SSC JE
General Intelligence and Reasoning

Instructions

In the fo ow ng quest ons, se ect the re ated word/ etters/numbers from the g ven a ternat ves.

Question 1

Uttarakhand : Dehradun :: Mizoram : ?

A   A zaw

B   Koh ma

C   Sh ong

D   Darjee ng

   Answer: A

Explanation:

Dehradun s the cap ta of the Uttarakhnad s m ar y A zawa s the cap ta of the M zoram.

∴ Opt on A s the correct answer.

Question 2

Crime : Court :: Disease : ?

A   Doctor

B   Med c ne

C   Hosp ta

D   Treatment

   Answer: C

Explanation:

As cr me s re ated to court s m ar y, d sease s re ated to hosp ta .
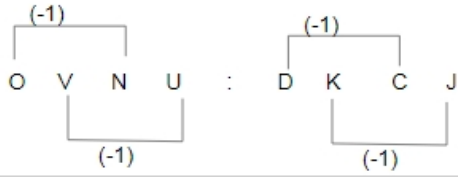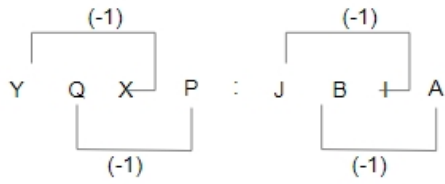∴ The correct answer s opt on C.

Question 3

YQXP : JBIA :: OVNU : ?

A   FAGZ

B   HRIS

C   DKCJ

D   DNEO

   Answer: C

Explanation:

∴ Opt on C s the correct answer.

Question 4

ADGJ : BEHK :: DGJM : ?

A KPUB

B EHKN

C KNQT

D PSVY

  Answer: B

Explanation:

In ADGJ : BEHK

A (+1) → B
D (+1) → E
G (+1) → H
J (+1) → K

S m ar y,

In DGJM : ?

D (+1) → E
G (+1) → H
J (+1) → K
M (+1) → N

? EHKN

∴ Opt on B s the correct answer.

Question 5

ACE : BDF :: GIK : ?

A HJL

B AXP

C CFG

D GFC

  Answer: A

Explanation:
In ACE : BDF

A (+1) → B

C (+1) → D

E (+1) → F

S m ar y,

In GIK : ?,

G (+1) → H

I (+1) → J

K (+1) → L

∴ Opt on A s the correct answer.

Question 6

CAT : BIG :: DDY : ?

A CLL

B CLM

C CML

D CEP

   Answer: A

Explanation:
For CAT : BIG,

C (-1) → B

A (+8) → I

T (+13) → G

S m ar y,

For DDY : ?,

D (-1) → C

D (+8) → L

Y (+13) → L

∴ Opt on CLL s the correct answer.

Question 7

1 : 1 :: 10 : ?

A 12

B 110

C 210

D 1000

   Answer: D

Explanation:
$1 : (1^3 = 1)$

$10 : (10^3 = 1000)$

Question 8

7 : 56 :: 5 : ?

A 25

B 26

C 30

D 35

   Answer: C

Explanation:

$7 \times (7 + 1)$ 56

$5 \times (5 + 1)$ 30

Instructions

For the fo ow ng quest ons answer them nd v dua y

Question 9

The following numbers fall in a group. Which one does not belong to the group ?
53, 63, 83, 73

A 53

B 63

C 83

D 73

   Answer: B

Explanation:

On y 63 s d v s b e by 3 so 63 not be ong to th s group.

∴ Opt on B s correct answer.

Question 10

Which one is the same as Mumbai, Kolkata and Cochin

A De h

B Kanpur

C Chenna

D Sho apur

   Answer: C

Explanation:

Mumba , Ko kata and Coch n are the cap ta s of states s m ar y Chenna s cap ta of Tam nadu.

Instructions

In the fo ow ng quest ons, f nd the odd word/ etters/number pa r from the g ven a ternat ves.

Question 11

A Ko kata

B   V shakhapatnam

C   Benga uru

D   Ha d a

   Answer: C

Explanation:
Except Benga uru rema n ng a   are ports.

Question 12

A   Cabbage

B   Carrot

C   Potato

D   Beetroot

   Answer: A

Explanation:
Carrot, Potato and Beetroot are the root so Cabbage s odd.

Question 13

A   HGFE

B   PONM

C   DCBA

D   MSTU

   Answer: D

Explanation:
In HGFE,

H - 1 $\rightarrow$ G - 1 $\rightarrow$ F - 1 $\rightarrow$ E

In PONM,

P - 1 $\rightarrow$ O - 1 $\rightarrow$ N - 1 $\rightarrow$ M

In DCBA,

D - 1 $\rightarrow$ C - 1 $\rightarrow$ B - 1 $\rightarrow$ A

In MSTU,

M + 6 $\rightarrow$ S + 1 $\rightarrow$ T + 1 $\rightarrow$ U

$\therefore$ Opt on D d d fferent.

Question 14

A   GFI

B   VUX

C   POR

D   LKM

   Answer: D

Explanation:

In GFI,

G - 1 → F + 3 → I

In VUX,

V - 1 → U + 3 → X

In POR,

P - 1 → O + 3 → R

In LKM,

L - 1 → K + 2 → M

∴ Opt on D s the correct answer.

Question 15

A   vwqp

B   yxmn

C   gfk

D   cbrs

   Answer: A

Explanation:

In the vwqp,

v + 1   w - 6   q +1   p

In the yxmn,

y - 1   x - 11   m + 1   n

In the gfk ,

g - 1   f + 5   k + 1

In the cbrs,

c - 1   b + 16   r + 1   s

∴ vwqp s odd.

Question 16

A   (324, 18)

B   (441, 72)

C   (117, 81)

D   (186, 14)

   Answer: D

Explanation:

(324, 18) → 3 + 2 + 4   9 and 1 + 8   9

(441, 72) → 4 + 4 + 1   9 and 7 + 2   9

(117, 81) → 1 + 1 + 7   9 and 8 + 1   9

(186, 14) → 1 + 8 + 6 = 15 and 1 + 4 = 5

(186, 14) s odd.

Question 17

A $(11, 121)$

B $(25, 625)$

C $(12, 141)$

D $(15, 225)$

    Answer: C

Explanation:

In $(11, 121)$,

$(11)^2$ 121

In $(25, 625)$,

$(25)^2$ 625

In $(12, 141)$,

$(12)^2$ = **144**

In $(15, 225)$,

$(15)^2$ 225

$therefore$ $(12, 141)$ s odd.

Instructions

For the fo ow ng quest ons answer them nd v dua y

Question 18

Find the smallest number which when divided by 25, 40, or 56 has in each case 13 as remainder.

