Section : General Intelligence and Reasoning

Q.1 Which of the following option figures will complete the pattern in the figure given below?

Ans   1.

✘

2.

✔

3.

✘

4.

✘

Q.2 Which of the following terms will replace the question mark (?) in the given series?
VURS, POLM, JIFG, DCZA, ?

Ans ✔ 1. XWTU

✘ 2. WYUT

✘ 3. XYTU

✘ 4. WXTU

Q.3 Select the option that is related to the third term in the same way as the second term is related to the first term and the sixth term is related to the fifth term.
149 : 68 :: 179 : ? :: 187 : 106

Ans ✔ 1. 98

✘ 2. 99

✘ 3. 89

✘ 4. 88

Q.4 Seven students R, S, T, U, V, W and X, each scored different marks in a test. V scored more than W but less than U. X scored more than S but less than R. T scored more than U but less than S. Who scored the least marks among all?

Ans ✘ 1. V

✘ 2. U

✘ 3. T

✔ 4. W

Q.5 Pointing towards a person in a photograph, a man, Sunil, said, "He is the son of my brother's wife's father-in law." If the photograph is not of Sunil himself, how is the person in the photograph related to Sunil?

Ans ✗ 1. Sister's son

✓ 2. Brother

✗ 3. Father

✗ 4. Son

Q.6 If A denotes '+', B denotes '×', C denotes '−', and D denotes '÷', then what will come in place of '?' in the following equation?
(189 A 7) ? (12 A 2) = 14

Ans ✗ 1. A

✗ 2. B

✗ 3. C

✓ 4. D

Q.7 Select the option figure which is embedded in the given figure as its part (rotation is NOT allowed).
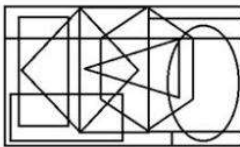
Ans 1. ✗

2. ✗

3. ✓

4. ✗

Q.8 Three statements are given followed by three conclusions numbered I, II and III. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:
Some tears are drops.
Some drops are streams.
All streams are rivers.

Conclusions:
I. All tears can never be rivers.
II. Some drops are rivers.
III. All tears being streams is a possibility.

Ans ✓ 1. Both II and III follow

✗ 2. Both I and II follow

✗ 3. Only III follows

✗ 4. Only I follows

Q.9 Select the option that represents the letters that, when placed from left to right in the blanks below, will complete the letter series.

X _ V U T _ W _ U T _ W V _ T X _ V U _

Ans ✓ 1. W X V X U W T

✗ 2. W V X W T V U

✗ 3. X W U X W T V

✗ 4. V W X U X T X

Q.10 If '+' means '÷', '−' means '+', '×' means '−', and '÷' means '×', then what will be the value of the following expression?

[{(22 × 15) - (1 ÷ 9)} + (2 - 2)] ÷ 2

Ans   ✗ 1. 6

     ✔ 2. 8

     ✗ 3. 12

     ✗ 4. 10

Q.11 If

'M = N' means 'M is the father of N',
'M # N' means 'M is the sister's son of N',
'M × N' means 'M is the husband of N',
'M & N' means 'M is the sister of N',
'M $ N' means 'M is the wife of N', and
'M @ N' means 'M is the brother of N',
then how is A related to C in the following expression?

A # L = K & P @ C = B

Ans   ✗ 1. Father's sister

     ✔ 2. Father's sister's son

     ✗ 3. Sister

     ✗ 4. Brother

Q.12 Select the option figure that will replace the question mark (?) in the figure given below to complete the pattern.
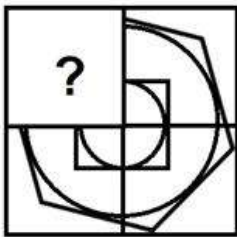
Ans   1. ✗

     2. ✗

     3. ✗

     4. ✔

Q.13 Select the correct option that indicates the arrangement of the following words in a logical and meaningful order.

1. Ocean
2. River
3. Pond
4. Sea
5. Lake

Ans   ✗ 1. 1, 4, 2, 3, 5

     ✗ 2. 1, 2, 5, 4, 3

     ✔ 3. 1, 4, 2, 5, 3

     ✗ 4. 1, 2, 3, 5, 4

Q.14 If A denotes '×', B denotes '+', C denotes '−' and D denotes '÷', then what will be the value of the following equation?
10 A 660 D 11 B 50 C 50

Ans ✓ 1. 600

✗ 2. 598

✗ 3. 606

✗ 4. 602

Q.15 Select the option that is related to the third word in the same way as the second word is related to the first word. (The words must be considered as meaningful English words and must not be related to each other based on the number of letters/number of consonants/vowels in the word)

Needle : Sew :: Auger : ?

Ans ✗ 1. Carve

✗ 2. Scoop

✗ 3. Grind

✓ 4. Bore

Q.16 Two statements are given followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.

Statements:
All men are old.
All women are old.

Conclusions:
I. All men are women.
II. All old are either men or women.

Ans ✗ 1. Only conclusion I follows

✗ 2. Both conclusions I and II follow

✓ 3. Neither conclusion I nor II follows

✗ 4. Only conclusion II follows

Q.17 Oliver departs from his office and walks 20 m towards north. He then turns left and walks 50 m. He turns left again and walks 40 m. He then turns right and walks 10 m. How far is he from a pole which is exactly 60 m west of his office? (Assuming that all turns are 90 degree turns only.)

Ans ✗ 1. 30 m

✓ 2. 20 m

✗ 3. 40 m

✗ 4. 15 m

Q.18 Select the option that represents the correct order of the given words as they would appear in an English dictionary.
1. Justice
2. Journal
3. Jurisdiction
4. Judgement
5. Journey

Ans ✗ 1. 1, 3, 2, 4, 5

✗ 2. 1, 2, 3, 4, 5

✗ 3. 2, 4, 5, 3, 1

✓ 4. 2, 5, 4, 3, 1

Q.19 In a certain code language, 'NEWLY' is coded as MFZKZ and 'PAINT' is coded as OBLMU. How will 'TWICE' be coded in that language?

Ans ✗ 1. SXLBG

✗ 2. RXLBF

✓ 3. SXLBF

✗ 4. SYLBG

Q.20 Select the option that is related to the third word in the same way as the second word is related to the first word. (The words must be considered as meaningful English words and must not be related to each other based on the number of letters/number of consonants/vowels in the word)
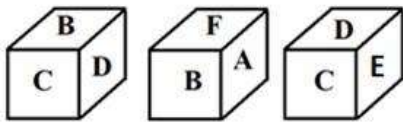
Length : Height :: Breadth : ?

Ans ✗ 1. Volume

✗ 2. Dimension

✗ 3. Weight

✔ 4. Width

Q.21 In a certain code language, 'SEASON' is coded as '73', and 'SUMMER' is coded as '89'. How will 'SPRING' be coded in that language?

Ans ✗ 1. 86

✔ 2. 83

✗ 3. 99

✗ 4. 105

Q.22 Three positions of the same dice are given. What will be the letter on the face opposite to the face having letter A?

Ans ✗ 1. F

✗ 2. E

✗ 3. D

✔ 4. C

Q.23 Select the option that represents the correct order of the given words as they would appear in an English dictionary.
1. Immature
2. Immune
3. Immeasurable
4. Immerse
5. Immediate

Ans ✗ 1. 1, 3, 4, 5, 2

✗ 2. 1, 3, 5, 2, 4

✗ 3. 1, 5, 3, 4, 2

✔ 4. 1, 3, 5, 4, 2

Q.24 In a college debate, six friends are divided into 2 equal teams (A and B). The friends are Savita, Kavita, Namita, Diya, Piya, and Riya. They compete with each other and are sitting in two rows, facing each other. We also know that Piya is not at the end of any rows. Kavita is the neighbour of Riya. Diya is second to the left of Riya and is not a part of the winning team. Namita, a member of team A is sitting diagonally opposite Diya. Who are the members of team B?

