



## SSC JE Civil Engineering 25th May 2014 Shift-1

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# General Intelligence and Reasoning

## Instructions

In the following questions, select the related word/ letters /number from the given alternatives.

### Question 1

5 : 26 :: 8 : ?

A 67

B 64

C 65

D 66

Answer: C

### Explanation:

$$5^2 + 1 = 25 + 1 = 26$$

$$8^2 + 1 = 64 + 1 = 65$$

$$? = 65$$

### Question 2

Pyorrhea : Teeth :: Eczema : ?

A Skin

B Heart

C Lungs

D Eye

Answer: A

### Explanation:

Pyorrhea is a foul-smelling disorder of teeth similarly Eczema is a skin disease

### Question 3

$N \times O : 14 \times 15 :: G \times S : ?$

A  $5 \times 17$

B  $15 \times 16$

C  $6 \times 18$

D  $7 \times 19$

Answer: D

### Explanation:

$$G \times S = 7 \times 19$$

$$\therefore G = 7 \text{ and } S = 19$$

### Question 4

Writer : Book :: ?

- A Composer : Song
- B Building : Architect
- C Poem : Poet
- D Chair : Carpenter

**Answer: A**

**Explanation:**

Writer is related to book similarly,

Composer is related to song.

**Question 5**

**BMCX : CNDY :: ? : EXFW**

- A DWEV
- B DUGT
- C FGUT
- D DTGU

**Answer: A**

**Explanation:**

In the BMCX : CNDY

B + 1 → C

M + 1 → N

C + 1 → D

X + 1 → Y

Similarly,

E - 1 → D

X - 1 → W

F - 1 → E

W - 1 → V

So, ? = DWEV

∴ Option A is the correct answer.

**Question 6**

**24 : 288 :: 22 : ?**

- A 248
- B 238
- C 240
- D 242

**Answer: D**

**Explanation:**

$$(24)^2/2 = 576/2 = 288$$

$$22^2 = 484$$

∴ Option D is the correct option.

### Question 7

Car : Garage :: Aircraft : ?

- A Airdrome
- B Shelter
- C Hangar
- D Jetty

Answer: C

### Explanation:

Car is parked in garage similarly,

Aircraft is parked in hanger.

### Question 8

$$3 : 12 :: 4 : ?$$

- A  $\frac{16}{20}$
- B  $\frac{4}{6}$
- C  $\frac{5}{6}$
- D  $\frac{10}{23}$

Answer: A

### Explanation:

$$\begin{array}{l} 3 \times 4 = 12 \\ 8 \times 4 = 32 \end{array}$$

similarly,

$$\begin{array}{l} 4 \times 4 = 16 \\ 5 \times 4 = 20 \end{array}$$

### Instructions

For the following questions answer them individually

### Question 9

Which one of the following is always associated with JUSTICE ?

- A Autocracy
- B Hypocrisy
- C Democracy
- D Legitimacy

Answer: D

### Explanation:

Legitimacy is always associated with JUSTICE.

### Instructions

In the following questions find the odd number/letters/ figure/ numberpair from the given alternatives.

#### Question 10

- A 21 - 27
- B 9 - 27
- C 9 - 12
- D 15 - 19

**Answer:** D

#### Explanation:

Except '15 - 19' remaining all pair divisible by 3.

∴ The correct answer is option D.

#### Question 11

- A 38 - 76
- B 28 - 84
- C 34 - 76
- D 23 - 64

**Answer:** D

#### Explanation:

In the pair "23 - 64", one number odd and another even.

∴ The correct answer is option D.

#### Question 12

- A 5 - 7
- B 3 - 8
- C 6 - 8
- D 4 - 5

**Answer:** C

#### Explanation:

Only 6 and 8 is divisible by 2.

∴ The correct answer is option C.

#### Question 13

- A Sphere
- B Triangle
- C Circle
- D Oval

**Answer:** B

**Explanation:**

Except **triangle** remaining all are circular shape with no angles.

**Question 14**

- A Rosemary
- B Mint
- C Peepal
- D Coriander

**Answer: C**

**Explanation:**

Rosemary, mint and coriander all are plant while peepal is a tree.

**Question 15**

- A ZXUR
- B ZXWU
- C YWVT
- D WUTR

**Answer: A**

**Explanation:**

In ZXUR,

Z - 2 → X - 2 → U - 4 → R

In ZXWU,

Z - 2 → X - 1 → W - 2 → U

In YWVT,

Y - 2 → W - 1 → V - 2 → T

In WUTR,

W - 2 → U - 1 → T - 2 → R

Odd term = ZXUR

**Question 16**

- A Gold
- B Iron
- C Brass
- D Copper

**Answer: C**

**Explanation:**

All except Brass, all are metals, while Brass is alloy.

**Question 17**

- A Thrive

- B Excite
- C Flourish
- D Prosper

**Answer: B**

**Explanation:**

Flourish, prosper, and thrive are all synonyms; excite does not mean the same thing

**Question 18**

- A Krishna
- B Vaigai
- C Kaveri
- D Narmada

**Answer: D**

**Explanation:**

All except Narmada are rivers which flow into Bay of Bengal, while Narmada flows into the Arabian Sea.

∴ Option D is correct answer.

**Instructions**

For the following questions answer them individually

**Question 19**

**Which one of the given response would be a meaningful order of the following ?**

- (1) Tissue
- (2) Cell
- (3) Organ

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

**Answer: D**

**Explanation:**

Meaningful order - Cell, Tissue, Organ

∴ Option D is the correct option

**Question 20**

**Which item will appear third in the dictionary ?**

- A pair
- B pain
- C page
- D pall

**Answer: A**

**Explanation:**

Order according to the dictionary,

page, pain, pair, pall

∴ 'pair' will appear third in the dictionary.

**Instructions**

In the following questions a series is given, with one term missing. Choose the correct alternative from the given ones that will complete the series.

**Question 21**

1, 2, 8, ?, 148, 765

A 74

B 32

C 40

D 33

**Answer: D**

**Explanation:**

The series follows pattern as,

$$1 \times 1 + 1^2 = 2$$

$$2 \times 2 + 2^2 = 4 + 4 = 8$$

$$8 \times 3 + 3^2 = 24 + 9 = 33$$

$$33 \times 4 + 4^2 = 132 + 16 = 148$$

$$148 \times 5 + 5^2 = 740 + 25 = 765$$

Missing term = 33

**Question 22**

BC, FGH, KLMN, ?, XYZABC

A QRSTU

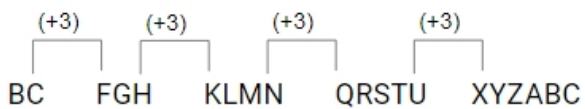
B RSTUV

C PQRST

D QRST

**Answer: A**

**Explanation:**



Missing term = QRSTU

**Question 23**

DE, ?, JL, MO

A LN



- B CE
- C GI
- D AC

**Answer: C**

**Explanation:**

The series follows pattern as,

$$(D + 3 = G), (E + 3 = I)$$

$$(G + 3 = J), (I + 3 = L)$$

$$(J + 3 = M), (L + 3 = O)$$

The missing term = JL

**Question 24**

7, 12, 19, 28, 39, ?