A 1413

B 1400

C 1439

D 1426

    Answer: A

Explanation:

Sma est number (LCM of 25, 40 and 56) + rema nder

Factor of 25 5^2

Factor of 40 $2^3.5$

Factor of 56 $2^3.7$

LCM of 25, 40 and 56 $2^3.5^2.7$ 1400

Sma est number 1400 + 13 1413

Question 19

Arrange the following words as per order in the dictionary:
1. Emplane
2. Empower
3. Embrace
4. Elocution
5. Equable

A 5, 1, 3, 2, 4

B 4, 2, 1, 3, 5

C 4, 3, 1, 2, 5

D 4, 5, 2, 3, 1

Answer: C

Explanation:

Order as per dictionary,

Elocution → Embrace → Emplane → Empower → Equable

Question 20

Which one of the given response would be a meaningful order of the following words ?
1. Sowing
2. Tilling
3. Reaping
4. Weeding

A 3, 1, 2, 4

B 2, 1, 4, 3

C 1, 2, 4, 3

D 1, 3, 2, 4

Answer: B

Explanation:

Order of meaningful word,

Tiling → Sowing → Weeding → Reaping

Question 21

Arrange the colours of the rainbow (in the reverse order)(from the top edge):
Red, Orange, ...
1. Blue
2. Indigo
3. Yellow
4. Green
5. Violet

A 3, 4, 1, 2, 5

B 4, 3, 2, 5, 1

C 5, 3, 4, 2, 1

D 2, 4, 3, 1, 5

Answer: A

Explanation:

Colors of the rainbow (in the reverse order)   Red, Orange, Yellow, Green, Blue, Indigo, Violet

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 22

CEG, JLN, QSU, ...

A   QQS

B   TVX

C   HJL

D   UVW

   Answer: C

Explanation:

In CEG,

C + 2 → E + 2 → G

In JLN,

J + 2 → L + 2 → N

In QSU,

Q + 2 → S + 2 → U

S m ar y,

In HJL,

H + 2 → J + 2 → L

∴ The correct opt on s HJL.

Question 23

B-1, D-2, F-4, H-8, J-16, ...

A   K-64

B   L-32

C   M-32

D   L-64

   Answer: B

Explanation:

Order of etters,

B + 2   D + 2   F + 2   H + 2   J + 2   **L**

Order of numbers,

1×2 2

2×2 4

4×2 8

8×2 16

16×2 32

So, next term   L-32

Question 24

CGJ, KOR, TXA, ...

A   ACE

B   JDP

C   FJM

D   UWY

  Answer: C

Explanation:
For CGJ,

C + 4   G

G + 3   J

For KOR,

K + 4   O

O + 3   R

S m ar y,

For FJM,

F + 4 = J

J + 3 = M

Instructions

In the fo ow ng quest ons f nd the m ss ng number from the g ven responses.

Question 25
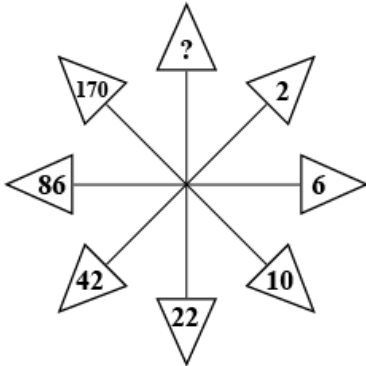
A   422

B   374

C   256

D   342

  Answer: D

Question 26
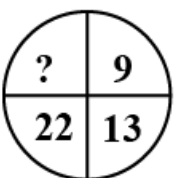
A 40

B 38

C 39

D 44

   Answer: B

Question 27
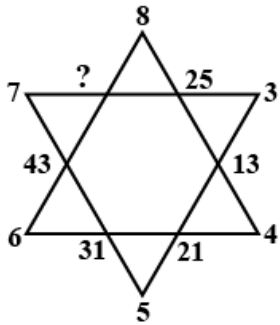
A 56

B 57

C 58

D 59

   Answer: B

Question 28
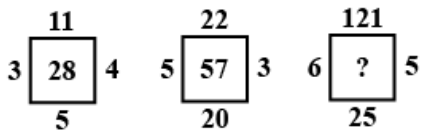
A 176

B 115

C 157

D 131

   Answer: A

Explanation:
(11 + 5) + 3 × 4   16 + 12   28
(22 + 20) + 5 × 3   42 + 15   57
(121 + 25) + 6 × 5   146 + 30   176
∴ The correct answer s opt on A.
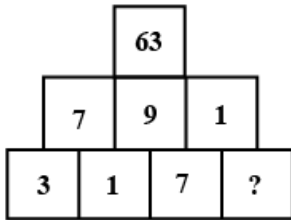
Question 29

A 3

B 9

C 5

D 2

   Answer: A

Instructions

For the fo ow ng quest ons answer them nd v dua y

Question 30

Arrange the letters to form a word and suggest what is it.
NGDEALN

A State

B Country

C R ver

D Ocean

   Answer: B

Explanation:

Number of the etter n NGDEALN   7

So, poss b e wor d   Country

(∵ Number of the etter n Country   7)

Question 31

If A = 1, B = 2 and N = 14, then BEADING = ?

A 2154(14)97

B 2514(14)79

C 25149(14)7

D 2154(14)79

   Answer: C

Explanation:
A   1,
B   2
N   14,

BEADING   25149(14)7

Question 32

If A = 1, AGE = 13, then CAR = ?

A   19

B   20

C   21

D   22

   Answer: D

Explanation:
A   1,
AGE   1 + 7 + 5   13
CAR   3 + 1 + 18   22

Question 33

If an electric train runs in the direction from North to South with a speed of 150 km/hr covering 2000 km, then in which direction will the smoke of its engine go ?

A $N \to S$

B $S \to N$

C $E \to W$

D   No d rect on

   Answer: D

Explanation:
An e ectr c tra n does not em t smoke. Therefore, no smoke w   be go ng n any of the d rect on.

Question 34

If 1 = 1, 2 = 3, 3 = 5, and 4 = 7, then 5 = ?

A   9

B   7

C   5

D   8

   Answer: A

Explanation:
The og c s,

1   $1 \times 2 - 1$ 1,

2   $2 \times 2 - 1$ 3,

3   $3 \times 2 - 1$ 5,

4   $4 \times 2 - 1$ 7,

5 = 5 $\times$ 2 - 1 = 9

Question 35

Find the answer of the following:
7 + 3 = 421
11 + 7 = 477
9 + 5 = 445
6 + 2 = ?

