



SSC JE Civil Engineering 23rd Jan 2018 Shift-2

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General Intelligence and Reasoning

Instructions

For the following questions answer them individually

Question 1

In the following question, select the related word pair from the given alternatives.

Heart : Organ :: ? : ?

- A Bus : Vehicle
- B Car : Road
- C Ship : Sea
- D Train : Rail

Answer: A

Question 2

In the following question, select the related word from the given alternatives.

Big : Small :: Solid : ?

- A Metal
- B Liquid
- C Smoke
- D Cold

Answer: B

Question 3

In the following question, select the related word from the given alternatives.

Calculator : Calculations :: Scale : ?

- A Inches
- B Centimeters
- C Measure
- D Steel

Answer: C

Question 4

In the following question, select the related letters from the given alternatives.

MUFT : PXIW :: GONE : ?

- A HMRL
- B JSPA
- C JRQH
- D HQRF

Answer: C

Question 5

In the following question, select the related letters from the given alternatives.
PINK : TMRO :: SOLD : ?

- A HQT X
- B WSP H
- C HAQ V
- D AQB H

Answer: B

Question 6

In the following question, select the related letters from the given alternatives.
SW : VA :: LT : ?

- A NY
- B LA
- C OX
- D OL

Answer: C

Question 7

In the following question, select the related number pair from the given alternatives.
19 : 363 :: ? : ?

- A 16 : 259
- B 13 : 171
- C 14 : 199
- D 14 : 195

Answer: B

Question 8

In the following question, select the related number from the given alternatives.
42 : 105 :: 38 : ?

- A 111
- B 135
- C 95
- D 83

Answer: C

Question 9

In the following question, select the related number from the given alternatives.

24 : 39 :: 49 : ?

- A 68
- B 64
- C 69
- D 79

Answer: B

Question 10

In the following question, select the odd word from the given alternatives.

- A Liver
- B Intestine
- C Organ
- D Lungs

Answer: C

Question 11

In the following question, select the odd word from the given alternatives.

- A Black
- B Yellow
- C Rainbow
- D Pink

Answer: C

Question 12

In the following question, select the odd word from the given alternatives.

- A Arteries
- B Veins
- C Hand
- D Bones

Answer: C

Question 13

In the following question, select the odd letters from the given alternatives.

- A RLF

B MGA

C EYR

D HBV

Answer: C

Question 14

In the following question, select the odd letters from the given alternatives.

A IR

B KP

C GT

D OV

Answer: D

Question 15

In the following question, select the odd letters from the given alternatives.

A XTQMJ

B FBYUR

C GCZVS

D TPMIE

Answer: D

Question 16

In the following question, select the odd number from the given alternatives.

A 4 - 21

B 7 - 54

C 6 - 41

D 3 - 16

Answer: D

Question 17

In the following question, select the odd number pair from the given alternatives.

A 11 - 17

B 23 - 31

C 43 - 59

D 41 - 47

Answer: C

Question 18

In the following question, select the odd number pair from the given alternatives.

- A 12 - 156
- B 13 - 182
- C 14 - 210
- D 15 - 230

Answer: D

Question 19

Arrange the given words in the sequence in which they occur in the dictionary.

1. Shocking
2. Shiver
3. Shelter
4. Shorten
5. Shudder

- A 23145
- B 32145
- C 14523
- D 41523

Answer: B

Question 20

According to dictionary, which of the following word will come at LAST position?

1. Operation
2. Orderly
3. Openly
4. Opulent
5. Oral

- A Oral
- B Orderly
- C Opulent
- D Operation

Answer: B

Question 21

From the given alternatives, according to dictionary, which word will come at THIRD position?

- A Passage
- B Pastime
- C Patience

D Pathetic

Answer: D

Question 22

A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.

AGM, FLR, KQW, PVB, ?

A UAG

B VLC

C CGN

D PNO

Answer: A

Question 23

A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.

FROM, CNLI, ZJIE, WFFA, ?

A ACNG

B TCCX

C TBCW

D FRIP

Answer: C

Question 24

A series is given with one term missing. Select the correct alternative from the given ones that will complete the series.

TRO, PNK, LJG, ?, DBY

A FBC

B FNB

C FRN

D HFC

Answer: D

Question 25

In the following question, select the missing number from the given series.

11, 16, 21, 13, 19, 25, 15, 22, 29, ?, 25

A 18

B 17

C 19

D 21

Answer: B

Question 26

In the following question, select the missing number from the given series.
2112, 2328, 2671, 3183, ?, 4912

A 3826

B 3742

C 3912

D 3992

Answer: C

Question 27

In the following question, select the missing number from the given series.
21, 22, 34.5, 71, 180, 543, ?

A 1864

B 2234

C 2336

D 1904

Answer: D

Question 28

M is 2 years older than P. L is 2 years older than O. O's age is the average of the ages of L and N, P's age is the average of the ages of L and M and L's age is the average of P and O. Who is the youngest?

A L

B M

C N

D O

Answer: C

Question 29

X said to Y that your mother's father-in-law's wife is mother-in-law of my father.
How are X and Y related?

A X is sister's husband of Y

B X is child of Y's father's sister

C Y is father's brother of X

D Y is sister's husband of X

Answer: B

Question 30

From the given alternative words select the word which cannot be formed using the letters of the given word.

GEOGRAPHIC

- A cheap
- B rogue
- C price
- D graph

Answer: B

Question 31

If BANQUET is coded as ZYLOSCR, then how will NEW be coded as?

- A MVD
- B MDV
- C LCU
- D OFX

Answer: C

Question 32

In a certain code language, 9124 means 'run around the block', 2548 means 'don't block the path' and 4763 means 'chock a block full'. Find the code for 'the'.

- A 1
- B 9
- C 2
- D 4

Answer: C

Question 33

In a certain code language, '+' represents '-', '-' represents '×', '×' represents ':' and ':' represents '+'. Find out the answer to the following question.

$$90 \times 10 \div 25 - 5 + 50 = ?$$

- A 81
- B 84
- C 100
- D 48

Answer: B

Question 34

If $11 @ 7 = 2$, $18 @ 0 = 9$ and $22 @ 20 = 1$, then find the value of $16 @ 10 = ?$

- A 6
- B 160
- C 26
- D 3

Answer: C

Question 35

If $A * B$ means A is father of B, $A + B$ means A is sister of B and If $A \% B$ means A is daughter of B, then what does $C * D \% E + F$ mean?