- A 51
- B 49
- C 57
- D 52

**Answer: D**

**Explanation:**

The series follows pattern as,

$$7 + 5 = 12$$

$$12 + 7 = 19$$

$$19 + 9 = 28$$

$$28 + 11 = 39$$

$$39 + 13 = 52$$

Missing term = 52

**Question 25**

DMP, FLN, HKL, JJJ, ?

- A MIH
- B MII
- C LIH
- D MIF

**Answer: C**

**Explanation:**

The series follows pattern as,

$$(D + 2 = F), (M - 1 = L), (P - 2 = N)$$

$$(F + 2 = H), (L - 1 = K), (N - 2 = L)$$

$$(H + 2 = J), (K - 1 = J), (L - 2 = J),$$

$(J + 2 = L), (J - 1 = I), (J - 2 = H),$

Missing term = LIH

**Question 26**

**Z3A, W9D, ?, Q81J, N243M**

- A R31E
- B V21H
- C T27G
- D S29F

**Answer: C**

**Explanation:**

The pattern follows as,

$$3 \times 3 = 9$$

$$9 \times 3 = 27$$

$$27 \times 3 = 81$$

$$81 \times 3 = 243$$

Missing term by option = T27G

**Instructions**

For the following questions answer them individually

**Question 27**

If 'EVENT' is coded as 54552 then 'REVENGE' is coded as :

- A 9545575
- B 8455753
- C 9845575
- D 8755475

**Answer: A**

**Explanation:**

In the EVENT,

E coded as 5.

V coded as 4.

N coded as 5.

T coded as 2.

Similarly,

'REVENGE' is coded as '\_5455\_5'.

By the option A), 9545575.

∴ Option A is the correct answer.

**Question 28**

**Figure**

- A 15.300
- B 1.5300
- C 153.00
- D 1530.00

Answer: B

**Question 29**

If BACTERIA can be written as ABIARCET then how PROTOZOA can be written :

- A AROZOTOPO
- B ORPTOZOA
- C APORZOOT
- D TOZOAPRO

Answer: C

**Explanation:**

In the 'ABIARCET' 1st, 3rd, 5th, and 7th letter replace by 8th, 7th, 6th and 5th letter respectively so, 'PROTOZOA' can be written as 'APORZOOT'.

∴ Option C is the correct answer.

**Question 30**

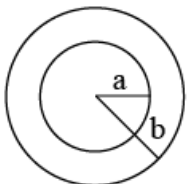
Unscramble these letters to make a ..... EYDSNY

- A mountain
- B city
- C animal
- D river

Answer: B

**Question 31**

If radius b is double that of radius a, the area of the smaller circle to that of the larger circle is in proportion :



- A 1 : 16
- B 1 : 2
- C 1 : 4
- D 1 : 8

Answer: C

**Explanation:**

$$b = 2a$$

$$\text{area of circle} = \pi r^2$$

The area of the smaller circle to that of the larger circle is in proportion =  $\pi a^2 : \pi b^2 = a^2 : 4a^2 = 1 : 4$

**Instructions**

Insert the arithmetic signs in the following numerical figure:

**Question 32**

$$6, 3, 6 = 24$$

**A**  $+ \times$

**B**  $--+$

**C**  $-\times$

**D**  $-\div$

**Answer: A**

**Explanation:**

From option A,

LHS,

$$6 + 3 \times 6$$

$$= 6 + 18$$

$$= 24$$

RHS

Hence, Option A is the correct answer.

**Question 33**

$$9, 3, 4, 6 = 29$$

**A**  $\times + -$

**B**  $+ - \times$

**C**  $\times - +$

**D**  $+ \times -$

**Answer: C**

**Explanation:**

From the option C) -

LHS-

$$9 \times 3 - 4 + 6$$

$$= 27 - 4 + 6$$

$$= 29$$

RHS

$\therefore$  Option C is correct answer.

**Instructions**

For the following questions answer them individually

**Question 34**

If  $7x - 5y = 20$  and  $12x + 5y = 75$ , what is the value of  $xy$ ?

- A 30
- B 15
- C 18
- D 20

**Answer:** B

**Explanation:**

$$7x - 5y = 20 \text{ ---(1)}$$

$$12x + 5y = 75 \text{ ---(2)}$$

Eq(1) + (2),

$$19x = 95$$

$$x = 5$$

From eq(1),

$$7 \times 5 - 5y = 20$$

$$5y = 15$$

$$y = 3$$

$$xy = 5 \times 3 = 15$$

**Instructions**

In the following questions, select the missing number from the given responses.

**Question 35**

?	25
81	49

- A 100
- B 36
- C 121
- D 42

**Answer:** C

**Explanation:**

$$(5)^2 = 25$$

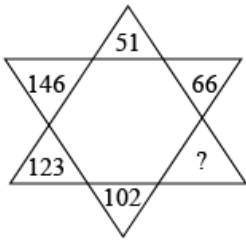
$$(7)^2 = 49$$

$$(9)^2 = 81$$

$$(11)^2 = 121$$

∴ The correct answer is option C.

Question 36



- A 82
- B 81
- C 83
- D 84

Answer: C

Explanation:

$$7^2 + 2 = 51$$

$$8^2 + 2 = 66$$

$$9^2 + 2 = 83$$

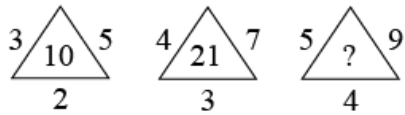
$$10^2 + 2 = 102$$

$$11^2 + 2 = 123$$

$$12^2 + 2 = 146$$

∴ the correct answer is option C.

Question 37



- A 24
- B 45
- C 63
- D 36

Answer: D

Explanation:

Question follows pattern as,

$$5 \times 2 = 10$$

$$7 \times 3 = 21$$

Similarly,

$$9 \times 4 = 36$$

Instructions

For the following questions answer them individually

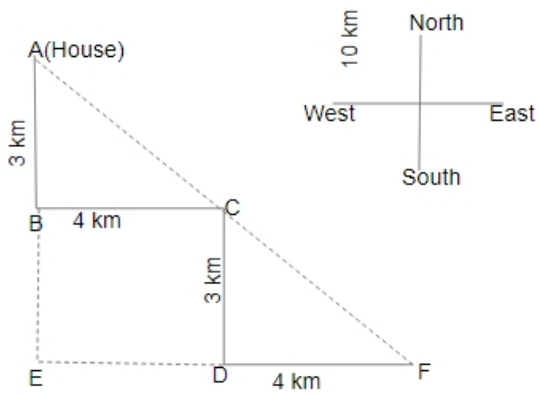
Question 38

Ram started from his house and travelled 3 km towards South. Then turned left and travelled 4 km. Then again he turned right and travelled 3 km. From there, he turned left and travelled 4 km. At what distance is he now from his house ?