A 444

B 412

C 475

D 487

　　Answer: B

Explanation:
7 + 3   (7 - 3)(7 × 3)   421
11 + 7   (11 - 7)(11 × 7)   477
9 + 5   (9 - 5)(9 × 5)   445
6 + 2 = (6 - 2)(6 × 2) = 412

Question 36

Find the odd number out:
18, 34, 36, 54

A 34

B 54

C 18

D 36

　　Answer: A

Explanation:
18   1 + 8   9

34 = 3 + 4 = 7

36   3 + 6   9

54   5 + 4   9

∴ 34 s odd.

Question 37

Introducing a girl, Ram said to his son-in-law, "Her brother is the only son of my brother-in-law." Who is the girl of Ram ?
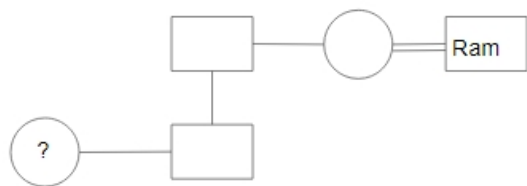
A S ster- n- aw

B N ece

C Daughter

D S ster
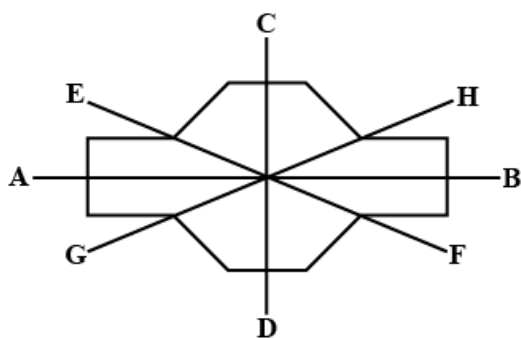
　　Answer: B

Explanation:
In the fo ow ng d agram,

C rc e represents fema e
Square represents ma e
S ng e hor zonta   ne represents s b ng
Doub e hor zonta   ne represents coup e
S ng e vert ca   ne represents Mother/Father/Son/Daughter

∴ The g r   s n ece.

Question 38

Which of the following are the lines of symmetry ?

A   AB and CD

B   EF and GH

C   A   of the above

D   None of the above

   Answer: C

Question 39

Murthy drove from town A to town B. In the fist hour, he travelled $\frac{1}{4}$ of the journey. In the next one hour, he travelled $\frac{1}{2}$ of the journey. In the last 30 minutes, he travelled 80 km. Find the distance of the whole journey.

A   240 km

B   300 km

C   320 km

D   360 km

   Answer: C

Explanation:
Let the tota journey be x km.

Rema n ng d stance of the journey   80 km

x - $\frac{x}{4}$ — $\frac{x}{2}$ 80 km

$\frac{x}{4} = 80$

x   320 km

Tota d stance s 320 km of who e journey.

Question 40

Identify the answer figure from which the pieces given in question figure have been cut.

Question figure:

A

B

C

D
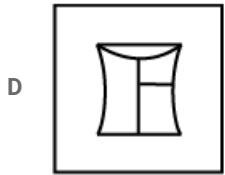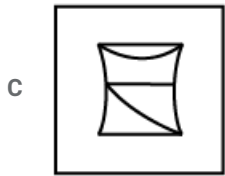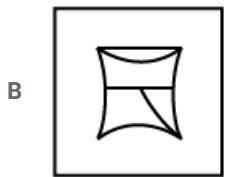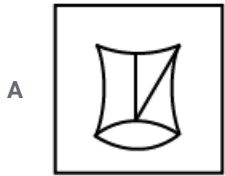
Answer: C

Question 41

Which of the answer figures is not made up only by the components of the question figure?

Question figure:

A

B

C

D
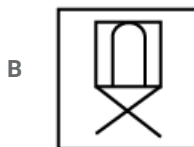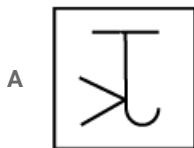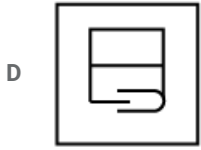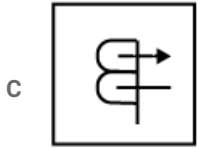
Answer: C

Question 42

Which of the following numbers is present only in the square and the circle?
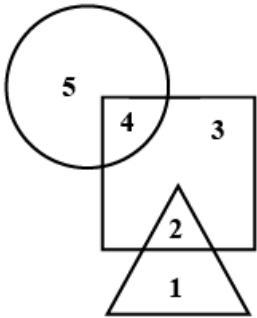
A   5

B   4

C   3

D   2

Answer: B

Question 43

Which figure represents the relation among Computer, Internet and Information-Communication Technology?

A

B

C

D

Answer: B

nstructions

n the fo ow ng quest ons, one or two statements are g ven, fo owed by three/four Conc us ons/Arguments, I, II, III and IV. You have to cons der the statements to be true, even f they seem to be at var ance from common y known facts. You are to dec de wh ch of the

g ven Conc us ons/Arguments can def n te y be drawn from the g ven statement(s). Ind cate your answer.

Question 44

Statements :
1. SAGE is a reputed publisher of both journals and books.
2. All publishing of SAGE is highly qualitative.
Conclusions :
I. SAGE publishes qualitative articles.
II. SAGE did not publish lowest quality articles.
III. SAGE enriches its publications by high scrutinization.

A   On y conc us on III

B   A conc us ons

C   On y conc us on I and II

D   On y conc us on II and III

   Answer: B

Explanation:
A conc us on are strong.

Question 45

Statements:
Should little children be loaded with such heavy school bags ?
Arguments :
I. Yes, a heavy bag means more knowledge.
II. No, heavy school bags spoil the posture of the children.
III. Yes, children need to be adapted for earning knowledge.
IV. No, a heavy bag never ensures knowledge gathering.

A   I and III appear to be strong arguments

B   I and III are poor arguments

C   II and IV are strong arguments

D   I and IV are strong arguments

   Answer: C

Explanation:
II and IV are strong arguments.

Instructions

In the fo ow ng quest ons, wh ch answer f gure w comp ete the pattern n the quest on f gure ?

Question 46

Question figure:

A

B

C

D
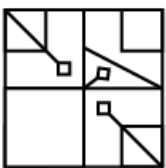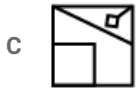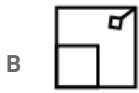
Answer: C

Question 47

Question figure:
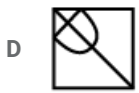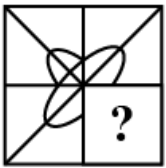
A

B

C

D

Answer: D

nstructions

For the fo ow ng quest ons answer them nd v dua y

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:

A

B

C

D
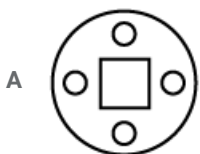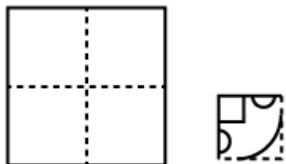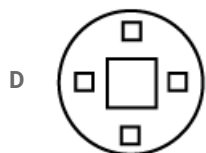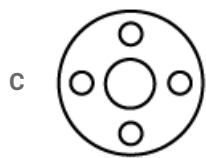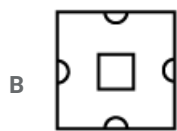
Answer: A

Question 49

f a mirror is placed on the line MN, then which of the answer figures is the correct image of the question figure?

