific gravity G = 3.0 is

(A) 1.0

(B) 0.33

(C) 2.0

(D) 0.67

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 103 Question Id : 26723610083 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Effective stress on soil

(A) increases voids ratio and decreases permeability

(B) increases both voids ratio and permeability

(C) decrease both voids ratio and permeability

(D) decrease voids ratio and increases permeability

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 104 Question Id : 26723610084 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A material has Young's Modulus 1.25×10^5 N/mm^2 and Poisson's ratio of 0.25. The modulus of rigidity and bulk modulus will be:

(A) 5×10^4 N/mm^2 and 8.3×10^4 N/mm^2

(B) 5×10^5 N/mm^2 and 8.3×10^5 N/mm^2

(C) 15×10^4 N/mm^2 and 8.3×10^4 N/mm^2

(D) 15×10^5 N/mm^2 and 8.3×10^5 N/mm^2

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 105 Question Id : 26723610085 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A solid shaft of 200 mm diameter has the same cross-sectional area as that of hollow shaft of the same material with inside diameter of 150 mm. The ratio of the power transmitted by the two shafts at the same speed will

(A) 1:1

(B) 1:2

(C) 1:5

(D) 1:7

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 106 Question Id : 26723610086 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Coefficient of consolidation for clays normally

(A) decreases with increase in liquid limit

(B) increases with increase in liquid limit

(C) remains constant at all liquid limits

(D) none of the above

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 107 Question Id : 26723610087 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The ratio of crippling load for a column of length l with both ends fixed to the crippling load of the same column with one end fixed and the other end free will be

(A) 2

(B) 4

(C) 8

(D) 16

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 108 Question Id : 26723610088 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A simply supported beam is overhanging equally on both sides and carries a uniformly distributed load. The length between the supports is more than the sum of overhanging lengths. The number of points of contra-flexure will be:

(A) 1

(B) 2

(C) 3

(D) zero

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 109 Question Id : 26723610089 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A beam of triangular cross-section is subjected to a shear force of 50 kN. The base width of the section is 250 mm and height 200 mm. The beam is placed with its base horizontal. The maximum shear stress will be in N/mm^2:

(A) 3

(B) 2.67

(C) 2

(D) 1

Options :

1. ✔ A
2. ✖ B
3. ✖ C
4. ✖ D

Question Number : 110 Question Id : 26723610090 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

At critical depth,

(A) the discharge is minimum for a given specific energy

(B) the discharge is maximum for a given specific force

(C) the discharge is minimum for a given specific force

(D) The discharge is maximum for a given specific energy

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 111 Question Id : 26723610091 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

A ball M of mass 1 kg moving with velocity 2 m/s, strikes to a ball P of mass 2 kg at rest. The ball M after striking comes to rest. The coefficient of restitution will be:

(A) 0.8

(B) 0.75

(C) 0.5

(D) 0.25

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 112 Question Id : 26723610092 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The centre of gravity of semi-circle of radius R from its base will be at

(A) 4R/3Π

(B) 3R/4Π

(C) 4Π/3 R

(D) 3Π/4R

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 113 Question Id : 26723610093 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

According to IS : 456-1978, the modulus of elasticity of concrete Ec (in N/mm2) can be taken as

(A) $Ec = 5700 \sqrt{(fck)}$

(B) $Ec = 570 \sqrt{(fck)}$

(C) $Ec = 5700\ fck$

(D) $Ec = 700 \sqrt{(fck)}$

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 114 Question Id : 26723610094 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Residual chlorine in water can be determined by

(A) orthotolidine test

(B) starch iodide test

(C) (a) and (b)

(D) none of these

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 115 Question Id : 26723610095 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

In the design of water supply conduits, the smaller value of the design velocity, if adopted will

(A) increase the cost of the pipe

(B) reduce the cost of pumping

(C) both of the above

(D) none of the above

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 116 Question Id : 26723610096 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The velocity of flow in a sedimentation tank is generally kept at

(A) 0.3 m/sec

(B) 0.3 m/minute

(C) 0.3 m/hr

(D) 0.3 m/day

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 117 Question Id : 26723610097 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

The rate of filtration in slow sand filters is between

(A) 25 – 60 million litres/day/hectare

(B) 100 – 170 million litres/day/hectare

(C) 120 – 15 million litres/day/hectare

(D) more than 200 million litres/day/hectare

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 118 Question Id : 26723610098 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Slow sand filters can remove bacteria upto

(A) 90 – 92%

(B) 92 – 95%

(C) 95 – 97%

(D) 97 – 99%

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 119 Question Id : 26723610099 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Methods used for softening water containing permanent hardness are

(A) lime soda process

(B) zeolite process

(C) reverse osmosis

(D) all the three

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D

Question Number : 120 Question Id : 26723610100 Is Question Mandatory : No

Correct Marks : 1 Wrong Marks : 0.25

Sludge bulking indicates presence of

(A) satisfactory conditions in the activated sludge treatment

(B) unsatisfactory conditions in the activated sludge treatment

(C) bacteria in the primary sludge tank

(D) silt in the detritus tank

Options :

1. ✔ A

2. ✖ B

3. ✖ C

4. ✖ D