- A C is F's husband
- B C is F's wife's brother
- C C is father of F
- D C is F's sister's husband

Answer: D

Question 36

Select the missing number from the given responses.

8	10	2
9	?	8
17	19	10

- A 1
- B 9
- C -1
- D -9

Answer: B

Question 37

Which of the following terms follows the trend of the given list?
CABABABAB, ACBABABAB, ABCABABAB, ABACBABAB, ABABCABAB, _____.

- A ABABABACB
- B ABABABCAB
- C ABABACBAB
- D ABABABABC

Answer: C

Question 38

A ship starts from the port and sails 43 miles East, then it turns South and sails 17 miles, then it turns West and sails 25 miles, then it turns to its right and sails 17 miles. Where is it with respect to the port from where it started?

- A 18 miles West
- B 68 miles East
- C 18 miles East
- D 68 miles West

Answer: C

Question 39

Two planes start from the same strip. Plane P flies 15 miles West, then turns left flies 22 miles and lands. In the meanwhile plane Q flies 7 miles South, then flies 11 miles East, then turns to its right, flies 15 miles and lands. Where is plane Q with respect to plane P?

- A 26 miles East
- B 26 miles West
- C 4 miles East
- D 4 miles West

Answer: A

Question 40

In the question two statements are given, followed by two conclusions, I and II. You have to consider the statements to be true even if it seems to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follows from the given statements.

Statement I: All officers are mothers

Statement II: Some doctors are mothers

Conclusion I: All doctors are mothers

Conclusion II: Some mothers are officers

- A Only conclusion I follows
- B Only conclusion II follows
- C Both conclusions I and II follow
- D Neither conclusion I nor conclusion II follows

Answer: B

Question 41

In the question three statements are given, followed by three conclusions, I, II and III. You have to consider the statements to be true even if it seems to be at variance from commonly known facts. You have to decide which of the given conclusions, if any, follows from the given statements.

Statement I: All desert is jungle

Statement II: All sand is desert

Statement III: No trees are jungle

Conclusion I: No trees are desert

Conclusion II: No sand is trees

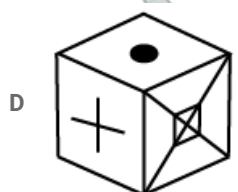
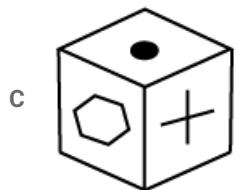
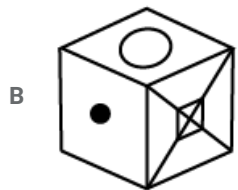
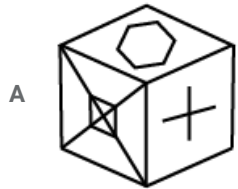
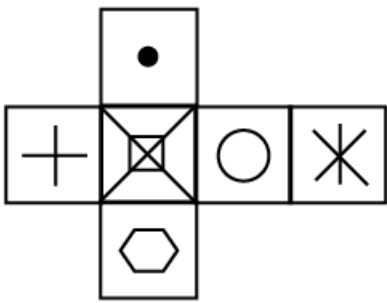
Conclusion III: All jungle is sand

- A Only conclusion I follows
- B Only conclusion II follows
- C Only conclusions I and II follow
- D None of the conclusions follow

Answer: C

Question 42

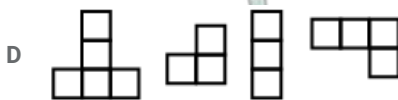
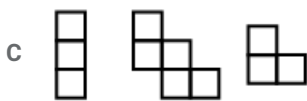
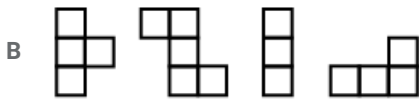
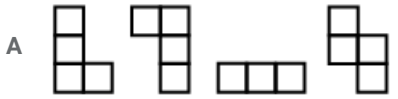
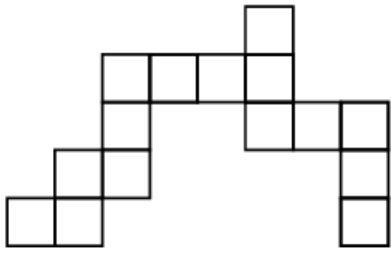
Which of the following cube in the answer figure cannot be made based on the unfolded cube in the question figure ?



Answer: C

Question 43

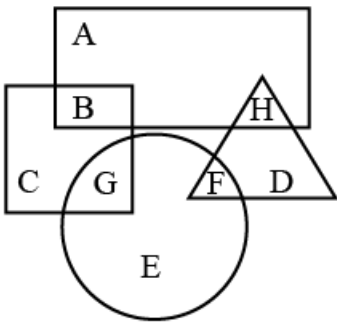
Which of the following figure patterns can be combined to make the question figure ?



Answer: A

Question 44

In the following figure, square represents Artists, triangle represents Military officers, circle represents Collectors, and rectangle represents Fathers. Which set of letters represents collectors who are either military officers or fathers ?



A H

B B

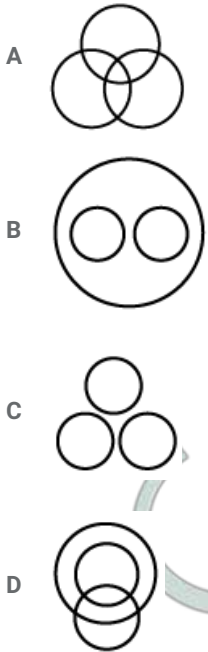
C G

D F

Answer: D

Question 45

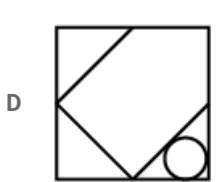
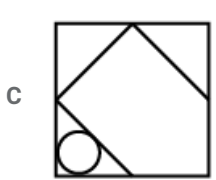
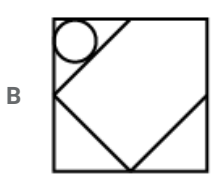
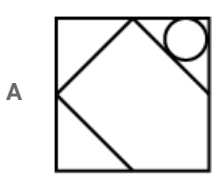
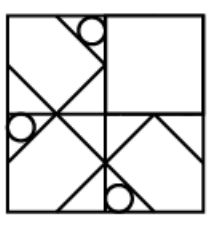
Which of the following venn diagrams represents the relationship between Women, Mothers and Teachers ?