- A 15 km
- B 5 km
- C 10 km
- D 14 km

**Answer: C**

**Explanation:**



From the figure,

$$AE = 3 + 3 = 6 \text{ km}$$

$$EF = 4 + 4 = 8 \text{ km}$$

In  $\triangle AEF$ ,

$$(AF)^2 = (AE)^2 + (EF)^2$$

$$(AF)^2 = (6)^2 + (8)^2$$

$$(AF)^2 = 36 + 64$$

$$(AF)^2 = 100$$

$$AF = 10 \text{ km}$$

$$\text{Distance} = 10 \text{ km}$$

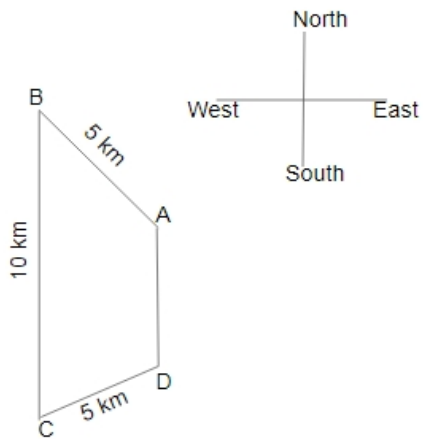
**Question 39**

From point A, Ravi walks 5 km North-West to point B, from point B he walks 10 km South to point 'C'. From point C he moves 5 km North - East to point D. From point D he was back to point A. If Ravi always walked in a straight line what figure has he traced ?

- A Trapezium.
- B Rhombus
- C Kite
- D Parallelogram

**Answer: A**

**Explanation:**

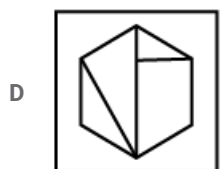
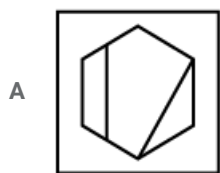


From the diagram, Ravi traced the Trapezium figure.

**Question 40**

Identify the answer figure from which the given pieces in question figure are found.

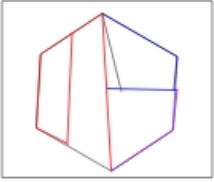
Question figure :



Answer: B

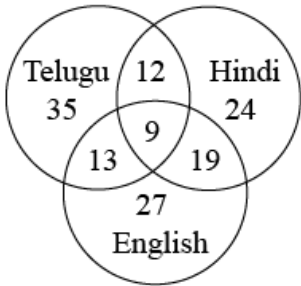
Explanation:





**Question 41**

This Venn diagram shows the no. of people who can speak Telugu, Hindi and English. Find out the total no. of people who can speak all the three languages?



- A 19
- B 13
- C 12
- D 9

**Answer: D**

**Explanation:**

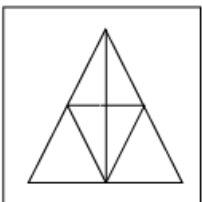
The total no. of people who can speak all the three languages = 9

\$\$

∴ The correct answer is option D.

**Question 42**

How many triangles are there in the figure ?



- A 7
- B 13
- C 11
- D 9

**Answer: B**

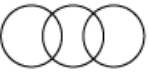
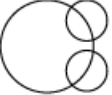


**Explanation:**

Total number of triangles = 13

∴ The correct answer is option B.

**Question 43**

Indicate the best relation among blackboard, classroom and school.

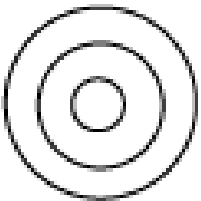
- A 
- B 
- C 
- D 

**Answer: D**

**Explanation:**

Blackboard is in the class and class is in the school.

So, related Venn diagram,



**Instructions**

In the following questions, one or two Statements is given followed by two Conclusions I, and II. You have to consider the statement to be true, even if it seems to be at variance from commonly known facts. You are to decide which of the given conclusions can definitely be drawn from the given statement. Indicate your answer.

**Question 44**

- Statement: Some fishes are crocodiles.**
- Some Crocodiles are snakes.**
- No snake is snail.**
- All snails are tortoises.**

**Conclusion:**

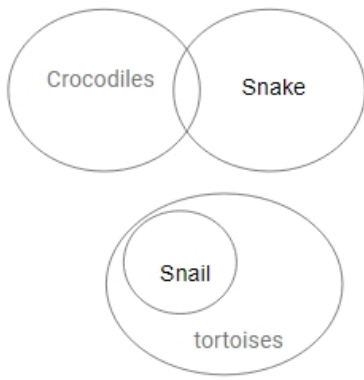
- I. Some snakes are Crocodiles.**
- II. Some Crocodiles are tortoise**

- A None of these Conclusions I and II follow
- B Conclusion I follow
- C Conclusion II follow
- D Both the Conclusions I and II follow

**Answer: B**

**Explanation:**

Venn diagram,



From the Venn diagram, only conclusion I follow.

**Question 45**

**Statement:**

Jessica has 4 children. Two of them have blue eyes and two have brown eyes. Half of the children are girls.

**Conclusions:**

- I. At least one girl has blue eyes
- II. Two of the children are boys.
- III. The boys have brown eyes.

- A Conclusion I only
- B Conclusion II only
- C Conclusion I and III only
- D Conclusion II and III only

**Answer: B**

**Explanation:**

Only Statement II is true because "Two of the children are boys" is definitely true.

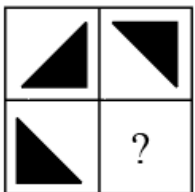
∴ Option B is the correct answer.

**Instructions**

In the following questions, which answer figure will complete the pattern in the question figure.

**Question 46**

**Question figure :**

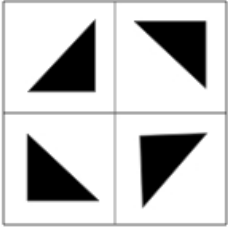


- A
- B



Answer: C

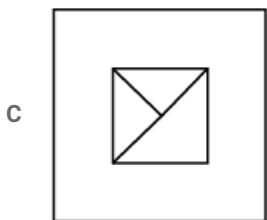
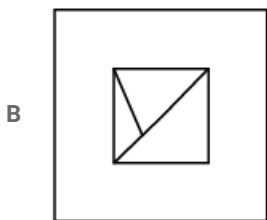
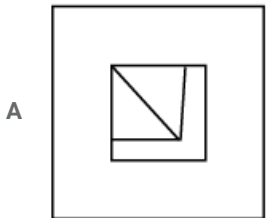
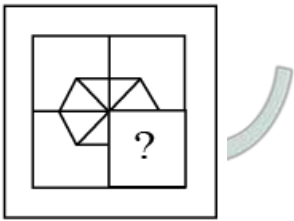
Explanation:

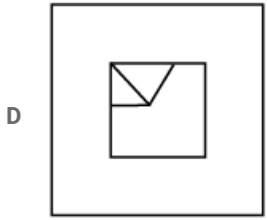


∴ The correct option is D.