Ans ✗ 1. Diya, Piya and Riya

✔ 2. Kavita, Diya and Riya

✗ 3. Kavita, Piya and Riya

✗ 4. Kavita, Diya and Piya

Q.25 Select the option that represents the letters that, when placed from left to right in the blanks below, will complete the letter series.

_ G F F G _ F F F G _ G F F F F _ G G G

Ans ✗ 1. F G F G

✗ 2. F F G G

✔ 3. F G G G

✗ 4. F G G F

Q.26 In a code language, 'CHEAT' is written as AFGCR and 'BROKE' is written as ZPQIG. How will 'TREAT' be written in the same language?

Ans ✔ 1. RPGCR

✘ 2. OPGCR

✘ 3. OPHDR

✘ 4. RPHDR

Q.27 Select the option that is related to the third term in the same way as the second term is related to the first term and the sixth term is related to the fifth term.
102 : 9 :: 80 : ? :: 146 : 13

Ans ✘ 1. 11

✘ 2. 10

✘ 3. 9

✔ 4. 7

Q.28 Which of the following numbers will replace the question mark (?) in the given series?
485, 528, 577, ?, 677

Ans ✘ 1. 598

✘ 2. 645

✔ 3. 624

✘ 4. 621

Q.29 Select the option that represents the letters that, when sequentially placed from left to right in the blanks below, will complete the letter series.
S _ _ J K _ H F _ K S H _ J _ S H _ _ K

Ans ✘ 1. H F S F J K F J

✘ 2. H F S K J F F J

✔ 3. H F S J F K F J

✘ 4. H F S F J F K J

Q.30 Select the correct mirror image of the given figure when the mirror is placed at MN as shown below.

M
Yhr46d|
N

Ans ✔ 1. bᴐ4ɿʜY

✘ 2. dᴐ4ɿʜY

✘ 3. pe4ɿʜ⅄

✘ 4. b64ɿhY

Q.31 Select the option that is related to the third word in the same way as the second word is related to the first word. (The words must be considered as meaningful English words and must not be related to each other based on the number of letters/number of consonants/vowels in the word)

Sheep : Lamb : : Deer : ?

Ans ✘ 1. Colt

✔ 2. Fawn

✘ 3. Child

✘ 4. Cygnet

Q.32 Select the option that represents the letters that, when sequentially placed from left to right in the blanks below, will complete the letter series.
Q _ _ U O _ E T _ O Q E _ U _ Q E _ _ O

Ans ✘ 1. E T Q T U O T U

✘ 2. E T Q U T T O U

✔ 3. E T Q U T O T U

✘ 4. E T Q U T Q T U

Q.33 Seven people, A, B, C, D, E, F and G, are sitting in a straight row, facing north (not necessarily in the same order). Only 1 person sits to the left of D. A is an immediate neighbour of D. Only 2 people sit between F and D. Only 3 people sit between C and G. B is not an immediate neighbour of G. Only 2 people sit between E and A.

Who sits to the immediate left of F?

Ans ✓ 1. E

✗ 2. G

✗ 3. A

✗ 4. C

Q.34 A paper is folded and cut as shown below. How will it appear when unfolded?
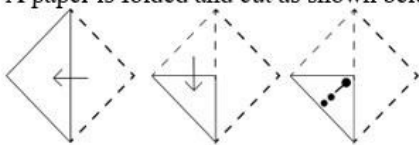
Ans 1.

✗

2.

✓

3.

✗

4.

✗

Q.35 Arrange the following words in a logical and meaningful order.
1. Dessert
2. Salad
3. Main course
4. Soup
5. Appetizer

Ans ✗ 1. 1, 3, 5, 2, 4

✗ 2. 1, 5, 3, 2, 4

✗ 3. 4, 2, 3, 5, 1

✓ 4. 4, 5, 2, 3, 1

Q.36 Select the word-pair in which the two words are related in the same way as are the two words in the given pair.
(The words must be considered as meaningful English words and must not be related to each other based on the number of letters/number of consonants/vowels in the word.)
Argentina : Peso

Ans ✗ 1. Russia : Baht

✗ 2. Bangladesh : Schilling

✓ 3. Japan : Yen

✗ 4. Nepal : Kyat

Q.37 How many triangles are there in the given figure?
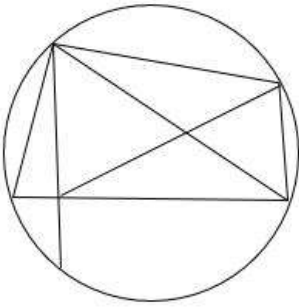
Ans   ✗ 1. 9

     ✗ 2. 12

     ✓ 3. 10

     ✗ 4. 11

Q.38 Select the option in which the given figure is embedded (rotation is NOT allowed).

Ans   1.

     ✗

     2.

     ✓

     3.

     ✗

     4.

     ✗

Q.39 Amit moves 20 m east. Then, turning to his left he moves 10 m. Then he turns right and walks 20 m. Then he moves 10 m after turning to his right. Finally, he turns towards his left and covered a distance of 20 m and reached his office. How far is he from his home?

Ans   ✗ 1. 65 m

     ✗ 2. 68 m

     ✗ 3. 62 m

     ✓ 4. 60 m

Q.40 Which of the following numbers will replace the question mark (?) in the given series?

43, ?, 34, 61, 25, 70

Ans   ✓ 1. 52

     ✗ 2. 51

     ✗ 3. 47

     ✗ 4. 49

Q.41 Select the pair that follows the same pattern as that followed by the given two sets of pairs. Both pairs follow the same pattern.
JIG : TSQ
POM : ZYW

Ans   ✅ 1. CBZ: MLJ

     ❌ 2. ABD : IJG

     ❌ 3. LJH: OPQ

     ❌ 4. DEB: FED

Q.42 In a certain code language, 'INDIA' is written as '103' and 'ARAB' is written as '90'. How will 'AFRICA' be written in that language?

Ans   ❌ 1. 112

     ✅ 2. 130

     ❌ 3. 124

     ❌ 4. 104

Q.43 Select the option that is related to the third word in the same way as the second word is related to the first word (The words must be considered as meaningful English words and must not be related to each other based on the number of letters/consonants/vowels in the word).

Open : Secretive :: Forthright : _____

Ans   ❌ 1. Angry

     ❌ 2. Happy

     ❌ 3. Emotional

     ✅ 4. Taciturn

Q.44 Which of the following numbers will replace the question marks (?) in the given series?
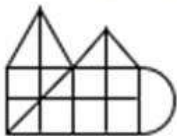243, 162, 108, ?, 48, 32

Ans   ❌ 1. 76

     ❌ 2. 84

     ❌ 3. 98

     ✅ 4. 72

Q.45 Select the option that is embedded in the given figure (rotation is NOT allowed).

Ans   ✅ 1.

     ❌ 2.

     ❌ 3.

     ❌ 4.
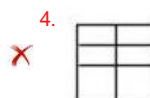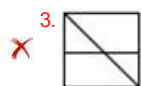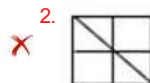
Q.46 Select the option that is related to the fifth term in the same way as the second term is related to the first term and the fourth term is related to the third term.
22 : 369 :: 31 : 522 :: 17 : ?