Answer: D

Question 46

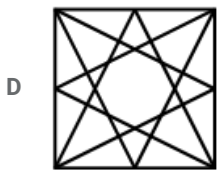
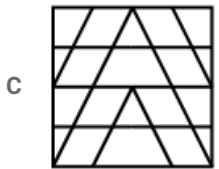
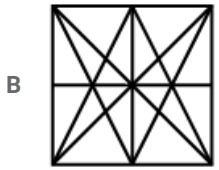
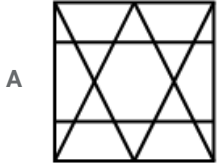
Which of the following figure will complete the pattern in the question figure ?



Answer: D

Question 47

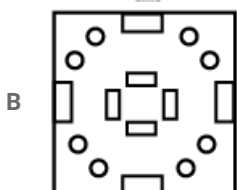
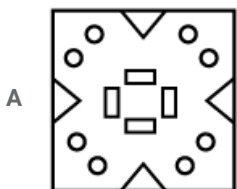
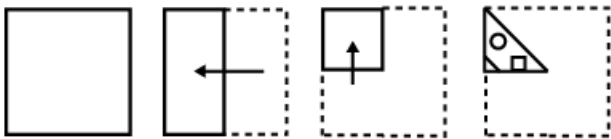
From the given answer figures, select the one in which the question figure is hidden/embedded.

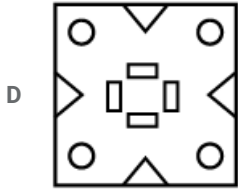
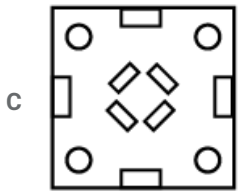


Answer: C

Question 48

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

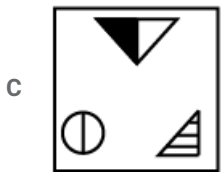
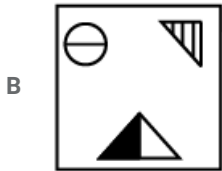
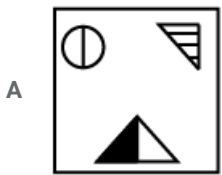
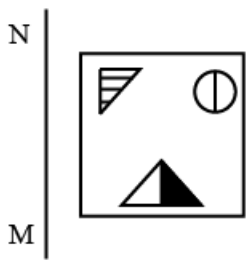




Answer: A

Question 49

If the mirror is placed on the line MN, then which of the following answer figures in the right image of the given figure?



Answer: A

Question 50

A word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as shown in the given two matrices. The columns and rows of Matrix-I are numbered from 0 to 4 and that of Matrix-II are numbered from 5 to 9. A letter from these matrices can be represented first by its row and next by its column, for example 'H' can be represented by 21, 43 etc and 'R' can be represented by 96, 87 etc. Similarly, you have to identify the set for the word 'POEM'.

Matrix I					
	0	1	2	3	4
0	A	A	L	A	B
1	C	A	F	B	C
2	J	H	F	B	K
3	F	J	A	M	L
4	I	B	B	H	E

Matrix II					
	5	6	7	8	9
5	Q	U	Y	N	Z
6	N	R	V	O	Z
7	P	N	Q	W	Q
8	X	N	R	V	V
9	X	R	V	T	O

- A 76,69,01,33
- B 56,88,23,41
- C 89,56,44,02
- D 75,68,44,33

Answer: D

General Awareness

Instructions

For the following questions answer them individually

Question 51

Depreciation of fixed assets is an example of _____.

- A deferred revenue expenditure
- B capital expenditure
- C capital gain
- D revenue expenditure

Answer: B

Question 52

Which one of the following is not a feature of monopolistic competition?

- A Large number of buyers and sellers in the market
- B Differentiated products constitute the market
- C Product in the market is homogeneous
- D Selling costs are used for sale promotion

Answer: C

Question 53

What is the maximum loan amount permissible under the MUDRA Yojana?

- A Rs. 50,000
- B Rs. 1 lakh
- C Rs. 5 lakh
- D Rs. 10 lakh

Answer: D

Question 54

As per a latest classification of countries by the World Bank India now belongs to which of the following category?

- A Upper-lower income country
- B Lower-middle income country
- C Middle-middle income country
- D Lower-upper income country

Answer: B

Question 55

As per census 2011, which state had the lowest sex ratio?

- A Punjab
- B Haryana
- C Uttar Pradesh
- D Bihar

Answer: B

Question 56

Pluralist Theory of Sovereignty emphasizes the importance of which of the followings?

- A Association
- B Monarch
- C State
- D Government

Answer: A

Question 57

In which of the following countries the system of judicial review was originated?

- A France
- B Germany

C USA

D Britain

Answer: C

Question 58

Under which article of the Indian Constitution is the District Planning Commission constituted?

A Article 243 ZD

B Article 244 ZD

C Article 242 ZD

D Article 243 ZE

Answer: A

Question 59

Which kind of majority is required for constitutional amendment in forming a new state?

A Simple

B Two-third

C Three-fourth

D Two-third plus ratification by half of all states

Answer: A

Question 60

Which officer of the Government of India has the right to take part in the proceedings of parliament of India even though he is not a member?

A Vice-President

B Attorney General of India

C Comptroller and Auditor General

D Election Commission

Answer: B

Question 61

The term 'Stupa' is associated with which of the following event of Gautam Buddha's life?

A Death

B First Sermon

C Birth

D Renunciation

Answer: A

Question 62

Who was the last ruler of the Gupta Dynasty?

- A Puru Gupta
- B Vishnu Gupta
- C Skanda Gupta
- D Kumar Gupta

Answer: B

Question 63

Where was Guru Govind Singh educated and learnt Persian?