Question figure:

M

N

A

B

C

D
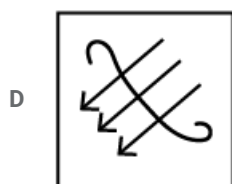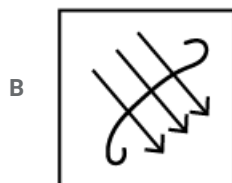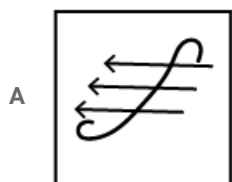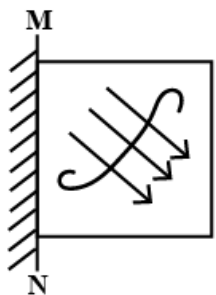
Answer: D

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 characters accordingly.

9	10	5
5	6	4
4	6	4
536	660	?

A 450

B 550

C 320

D 420

   Answer: D

General Awareness

Instructions

For the fo ow ng quest ons answer them nd v dua y

Question 51

Classification of Economics into two branches (Macro Economics and Micro Economics) was done by

A J.M. Keynes

B M ton Fr edman

C Ragnar Fr sch

D Adam Sm th

   Answer: C

Question 52

'Capital Goods' refers to goods which

A Serve as a source of ra s ng further cap ta

B He p n the further product on of goods

C D rect y go nto the sat sfact on of human wants

D F nd mu t p e uses

   Answer: B

Question 53

NNP is equal to

A GNP + Deprec at on

B GNP - Deprec at on

C   GNP + Exports

D   GNP - Exports

   Answer: B

Question 54

Rate of growth of an economy is measured in terms of

A   Per cap ta ncome

B   Industr a deve opment

C   Number of peop e who have been fted above the poverty ne.

D   Nat ona ncome

   Answer: D

Question 55

The basic characteristic of oligopoly is

A   A few se ers, a few buyers

B   A few se ers, many buyers

C   A few se ers, one buyer

D   Many se ers, a few buyers

   Answer: B

Question 56

Governor will act on the advice of Council of Ministers while

A   D sso v ng the Leg s at ve Assemb y

B   Appo nt ng the cha rman of the State Pub c Serv ce Comm s on

C   Recommend ng for Pres dent's Ru e n the State

D   Return ng a b for recons derat on

   Answer: A

Question 57

The Supreme Court of India was set up by the

A   Regu at on Act, 1773

B   P tts Ind a Act, 1784

C   Charter Act, 1813

D   Charter Act, 1833

   Answer: A

Question 58

Which Constitutional Amendment provoided Constitutional status to Panchayat Raj Institutions ?

A 93rd Amendment

B 44th Amendment

C 42nd Amendment

D 73rd Amendment

   Answer: D

Question 59

Who has the power to pardon in case of capital punishment ?

A   Pr me M n ster

B   Pres dent

C   Ch ef Just ce

D   Attorney Genera of Ind a

   Answer: B

Question 60

The Union Public Service Commission of India has been established under

A   Art c e 315

B   Art c e 320

C   Art c e 325

D   Art c e 335

   Answer: A

Question 61

The Harappans worshipped

A   Sh va, Parvath and V shnu

B   Mother Goddess and Prashupath

C   V shnu and Mother Goddess

D   Pashupath and V shnu

   Answer: B

Question 62

Gandhiji started the Dandi March for

A   Poorna Swaraj

B Home-ru e

C Protest ag nst the mpos t on of Sa t Tax

D Respons b e Government

Answer: C

Question 63

The famous court poet of Akbar was

A B rba

B Tu s das

C Rah m Khan

D Ba ram Khan

Answer: B

Question 64

Who established four great Mathas at the four corners of India - Sringeri, Puri, Dwaraka and Badrinath ?

A Shankara

B Ramanuja

C Madhva

D Ramananda

Answer: A

Question 65

The local name of Mohenjodaro is

A Mound of the v ng

B Mound of the great

C Mound of the dead

D Mound of bones

Answer: C

Question 66

Which is the longest dam in India ?

A Bhakra-Nanga

B R hand

C H rakud

D Nagarjuna Sagar

Answer: C

Question 67

The Thermal Power Plant in Tamil Nadu is

A   Kundah

B   Ramagundam

C   Pykara

D   Neyve

Answer: D

Question 68

Which of the following regions does not come under the Mediterranean type of climate ?

A   Iber an Pen nsu a

B   Ca forn a coast

C   Ch ean coast

D   Eastern coast of South Afr ca

Answer: D

Question 69

The main cause of faulting is

A   Tens on

B   W nd

C   T da act v ty

D   Grav tat ona force

Answer: A

Question 70

'Pan America' refers to

A   North Amer ca

B   South Amer ca

C   Centra Amer ca

D   A the above

Answer: D

Question 71

Most primitive living vascular plants are

A   Browna gae

B   Cycas

C Fems

D Sphabnum

    Answer: C

Question 72

Temporary wilting occurs in plants due to

A Resp rat on

B Transp rat on

C Photosynthes s

D Absorpt on of water

    Answer: B

Question 73

Lichens are a symbiotic association of

A A gae and Fung

B Bacter a and Fung

C Bacter a and A gae

D Fung and H gher p ants

    Answer: A

Question 74

Photophobia is caused by the deficiency of

A V tam n B1

B V tam n B2

C V tam n B4

D V tam n B6

    Answer: B

Question 75

Which of the following is pressent only in plant cell ?