Ans   ❌ 1. 274

     ✅ 2. 284

     ❌ 3. 277

     ❌ 4. 281

Q.47 Select the option that is related to the fourth term in the same way as the first term is related to the second term and the fifth term is related to the sixth term.

91 : 42 :: ? : 54 :: 65 : 30

Ans ✗ 1. 127

✗ 2. 104

✗ 3. 107

✔ 4. 117

Q.48 Select the option that is related to the fourth term in the same way as the first term is related to the second term and the fifth term is related to the sixth term?

36 : 2 :: ? : 5 :: 81 : 3

Ans ✗ 1. 400

✔ 2. 225

✗ 3. 125

✗ 4. 100

Q.49 Select the figure from the options that can replace the question mark (?) and complete the given pattern.

Ans 1.
✗

2.
✗

3.
✔

4.
✗

Q.50 If '÷' means '−', '+' means '×', '−' means '÷', 'x' means '+', then choose the correct equation from the following.

Ans ✗ 1. 12 × 20 ÷ 12 + 7 - 2 = 34

✗ 2. 12 × 20 + 12 ÷ 7 - 2 = 34

✔ 3. 12 ÷ 20 × 12 + 7 - 2 = 34

✗ 4. 12 ÷ 20 × 12 - 7 + 2 = 34

Section : General Awareness

Q.1 Which of the following Articles of the Constitution of India grants protection to persons who are arrested or detained under a preventive detention law?

Ans ✗ 1. Article 26

✔ 2. Article 22

✗ 3. Article 25

✗ 4. Article 19

Q.2 The famous 'Hinglaj Mata' temple is situated in which of the following neighbouring countries of India?

Ans ✗ 1. Maldives

✗ 2. Afghanistan

✗ 3. China

✔ 4. Pakistan

Q.3 Who stated that the elements' properties are a periodic function of their atomic weights?

Ans ✗ 1. Gregor Mendel

✗ 2. Archimedes

✓ 3. Dmitri Mendeleev

✗ 4. Henry Moseley

Q.4 Which of the following Articles of the constitution entails the fundamental duty - to uphold and protect the sovereignty, unity and integrity of India?

Ans ✗ 1. Article 51A(e)

✗ 2. Article 51A(d)

✓ 3. Article 51A(c)

✗ 4. Article 51A(f)

Q.5 Who founded the Indian League in 1875?

Ans ✗ 1. SN Banerjee

✗ 2. Anand Mohan Bose

✓ 3. Sishir Kumar Ghosh

✗ 4. Dada Bhai Naoroji

Q.6 The Bengal Famine took a huge toll of life and was called as tragedy in unpreparedness. In which year did it occur?

Ans ✗ 1. 1860

✗ 2. 1868

✗ 3. 1876

✓ 4. 1943

Q.7 What was the extent of poverty line suggested by the National Planning Committee in 1938 on the basis of minimum standard of living?

Ans ✗ 1. ₹20-25 per capita per month

✓ 2. ₹15-20 per capita per month

✗ 3. ₹30-35 per capita per month

✗ 4. ₹10-15 per capita per month

Q.8 Identify the group of fibre crops, which are produced in India on a large scale?

Ans ✓ 1. Jute and cotton

✗ 2. Tea and coffee

✗ 3. Wheat and rice

✗ 4. Gram and tur

Q.9 The venue of the 1948 Olympic Games was _____ .

Ans ✗ 1. Melbourne

✗ 2. Rome

✗ 3. Athens

✓ 4. London

Q.10 In Bihar, which of the following dance is performed to please the god of rain, Indra for good rain and good crop?

Ans ✗ 1. Jhumri

✗ 2. Phagua

✗ 3. Jat-Jatin

✓ 4. Jhijhiya

Q.11 Which of the following book's first copy was received by the President of India, Droupadi Murmu on the occasion of the Foundation Day Celebration of National Commission for Women in New Delhi on 31 January 2023?

Ans ✗ 1. Sashakt Jameen, Sashakt Bharat

✓ 2. Sashakt Nari, Sashakt Bharat

✗ 3. Sashakt Kisan, Sashakt Bharat

✗ 4. Sashakt Beti, Sashakt Bharat

Q.12 Approximately _____ of the India's population continued to be employed in agriculture till 1990.

Ans ✗ 1. 45%

✗ 2. 57%

✓ 3. 65%

✗ 4. 50%

Q.13 Which of the following statements about saccharin is correct?

Ans ✗ 1. It is prepared from glucose.

✓ 2. It is used as an artificial sweetener for diabetic patients.

✗ 3. It is a high energy compound like fat.

✗ 4. It is natural sugar.

Q.14 Ustad Amjad Ali Khan, renowned player of the sarod, is believed to have adapted it from which of the following instruments?

Ans ✗ 1. Tanbur

✗ 2. Tar

✗ 3. Kamancheh

✓ 4. Rabab

Q.15 To provide women with an opportunity to be self-reliant and independent by undertaking self-employment opportunities, an initiative has been launched in 2022 by the Ministry of MSME under which 20% of seats in free Skill Development Programs organised under skill development schemes of the Ministry will be provided to women. Identify the initiative.

Ans ✗ 1. SAKSHAM

✗ 2. SAMBHAV

✓ 3. SAMARTH

✗ 4. SAMVEDNA

Q.16 What type of lens does the upper part of the bi-focal lens have?

Ans ✓ 1. Concave

✗ 2. Prism

✗ 3. Spherical

✗ 4. Convex

Q.17 In which of the following years did the enactment of the Right to Information Act take place?

Ans ✗ 1. 2016

✓ 2. 2005

✗ 3. 1957

✗ 4. 1994

Q.18 When is National Sports Day celebrated in India?

Ans ✗ 1. 26 August

✗ 2. 28 August

✓ 3. 29 August

✗ 4. 27 August

Q.19 Which of the following pairs regarding the Judicial powers of the Indian President are INCORRECTLY matched?

Ans ✓ 1. Remission – Lesser punishment in place of one original punishment

✗ 2. Commutation – Changes one form of punishment to another form

✗ 3. Pardon – Removes the sentence and conviction

✗ 4. Reprieve – Stay on execution of a sentence for short period

Q.20 Manipuri, a recognised classical dance form of Manipur is a religious and spiritual dance involving which God/Goddess?

Ans ✗ 1. The Sun God

✗ 2. Goddess Lakshmi

✓ 3. Lord Krishna - Radha

✗ 4. Lord Natraj

Q.21 The style of sculpture in Bengal during the period between ninth and eleventh century is called:

Ans ✓ 1. the Pala style

✗ 2. the Panchayatana style

✗ 3. the Vesar style

✗ 4. the Nagara style

Q.22 In February 2023, which retired Supreme Court Judge was appointed as the Governor of Andhra Pradesh?

Ans ✓ 1. Justice Syed Abdul Nazeer

✗ 2. Justice Ranjan Gogoi

✗ 3. Justice P Sathasivam

✗ 4. Justice Fathima Beevi

Q.23 The Brahmaputra when it enters India in Arunachal Pradesh, is called _____.

Ans ✗ 1. Lohit

✗ 2. Tsang Po

✓ 3. Dihang

✗ 4. Jamuna

Q.24 Which disease refers to the spectrum of ocular disease caused by severe Vitamin A deficiency (VAD)?

Ans ✗ 1. Diabetic retinopathy

✗ 2. Glaucoma

✓ 3. Xerophthalmia

✗ 4. Cataract

Q.25 In October 2022 who was appointed as the presiding officer of the Unlawful Activities (Prevention) Act (UAPA) tribunal by the Central government?