- A Lahore
- B Amritsar
- C Patna
- D Anandpur Sahib

Answer: D

Question 64

Which of the following was the precursor of Indian National Congress?

- A Servents of Indian Society
- B Indian Association
- C Indian National Union
- D Indian League

Answer: B

Question 65

During which governor general's time was the annexation of Sindh in British State done?

- A Lord Dalhousie
- B Lord Chelmsford
- C Lord Ellenborough
- D Lord Hastings

Answer: C

Question 66

What is the second most abundant element on Earth's crust?

- A Carbon
- B Silicon
- C Oxygen
- D Hydrogen

Answer: B

Question 67

What is called a shallow stretch of river that may be crossed on feet.?

- A Ford
- B Atoll
- C Reef
- D Lagoon

Answer: A

Question 68

Which among the following is a cold-dry wind?

- A Hurricane
- B Tornado
- C Bora
- D Cyclone

Answer: C

Question 69

The man-made reservoir Gobind Sagar located in Bilaspur is situated in which of the following states?

- A Uttarakhand
- B Uttar Pradesh
- C Punjab
- D Himachal Pradesh

Answer: D

Question 70

Which among the following rivers does not flow from East to West?

- A Narmada
- B Tapti
- C Cauvery

D Mahi

Answer: C

Question 71

Which of the following historical monument has been chosen as a "Swachh Bharat Icon" by the Union Government on November 21, 2017.

A Haveli Dharampur

B Charminar

C Amaravati

D Vishwa Bharati

Answer: B

Question 72

As per a recent announcement, where will India's first Electronic Manufacturing Cluster (EMC) come up?

A Andhra Pradesh

B Maharashtra

C Rajasthan

D West Bengal

Answer: A

Question 73

Which of the following is a multilevel global campaign to spread awareness about importance of girl's education?

A Girl Rising

B Most Important Part of Our Life: Girls

C Save Girls: Educate Girls

D Education of Girls

Answer: A

Question 74

Which country will host the Summer Olympics 2020?

A Qatar

B Tokyo

C Rome

D Jakarta

Answer: B

Question 75

Which of the following sportsperson is not correctly matched with their respective discipline?

- A Jitu Rai : Shooting
- B P.V. Sindhu : Badminton
- C Sakshi Malik : Boxing
- D Deepa Karmakar : Gymnastic

Answer: C

Question 76

"A Better India : A Better World" is written by _____.

- A Arun Jaitley
- B Aamer Hussein
- C N. R. Narayan Murthy
- D C. Raja Mohan

Answer: C

Question 77

Which among the following has won the Nobel Prize for Chemistry in October 2017?

- A Jacques Dubochet
- B Joachim Frank
- C Richard Henderson
- D All options are correct.

Answer: D

Question 78

On birth anniversary of social reformer Basavana how many volumes of Vachana were released by Narendra Modi in April, 2017?

- A 21
- B 20
- C 23
- D 25

Answer: C

Question 79

In May 2017, with which country India has signed an agreement on Maritime Security?

- A Sri Lanka
- B Bangladesh
- C Mauritius
- D China

Answer: C

Question 80

Which neighbouring country of India measures prosperity by gauging its citizens' happiness level?

- A Pakistan
- B Nepal
- C Sri Lanka
- D Bhutan

Answer: D

Question 81

In which communication mode, data can be transmitted in both directions at same time?

- A Simplex
- B Full duplex
- C Half duplex
- D Multiplex

Answer: B

Question 82

The computer program that converts assembly language to machine language is called _____.

- A Compiler
- B Interpreter
- C Assembler
- D Comparator

Answer: C

Question 83

Which is a base metal of amalgam alloy?

- A Aluminium
- B Mercury

C Copper

D Zinc

Answer: B

Question 84

Which of the following is the structure of graphite?

A Rigid three-dimensional

B Hexagonal

C like Football

D No option is correct.

Answer: B

Question 85

A wooden spoon is dipped in a cup of ice cream. Its other end will _____.

A become cold by the process of conduction

B become cold by the process of convection

C become cold by the process of radiation

D not become cold

Answer: D

Question 86

Which acid is the most abundant acid found in grapes?

A Oxalic acid

B Ascorbic acid

C Tartaric acid

D Formic acid

Answer: C

Question 87

The splitting of white light into its component colours is called _____.

A diffraction

B refraction

C dispersion

D scattering

Answer: C

Question 88

Which of the following statements are CORRECT ?

- I. Change in magnetic field produces induced current.
- II. Flow of current in a conductor produces magnetic field.
- III. Magnetic field related to coil can be produced by motion between conductor and coil.

- A Only I and II
- B Only I and III
- C Only II and III
- D All statements are correct.

Answer: D

Question 89

Which gas is used as a fuel in a rocket?

- A Radon
- B Hydrogen
- C Chlorine
- D Nitrogen

Answer: B

Question 90

Which of the following is good insulator?

- A Mercury
- B Cadmium
- C Germanium
- D Glass

Answer: D

Question 91

Which is the most abundant Vitamin found in carrot?

- A Vitamin A
- B Vitamin B
- C Vitamin C
- D Vitamin D

Answer: A

Question 92

How the rate of absorption of water through roots can be increased?

- A Keeping the plants in the shade
- B Keeping the plants in the dim light
- C Keeping the plants under the fan
- D Covering the plants with a polythene bag

Answer: C

Question 93

A spore producing plant is _____.

- A rose
- B bread mould
- C potato
- D ginger

Answer: B

Question 94

Which chromosome is responsible for manliness in man?

- A XO
- B YO
- C XX
- D XY

Answer: D

Question 95

The human eye forms the image of an object at its _____.

- A cornea
- B iris
- C pupil
- D retina

Answer: D

Question 96

Which of the following is NOT a multicellular organism?

- A Fungi
- B Spirogyra
- C Hydra

D Paramecium

Answer: D

Question 97

Which disease is caused by cadmium metal pollution?

A Minamata

B Itai-Itai

C Asthma

D Dermatitis

Answer: B

Question 98

Which of the following is an organic gas?

A Carbon dioxide

B Carbon monoxide

C Ethylene dichloride

D Nitrogen dioxide

Answer: C

Question 99

Basel Protocol is related to which of the following?