A Ce membrane

B M tochondr a

C Ce wa

D Endop asm c ret cu um

    Answer: C

Question 76

The yellow colour of mangoes is due to the presence of

A   Ch orophy

B   Anthocyan n

C   Anthoxanth n

D   Carotene

   Answer: D

Question 77

Lunar eclipse is caused by shadow of the

A   Earth on the Moon

B   Moon on the Sun

C   Earth on the Sun

D   Earth and the Moon on other stars

   Answer: A

Question 78

The largest planet in the solar system is

A   Venus

B   Mars

C   Jup ter

D   Earth

   Answer: C

Question 79

Asteroid belt is a region in the solar system that exists between the orbits of

A   Venus and Mars

B   Mars and Jup ter

C   Mercury and Earth

D   Jup ter and Uranus

   Answer: B

Question 80

Electrocardiograph (ECG) is used to measure

A   B ood Count

B   Heart Beat

C   Temperature

D   E ectr c ty

    Answer: B

Question 81

USB stands for

A   Un que Ser a Bus

B   Un versa Ser a Bus

C   Unary Ser a Bus

D   Un versa Secondary Bus

    Answer: B

Question 82

In computer network terminology, WAN stands for

A   Wor d area network

B   W de area network

C   W de array net

D   W re ess area network

    Answer: B

Question 83

Which element produces hydrogen on reaction with strong alkali ?

A   S

B   C

C   P

D   S

    Answer: D

Question 84

Which metal does not react with dilute H_2SO_4?

A   Pb

B   Fe

C   Zn

D   Mg

    Answer: A

Question 85

The unit of rate of reaction is

A   Mo   t ^{1} sec ^{1}

B   Sec mo ^{1}

C   Mo es sec ^{1}

D   Jou es sec ^{1}

   Answer: A

Question 86

Salt that dissolves in aqueous ammonia solution is

A $HgCl_2$

B $PbCl_2$

C $Cu(OH)_2$

D $Al(OH)_3$

   Answer: C

Question 87

Residence time of water molecule in the ocean is

A   3.5 years

B   3.5 m   on years

C   35 years

D   35000 years

   Answer: C

Question 88

Biotic environment includes

A   Producers

B   Consumers

C   Decomposers

D   A   the above

   Answer: D

Question 89

A natural phenomenon that becomes harmful due to pollution is

A   G oba warm ng

B   Eco og ca ba ance

C   Greenhouse effect

D   Desert f cat on

   Answer: C

Question 90

Decomposers include

A   Bacter a

B   Fung

C   Both Bacter a and Fung

D   An ma s

   Answer: C

Question 91

Who said about religion that "it is the opium of the masses"?

A   H t er

B   Sta n

C   Len n

D   Marx

   Answer: D

Question 92

The first woman in the world to have climbed Mt. Everest twice is

A   Bachendr Pa

B   Mo y Chacko

C   Santosh Yadav

D   Theres a K es

   Answer: C

Question 93

What is the basic foundation of

A   Po t ca campa gns

B   Soc a movements

C   Re g on and mora ty

D   Freedom of the nd v dua

   Answer: D

Question 94

Amir Khusran was a famous poet in the court of

A   Akbar

B   Shahjahan

C   Ibrah m Lodh

D   A audd n Kh j

   Answer: D

Question 95

In the year 1905, Gopal Krishna Gokhale founded the

A   Servants of Ind a Soc ety

B   As at c Soc ety

C   Brahmo Samaj

D   Bharat Sewak Samaj

   Answer: A

Question 96

Gandhiji believed that Satyagraha is a weapon of

A   the poor

B   the weak

C   the untochab es

D   the brave

   Answer: D

Question 97

Pt. Shiv Kumar Sharma is an exponent of

A   Mando n

B   Santoor

C   S tar

D   Veena

   Answer: B

Question 98

Patanjali is well-known for the compilation of

A   Yogasutra

B   Panchatantra

C Brahmasutra

D Ayurveda

   Answer: A

Question 99

Which of the following Presidents of America abolished Slavery ?

A Abraham L nco n

B Thomas Jefferson

C Geoge Wash ngton

D Stan ey Jackson

   Answer: A

Question 100

Who is the first woman cosmonaut of the world

A Va ent na Tereshkova

B Mar a Este a Peron

C Svet ana Sav tskaya

D Kay Cotte

   Answer: A

General Engineering (Mechanical)

Instructions
For the fo ow ng quest ons answer them nd v dua y

Question 101

Which law of motion (of Newton) gives the measure of force ?

A Newton s f rst aw

B Newton s second aw

C Newton s th rd aw

D None of these

   Answer: B

Question 102

The shear stress at the centre of a circular shaft undertorsion is

A max mum

B m n mum

C zero

D   unpred ctab e

   Answer: C

Question 103

The direction of frictional force acting on a body which can slide on a fixed surface is

A   n the d rect on of mot on

B   norma to the d rect on of mot on

C   unpred ctab e

D   oppos te to the d rect on of mot on

   Answer: D

Question 104

What strength of the material is to be considered for design of a ductile component undercyclic load ?

A   U t mate strength

B   Y e d strength

C   Endurance strength

D   Fracture strength

   Answer: C

Question 105

For any given power and permissible shear stress, the rotational speed of shaft andits diameter are correlated by the expression

A $ND^3 = $ constant

B $ND^2 = $ constant

C $ND = $ constant

D $\sqrt{ND} = $ constant

   Answer: A

Question 106

The angle turned by a wheel while it starts from rest and accelerates at constantrate of 3 rad/s ^{2} for an interval of 20 sec is

A   900 rad

B   600 rad

C   1200 rad

D   300 rad

   Answer: B

Question 107

Stress due to change in temperature developed in a bar depends upon

A   coeff c ent of therma expans on

B   therma conduct v ty

C   dens ty

D   Po sson s rat o

   Answer: A

Question 108

Strength of the beam depends on

A   Bend ng moment

B   Dens ty

C   Sect on modu us

D   c.g. of the sect on

   Answer: C

Question 109

A reversible heat engine working at the rate of 100kW has an efficiency of 20%. The magnitudes of heat transfer rate from the source and to the sink in kW would be, respectively,

A   200, 100

B   300, 200

C   500, 400

D   1000, 900

   Answer: C

Question 110

The friction between objects that are stationary is called

A   stat c fr ct on

B   ro ng fr ct on

C   k net c fr ct on

D   dynam c fr ct on

   Answer: A

Question 111

Fatigue of a component is due to

A   cyc c oad

B   stat c oad

C   constant heat ng

D $^{co \quad s \, on}$

Answer: A

Question 112

If V_i be the inlet absolute velocity to blades, V_b be the tangential blade velocity and α br the nozzle angle, then for maximum blade efficiency for single-stage impulse turbine

A $\quad \frac{V_b}{V_i} = \cos \alpha$

B $\quad \frac{V_b}{V_i} = \frac{\cos \alpha}{2}$

C $\quad \frac{V_b}{V_i} = \cos^2 \alpha$

D $\quad \frac{V_b}{V_i} = \frac{\cos^2 \alpha}{2}$

Answer: B

Question 113

In diesel engines, the duration between the timeofinjection andignition, is known as

A   pre- gn t on per od

B   de ay per od

C   gn t on per od

D   burn ng per od

Answer: B

Question 114

The process of supplying the in take air to the engine cylinder at a density more than the density of the surrounding atmosphere is known as

A   seaveng ng

B   detonat on

C   supercharg ng

D   po ymer sat on

Answer: C

Question 115

Which of the following expressions gives the entropy change in an isobaric heating process from T_1 to T_2 ?