Ans ✓ 1. Justice Dinesh Kumar Sharma

✗ 2. Justice TS Thakur

✗ 3. Justice JS Khehar

✗ 4. Justice UU Lalit

Q.26 Polysaccharides, proteins, nucleic acids and esters are known as _____.

Ans ✗ 1. None of the above

✗ 2. both primary and secondary metabolites

✗ 3. secondary metabolites

✓ 4. primary metabolites

Q.27 How many cells do large animals have?

Ans ✗ 1. Thousands

✗ 2. Hundreds

✗ 3. Tens

✓ 4. Billions

Q.28 Water silk, mermaid's tresses and blanket weed are other names of:

Ans ✗ 1. volvox

✗ 2. ulothrix

✓ 3. spirogyra

✗ 4. chlorella

Q.29 What device did John Ambrose Fleming invented in 1904 that helped make radio, television, telephone and even early electronic computers possible?

Ans ✗ 1. Voltaic pile

✓ 2. Oscillation valve

✗ 3. Electrodynamometer

✗ 4. Point-contact transistor

Q.30 Which of the following is the most reactive metal?

Ans ✗ 1. Iron

✗ 2. Gold

✓ 3. Sodium

✗ 4. Magnesium

Q.31 In email, what does the acronym 'CC' stand for?

Ans ✓ 1. Carbon copy

✗ 2. Communication channel

✗ 3. Content copy

✗ 4. Check copy

Q.32 Separate National Commission for Scheduled Castes and National Commission for Scheduled Tribes were established by the _____ Constitutional Amendment Act.

Ans ✗ 1. 86th

✗ 2. 92nd

✗ 3. 83rd

✓ 4. 89th

Q.33 Which of the following publicises the data on poverty collected by NSO?

Ans ✗ 1. Economic Survey

✗ 2. Economic Advisory Council

✗ 3. Reserve Bank of India

✓ 4. NITI Aayog

Q.34 Which of the following options represents the correct match between points under Column-A and those under Column-B?

Column-A (Type of Trophic Level)
i. First trophic level
ii. Second trophic level
iii. Third trophic level
iv. Fourth trophic level

Column-B (Example)
a. Humans
b. Phytoplankton
c. Zooplankton
d. Fishes

Ans ✗ 1. i-d, ii-c, iii-b, iv-a

✓ 2. i-b, ii-c, iii-d, iv-a

✗ 3. i-a, ii-c, iii-b, iv-d

✗ 4. i-a, ii-b, iii-c, iv-d

Q.35 Which of the following planets is NOT one of the 4 outer planets?

Ans ✗ 1. Saturn

✗ 2. Neptune

✗ 3. Jupiter

✓ 4. Mars

Q.36 Who is the President of Internet and Mobile Association of India?

Ans ✗ 1. Ritika Singh Verma

✓ 2. Subho Ray

✗ 3. L Murugan

✗ 4. Sukant Vatsa

Q.37 How many divisions of the ocean floor are there?

Ans ✗ 1. Three

✓ 2. Four

✗ 3. One

✗ 4. Two

Q.38 Bimbisara sent Jivaka, a royal physician, to treat the ruler of which dynasty?

Ans ✗ 1. Kashi

✗ 2. Koshal

✗ 3. Gandhar

✓ 4. Avanti

Q.39 In India, who among the following is in charge of regulating the money supply?

Ans ✗ 1. State bank of India

✓ 2. Reserve Bank of India

✗ 3. Indian government

✗ 4. Planning Commission

Q.40 In which year did Chola king Rajaraja I ascend the throne?

Ans ✗ 1. 988 C.E.

✗ 2. 980 C.E.

✓ 3. 985 C.E.

✗ 4. 983 C.E.

Q.41 As per Reserve Bank of India's master direction, a microfinance loan is defined as a collateral-free loan given to a household having annual household income up to _____.

Ans ✗ 1. ₹2,00,000

✓ 2. ₹3,00,000

✗ 3. ₹5,00,000

✗ 4. ₹4,00,000

Q.42 Which of the following politicians was posthumously conferred the Padma Vibhushan in the year 2023 by the President of India for his significant contribution in the field of public affairs?

Ans ✗ 1. Naba Das

✗ 2. Balkrishna Doshi

✗ 3. Sharad Yadav

✓ 4. Mulayam Singh Yadav

Q.43 Water movement caused by meteorological effects (winds and atmospheric pressure changes) is referred to as:

Ans ✗ 1. ocean front

✗ 2. wave front

✗ 3. water front

✓ 4. surges

Q.44 The Rourkela Steel plant was set up in 1959 in collaboration with _____.

Ans ✗ 1. Japan

✓ 2. Germany

✗ 3. Britain

✗ 4. Russia

Q.45 According to the Multidimensional poverty index 2021, which of the following states has the lowest percentage of multidimensional poor?

Ans ✗ 1. Gujarat

✓ 2. Kerala

✗ 3. Goa

✗ 4. Punjab

Q.46 'Farewell My Friend' was an album by which musician?

Ans ✗ 1. Bhimsen Joshi

✓ 2. Pandit Ravi Shankar

✗ 3. Shivkumar Sharma

✗ 4. Pandit Kumar Gandharva

Q.47 The average depth of the continental slope ranges between:

Ans ✗ 1. 10 – 100 m

✗ 2. 1 – 10 m

✓ 3. 200 – 3000 m

✗ 4. 100 – 200 m

Q.48 Who annexed the Punjab State into British India as a result of the second Anglo-Sikh War?

Ans ✗ 1. Lord Canning

✗ 2. Lord Elgin

✓ 3. Lord Dalhousie

✗ 4. Lord Mayo

Q.49 Identify which of the following statements about the rivers of Kerala are correct.
1. The longest river of Kerala, Bharathapuzha, rises near Annamalai hills.
2. The Periyar is the second largest river of Kerala.
3. The Pamba river of Kerala falls in the Vemobanad lake.

Ans ✗ 1. 2 and 3 only

✗ 2. 1 and 3 only

✓ 3. 1, 2 and 3

✗ 4. 1 and 2 only

Q.50 Which cryptographic technique uses a single key for both encryption and decryption of data?

Ans ✗ 1. Hashing

✓ 2. Symmetric encryption

✗ 3. Public-key encryption

✗ 4. Asymmetric encryption

Section : **General Engineering Civil and Structural**

Q.1 The design criterion for laterally supported steel beams with respect to crippling recommends that the maximum permissible bearing stress should NOT exceed _____ times of the yield stress of steel (f_y).

Ans ✗ 1. 0.80

✗ 2. 0.40

✓ 3. 0.75

✗ 4. 0.66

Q.2 During construction, light weight aerated concrete blocks are mostly used for:

Ans ✗ 1. foundation

✓ 2. partition walls

✗ 3. load bearing walls

✗ 4. shear walls

Q.3 The rainfall observed for five successive days in a catchment is 2, 3, 4, 5 and 6 cm. Compute the direct runoff from the catchment due to this rainfall. The φ index for the rainfall is assumed to be 2 cm/day.

Ans ✗ 1. 12 cm

✗ 2. 8 cm

✗ 3. 16 cm

✓ 4. 10 cm

Q.4 _____ is the correct formula to determine the elevation difference (d_Z) between two points on the ground using a total station.
(V_D = Vertical difference, H_I = Instrument height and H_R = Reflector height)

Ans ✗ 1. $d_Z = V_D - (H_I + H_R)$

✓ 2. $d_Z = V_D + (H_I - H_R)$

✗ 3. $d_Z = V_D (H_I + H_R)$

✗ 4. $d_Z = V_D (H_I - H_R)$

Q.5 A semicircular lamina has radius R and diameter D. Determine the moment of inertia about the diametrical axis as shown below?