Question 47

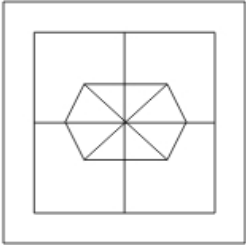
Question figure :





Answer: D

Explanation:



∴ The correct answer is option D.

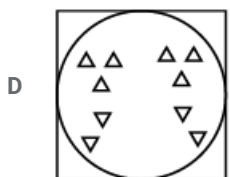
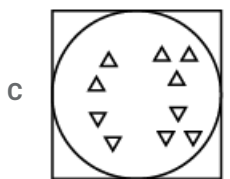
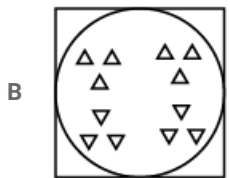
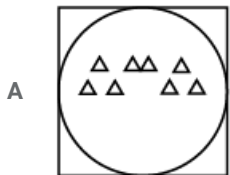
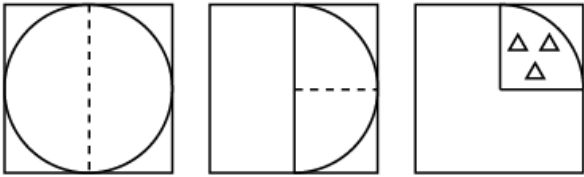
**Instructions**

For the following questions answer them individually

**Question 48**

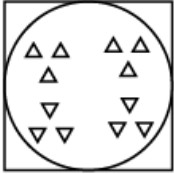
A piece of paper is folded and cut as shown below in the question figures. From the given answer figures, indicate how it will appear when opened.

Question figure :



Answer: B

Explanation:



∴ The correct answer is option B.

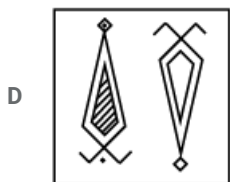
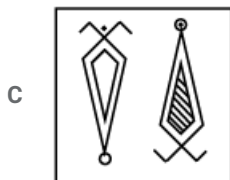
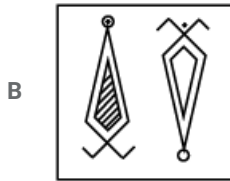
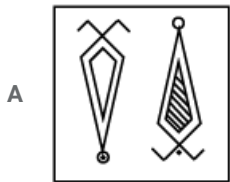
Question 49

if a mirror is placed on the line AB, then which of the answer figures is the right image of the given figure:

Question figure:

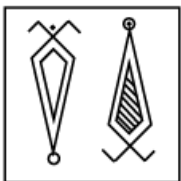


A B



Answer: C

Explanation:



∴ The correct answer is option C.

**Question 50**

In the following question, a matrix of certain characters is given. These characters follow a certain trend, row - wise or column - wise. Find out this trend and choose the missing character accordingly.

Z	?	S
J	G	?
?	T	P

- A WCV
- B RHS
- C WCW
- D RQM

**Answer:** C

**Explanation:**

$$Z - 3 = W - 4 = S$$

$$J - 3 = G - 4 = C$$

$$W - 3 = T - 4 = P$$

Missing character = WCW

∴ The correct answer is option C.

## General Awareness

**Instructions**

For the following questions answer them individually

**Question 51**

During National emergency, the following article cannot be suspended:

- A Article 20
- B Article 17
- C Article 21
- D Article 19

**Answer:** C

**Question 52**

Which one of the following states has a separate Constitution ?

- A Sikkim
- B Assam
- C Jammu and Kashmir
- D Arunachal Pradesh

**Answer:** C

**Question 53**

"Origin of Species by Natural Selection" was written by:

- A William Harvey
- B Lamark
- C Charles Darwin
- D Wallace

**Answer: C**

**Question 54**

**How many islands are there in Lakshadweep ?**

- A 47
- B 17
- C 27
- D 36

**Answer: C**

**Question 55**

**Cockroach is:**

- A Sanguivorous
- B Carnivorous
- C Herbivorous
- D Omnivorous

**Answer: D**

**Question 56**

**Which of the following plant is grown for the reclamation of ravines ?**

- A Eucalyptus globulus
- B Prosopis juliflora
- C Dalbergia sissoo
- D All of the above

**Answer: B**

**Question 57**

**The Brahma Samaj was founded by:**

- A Keshab Chandra Sen
- B Raja Rammohan Roy
- C Devendranath Tagore



D Dayananda Saraswathi

Answer: B

Question 58

The banks are required to maintain a certain ratio between their cash in hand and total assets. This is called :

A CLR (Central Liquid Reserve)

B SBR(Statutory Bank Ratio)

C SLR (Statutory Liquid Ratio)

D CBR (Central Bank Reserve)

Answer: C

Question 59

The chemical substance present in bones and teeth is :

A  $Ca_3(BO_3)_2$

B  $Ca(NO_3)_2$

C  $Ca_3(PO_4)_2$

D  $CaF_2$

Answer: C

Question 60

What is the primary effect of excess phosphorous in the aquatic environment called ?

A Radiation

B Fixation

C Nitrification

D Eutrophication

Answer: D

Question 61

MS Office, Photoshop and Animagic are examples of:

A Device driver

B Application software

C System software

D Operating system

Answer: B

Question 62

Indian Income Tax is:

- A Indirect and Progressive
- B Direct and Proportional
- C Indirect and Proportional
- D Direct and Progressive

**Answer: D**

**Question 63**

**NABARD is a:**

- A Department
- B Bank
- C Bureau
- D Board

**Answer: B**

**Question 64**

**The onset of reproductive life is called :**

- A Maturation
- B Menarche
- C Menopause
- D Puberty

**Answer: D**

**Question 65**

**Which among the following instruments produces electricity ?**

- A Transmitter
- B Electrografers
- C Dynamo
- D Voltametre

**Answer: C**

**Question 66**

**Unit of electric current is :**

- A Velocity
- B Volts
- C Ampere

D Calorie

Answer: C

Question 67

Reservation for the Scheduled Castes and Scheduled Tribes in the services has been provided in the Indian Constitution under:

A Article 375

B Article 315

C Article 335

D Article 365

Answer: C

Question 68

Nucleolus is present within the:

A Lysosome

B Cytoplasm

C Mitochondria

D Nucleus

Answer: D

Question 69

The subject on which both the Centre and State Governments can legislate are contained in:

A Residuary List

B The Union List

C The State List

D The Concurrent List

Answer: D

Question 70

Plants are green because of the presence of a pigment called:

A Oxygen

B Glucose

C Nitrogen

D Chlorophyll

Answer: D

Question 71

One billion bytes is approximately equal to:

- A Gigabyte
- B Megabyte
- C Terabyte
- D Petabyte

**Answer: A**

**Question 72**

**The term 'NIFE' refers to:**

- A Ocean floor
- B Earthquakes
- C Core of the earth
- D Crust of the earth

**Answer: C**

**Question 73**

**The river cauvery originates from which of the following states ?**

- A Madhya Pradesh
- B Andhra Pradesh
- C Tamil Nadu
- D Karnataka

**Answer: D**

**Question 74**

**The Jawaharlal Nehru Port is located at :**

- A Kolkata
- B Paradip
- C Cochin
- D Mumbai

**Answer: D**

**Question 75**

**Which type of energy is converted into electrical energy by a battery ?**

- A Thermal
- B Mechanical
- C Chemical

D Biological

Answer: C

Question 76

Birthday of which Indian personality is celebrated on 2<sup>nd</sup> October along with M.K. Gandhi?

A V.P. Singh

B Rabindranath Tagore

C Bal Gangadhar Tilak

D Lal Bahadur Shastri

Answer: D

Question 77

The 24<sup>th</sup> Thirthankara of Jainism

A Mahaveera

B Vrushabha

C Parshwanatha

D Ashwagosha

Answer: A

Question 78

Mohamud Ghazni's last famous expedition to Hindustan was against:

A Somanath

B Kalinjar

C Kannauj

D Mathura

Answer: A

Question 79

Savanna grasslands in Brazil are called:

A Campos

B Downs

C Prairies

D Pampas

Answer: A

Question 80

Which of the following is a triploid plant ?

- A Orange
- B Wheat
- C Banana
- D Mango

Answer: C

**Question 81**

The fundamental duties are incorporated in Article 51A of the constitution of India by the:

- A 44<sup>th</sup> Amendment Act
- B 41<sup>st</sup> Amendment Act
- C 42<sup>nd</sup> Amendment Act
- D 43<sup>rd</sup> Amendment Act

Answer: C

**Question 82**

A consumer is said to be in equilibrium, if:

- A He is able to locate new sources of income.
- B He is able to fulfill his needs with a given level of income.
- C His income and expenditure are equal.
- D He can fulfill his needs without consumption of certain items.

Answer: B

**Question 83**

Which metal gives  $H_2$ , with steam in Red heat condition?

- A Pb
- B Cu
- C Fe
- D Ag

Answer: C

**Question 84**

The source of River Vaigai is in the hills of :

- A Cardamom
- B Agasthiar
- C Amarkantak

D Jawadi

Answer: A

Question 85

The universal energy currency of plants and animals is:

A ATP

B Chlorophyll

C Calorie

D NADP

Answer: A

Question 86

Air pollution is caused by :

A Loud speakers

B Insecticides

C Sewage

D Smoke

Answer: D

Question 87

Who among the following can be removed from the office without impeachment ?

A Chief Election Commissioner

B President of India

C Chief Justice of India

D Governor of a State

Answer: D

Question 88

The fundamental Rights of Indian citizen are contained in :

A Part VIII of constitution

B Part III of constitution

C Part IV of constitution

D The seventh schedule of the constitution

Answer: B

Question 89

'School Capital' of India is :

- A Lucknow
- B Dehradun
- C Bangalore
- D Delhi

Answer: B

Question 90

Where in India can you find the highest cricket ground above sea level?

- A Guwahati
- B Dehradun
- C Chail
- D Gwalior

Answer: C

Question 91

The fertilizer Nitrolym is:

- A  $CaCN_2 + C$
- B  $CaCN_2$
- C  $CaCN + C$
- D  $Ca(CN)_2 + CO_2$

Answer: A

Question 92

'Sambalpur' is situated on the bank of which of the following rivers ?

- A Mahanadi
- B Yamuna
- C Saraswati
- D Saryu

Answer: A

Question 93

The Per Capita Income is obtained by :

- A Dividing the total national capital with the profit earned.
- B Summing up the income of the citizens of the country.
- C Dividing the national income by the population.



D Estimating the minimum income of individual citizens.

Answer: C

Question 94

Mistral is a cold wind which blows down the valley of:

A Volga

B Rhine

C Rhone

D Seine

Answer: C

Question 95

The largest nationalized bank of India is the :

A Central Bank of India

B State Bank of India

C Reserve Bank of India

D Bank of India

Answer: B

Question 96

With increasing quantum number, the energy difference between adjacent energy levels in atoms:

A Decreases first and then increases

B Decreases

C Increases

D Remains constant

Answer: B

Question 97

Megasthenes was a Greek Ambassador sent by:

A Seleukos

B Alexander

C Philippos

D Justin

Answer: A

Question 98

In the etching of glass, we use the acid :

- A HBr
- B HCl
- C HF
- D HI

Answer: C

**Question 99**

Steppe grassland is found in:

- A Russia
- B Africa
- C South America
- D Australia

Answer: A

**Question 100**

The Sikh religion originated with the teaching of:

- A Rangit Singh
- B Ramdas
- C Guru Nanak
- D Govind Singh

Answer: C

## General Engineering (Civil & Structural)

**Instructions**

For the following questions answer them individually

**Question 101**

The minimum percentage of steel in R.C.C.slab using mild steel reinforcement is given by:

- A 0.35%
- B 0.12%
- C 0.15%
- D 0.30%

Answer: C

**Question 102**

To obtain very high strength concrete, it is necessary to use very fine grained

- A Volcanic Scoria
- B Granite
- C Magnetite
- D Barite

Answer: B

**Question 103**

Which of the following type of lime is used for underwater constructions

- A Fat lime
- B Quick lime
- C Slaked lime
- D Hydraulic lime

Answer: D

**Question 104**

Which one of the following has least bearing capacity?