A $\quad mC_p ln \frac{T_2}{T_1}$

B $\quad mC_p (T_2 - T_1)$

C $\quad mC_p \frac{(T_2 \quad T_1)}{T_0}$

D $\quad mC_p (T_1 + T_2)$

Answer: A

Question 116

Morsetest is conducted on

A   vert ca eng nes

B   hor zonta eng nes

C   s ng e cy nder eng nes

D   mu t cy nder eng nes

   Answer: D

Question 117

In spark ignition (SI) engines, the possibility of knockingcari be reduced by

A   ncreas ng compress on rat o

B   decreas ng compress on rat o

C   ncreas ng the coo ant temperature

D   advanc ng the spark t m ng

   Answer: B

Question 118

Higher compression ratio in diesel engine results in

A   ower temperature

B   ower pressure

C   same pressure

D   h gher pressure

   Answer: D

Question 119

What salts of calcium and magnesium cause temporary hardness of boiler feed water?

A   Ch or des

B   B carbonates

C   N trates

D   Su ph tes

   Answer: B

Question 120

Which of the following does not relate to steam engine ?

A   Crank shaft

B Cross head

C Steam chest

D Steam separator

   Answer: D

Question 121

Self-ignition temperature of diesel a compared to petrol

A s h gher

B s ower

C s same

D var es cons derab y

   Answer: A

Question 122

The binding material used in cemented carbide tools is

A N cke

B Coba t

C Chrom um

D Carbon

   Answer: C

Question 123

The water hammer pressure in a pipe can be reduced by

A us ng p pe of greater d ameter

B us ng a more e ast c p pe

C us ng p pe of greater wa th ckness

D ncreas ngtheve oc ty of pressure wave

   Answer: B

Question 124

When a fluid is in motion, the pressure at a point is same in all directions. Then thefluid is

A Rea f u d

B Newton an f u d

C Idea f u d

D Non-Newton an f u d

   Answer: C

Question 125

Density of water is maximum at

A $0°C$

B $4K$

C $4°C$

D $100°C$

   Answer: C

Question 126

The ability of a tool materialto resist shock or impact forces is known as

A   wear res stance

B   toughness

C   red hardness

D   mach nab ty

   Answer: B

Question 127

The tool material which has high heat and wear resistance is

A   Ceram cs

B   Cemented carb de

C   Carbon stee s

D   Med um a oy stee

   Answer: B

Question 128

To improve the surface finish of castings, the following additive is used in the moulding sand :

A   Res ns

B   O s

C   Wood f our

D   Sea coa

   Answer: D

Question 129

Cereals are added to the moulding sand to improve the following:

A   Poros ty

B Green strength

C Hot strength

D Edge hardness

　Answer: B

Question 130

Plastic toys are usually produced by using

A she mou d ng

B green sand mou d ng

C p aster mou d ng

D nject on mou d ng

　Answer: D

Question 131

Generally used fuel gas in gas welding is

A N_2

B CO_2

C C_2H_2

D He

　Answer: C

Question 132

Spot welding, projection welding and seam welding belongto the category of

A e ectr c res stance we d ng

B forge we d ng

C therm t we d ng

D arc we d ng

　Answer: A

Question 133

Which one of the following is an example of solid state welding ?

A Gas we d ng

B Arc we d ng

C Therm t we d ng

D Forge we d ng

　Answer: D

Question 134

The shape andsize of sand grains affects the following property :

A   Adhes veness

B   Poros ty

C   Refractor ness

D   Strength

   Answer: B

Question 135

The velocity distribution for flow over a flat plate is given by $u = (y - y^2)$ **in whichu is velocity in metres per second at a distance y metres above the plate. What is the shear stress value at y = 0.15 m ? The dynamic viscosity of fluid is 8.0 poise.**

A   12.4 N/m^2

B   1.24 N/m^2

C   0.56 N/m^2

D   5.6 N/m^2

   Answer: C

Question 136

Froude's Number relates to

A   nert a force and grav ty force

B   nert a force and pressure forc

C   nert a force and surface tens on force

D   nert a force ande ast c force

   Answer: A

Question 137

In pitot-tube the velocity of flow at a point is reduced to zero. That pointis called as

A   stagnat on po nt

B   cr t ca po nt

C   metacentre

D   equ br um po nt

   Answer: A

Question 138

The velocity distribution in a pipe flow is parabolic if the flow is

A   un form, turbu ent

B un form, am nar

C non-un form, steady

D rotat ona , compress b e

   Answer: B

Question 139

Mercury does not wet the glass surface. This property of mercury is due to

A adhes on

B cohes on

C surface tens on

D v scos ty

   Answer: C

Question 140

Loss of head due to friction in a uniform diameter pipe with viscousflow is

A Re

B $\dfrac{1}{Re}$

C $\dfrac{4}{Re}$

D $\dfrac{16}{Re}$

   Answer: D

Question 141

Maximum theoretical efficiency of Pelton wheel is obtained when the ratio of bucket speed to jet speed is

A 0.26

B 0.98

C 0.46

D 0.58

   Answer: C

Question 142

The velocity at a point on the crest of a model dam was measured to be 1m/s. The corresponding prototype velocity for a linear scale ratio of 25, in m/s, is

A 25

B 2.5

C 5

D 0.04

Answer: C

Question 143

Pressure force on the 15 cm diameter headlight of an automobile travelling at 0.25 m/s is

A   10.4 N

B   6.8 N

C   4.8 N

D   3.2 N

    Answer: B

Question 144

A piece of metal of specific gravity 7 floats in mercury of specific gravity 13.6. What fraction of its volume is under mercury ?

A   0.5

B   0.4

C   0.515

D   0.415

    Answer: C

Question 145

The friction head lost due to flow of a viscous fluid through a circular pipe of length L and diameter d with a velocity v and pipe Fanning friction factor f is

A $\frac{4fL}{d} . \frac{v^2}{2g}$

B $\frac{4fL}{\pi d^2} . \frac{v^2}{2g}$

C $\frac{v^2}{2g}$

D $\frac{4fL}{\pi d} . \frac{v^2}{2g}$

    Answer: A

Question 146

The ratio of pressures between two points A and B located respectively at depths 0.5 m and 2 m below a constant level of water in a tank is

A   1 : 1

B   1 : 2

C   1 : 4

D   1 : 16

    Answer: C

Question 147

A hydraulic turbine runs at 240 rpm under a head of 9 m. Whatwill be the speed (in rpm) of the turbineif operating head is 16 m?