A Ozone layer

B Burning of forests

C Sea water pollution

D Trans-boundary hazardous dumping

Answer: D

Question 100

Which of the following is parasitic food chain?

A Trees → Fruits eating birds → Lice and bugs

B Grass → Rabbit → Fox → Tiger

C Grass → Grasshopper → Frog → Snake → Hawk

D Phytoplankton → Zooplankton → Fish → Hawk

Answer: A

Instructions

For the following questions answer them individually

Question 101

Which of the following quality of timber can be improved using Abel's process?

- A Durability
- B Fire resistance
- C Chemical resistance
- D Strength

Answer: B

Question 102

Which of the following shows the CORRECT decreasing order of rate of hydration of Portland cement compounds?

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

Answer: D

Question 103

The proportions of ingredients in concrete mix are given by 1:2:4. What will be the actual quantity of the sand per unit volume of cement, if it undergoes 20% of bulking?

- A 1.5
- B 2.4
- C 4.6
- D 6.5

Answer: B

Question 104

What is the range of slump (mm) of the concrete which is used as the mass concrete?

- A 10 to 15
- B 20 to 50
- C 50 to 75
- D 75 to 110

Answer: B

Question 105

In the symbol used to represent the concrete mix, MX. M stands for mix and numeric X represents the_____.

- A 7 days compressive strength
- B 14 days compressive strength
- C 28 days compressive strength
- D 28 days tensile strength

Answer: C

Question 106

According to the IS code, at what moisture content, weight of the timber is noted?

- A 0.05
- B 0.12
- C 0.23
- D 0.3

Answer: B

Question 107

What is the recommended moisture content of timber, which is used as a structural element for windows?

- A 5-10%
- B 10-16%
- C 16-26%
- D 26-36%

Answer: B

Question 108

Which of the following represents the smallest size (mm) of fine aggregate (sand)?

- A 0.01
- B 0.06
- C 1.5
- D 2

Answer: B

Question 109

What is the percentage content of silica in a good quality brick earth?

- A 20-30%
- B 30-40%
- C 40-50%
- D 50-60%

Answer: D

Question 110

When timber is burnt in the wood fire over a depth of about 15 mm, the process of treatment is known as_____.

- A charring
- B rueping process
- C bethel process
- D boucherie process

Answer: A

Question 111

The plasticity index and plastic limit of a soil is given by 25% and 20% respectively. What will be the liquid limit of the soil?

- A 0.15
- B 0.25
- C 0.35
- D 0.45

Answer: D

Question 112

In the flow over length of 50 m, the head loss of 6 m occurred due to seepage. The hydraulic gradient is given by_____.

- A 0.01
- B 0.12
- C 0.29
- D 0.32

Answer: B

Question 113

Which of the following expression represents the CORRECT value of coefficient of curvature?

A $C_c = \frac{(D_{30})^2}{D_{60} \times D_{10}}$

B $C_c = \frac{(D_{60})^2}{D_{30} \times D_{10}}$

C $C_c = \frac{(D_{10})^2}{D_{60} \times D_{30}}$

D $C_c = \frac{D_{10}}{D_{60} \times D_{10}}$

Answer: A

Question 114

Which of the following apparatus is used to measure the liquid limit soil?

A Casagrande apparatus

B Pycnometer

C Ring and ball apparatus

D None of these

Answer: A

Question 115

The compressibility of the fluid is given as $5 \times 10^{-11} \text{ pa}^{-1}$.
What is the Bulk modulus (GPa) of fluid ?

A 10

B 15

C 20

D 25

Answer: C

Question 116

Which of the following is measured with the help of an orifice meter?

A Discharge

B Discharge coefficient

C Head of water

D Pressure coefficient

Answer: A

Question 117

Which of the following represents the CORRECT range of coefficient of discharge of venturimeter?

A 0.32 to 0.43

B 0.45 to 0.52

C 0.54 to 0.75

D 0.96 to 0.98

Answer: D

Question 118

A cube of dimensions 2m is floating in the water with immersing depth of 1m.
What is the weight (KN) of the cube ? (Consider unit weight of water at $10 \frac{Kn}{m^3}$)

A 10

B 20

C 30

D 40

Answer: D

Question 119

The Reynold number for the flow through smooth pipe is given by 10^5 .
The value of friction factor for smooth pipe is ____.

A 0.001

B 0.018

C 0.089

D 0.125

Answer: B

Question 120

At a particular point in the channel, the specific energy and velocity of flow is given by 1.5 m-kJ/kg and 2.5 m/s respectively. What is the depth of flow in channel at that point?

A 0.5

B 1.18

C 2.32

D 2.5

Answer: B

Question 121

A circular pipe of diameter 60cm carries a discharge of $2.5 \text{ m}^3/\text{s}$.
What is the velocity of flow (m/s) through the pipe ?

A 2.5

B 5.67

C 8.83

D 12.32

Answer: C

Question 122

Which of the following represents the CORRECT relationship between the Chezy's coefficient, C and coefficient of roughness of channel, f?

- A $C \propto \frac{1}{\sqrt{f}}$
- B $C \propto \sqrt{f}$
- C $C \propto \frac{1}{f^{\frac{3}{2}}}$
- D $C \propto f$

Answer: A

Question 123

Which of the following is calculated with the help of Moody equation?

- A Discharge
- B Friction factor
- C Pressure
- D Velocity of flow

Answer: B

Question 124

Which of the following is responsible for the separation of boundary layer?

- A Positive pressure gradient
- B High viscosity of fluid
- C Low viscosity of fluid
- D None of these

Answer: A

Question 125

The setting tank of surface overflow rate of $4.5 \times 10^{-4} \text{ m}^3/\text{m}^2/\text{s}$ is used for design discharge of $\frac{\text{m}^3}{\text{s}}$. What is the surface area (m^2) of the settling tank ?

- A 1000
- B 2000
- C 3000
- D 4000

Answer: D

Question 126

The rain is called as acid rain, when its pH is less than_____.

- A 3
- B 4.5
- C 7
- D 8.5

Answer: B

Question 127

Using prismoidal method, what is the volume (cubic metre) of earthwork required for 10 m deep pit, if the top and bottom dimensions are 4 m x 8 m and 8 m x 16 m respectively?