Ans

✗ 1. $\dfrac{\pi D^4}{32}$

✓ 2. $\dfrac{\pi R^4}{8}$

✗ 3. $\dfrac{\pi R^4}{16}$

✗ 4. $\dfrac{\pi D^4}{64}$

Q.6 The angle of intersection of two straights is 120°. Find the ratio of the length of long chord to the tangent length.

Ans

✗ 1. 1

✗ 2. $1/\sqrt{3}$

✗ 3. 0.866

✓ 4. $\sqrt{3}$

Q.7 Which of the following is an adsorption unit used for controlling gaseous pollutants in industries?

Ans

✗ 1. Spray tower

✓ 2. Activated carbon unit

✗ 3. Plate tower

✗ 4. Venturi scrubber

Q.8 A road has a design speed of 20 m/s and the radius of the horizontal curve is equal to 250 m. Design the super-elevation that is needed on this road, with lateral friction coefficient value of 0.15. (Take g = 10 m/s².)

Ans

✗ 1. 0.09

✗ 2. 0.22

✗ 3. 0.16

✓ 4. 0.07

Q.9 During the construction of sloped timber roof truss, for protection of timber, which of the following is essential?

Ans

✗ 1. No priming and no painting

✓ 2. Two coats of paint over primer

✗ 3. One coat of paint

✗ 4. One coat of primer

Q.10 The captain in a vessel 0.016 km above the sea level observes a 0.144 km tall lighthouse on a port just above the horizon. The distance of the vessel from the port, considering both curvature of the Earth and refraction, is _____.

Ans

✓ 1. 61.68 km

✗ 2. 116.68 km

✗ 3. 161.68 km

✗ 4. 16.68 km

Q.11 The Department of Environment (DOE) method is basically used for which of the following purposes?
(i) Concrete mix design
(ii) Road mix design
(iii) Mix Design with pulverized fuel ash
(iv) Mix Design with GGBFS

Ans ✓ 1. (i), (ii), (iii), and (iv)

✗ 2. Both (iii) and (iv)

✗ 3. Both (i) and (ii)

✗ 4. Only (i), (ii), (iv)

Q.12 While using grading limits of the Zone-IV sand for mortars, what is the percentage of sand that should pass through a 600 μ IS sieve?

Ans ✗ 1. $40\% - 100\%$

✓ 2. $80\% - 100\%$

✗ 3. $0\% - 15\%$

✗ 4. $70\% - 100\%$

Q.13 The length of the horizontal transition curve based on the allowable rate change of centrifugal acceleration is 48 m, and based on the rate of introduction of super-elevation is 40 m, and based on the empirical formula, recommended by IRC is 45 m. What will be the shift in the transition curve? Take the radius of the curve as 200 m.

Ans ✗ 1. 0.33 m

✓ 2. 0.48 m

✗ 3. 3.68 m

✗ 4. 0.42 m

Q.14 As per IS:2386 (Part IV)-1963, the aggregate crushing value shall NOT exceed _____ for concrete for wearing surfaces, such as runways, roads and pavements.

Ans ✗ 1. 40%

✗ 2. 20%

✓ 3. 30%

✗ 4. 10%

Q.15 After compacting the subgrade, by suitable methods, the tests to ensure that the desired compaction has been achieved is/are:
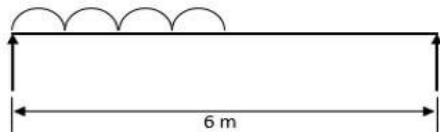
Ans ✓ 1. moisture content and field density determination test

✗ 2. consolidation test

✗ 3. compaction test and triaxial shear test

✗ 4. direct shear test

Q.16 Find the support reactions acting on the given simply supported beam of length 6 m, which is subjected to a uniformly distributed load of intensity 20 kN/m on the left half span as shown in the diagram.

Ans ✗ 1. 15 kN (left), 45 kN (right)

✓ 2. 45 kN (left), 15 kN (right)

✗ 3. −20 kN (left), 80 kN (right)

✗ 4. 30 kN (left), 30 kN (right)

**Q.17** If the pipes are connected in series, then the:

Ans ✗ 1. discharge will be constant and the pressure will be low

✗ 2. discharge will be low and the pressure will be constant

✓ 3. discharge will be constant and the pressure will be high

✗ 4. discharge will be high and the pressure will be low

Q.18 A rectangular shape of stress distribution diagram at the base of a circular chimney is shown in figure. By referring to it, it may be concluded that:_____
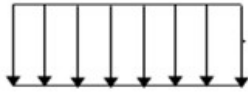
Ans ✗ 1. the chimney is subjected to bending stress only

✗ 2. the chimney is subjected to wind pressure only

✓ 3. the chimney is subjected to direct compressive stress only

✗ 4. the chimney is subjected to both bending as well as direct compressive stress

Q.19 Which of the following problems are observed during the pouring of freshly prepared concrete in hot weather?
(i) Rapid rate of hydration of cement
(ii) Quick setting and early stiffening
(iii) Greater plastic shrinkage
(iv) More finishing times

Ans ✗ 1. (i), (ii), (iii), and (iv)

✗ 2. Both (i) and (iii)

✗ 3. Only (i)

✓ 4. Only (i), (ii) and (iii)

Q.20 Rubbish in solid waste management is a _____.

Ans ✗ 1. Nuclear solid waste

✓ 2. non-putrescible solid waste

✗ 3. putrescible solid waste

✗ 4. biodegradable solid waste

Q.21 Allowable bearing capacity is defined as:

Ans ✓ 1. net loading intensity at which neither shear failure nor settlement failure occurs in soil

✗ 2. net ultimate bearing capacity / FOS

✗ 3. net loading intensity at which soil just fails in shear

✗ 4. net safe bearing capacity + γD_f

Q.22 According to IS 456:2000, for a cantilever beam the effective length of the cantilever shall be taken as:

Ans ✗ 1. clear span of the beam + half the width of the support

✓ 2. clear span of the beam + half the effective depth

✗ 3. clear span of the beam + effective depth

✗ 4. clear span of the beam + width of the support

Q.23 Which of the following statements is INCORRECT regarding the fineness of cement?

Ans ✗ 1. Increase in the fineness of cement increases the drying shrinkage of concrete.

✓ 2. The unit of the fineness of cement is cm^3/kg.

✗ 3. The fineness of cement can be tested by determination of the specific surface of cement.

✗ 4. The specific surface of cement can be determined by using an air permeability apparatus.

Q.24 A trapezoidal section is of depth 'y', base 'B' and side slope 'Z'. Find the wetted perimeter of the trapezoidal section.

Ans ✗ 1. $2y(1 + Z^2)^{1/2}$

✓ 2. $B + 2y(1 + Z^2)^{1/2}$

✗ 3. $B + y(1 + Z^2)^{1/2}$

✗ 4. $y(1 + Z^2)^{1/2}$

Q.25 Which of the following is/are NOT the characteristic of traffic actuated signals?
i.It is costly.
ii.The cycle time changes as per traffic demand.
iii.The cycle time changes as per the time of the day.
iv.Computers and detectors are used to operate this signal.

Ans ✗ 1. Both ii and iv

✗ 2. Only ii

✓ 3. Only iii

✗ 4. Both iii and iv

Q.26 In the relation Δ = 8.64 B/D, if D is the duty in hectare/cumec and B is the number of days of base period, then Δ is the _____.