- A Loose gravel (b) Hard rocks
- B Hard rocks
- C Soft rocks
- D Compact gravel

Answer: A

**Question 105**

Factor of safety is the ratio of:

- A bearing stress and working stress
- B yield stress and working stress
- C tensile stress and working stress
- D compressive stress and working stress

Answer: B

**Question 106**

For lined canals, the freeboard measured from the :

- A full supply level to the top of the lining
- B full supply level to the top of the bank
- C top of the bank to the top of the lining

D full supply level to the top of the dowel

Answer: A

Question 107

The property of a material by which it gets permanent deformation under a load which is not recovered after removal of load is called

A elasticity

B brittleness

C ductility

D plasticity

Answer: D

Question 108

The concrete having a slump of 6.5 cm, is said to be

A plastic

B dry

C earthmoist

D semi-plastic

Answer: A

Question 109

Capillary rise is a phenomenon that is attributed to the following property of fluid:

A vapour pressure

B viscosity

C density

D surface tension

Answer: D

Question 110

The value of  $C_v$  for sharp edged orifice generally

A 0.98

B 0.95

C 0.96

D 0.97

Answer: A

Question 111

As a cheap alternative, the fineness of cement is tested by using

- A IS 100  $\mu$  sieve where at least 90% (by weight) should be retained
- B IS 90  $\mu$  sieve where at least 90% (by weight) should pass
- C IS 90  $\mu$  sieve where at least 95% (by weight) should pass
- D IS 100  $\mu$  sieve where at least 90% (by weight) should pass

Answer: B

**Question 112**

Strain energy due to sudden axial load is given by:  $[\sigma]$ : resultant stress

P : Axial load

$\Delta$ : detornator

$\epsilon$ : strain

E : modulus of elasticity

- A  $\frac{1}{2} \Delta$
- B  $[\sigma].\epsilon$
- C  $P \Delta$
- D  $\frac{\sigma^2}{2E}$

Answer: C

**Question 113**

The maximum permissible stress for hand driven river in axial tension is :

- A  $250 \frac{N}{mm^2}$
- B  $80 \frac{N}{mm^2}$
- C  $90 \frac{N}{mm^2}$
- D  $100 \frac{N}{mm^2}$

Answer: B

**Question 114**

Measurement of pressure difference between two points is, generally done by using

- A Venturimeter
- B Pitot tube
- C Different manometer
- D None of the above

Answer: C

**Question 115**

Calcium chloride added in concrete acts as:

- A retarder
- B accelerator
- C air entraining agent
- D plasticizer

Answer: B

**Question 116**

The following document contains detailed description of all items of work excluding their quantities, along with the current rates :

- A Analysis of rates
- B Tender document
- C Abstract estimate
- D Schedule of rates

Answer: D

**Question 117**

Specific gravity has a unit:

- A  $\frac{d}{cc}$
- B  $\frac{kg}{m^3}$
- C  $\frac{N}{m^3}$
- D No unit-dimensionless

Answer: D

**Question 118**

To construct a massive dam the type of cement used is:

- A blast furnace slag cement
- B low heat cement
- C rapid hardening cement
- D ordinary Portland cement

Answer: B

**Question 119**

The size of fillet weld is indicated by:

- A Size of the plate
- B Side of the triangle of fillet
- C Throat of the fillet

D Length of fillet weld

Answer: B

Question 120

In limit state method of design, for bars in compression in values of bond stress shall be

A Decreased by 25%

B Increased by 20%

C Decreased by 20%

D Increased by 25%

Answer: D

Question 121

The main gas liberated from an anaerobic sludge digester is :

A  $NH_3$

B  $CO$

C  $CO_2$

D  $CH_4$

Answer: D

Question 122

Spacing of stirrups in a rectangular beam is :

A increased at the ends

B kept constant throughout the length

C decreased towards the centre of the beam

D increased at the centre of the beam

Answer: D

Question 123

The minimum percentage of longitudinal reinforcement in RCC column is :

A 12

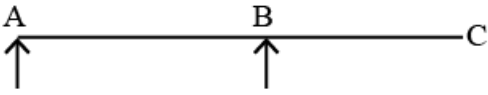
B 0.6

C 0.8

D 1.0

Answer: C

Question 124



The beam shown in Fig. is :

- A Free cantilever beam
- B Single overhanging beam
- C Double overhanging beam
- D Proper cantilever beam

Answer: B

Question 125

The slenderness ratio of a column is zero when its length

- A Effective length is equal to Actual length
- B is very large
- C is equal to its radius of gyration
- D is supported on all sides throughout its length

Answer: D

Question 126

Most important constituents of cement are :

- A  $C_3A$  and  $C_2S$
- B  $C_3S$  and  $C_3A$
- C  $C_3S$  and  $C_2S$
- D  $C_3A$  and  $C_4AF$

Answer: C

Question 127

Which of the following has least carbon content?

- A Wrought Iron
- B Cast Iron
- C Mild steel
- D Pig steel

Answer: A

Question 128

When R is the radius of the curve (in meters), D is the degree of curve (in degrees) and length of the chord is 30 m, then the relation between R and D is:



A  $R = \frac{5400}{D}$

B  $R = \frac{1520}{D}$

C  $R = \frac{1720}{D}$

D  $R = \frac{4500}{D}$

Answer: C

**Question 129**

The floor area includes the area of the balcony upon

A 25%

B 85%

C 75%

D 50%

Answer: D

**Question 130**

The increase in the strength of concrete with time is :

A Linear

B Non-linear

C Asymptotic

D All of the above

Answer: B

**Question 131**

Generally concrete cubes are tested measure concrete's

A Compressive strength

B Tensile strength

C Twisting strength

D None of the above

Answer: C

**Question 132**

In a singly reinforced beam if the stress in concrete reaches its allowable limit earlier than the steel reaches its permissible limit, the beam section is called :

A critical section

B under reinforced section

C over reinforced section

D economic section

Answer: C

Question 133

Which of the following is a dimensionless quantity?

A Shear force

B Stress

C Strain

D Modulus of elasticity

Answer: C

Question 134

Weight of one bag of cement is :

A 70 kg

B 50 kg

C 60 kg

D 65 kg

Answer: B

Question 135

The flow constant 'f' in Darcy Weisbach equation for head loss in piped flow has a unit of :

A No unit-diversion less

B m

C  $\frac{m}{sec}$

D  $\frac{kg-m}{sec}$

Answer: A

Question 136

Steel corrodes in exposure of air and moisture and rust has:

A 2.5 times the volume of steel

B 0.5 times the volume of steel

C equal volume compared to amount of steel rusted

D twice the volume of steel

Answer: A

Question 137

In the quadrantal bearing system, a whole circle bearing of  $293^\circ 30'$  can be expressed as :

- A  $N23^{\circ}30'W$
- B  $W23^{\circ}30'N$
- C  $N66^{\circ}30'W$
- D  $S113^{\circ}30'N$

Answer: C

**Question 138**

Workability of concrete is directly proportional to

- (i) time of transit
- (ii) wate cement ratio
- (iii) gradign of aggregate
- (iv)stength of aggregate
- (v) aggragate cement ratio

- A (iii), (iv), (v)
- B (i), (ii), (iv)
- C (ii), (iii), (v)
- D (ii), (iii)

Answer: D

**Question 139**

A 40 cm diameter circular timber column is 4 m long. The slenderness ratio of the column is :

- A  $20\sqrt{2}$
- B 10
- C 20
- D 40

Answer: D

**Question 140**

The percentage of the fine aggregate of fineness modulus 2.6 to be combined with coarse aggregate of fineness modulus 6.8 of obtaining the aggregates of fineness modulus 5.4, is :

- A 60%
- B 30%
- C 40%
- D 50%

Answer: D

**Question 141**

Administrative head of public works department who is directly responsible to Government is :