- A 678.34
- B 746.67
- C 800
- D 1493.33

Answer: B

Question 128

For supply, lime is measured in ____.

- A bags of 50 kg
- B cubic metre
- C kilograms
- D quintals

Answer: D

Question 129

What is the estimate (Rs.) for a building with a plinth area of 2000 sq. m with rate of Rs. 3800 per sq. m? (Consider the adds of 15% of electric installation and 7% of miscellaneous)

- A 150000
- B 450080
- C 2423000
- D 9272000

Answer: D

Question 130

What is the quantity (sq. m) of plastering required for the 6 m length of wall which is 4 m high and 50 cm thick?

- A 12
- B 24

C 48

D 56

Answer: C

Question 131

The length, width and height of a wall are given as 800 cm, 500 cm and 50 cm respectively. What will be the total cost (Rs.) of brickwork, if the rate of brickwork is Rs. 320 per cubic metre?

A 4000

B 6400

C 10500

D 12860

Answer: B

Question 132

The plinth area rate and plinth area of a building is Rs 5500 per sq.m and 150 sq.m respectively. What is the total cost (Rs.) of building considering cost of electrification as 7%, cost of sanitary fittings as 16%, cost of roads and lawns as 6.5% and cost of contingencies as 4.5%.

A 50000

B 825000

C 982860

D 1105500

Answer: D

Question 133

Which of the following item is NOT a lump sum item?

A Architectural features

B Contingencies and unforeseen items

C Electric installation

D Plastering of wall

Answer: D

Question 134

What is the total cost (Rs.) according to approximate estimate of hostel building with capacity of 75 beds? The altogether cost per bed is given as Rs. 20,000.

A 500000

B 850000

C 1500000

D 5500000

Answer: C

Question 135

What is the volume of earthwork (cubic metre) in embankment of 10 m long and 7m wide with the side slope of 2:1?

- A 70
- B 150
- C 280
- D 390

Answer: D

Question 136

Which of the following method is used to prepare the approximate estimate?

- A Cubical contents method
- B Plinth area method
- C Unit base method
- D All option are correct

Answer: D

Question 137

In which of the following condition two contour lines intersect each other?

- A Hills
- B Overhanging cliff
- C Steep slope
- D Uniform slope

Answer: B

Question 138

Which of the following scale of the map is not affected due to shrinking of map?

- A Engineer's scale
- B Graphical scale
- C Representative fraction
- D None of these

Answer: B

Question 139

A surveyor measures a distance between two points on a map of representative fraction of 1:100 is 60 m. But later he found that he used wrong representative fraction of 1:50. What is the correct distance between the two points?

- A 30
- B 45
- C 90
- D 120

Answer: D

Question 140

Which one of the following is the CORRECT statement for a station that is affected by local attraction?

- A Difference between the fore bearing and back bearing is always equal to 90 Degrees.
- B Difference between the fore bearing and back bearing is always equal to 180 Degrees.
- C Difference between the fore bearing and back bearing is not equal to 180 Degrees.
- D Difference between the fore bearing and back bearing is always equal to 360 Degrees.

Answer: C

Question 141

Which of the following error is most likely to occur in the plane table surveying?

- A Error in sighting
- B Error in orientation
- C Error in leveling
- D Error in measurement

Answer: B

Question 142

Which of the following is the expression for the additive constant, if f is the focal length of objective and i is the stadia interval?

- A $f : i$
- B f / i
- C $f + d$
- D $f \times i$

Answer: C

Question 143

The staff reading taken on a staff held at a distance of 50 m from the instrument with the bubble central is 1.465 m. When the bubble is moved 4 divisions out of the centre, the staff reading is 1.472 m. What will be the radius of curvature (m) of the bubble tube, if the length of one division is 2 mm?

- A 30

- B 43.7
- C 57.14
- D 66.34

Answer: C

Question 144

Which of the following is the CORRECT ratio of refraction correction to curvature correction?

- A 1/4
- B 1/6
- C 1/7
- D 1/9

Answer: C

Question 145

Which of the following instrument is used for centering the theodolite in windy conditions?

- A Cross staff
- B Optical plummet
- C Optical square
- D Spirit level

Answer: D

Question 146

Which of the following test is used to make the line of sight perpendicular to the horizontal axis?

- A Azimuth test
- B Cross hair ring test
- C Spire test
- D Vertical arc test

Answer: A

Question 147

Which of the following statement is TRUE for the linear reservoir?

- A Storage is proportional to inflow discharge.
- B Storage is proportional to outflow discharge.
- C Storage is proportional to square of inflow discharge.

D Storage is proportional to square of outflow discharge.

Answer: B

Question 148

A 45 cm diameter well penetrates an unconfined aquifer of 30 m thick. Under the steady pumping rate for a long time, the drawdown's at two observation wells 10 m and 20 m from the pumping well are 5 m and 3.5 m respectively. What will be the discharge (cubic metre), if the permeability of the aquifer is given as 20 m/day?

A 0.05

B 0.067

C 0.08

D 1.12

Answer: C

Question 149

What will be the cant deficiency (cm), if maximum safe speed on a 5 Degree curve of a broad gauge track is 110 km/h and average speed of train is 85 km/h?

A 6.3

B 10

C 12.6

D 18.7

Answer: B

Question 150

What will be the shift of transition curve, if the length of transition curve is 80 m and radius of the curve is 300 m?