A   320

B   426

C   264

D   230

   Answer: A

Question 148

The discharge of a liquid of kinematic viscosity $4 \times 10^{-2} m^2/s$ **through a 80 mm diameter pipe is** $3200\pi \times 10^{-4} m^3/s$**. The flow is**

A   am nar

B   turbu ent

C   trans t on

D   cr t ca

   Answer: A

Question 149

Assertion (A) :
If a hot metal ball is quenched in a liquid of low temperature, heat transfer will take place from metal ball to liquid and not in the reverse direction.
Reason(R) :
Heat transfer process from hot metal ball to liquid 'at lower temperature complies with the increase of entropy principle i.e. $S_{gen} \geq 0$ **and the reverse process does not.**

A   Both A and R are true and R s the correct exp anat on of A

B   Both A and R are true, but R s not the correct exp anat on of A

C   A s true, but R s fa se

D   R s true, but A s fa se

   Answer: A

Question 150

The boiling and freezing points for water are marked on a temperature scale P as $130°P$ **and** $-20°P$ **respectively. What will be the reading on this scale corresponding to** $60°C$ **on Celsius scale ?**

A $60°P$

B $70°P$

C $90°P$

D $110°P$

   Answer: B

Question 151

In a reaction turbine, the heat drop in fixed blade is 8 kJ/kg and total heat drop per stage is 20 kJ/kg. The degree of reaction is

A   40%

B   60%

C   66.7%

D   80%

   Answer: B

Question 152

A closed balloon containing 10 kg of helium receives 5 kJ/kg of heat. During this process, the volume of the balloon slowly increases by 0.2 m^3 at constant pressure of 100 kPa. The change in internal energy, in kJ, is

A   10

B   20

C   30

D   70

   Answer: C

Question 153

A gas in a container A is in thermal equilibrium with another gas of the same mass in container B. If the corresponding pressures and volumes are denoted by suffixes A and B, then which of the following statements is true ?

A $P_A \neq P_B; V_A = V_B$

B $P_A = P_B; V_A \neq V_B$

C $\frac{P_A}{V_A} = \frac{P_B}{V_B}$

D $P_A V_A = P_B V_B$

   Answer: D

Question 154

A liquid flows from low level Z_1, pressure P_1, to a higher level Z_2, pressure P_2. It can be concluded

A   f rst aw of thermodynam cs has been v o ated

B   second aw of thermodynam cs has been v o ated

C $Z_2 < Z_1$

D $P_2 < P_1$

   Answer: D

Question 155

The food compartment of a refrigerator is maintained at $4°C$ by removing heat from it at a rate of 360 kJ/min. If the required power input to the refrigerator is 2 kW, the COP of the refrigerator is

A   2.0

B $\frac{1}{3}$

C   0.5

D   3.0

   Answer: D

Question 156

For a 4-stroke diesel engine, the compression ratio is 21 : 1 and the cut-off ratio is 2: 1. What is its expansion ratio ?

A   7 : 1

B   10.5 : 1

C   12 : 1

D   19 : 1

   Answer: B

Question 157

A ball is dropped vertically downwards, it hits the floor with a velocity of 9 m/s and bounces to a distance of 1.2 m.Coefficient of restitution between the floor and the ball is

A   0.54

B   zero

C   1

D   0.27

   Answer: A

Question 158

For a material with Poisson's ratio 0.25, the ratio of modulus of rigidity to modulus of elasticity will be

A   0 4

B   1.2

C   2.0

D   3.6

   Answer: A

Question 159

If equal and opposite forces applied to a body tend to elongate it, then the stress produced is

A   tens e stress

B   bend ng stress

C   compress ve stress

D   shear stress

   Answer: A

Question 160

What type of contact occurs during meshing of helical gears ?

A   Po nt

B   L ne

C   Area

D   Vo ume

   Answer: A

Question 161

Which one of the following drives is used for transmitting power without slip ?

A   Be t dr ves

B   Rope dr ves

C   Conepu eys

D   Cha n dr ves

   Answer: D

Question 162

The contact between cam and follower is to form a

A   ower pa r

B   h gher pa r

C   s d ng pa r

D   ro ng pa r

   Answer: B

Question 163

Which of the following is antifriction bearing ?

A   Need e bear ng

B   Pedesta bear ng

C   Co ar bear ng

D   Hydrostat c bear ng

   Answer: A

Question 164

Helical gears have their teeth

A   nc ned to whee r m

B   stra ght over the whee r m

C   curved over the whee r m

D   cut on the surfaces of the frusta of cones

   Answer: A

Question 165

When the speed of governor increases, then

A   he ght of governor and rad us of rotat on ncrease

B   he ght of governor and rad us of rotat on decrease

C   he ght of governor decreases but rad us of rotat on ncreases

D   he ght of governor ncreases but rad us of rotat on decreases

   Answer: C

Question 166

A body of weight 30 N rests on a horizontal floor. A gradually increasing horizontal force is applied to the body which just starts moving when the force is 9 N. The coefficient of friction between the body and the floor will be

A $\frac{10}{3}$

B $\frac{3}{10}$

C $\frac{1}{3}$

D $\frac{1}{9}$

   Answer: B

Question 167

A body of weight W is placed on a rough inclined plane. The inclination of'the plane with the horizontal is less than the angle of friction. The body will

A   be n equ br um

B   move downwards

C   move upwards

D   None of the above

   Answer: A

Question 168

An adiabatic process in a thermodynamic system is one in which there is

A   a m ted heat transfer to or from the system through the boundary

B no heat transfer to or from the system through the boundary

C no energy transfer to or from the system through the boundary

D no nterna energy change n the system

Answer: B

Question 169

A device used to increase the temperature of saturated steam withoutraising its pressureis called

A fus b e p ug

B econom ser

C b owoff cock

D superheater

Answer: D

Question 170

Maximum diagram efficiency for Parson's reaction turbine is given by

A $\dfrac{2\cos^2\alpha}{(1 \ \cos\alpha)}$

B $\dfrac{\cos^2\alpha}{(1 \ 2\cos\alpha)}$

C $\dfrac{\cos^2\alpha}{(1 \ 2\cos^2\alpha)}$

D $\dfrac{2\cos^2\alpha}{(1 \ 2\cos^2\alpha)}$

Answer: D

Question 171

In an isothermal process, the internal energy

A a ways ncreases

B a ways decreases

C ncreases or decreases

D rema ns constant

Answer: D

Question 172

Which of the following is a boiler mounting ?

A Safety va ve

B Econom zer

C Superheater

D Feed pump

   Answer: A

Question 173

Which part of a petrol engine would need modifications if the engineis to be madeto run on LPG?