Ans ✗ 1. depth of water in cm

✗ 2. duty in m

✓ 3. depth of water in m

✗ 4. rotation period

Q.27 Allowances for contingencies can be expressed as a percentage of _____.

Ans ✗ 1. rate of each item

✓ 2. total cost

✗ 3. supervision charges

✗ 4. establishment charges

Q.28 Due to the presence of _____, the cement derives the characteristic grey colour.

Ans ✗ 1. gypsum

✗ 2. silica

✓ 3. iron oxide

✗ 4. magnesia

Q.29 Which of the following is an INCORRECT statement related to the height of the instrument (HI) used in levelling?

Ans ✗ 1. The value of HI generally changes before recording back sights.

✓ 2. The value of HI never changes after recording back sights.

✗ 3. The value of HI never changes while recording intermediate sights.

✗ 4. The value of HI never changes while recording fore sights.

Q.30 Which of the following types of pumps can give discharge even at a high pressure?

Ans ✗ 1. Single-stage pumps

✗ 2. Multistage pumps

✓ 3. Rotary pumps

✗ 4. Mono-block pumps

Q.31 Which of the following is defined as the area of a building measured at floor level?

Ans ✗ 1. Circulation area

✗ 2. Carpet area

✓ 3. Plinth area

✗ 4. Floor area

Q.32 The optimum water content (OWC) is the moisture content at which the soil attains _____.

Ans ✗ 1. fully saturated density

✓ 2. maximum dry density

✗ 3. maximum water content

✗ 4. minimum dry density

Q.33 In an aqueduct, natural drainage is _____ the canal.

Ans ✗ 1. above

✓ 2. below

✗ 3. parallel to

✗ 4. at the level of

Q.34 Match the following types of canals with their types of alignment.

Type of Canal	Type of Alignment
A. Ridge canal	1. Aligne roughly at right angles to the contours
B. Contour canal	2. Aligned along the watershed
C. Side slope canal	3. Aligned nearly parallel to the contours

Ans ✗ 1. A-3, B-2, C-1

✗ 2. A-1, B-2, C-3

✗ 3. A-1, B-3, C-2

✓ 4. A-2, B-3, C-1

Q.35 Which of the following statements regarding characteristics of contour lines is INCORRECT?

Ans ✗ 1. Contour lines close to one another indicate a steep slope.

✓ 2. Contour lines of different elevations cannot intersect.

✗ 3. Contour lines of different elevations can unite to form one line only in the case of vertical cliff.

✗ 4. Contour lines of different elevations cannot cross each other.

Q.36 If tensile stress develops at the base of a full dam, it will be first observed at the:

Ans ✗ 1. toe

✓ 2. heel

✗ 3. gallery

✗ 4. mid-point of the base width

Q.37 The value of average bond stress τ_{bd} depends on_____.

Ans ✓ 1. Concrete strength and type of bar

✗ 2. Concrete strength and Area of bar

✗ 3. Steel strength and Area of bar

✗ 4. Concrete strength and Steel strength

Q.38 Select the option that is appropriate regarding the following two statements labelled Assertion and Reason.
Assertion: Social upliftment of the people in rural areas can be achieved by implementing proper irrigation practices.
Reason: Irrigation will create a lot of employment opportunities for rural people.

Ans ✗ 1. Assertion is true, but Reason is false.

✓ 2. Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

✗ 3. Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion.

✗ 4. Both Assertion and Reason are false.

Q.39 Select the correct option for the given statements.

Statement 1: Laminates are the products made by bonding together two or more layers of materials.
Statement 2: High-pressure decorative laminates are pasted on plywood sheets, which are used for large areas like cabinets, wide door shutters, tables, etc.

Ans ✗ 1. Statement 1 is false and statement 2 is true

✗ 2. Statement 1 is true and statement 2 is false

✗ 3. Both statement 1 and statement 2 are false

✓ 4. Both statement 1 and statement 2 are true

Q.40 Find the discharge of water flowing over a rectangular notch of length 1 m when the constant head over the notch is 100 mm. Take $C_D = 0.60$. Given $\sqrt{2g} = 4.43$.

Ans ✗ 1. 52.8 litres/sec

✗ 2. 48.5 litres/sec

✓ 3. 56.8 litres/sec

✗ 4. 62 litres/sec

Q.41 The length of a long wall in the long and short wall method of estimation is centre to centre distance between the walls and _____.

Ans ✗ 1. width of the wall

✓ 2. half of its width on each side

✗ 3. one-fourth width of wall on each side

✗ 4. one-third width of wall on each side

Q.42 Consider width of road 7.2 m and pedestrian speed of 1.2 m/s, find the green time for pedestrian. Consider initial walk time as 7 s.

Ans ✗ 1. 14 s

✗ 2. 6 s

✓ 3. 13 s

✗ 4. 26 s

Q.43 In case of welded connection in steel structures, during welding, a defect is caused by coating of the parent metal with a foreign matter and because the groove is not kept clean. This defect is known as:

Ans ✗ 1. incomplete penetration

✗ 2. overlap

✗ 3. slag inclusion

✓ 4. lack of fusion

Q.44 Shear resistance of soil can be attributed to:

Ans ✗ 1. cohesion and pore pressure

✗ 2. cohesion and plasticity

✓ 3. cohesion and friction

✗ 4. only friction

Q.45 Which of the following assumptions is NOT valid in case of design of axially loaded compression members in the steel design?

Ans ✗ 1. Secondary stresses are neglected.

✗ 2. The ideal column is assumed to be absolutely straight with no crookedness.

✗ 3. The modulus of elasticity is assumed to be constant in a built-up column.

✓ 4. The modulus of elasticity is assumed to vary in a built-up column.

Q.46 A revised estimate is prepared:

Ans ✓ 1. when the sanctioned estimate is likely to exceed more than 5%, without structural alteration

✗ 2. when there is material deviation of structured nature

✗ 3. when the expenditure of the work exceeds 20% of the administrative approval

✗ 4. when the sanctioned estimate is likely to exceed more than 5%, with important structural alterations

Q.47 Which of the following types of cement gives 1-day strength that is equal to the 3-day strength of OPC with the same water content?

Ans ✗ 1. Ordinary Portland cement

✗ 2. Portland pozzolana cement

✓ 3. Rapid hardening Portland cement

✗ 4. Portland slag cement

Q.48 As per IS 456: 2000, the design bond stress τ_{bd} in limit state method for plain bars in tension for M40 grade of concrete is _____

Ans ✗ 1. 1.2 N/mm^2

✗ 2. 1.5 N/mm^2

✗ 3. 1.7 N/mm^2

✓ 4. 1.9 N/mm^2

Q.49 2 litres of an oil weigh 16 N. Calculate the specific gravity of the oil. Consider the density of water to be 998 kg/m³.

Ans ✗ 1. 0.846

✓ 2. 0.816

✗ 3. 0.856

✗ 4. 0.786

Q.50 In general shear failure, continuous failure is developed between _____.

Ans ✗ 1. ground surface and the footing

✓ 2. edge of the footing and ground surface

✗ 3. soil and failure surface

✗ 4. foundation and ground surface

Q.51 There are numerous benefits of irrigation like increase in food production, development of the area and social upliftment of the people. One of the harmful effects of irrigation is _____.

Ans ✓ 1. mosquito breeding and incidence of malaria

✗ 2. control of floods

✗ 3. ruralisation

✗ 4. protection from famine

Q.52 _____ is a parameter that a total station usually does NOT measure.