A 0.011

B 0.78

C 0.89

D 21.33

Answer: C

Question 151

Design of a riveted joint, is based on the assumption

A Load is uniformly distributed among all the rivets

B Shear stress on a rivet is uniformly distributed over its gross area

C Bearing stress is uniform between the contact surfaces of the plate and the rivet

D All option are correct

Answer: D

Question 152

Effective length of a column effectively held in position and restrained in directions at both ends is

A L

B 0.67 L

C 0.85 L

D 1.5 L

Answer: B

Question 153

The slenderness ratio of a column is zero when its length

A is zero

B is equal to its radius of gyration

C is supported on all sides throughout its length

D None of these

Answer: C

Question 154

Outstanding length of a compression member consisting of a channel is measured as

A half of the nominal width

B nominal width of the section

C from the edge to the first row of rivets

D None of these

Answer: B

Question 155

The equivalent axial load may be defined as the load which produces a stress equal to

A maximum stress produced by the eccentric load

B maximum stressed fiber

C bending stress

D None of these

Answer: A

Question 156

For the economical design of a combined footing to support two equal column loads the projections of beams in lower tier are kept such that bending moment under column is equal to

- A bending moment at the center of the beam
- B half the bending moment at the center of the beam
- C twice the bending moment at the center of the beam
- D None of these

Answer: A

Question 157

A beam is defined as a structural member subjected to

- A axial loading
- B axial and transverse loading
- C transverse loading
- D None of these

Answer: C

Question 158

The gross section of the web of a beam is defined as

- A depth of the beam multiplied by its web thickness
- B width of the flange multiplied by its web thickness
- C sum of the flange width and depth of the beam multiplied by the web thickness
- D None of these

Answer: A

Question 159

The effective length L of a simply supported beam with ends restrained against torsion, and also the ends of compression flange partially restrained against lateral bending is given by

- A $L = \text{span}$
- B $L = 0.85 \text{ span}$
- C $L = 0.75 \text{ span}$
- D $L = 0.7 \text{ span}$

Answer: B

Question 160

The connection of one beam to another beam by means of an angle at the bottom and an angle at the top, is known as

- A unstiffened seated connection
- B stiffened seated connection
- C seated connection
- D None of these

Answer: C

Question 161

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

- A bleeding
- B creeping
- C segregation
- D flooding

Answer: A

Question 162

For road pavements, the cement generally used is

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

Answer: B

Question 163

Hydration of cement is due to chemical action of water with

- A Tricalcium silicate and dicalcium silicate
- B Dicalcium silicate and tricalcium aluminate
- C Tricalcium aluminate and tricalcium aluminoferrite
- D All options are correct

Answer: D

Question 164

Internal friction between the ingredients of concrete, is decreased by using

- A less water

- B fine aggregates
- C rich mix
- D more water and coarse aggregates

Answer: D

Question 165

In a slump test, each layer of concrete is compacted by a steel rod 60 cm long and of 16 mm diameter for

- A 20 times
- B 25 times
- C 30 times
- D 40 times

Answer: B

Question 166

To prevent segregation, the maximum height of placing concrete is

- A 100 cm
- B 125 cm
- C 150 cm
- D 200 cm

Answer: A

Question 167

The shuttering of a hall measuring 4 m x 5 m, can be removed after

- A 5 days
- B 7 days
- C 10 days
- D 14 days

Answer: B

Question 168

For compacting plain concrete road surface of thickness less than 20 cm, we use

- A internal vibrator
- B screed vibrator
- C form vibrator
- D None of these

Answer: B

Question 169

Pick up the correct statement from the following

- A Construction joints in columns are provided a few cm below the junction of beam
- B Construction joints in columns are provided at the bottom haunching
- C Construction joint in beams and slabs are provided within middle third
- D All option are correct

Answer: D

Question 170

An excess of flaky particles in concrete aggregates

- A decreases the workability
- B increases the quantity of water and sand
- C affects the durability of concrete
- D All option are correct

Answer: D

Question 171

For the construction of cement concrete dams, the maximum permissible size of the aggregates is

- A 40 mm
- B 50 mm
- C 60 mm
- D 70 mm

Answer: A

Question 172

For given workability the grade requiring the least amount of water is one that gives

- A greatest surface area for the given cement and aggregates
- B least surface area for the given cement and aggregates
- C least weight for the given cement and aggregates
- D None of these

Answer: A

Question 173

The type of aggregates of same nominal size, which contains less voids when compacted are

- A rounded spherical
- B irregular
- C flaky
- D None of these

Answer: A

Question 174

For quality control of Portland cement the test essentially done is

- A setting time
- B soundness
- C tensile strength
- D All option are correct

Answer: D

Question 175

Pick up the correct statement from the following

- A The percentage of voids in the aggregate after proper compaction is called the angularity number
- B Angular aggregate are superior to rounded aggregate
- C The surface texture depends upon the hardness, grain size, free structure and the structure of the rock
- D All option are correct

Answer: D

Question 176

No shrinkage occurs if the concrete is placed in a relative humidity of

- A 1
- B 0.85
- C 0.7
- D 0.5

Answer: A

Question 177

Argillaceous materials are those:

- A which have alumina as the main constituent
- B which have lime as the main constituent

C which evolve heat on the addition of water

D which easily break when hammered lightly

Answer: A

Question 178

Spot the odd statement:

A rounded aggregate

B irregular or partly rounded aggregate

C angular flaky aggregate

D single-size aggregate

Answer: D

Question 179

If d and n are the effective depth and depth of the neutral axis respectively of a singly reinforced beam, the lever arm of the beam, is

A d

B n

C $d + \frac{n}{3}$

D $d - \frac{n}{3}$

Answer: D

Question 180

Pick up the incorrect statement from the following. The intensity of horizontal shear stress at the elemental part of a beam section, is directly proportional to

A shear force

B area of the section

C distance of the C.G. of the area from its neutral axis

D moment of the beam section about its neutral axis

Answer: D

Question 181

If the average bending stress is 6 kg/cm^2 for M 150 grade concrete, the length of embedment of a bar of diameter d according to I.S. 456 specifications is

A $28 d$

B $38 d$

C $48 d$

D 58 d

Answer: D

Question 182

A singly reinforced concrete beam of 25 cm width and 70 cm effective depth is provided with 18.75 cm² steel. If the modular ratio (m) is 15, the depth of the neutral axis, is

A 20 cm

B 25 cm

C 30 cm

D 35 cm

Answer: C

Question 183

If the neutral axis of a T-beam is below the slab, the relationship between the flange width B, depth of neutral axis n, thickness of the slab d_s , effective depth of the beam d, gross area of tensile steel A_t and the modular ratio m may be stated as

A $Bd_s(n - \frac{d_s}{2}) = mAt(d+n)$

B $Bd_s(n + \frac{d_s}{2}) = mAt(d-n)$

C $Bd_s(n - \frac{d_s}{2}) = mAt(d-n)$

D None of these

Answer: C

Question 184

In a simply supported slab, alternate bars are curtailed at

A $\frac{1}{4}$ th of the span

B $\frac{1}{5}$ th of the span

C $\frac{1}{6}$ th of the span

D $\frac{1}{7}$ th of the span

Answer: D

Question 185

In a slab, the pitch of the main reinforcement should not exceed its effective depth