- A Assistant Engineer
- B Executive Engineer
- C Superintending Engineer
- D Chief Engineer

Answer: D

**Question 142**

The load factor applied to wind and seismic loads in design of steel structures is :

- A 2.2
- B 1.3
- C 1.5
- D 1.8

Answer: B

**Question 143**

The minimum diameter of longitudinal reinforcement in RCC column should not be less than :

- A 16 mm
- B 6 mm
- C 8 mm
- D 12 mm

Answer: D

**Question 144**

Generally the ratio of different ingredients (Cement Sand and aggregate) in concrete mix of grade M20

- A 1 : 2 : 4
- B 1 : 15 : 3
- C 1 : 3 : 6
- D 1 : 1 : 2

Answer: B

**Question 145**

Fineness test of cement gives us an estimate of :

- A Workability of concrete
- B heat of hydration
- C rate of hydration

D durability of concrete

Answer: C

Question 146

The type of surveying which requires least office work is

- A Theodolite surveying
- B Tacheometry
- C Trigonometrical levelling
- D Plane table surveying

Answer: D

Question 147

Admixture which cause early setting and hardening of concrete are called:

- A Air entraining agents
- B Workability admixture
- C Accelerators
- D Retarders

Answer: C

Question 148

Basalt stone is by nature :

- A meta morphic
- B volcanic
- C plutonic
- D sedimentary

Answer: C

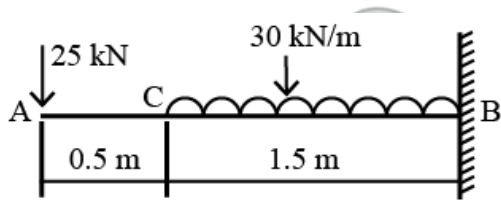
Question 149

In open channels 9 maximum velocity occurs :

- A just below the free surface
- B at the surface
- C near the channel bottom
- D in the mid-depth of flow

Answer: A

Question 150



For the cantilever beam shown in Fig, the value of shear Force at fixed end is :

- A 100 kN
- B 70 kN
- C 80 kN
- D 90 kN

Answer: D

Question 151

In a simply supported beam of span, L subjected to Uniformly Distributed load (UDL) of intensity W kN/m over its entire length the maximum bending is given by the expression :

- A  $\frac{WL^2}{8}$
- B  $\frac{WL}{2}$
- C  $\frac{WL^2}{2}$
- D WL

Answer: A

Question 152

The relationship between void ratio 'e' and porosity 'n' is

- A  $n = \frac{1+e}{1-e}$
- B  $e = n(1+e)$
- C  $n = \frac{e}{1-e}$
- D  $n = \frac{1+n}{1-e}$

Answer: B

Question 153

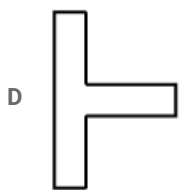
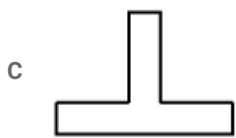
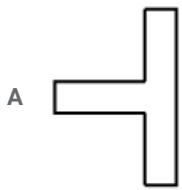
When 1 cm on a map represents 10 m on the ground, the representative fraction of the scale is :

- A  $\frac{1}{10000}$
- B  $\frac{1}{10}$
- C  $\frac{1}{100}$
- D  $\frac{1}{1000}$

Answer: D

Question 154

A simply supported beam of span 'L' is loaded with downward uniformly distributed load of intensity  $\frac{W}{mp}$  over its entire length. Which of the following orientation of T beams is preferred to resist bending?



Answer: B

Question 155

The total energy line lies over the hydraulic gradient line by an amount equal to

A sum of pressure, velocity and datum heads

B Pressure head  $\frac{P}{\gamma}$

C velocity head,  $\frac{v^2}{2g}$

D datum head,  $\pi$

Answer: C

Question 156

Diameter of rivet hole is made larger than the diameter of the rivet by

A 0.5 mm

B 1.0 mm

C 3 mm

D 2.0 mm

Answer: D

**Question 157**

**A flyover segregates traffic with respect to :**

- A direction
- B grade
- C speed
- D class of vehicle

**Answer: B**

**Question 158**

**For producing electricity, following combination of machines will be required:**

- A Electric Motor + Pump
- B Hydraulic Turbine + Generator
- C Hydraulic Turbine + Electric Motor
- D Generator

**Answer: C**

**Question 159**

**Irrigation efficiency of an irrigation system is the ratio of**

- A Water reaching the farm to water delivered from the source
- B Crop yield to total amount of water used in a field
- C Water actually stored in root zone water delivered to the farm
- D Water actually utilised by growing crops to water delivered from the source

**Answer: D**

**Question 160**

**The specific gravity of bitumen is**

- A 2.09
- B 0.8
- C 0.9
- D 1.09

**Answer: D**

**Question 161**

**The ratio of normal stress to normal strain within elastic limits is called :**

- A Young's Modulus
- B Shear Modulus



C Poisson's Ratio

D Bulk Modulus

Answer: A

Question 162

Gravel and sand belongs to the following category of soils

A alluvial

B cohesive

C expansive

D marine

Answer: A

Question 163

The shape of Bending moment Diagram in a beam subjected to only Uniformly Distributed Load (UDL) is :

A Constant

B Cubic parabola

C Parabola

D Triangular

Answer: C

Question 164

To prevent sulphate attack in concrete, for preparing concrete mix, water pH must be within

A 7 - 10

B 4 - 6

C 5 - 7

D 6 - 9

Answer: D

Question 165

For subcritical flow, the froude number is :

A Non equal to one

B Less than one

C Greater than one

D Equal to one

Answer: B

**Question 166**

The permissible bending stress in working stress method of design of column base is considered equal to :

- A 0.87  $f_y$
- B 0.6  $f_y$
- C 0.67  $f_y$
- D 0.75  $f_y$

**Answer: D**

**Question 167**

In single laced column construction, the thickness of the flat lacing bars shall not be less than :

- A  $\frac{1}{15}$  th of the width of the lacing bar
- B  $\frac{1}{30th}$  th of the width of the lacing bar
- C  $\frac{1}{40}$  th of the width of the lacing bar
- D  $\frac{1}{10}$  th of the width of the lacing bar

**Answer: C**

**Question 168**

The most accurate instrument for measuring horizontal and vertical angles is :

- A Theodolite
- B Dumpy level
- C Compass
- D Tape and chain

**Answer: A**

**Question 169**

The quantity of wood for the shutters of doors and windows its calculate in:

- A  $m^3$
- B lump-sum
- C m
- D  $m^2$

**Answer: D**

**Question 170**

The plane of a building is in the form of square with centreline dimensions of outer walls as 14.7 m × 14.7 m. If the thickness of the wall in superstructure is 0.30 m, then its plinth area is

- A  $234m^2$
- B  $150m^2$
- C  $216m^2$
- D  $225m^2$

Answer: D

**Question 171**

The contour lines can cross one another on map only in the case of :