Ans ✓ 1. Horizontal distance

✗ 2. Horizontal angle

✗ 3. Vertical angle

✗ 4. Slope distance

Q.53 If a liquid enters a pipe of diameter 'd' with velocity 'v', then what will be its velocity at the exit if the diameter of the pipe reduces to 0.5d?

Ans ✓ 1. 4v

✗ 2. 0.5v

✗ 3. v

✗ 4. 2v

Q.54 If a person studies about a fluid which is at rest, the study is called:

Ans ✗ 1. fluid mechanics

✗ 2. fluid dynamics

✗ 3. fluid kinematics

✓ 4. fluid statics

Q.55 Side face reinforcement is PROVIDED in a beam when the depth of the web exceeds _____ mm

Ans ✗ 1. 250

✗ 2. 300

✓ 3. 750

✗ 4. 150

Q.56 The roof of a room was considered as the BM. Inverted staff reading on this BM was 3.500 m. The staff reading of point P on the ground was 1.200 m. Find the RL of point P, if the RL of the bench mark is 100 m.

Ans ✗ 1. 104.7 m

✓ 2. 95.3 m

✗ 3. 97.7 m

✗ 4. 102.3 m

Q.57 The vertical distance between the centre line of a pump and the point of delivery is known as _____.

Ans ✗ 1. suction head

✓ 2. delivery head

✗ 3. dynamic head

✗ 4. Total head

Q.58 If a curve setup on a highway has a deflection angle of 120° between its tangents and a versine distance of 225 m, then the sharpness of the curve subtended by an arc of length 30 m will be _____.

Ans ✗ 1. 5°

✓ 2. 4°

✗ 3. 3°

✗ 4. 6°

Q.59 Which of the following methods is used for measuring earthwork?

Ans ✓ 1. Area and volume shall be nearest worked out to 0.01 m^2 and 0.01 m^3

✗ 2. Volume shall be worked out to nearest to 0.02 m^3

✗ 3. The area shall be worked out to nearest to 0.02 m^2

✗ 4. Area and volume shall be worked out to nearest to 0.03 m and 0.03 m

Q.60 The dry density decreases in cohesion less soil with an increase in water content due to which of the following reasons?

Ans ✗ 1. Specific gravity

✗ 2. Seepage

✗ 3. Capillary rise

✓ 4. Bulking of sand

Q.61 Calculate the capital value of a building whose rent is ₹10,000 per annum, inclusive of all taxes. Outgoings are 18% of the gross rent, and the expected rate of return is 9% with a 60-year life of the building.

Ans ✗ 1. ₹81,000

✓ 2. ₹91,111

✗ 3. ₹1,01,000

✗ 4. ₹75,000

Q.62 An isolated footing of RCC is supporting a pedestal. The critical section for the bending moment should be chosen at:

Ans ✓ 1. at the face of the column

✗ 2. halfway between the centre line and the edge

✗ 3. a distance equal to the depth of the column from the face of the column

✗ 4. a distance equal to half the depth of the column from the face of the column

Q.63 Which of the following types of signs are used for place identification and route marking?

Ans ✗ 1. Warning signs

✗ 2. Regulatory signs

✓ 3. Informatory signs

✗ 4. Prohibitory signs

Q.64 The lining like cement concrete, pre-cast cement concrete, etc. gives a smooth surface to the canal. Smoothness of the canal bed and the sides _____ the discharge of the canal and the duty of water.

Ans ✓ 1. enhances

✗ 2. doesn't affect

✗ 3. reduces

✗ 4. neither reduces nor enhances

Q.65 If detailed drawings are not available, the steel reinforcement may be calculated approximately on the percentage basis of _____.

Ans ✗ 1. height of building

✗ 2. brickwork

✓ 3. concrete

✗ 4. size of bending

Q.66 _____ is a type of scale on which three successive dimensions can be measured.

Ans ✗ 1. Engineer's scale

✗ 2. Vernier scale

✓ 3. Diagonal scale

✗ 4. Scale of chords

Q.67 Which of the following options is NOT considered as a component of the 3R principles of municipal solid waste management?

Ans ✗ 1. Reduce

✗ 2. Reuse

✗ 3. Recycle

✓ 4. Recover

Q.68 As per IS 456:2000, in the case of columns of minimum dimension of 200 mm or under, whose reinforcing bars do NOT exceed 12 mm, the nominal cover used is _____.

Ans ✓ 1. 25 mm

✗ 2. 50 mm

✗ 3. 20 mm

✗ 4. 40 mm

Q.69 Calculate the charges for a truck (diesel) to transport material for 8 hours in a day with a rate of ₹200/hour.

Ans ✓ 1. ₹1,600

✗ 2. ₹2,000

✗ 3. ₹1,000

✗ 4. ₹1,500

Q.70 The formula for specific gravity of fine aggregates as per IS 2386 (part 3) 1963, using the pycnometer is by the following: Specific gravity $= \dfrac{W2 - W1}{(W2 - W1) - (W3 - W4)}$

Where,

W1 = Empty weight of pycnometer
W2 = Weight of pycnometer + sample
W3 = Weight of pycnometer + sample water
W4 = Weight of pycnometer + water

Ans ✓ 1. Correct

✗ 2. Partially incorrect

✗ 3. Partially correct

✗ 4. Incorrect

Q.71 During a levelling survey, the backsight of A was found greater than the foresight reading at point B. Which of the following is correct?

Ans ✓ 1. Elevation of B is more than that of A.

✗ 2. Elevation of A is more than that of B.

✗ 3. Height of instrument is required to know which point is higher.

✗ 4. Either A or B can have higher elevation.

Q.72 Venturi meter is an application of Bernoulli's equation. Its basic principle also depends on the Bernoulli equation, which is _____.

Ans ✗ 1. both velocity of moving fluid and pressure within fluid increases

✓ 2. velocity of a moving fluid increases and the pressure within the fluid decreases

✗ 3. both velocity of moving fluid and pressure within fluid constant

✗ 4. pressure within the fluid increases and velocity of moving fluid increase

Q.73 Pycnometer, wire mesh bucket and water are used to calculate which characteristic property of the coarse aggregate?

Ans ✗ 1. Crushing strength

✓ 2. Specific gravity

✗ 3. Attrition

✗ 4. Impact value

Q.74 In soil mechanics, the number and disposition of bore holes are varied, depending upon the _____.

Ans ✔ 1. subsoil condition

✘ 2. earth surface

✘ 3. underground water

✘ 4. atmosphere

Q.75 Bamboo is commonly used in the construction of scaffoldings, bridges and structures due to its:
i) Strong fibre content
ii) Elasticity
iii) Tensile strength

Ans ✔ 1. All of (i), (ii) and (iii) are correct.

✘ 2. (i) and (iii) are correct.

✘ 3. Only (i) is correct.

✘ 4. Only (ii) is correct.

Q.76 A centrifugal pump with the impeller diameter of 125 mm delivers a power of 10 hp. If the impeller diameter is changed to 250 mm, what will be the power delivered by the pump if other parameters are kept constant?

Ans ✔ 1. 40 hp

✘ 2. 100 hp

✘ 3. 120 hp

✘ 4. 80 hp

Q.77 Select the correct option for the given statements.

Statement 1: The placing of veneers normal to each other increases the longitudinal and transverse strength of plywood.
Statement 2: Plywood possesses uniform tensile strength in all directions.

Ans ✘ 1. Statement 1 is true and statement 2 is false

✘ 2. Both statement 1 and statement 2 are false

✘ 3. Statement 1 is false and statement 2 is true

✔ 4. Both statement 1 and statement 2 are true

Q.78 Soon before the passing of the Air Pollution Control Act, 1981 in India, an institute called NEERI had conducted a survey of the prevailing air quality in 9 major cities of India. Which of the following cities had SO_2 concentration exceeding the maximum tolerable value of 80 µg/m3 ?