A three times

B four times

C five times

D two times

Answer: A

Question 186

In a combined footing if shear stress exceeds 5 kg/cm^2 , the nominal stirrups provided are

- A 6 legged
- B 8 legged
- C 10 legged
- D 12 legged

Answer: D

Question 187

To ensure that the hogging bending moment at two points of suspension of a pile of length L equals the sagging moment at its center, the distance of the points of suspension from either end is

- A $0.107 L$
- B $0.207 L$
- C $0.307 L$
- D $0.407 L$

Answer: B

Question 188

To have pressure wholly compressive under the base of a retaining wall if width b , the resultant of the weight of the wall and the pressure exerted by the retained, earth should have eccentricity not more than

- A $\frac{b}{3}$
- B $\frac{b}{4}$
- C $\frac{b}{5}$
- D $\frac{b}{6}$

Answer: D

Question 189

The ratio of the length and diameter of a simply supported uniform circular beam which experiences maximum bending stress equal to tensile stress due to same load at its mid span is

- A $\frac{1}{8}$
- B $\frac{1}{4}$
- C $\frac{1}{2}$
- D $\frac{1}{3}$

Answer: C

Question 190

The ratio of the deflections of the free end of a cantilever due to an isolated load at $\frac{1}{3}$ rd and $\frac{2}{3}$ rd of the span is

- A $\frac{1}{7}$
- B $\frac{2}{7}$
- C $\frac{3}{7}$
- D $\frac{2}{5}$

Answer: B

Question 191

A compound bar consists of two bars of equal length. Steel bar cross-section is 3500 mm^2 and that of brass bar is 3000 mm^2 . These are subjected to a compressive load $100,000 \text{ N}$. If $E_b = 0.2 E_s$ $\frac{\text{MN}}{\text{mm}^2}$, the stresses developed are

- A $\sigma_b = 10 \frac{\text{N}}{\text{mm}^2}, \sigma_s = 20 \frac{\text{N}}{\text{mm}^2}$
- B $\sigma_b = 8 \frac{\text{N}}{\text{mm}^2}, \sigma_s = 16 \frac{\text{N}}{\text{mm}^2}$
- C $\sigma_b = 6 \frac{\text{N}}{\text{mm}^2}, \sigma_s = 12 \frac{\text{N}}{\text{mm}^2}$
- D $\sigma_b = 5 \frac{\text{N}}{\text{mm}^2}, \sigma_s = 10 \frac{\text{N}}{\text{mm}^2}$

Answer: A

Question 192

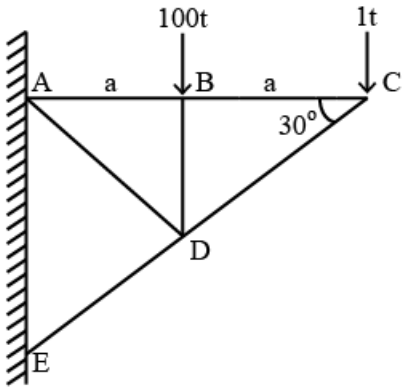
The radius of gyration of rectangular section (depth D, width B) from a centroidal axis parallel to the width is

- A $\frac{D}{2}$
- B $\frac{D}{\sqrt{3}}$
- C $\frac{D}{2\sqrt{3}}$
- D $\frac{D}{4\sqrt{3}}$

Answer: C

Question 193

For determining the force in AB of the truss shown in the figure below by method of sections, the section is made to pass through AB, AD and ED and the moments are taken about

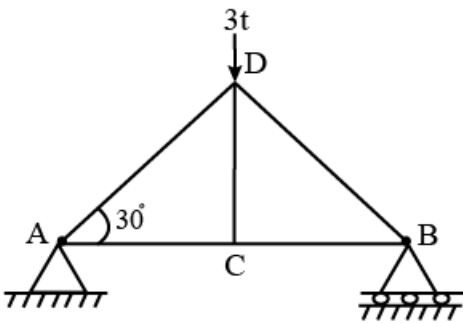


- A joint C
- B joint B
- C joint D
- D joint A

Answer: C

Question 194

The force is CD of the truss shown in the figure



- A 3t compression
- B 3t tension
- C zero
- D 1.5t compression

Answer: C

Question 195

A shaft rotating N.R.M. under a torque T, transmits a power of

- A $T\pi N/30$ Newton meters/sec
- B $T\pi N/30$ Newton meters/min
- C $T\pi N/60$ Newton meters/min
- D $T\pi N/60$ Newton meters/sec

Answer: A

Question 196

The greatest load which a spring can carry without getting permanently distorted is called

- A stiffness
- B proof resilience
- C proof stress
- D proof load

Answer: D

Question 197

In case of a simply supported I - section beam of span L and loaded with a central load W, the length of elasto-plastic zone of the plastic hinge is

- A $\frac{L}{2}$
- B $\frac{L}{3}$
- C $\frac{L}{4}$
- D $\frac{L}{5}$

Answer: D

Question 198

The horizontal thrust on the ends of a two-hinged semicircular arch of radius R carrying

- A a uniformly distributed load w per unit run over its right half span is $\frac{2}{3} * \frac{wR}{\pi}$
- B a uniformly distributed load w per unit run over its entire span is $\frac{4}{3} * \frac{wR}{\pi}$
- C a distributed load varying from zero at the left end to w per unit horizontal run at the right end, is $\frac{2}{3} * \frac{wR}{\pi}$
- D All option are correct

Answer: D

Question 199

If a three-hinged parabolic arch, (span l, rise h) is carrying a uniformly distributed load w/unit length over the entire span,

- A horizontal thrust is
- B Shear Force will be zero throughout
- C Bending Moment will be zero throughout
- D All option are correct

Answer: D

Question 200

The equivalent length of a column of length L having both the end fixed is

A $2L$

B L

C $\frac{L}{2}$

D $\frac{L}{\sqrt{2}}$

Answer: C