- A an overhanging cliff
- B a vertical cliff
- C a valley
- D a ridge

Answer: A

**Question 172**

The purpose of stiffeners in a plate girder is to

- A prevent buckling of web plate
- B reduce the shear stress
- C take care of bearing stress
- D increase the moment carrying capacity of the girder

Answer: A

**Question 173**

The value of property during its useful life based on purchase value and depreciations etc

- A Ideal fluid
- B Real fluid
- C Newtonian fluid
- D Non Newtonian fluid

Answer: A

**Question 174**

The value of property during its useful life based on purchase value and depreciations etc. is known as :

- A Junk value
- B Salvage value
- C Scrap value

D Book value

Answer: D

Question 175

The relationship between atmosphere pressure ( $P_{atm}$ ), gage pressure ( $P_{gage}$ ) and absolute pressure ( $P_{abs}$ ) is given by :

A  $P_{atm} = P_{abs} - P_{gage}$

B  $P_{abs} = P_{atm} + P_{gage}$

C  $P_{abs} = P_{atm} - P_{gage}$

D  $P_{atm} = P_{abs} + P_{gage}$

Answer: B

Question 176

In a structure, cables and wires are used generally as :

A to resist shear stress

B tension member

C compression member

D flexural member

Answer: B

Question 177

When the magnetic bearing of the sun at noon is  $185^{\circ}20'$ , the magnetic declination will be

A  $5^{\circ}20'$  south

B  $5^{\circ}20'$  east

C  $5^{\circ}20'$  west

D  $5^{\circ}20'$  north

Answer: C

Question 178

A RCC column is regarded as long column if the ratio of its unsupported length between end restraints to least lateral dimension is more than:

A 25

B 150

C 125

D 60

Answer: D

**Question 179**

The height of instrument is equal to :

- A Reduced level of bench mark - back sight
- B Reduced level of bench mark + back sight
- C Reduced level of bench mark + fore sight
- D Reduced level of bench mark + Intermediate sight

**Answer: B**

**Question 180**

Thickness of Plastering is usually

- A 40 mm
- B 6 mm
- C 12 mm
- D 25 mm

**Answer: C**

**Question 181**

Water absorption of Class I brick after 24 hours of immersion in water should not exceed \_\_\_\_\_ of self weight

- A 25%
- B 18%
- C 20%
- D 22%

**Answer: C**

**Question 182**

For a given aggregate ratio increasing the water cement ratio:

- A increases the strength
- B decrease shrinkage
- C increase shrinkage
- D does not cause any change in shrinkage

**Answer: C**

**Question 183**

Granite is a rock that is by nature

- A metamorphic
- B volcanic

- C plutonic
- D sedimentary

Answer: C

**Question 184**

When the plastic limit of a soil is greater than the liquid limit, then the plasticity index is reported as :

- A 1
- B Negative
- C Zero
- D Non-Plastic (NP)

Answer: C

**Question 185**

Compression member always tend to buckle in the direction of the :

- A Least radius of gyration
- B Axis of load
- C Perpendicular to the axis of load
- D Minimum cross section

Answer: A

**Question 186**

As per IS 456-2000. In the absence of test data, the approximate value of the total strain for design may be taken as :

- A 0.004
- B 0.001
- C 0.002
- D 0.003

Answer: D

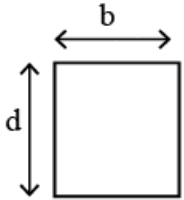
**Question 187**

Separation of water or water sand cement from a freshly mixed concrete is known as :

- A Segregation
- B Flooding
- C Bleeding
- D Creeping

Answer: C

Question 188



Moment of Inertia of rectangular section shown in Fig. about its base is:

- A  $\frac{bd^2}{3}$
- B  $\frac{bd^3}{12}$
- C  $\frac{bd^3}{3}$
- D  $\frac{bd^2}{12}$

Answer: C

Question 189

The correct prismoidal formula for volume calculation is :

- A  $\frac{D}{6}$  [first section area + last section area +  $2 \sum$  even numbered section area +  $4 \sum$  odd numbered section area]
- B  $D$  [first section area + last section area +  $\sum$  even numbered section area +  $2 \sum$  odd numbered section areas]
- C  $\frac{D}{3}$  [first section area + last section area +  $4 \sum$  even numbered section area +  $2 \sum$  odd numbered section area]
- D  $\frac{D}{3}$  [first section area + last section area +  $2 \sum$  even numbered section area +  $4 \sum$  odd numbered section area]

Answer: C

Question 190

Zinc Oxide is a pigment having colour\_\_\_\_\_ [

- A blue
- B white
- C yellow
- D red

Answer: B

Question 191

The correction for sag is :

- A Some times additive and sometimes subtractive
- B Always additive
- C Always subtractive
- D Always zero

Answer: C

**Question 192**

The permanent deformation of concrete with time under steady load is called

- A visco-elasticity
- B vicinity
- C creep
- D relaxation

**Answer: C**

**Question 193**

Intersection method in plane table surveying is most suitable for :

- A Plains
- B Forests
- C Urban areas
- D Hilly areas

**Answer: D**

**Question 194**

An aggregate is known as cyclopean aggregate if its size is more than :

- A 75 mm
- B 4.75 mm
- C 30 mm
- D 60 mm

**Answer: A**

**Question 195**

The centrifugal force on a car moving on a horizontal circular curve is proportional to:

- A  $\frac{Wv^2}{gR}$
- B  $\frac{Wv}{gR}$
- C  $\frac{Wv^2}{gR^2}$
- D  $\frac{Wv}{gR^2}$

**Answer: A**

**Question 196**

Using straight line method annual depreciation D is equal to



- A  $\frac{\text{Life in year Scrap value}}{\text{Originalcost}}$
- B  $\frac{\text{Scrap value life in year}}{\text{Originalcost}}$
- C  $\frac{\text{Original cost life in year}}{\text{scrap value}}$
- D  $\frac{\text{Original cost scrap value}}{\text{life in year}}$

Answer: D

**Question 197**

If R and T are rise and tread of a stair spanning horizontally and steps are supported by wall on one side and by stringer beam on the other side, the steps are designed as beam of width :

- A  $\frac{R+T}{2}$
- B R+T
- C T-R
- D  $\sqrt{R^2 + T^2}$

Answer: D

**Question 198**

. Segregation in the concrete occurs when :

- A Cement gets separated from mixture due to excess water
- B Cement fails to give adequate binding quality
- C Water is driven out of concrete at the faster rate
- D Coarse aggregate tries to separate out from the finer material

Answer: D

**Question 199**

Unit of second moment of area is :

- A mm
- B  $mm^4$
- C  $mm^3$
- D  $mm^2$

Answer: B

**Question 200**

BOD test is conducted at a temperature of :

- A Ambient temperature

B 15° C

C 20° C

D 27° C

Answer: C