Ans ✘ 1. Ahmedabad

✔ 2. Kolkata

✘ 3. New Delhi

✘ 4. Hyderabad

Q.79 The coefficient of the volume change m_v is given by _____.

Ans

1. ✔ $$m_v = \frac{-\Delta e}{1 + e_o} \frac{1}{\Delta \sigma'}$$

2. ✘ $$m_v = \frac{1}{\Delta \sigma'}$$

3. ✘ $$m_v = \frac{-\Delta e}{1 - e_o}$$

4. ✘ $$m_v = \frac{-\Delta e}{1 - e_o} \frac{1}{\Delta \sigma}$$

Q.80 Calculate the total charges given to three labourers for their earthwork excavation, with them working from 9 a.m. to 6 p.m. with an hourly working charge of ₹50.

Ans ✘ 1. ₹450

✘ 2. ₹350

✔ 3. ₹1,350

✘ 4. ₹500

Q.81 The total head that must be produced by the pump to satisfy the specific external requirements is called the _____.

Ans ✓ 1. manometric head

✗ 2. dynamic head

✗ 3. suction head

✗ 4. static head

Q.82 Among the following, the correct sequence of WBM construction will be:
i. Preparation of subgrade
ii. Spreading of Coarse aggregates
iii. Application of binding material
iv. Application of screenings
v. Provision of lateral confinement

Ans ✗ 1. i, ii, iv, iii, v

✗ 2. i, iv, ii, iii, v

✗ 3. ii, i, iv, v, iii

✓ 4. i, v, ii, iv, iii

Q.83 For an RCC beam of width 230 mm and effective depth 300 mm subjected to a shear force of 69 kN due to design loads, what will be the nominal shear stress in the beam?

Ans ✗ 1. 10 N/mm^2

✓ 2. 1 N/mm^2

✗ 3. 0.01 N/mm^2

✗ 4. 0.1 N/mm^2

Q.84 Experimental water absorption tests are done on fine aggregates to find the:
(i) Water holding capacity
(ii) Strength of material
(iii) Quality of material
(iv) Shape of aggregates

Ans ✗ 1. (i), (ii), (iii), and (iv)

✗ 2. Only (i)

✗ 3. Both (i) and (ii)

✓ 4. Only (i), (ii) and (iii)

Q.85 In plane surveying, level lines are considered as _____ and plumb lines are considered as _____.

Ans ✓ 1. straight; parallel

✗ 2. straight; straight

✗ 3. parallel; parallel

✗ 4. parallel; straight

Q.86 Which of the given options is NOT recommended as a desirable property of the transporting truck used for collection of municipal solid waste?

Ans ✓ 1. Sharp corners and edges

✗ 2. Strength and durability

✗ 3. Water-tightness

✗ 4. Made of stainless steel

Q.87 Select the anthropogenic source of air pollution from the given options.

Ans ✗ 1. Volcanoes

✓ 2. Burning of fossil fuels

✗ 3. Dust storms

✗ 4. Forest fires

Q.88 As per IS 800: 2007, which of the following statements is correct regarding the maximum slenderness ratio?

Ans   ✔ 1. The maximum slenderness ratio of a member carrying compressive loads resulting from dead load and imposed loads should not exceed 180.

  ✘ 2. The maximum slenderness ratio of a member carrying compressive loads resulting from dead load and imposed loads should not exceed 200.

  ✘ 3. The maximum slenderness ratio of a member carrying compressive loads resulting from dead load and imposed loads should not exceed 250.

  ✘ 4. The maximum slenderness ratio of a member carrying compressive loads resulting from dead load and imposed loads should not exceed 350.

Q.89 As per IS 800: 2007, in case of design of steel beams, the permissible bending stress in tension and the permissible bending stress in compression should NOT exceed _____ times of the yield stress (f_y) of steel in a plastic and compact section while the beam is laterally supported.

Ans   ✘ 1. 0.75

  ✘ 2. 0.45

  ✘ 3. 0.60

  ✔ 4. 0.66

Q.90 Which of the following is a rain gauge adopted as the standard recording type rain gauge in India? Its details are described in IS: 5253-1969.

Ans   ✘ 1. Weighing-bucket type rain gauge

  ✘ 2. Tipping & weighing rain gauge

  ✔ 3. Natural syphon or Float type rain gauge

  ✘ 4. Tipping-bucket type rain gauge

Q.91 Which of the following statements is INCORRECT?

Ans   ✘ 1. Electrostatic precipitators are widely used in thermal power plants.

  ✘ 2. Bag filters work on the principle of interception and electrostatic attraction.

  ✘ 3. Electrostatic precipitators can collect dry or wet particulates.

  ✔ 4. Collection efficiency of the cyclone collector is high for smaller particles.

Q.92 To avoid gas bounding, the pump is:

Ans   ✘ 1. heated

  ✘ 2. elevated

  ✘ 3. charged

  ✔ 4. primed

Q.93 The law of flow of water through the soil was first studied by _____.

Ans   ✘ 1. Francis

  ✘ 2. Rankine

  ✘ 3. Boussinesq

  ✔ 4. Darcy

Q.94 In case of a remote sensing system, which of the following factors does NOT affect the property of a reflected incident radiation?

Ans   ✘ 1. Roughness of the surface

  ✘ 2. Angle of incident radiation

  ✘ 3. Wavelength of radiation

  ✔ 4. Type of electromagnetic radiation

Q.95 Polar moment of inertia about central axis of a semi-circular lamina with radius R is given as
_____.

Ans

    ✗ 1. $\dfrac{\pi R^4}{16}$

    ✓ 2. $\dfrac{\pi R^4}{4}$

    ✗ 3. $\dfrac{\pi R^4}{2}$

    ✗ 4. $\dfrac{\pi R^4}{8}$

Q.96 Some steps related to collection of municipal solid waste have been mentioned below.
A. Collection by sweepers in small hand driven carts.
B. Dumping into masonry chambers constructed along roadsides.
C. Collection in small containers in individual houses.
D. Collection into municipal trucks.
What is the correct sequence of the conventional system of collection of municipal solid waste,
as per Indian scenario from start to end?

Ans

    ✓ 1. C-A-B-D

    ✗ 2. A-D-B-C

    ✗ 3. C-B-A-D

    ✗ 4. A-C-D-B

Q.97 High water hammer pressure can cause breakage and damage to a pipeline. The property of a
fluid which is accountable for the problem of water hammer is _____.

Ans

    ✓ 1. density

    ✗ 2. viscosity

    ✗ 3. fluidity

    ✗ 4. surface tension

Q.98 Which of the following methods of quarrying is suitable for quarrying small, thin and regular
blocks of stones from rocks such as granite and gneiss?

Ans

    ✗ 1. Excavating

    ✗ 2. Blasting

    ✗ 3. Wedging

    ✓ 4. Heating

Q.99 Under properly controlled combustion and temperature, what is the percentage of silica content
that can be obtained from rice husk ash?

Ans

    ✗ 1. $40\% - 50\%$

    ✗ 2. $60\% - 70\%$

    ✗ 3. $57\% - 68\%$

    ✓ 4. $85\% - 95\%$

Q.100 For a closed traverse, the sum of latitudes is 4 m and the sum of departures is 3 m. The closing
error for the traverse would be:

Ans

    ✗ 1. 3 m

    ✗ 2. 7 m

    ✓ 3. 5 m

    ✗ 4. 4 m