A P ston

B Crank shaft

C Va ves

D Carburettor

   Answer: D

Question 174

The compression ratio for a practical diesel engineusually lies in the range

A 5-7

B 7-9

C 10-15

D 16-22

   Answer: D

Question 175

For a four-cylinder engine,the firing order for evennessof torque is

A 1-2-3-4

B 1-3-2-4

C 1-4-3-2

D 1-3-4-2

   Answer: D

Question 176

The drag coefficient is defined as

A $\dfrac{\left(\frac{FD}{A}\right)}{\rho v_0^2}$

B $\dfrac{\left(\frac{FD}{A}\right)}{2\rho v_0^2}$

C $\dfrac{F_D}{(0.5\rho v_0^2)}$

D $\dfrac{F_D}{(0.5\rho v_0^2 A)}$

   Answer: D

Question 177

The length of the divergent portion of venturimeter in comparison to convergent portion is

A same

B more

C ess

D depend ng upon the type of f ow

Answer: B

Question 178

The delay period in a petrol engine is of the order of

A 0.001 sec

B 0.002 sec

C 0.01 sec

D 0.05 sec

Answer: B

Question 179

Octane number of iso-octane is
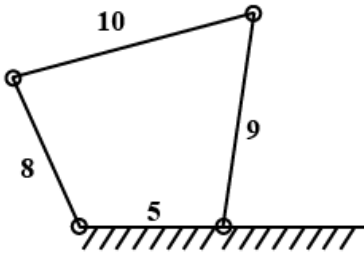
A 50

B 70

C 0

D 100

Answer: D

Question 180

The silencer of an IC engine

A reduces no se

B decreases brake spec f c fue consumpt on

C ncreases brake spec f c fue consumpt on

D has no effect on eff c ency

Answer: A

Question 181

Figure shows a four bar chain and the number indicates the respective link lengths in cm. The type of the mechanism is known as

A   s der crank

B   doub e crank

C   crank rocker

D   doub e rocker

   Answer: B

Question 182

A slider sliding at 10 cm/s on a link which is rotating at 60 rpm, is subjected to Coriolis acceleration of magnitude, in cm ^{2}/s,

A 20π

B 10π

C 40π

D 80π

   Answer: C

Question 183

The twining moment (T) delivered by a flywheel with respect to its angular displacement is given by the following expression:
$T = 14000 + 7000 \sin\theta$
The values of θ for which delivered torque is equal to mean torque for a single cycle are

A $0°, 180°, 360°$

B $90°, 270°, 360°$

C $90°, 270°, 180°$

D $0°, 270°, 360°$

   Answer: A

Question 184

The shearing strength ofa rivet is 50 N/mm^2. If the diameterofthe rivet is doubled, thenits shearing strength will be

A   100 N/mm^2

B   200 N/mm^2

C   50 N/mm^2

D   300 N/mm^2

    Answer: B

Question 185

A differential gear in an automobileis a

A   s mp e gear tra n

B   ep cyc c gear tra n

C   compound gear tra n

D   speed reducer

    Answer: B

Question 186

Creep in belt drive is due to

A   weak mater a of the be t

B   weak mater a of the pu ey

C   uneven extens ons and contract ons of the be t when t passes from t ght to s ack s de

D   expans on of the be t

    Answer: C

Question 187

The crank shaft turning in a journal bearing forms a

A   turn ng pa r

B   s d ng pa r

C   ro ng pa r

D   he ca pa r

    Answer: A

Question 188

Name the mechanism in which the Coriolis component of acceleration is to be considered.

A   Qu ck return mot on mechan sm

B   Four-bar mechan sm

C   S der crank mechan sm

D   Beam eng ne

    Answer: A

Question 189

Bevel gears are used to transmit rotary motion between two shafts whose axes are

A Perpend cu ar

B Para e

C Non- ntersect ng

D Non-cop anar

   Answer: A

Question 190

The coefficient of discharge (c_d) of an orifice varies with

A Weber number

B Mach number

C Reyno d s number

D Froude number

   Answer: C

Question 191

Using Blasius equation, the friction factor for turbulent flow through pipes varies as

A Re^{1}

B $Re^{0.5}$

C $Re^{0.33}$

D $Re^{0.25}$

   Answer: D

Question 192

The specific speed (N_S) of a centrifugal pump is given by

A $\dfrac{N\sqrt{Q}}{H^{\frac{2}{3}}}$

B $\dfrac{N\sqrt{Q}}{H^{\frac{3}{4}}}$

C $\dfrac{N\sqrt{Q}}{H}$

D $\dfrac{N\sqrt{Q}}{H^{\frac{5}{4}}}$

   Answer: B

Question 193

Pressure intensity inside the water droplets is (where σ - surface tension, d - diameter of bubble)

A $p = \dfrac{8\sigma}{d}$

B $p = \frac{2\sigma}{d}$

C $p = \frac{4\sigma}{d}$

D $p = \frac{\sigma}{d}$

   Answer: C

Question 194

The length of a rectangular weir is L and height H_1. The maximum depth of water on the upstream side of the weir is H. Flow rate over the notch (Q) is

A $Q = \frac{2}{3} c_d L \sqrt{2g} H^{\frac{5}{2}}$

B $Q = \frac{2}{3} c_d L \sqrt{2g} (H - H_1)^{\frac{5}{2}}$

C $Q = \frac{2}{3} c_d L \sqrt{2g} H^{\frac{3}{2}}$

D $Q = \frac{2}{3} c_d L \sqrt{2g} (H - H_1)^{\frac{3}{2}}$

   Answer: D

Question 195

Low specific speed of a turbine implies that it is

A   Prope er turb ne

B   Franc s turb ne

C   Impu se turb ne

D   Kap an turb ne

   Answer: C

Question 196

Flow of water in a pipe about 3 metres in, diameter can be measured by

A   Or f ce p ate

B   Ventur

C   P tot tube

D   Nozz e

   Answer: C

Question 197

In a pitot tube, at the stagnation point

A   pressure s zero

B   tota energy s zero

C   pressure head s equa to ve oc ty

D a the ve oc ty head s converted nto pressure head

   Answer: D

Question 198

Navier — Stokes equations are associated with

A Buoyancy

B Superson c f ow

C Vortex f ow

D V scous f ow

   Answer: D

Question 199

A hydrometer is used to determine

A re at ve hum d ty

B surface tens on of qu ds

C spec f c grav ty of qu ds

D v scos ty of qu ds

   Answer: C

Question 200

In flow through a pipe, the transition from laminar to turbulent flow does not depend on

A ve oc ty of the f u d

B dens ty of the f u d

C   ength of the p pe

D d ameterof the p pe

   Answer: C