



SSC JE Mechanical Engineering 2011

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General Intelligence and Reasoning

Instructions

Select the related word /letters/ number from the given alternatives.

Question 1

25 :37: : 49?

- A 42
- B 56
- C 64
- D 65

Answer: D

Question 2

9:39::45:?

- A 175
- B 185
- C 195
- D 205

Answer: C

Question 3

ONM: JIH:: TSR: ?

- A TSU
- B LMN
- C XYZ
- D ONM

Answer: C

Question 4

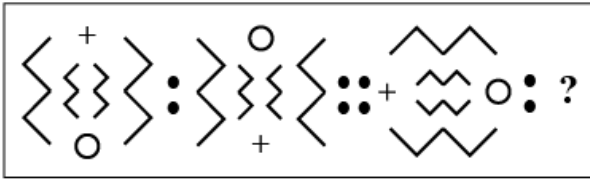
ZYXW : DCBA :: SRQP ?

- A ZXYP
- B KJIH
- C JHIL
- D ABCD

Answer: B

Question 5

Question figures:



A



B



C



D



Answer: A

Question 6

Tired : work :: Happy : ?

A Rest

B Success

C Eating

D Exercise

Answer: B

Question 7

Music : sitar :: ?

A Author: Book

B Literature: Novel

C Guitar: Sound

D Painter: Picture

Answer: B

Question 8

DEA: 10::ACE:?

- A 8
- B 10
- C 9
- D 11

Answer: C

Instructions

Find the odd word/number/letter/word or number pair from the given alternatives.

Question 9

- A 36
- B 64
- C 81
- D 46

Answer: D

Question 10

- A Apple
- B Mango
- C Potato
- D Orange

Answer: D

Question 11

- A Father-Daughter
- B Husband – Wife
- C Son–Mother
- D Brother – Sister

Answer: B

Question 12

- A BCD
- B FGH
- C NOP

D IKL

Answer: D

Question 13

A DKHM

B JNPR

C KORT

D MQTV

Answer: B

Question 14

A 4-9

B 36-49

C 16-25

D 64-80

Answer: D

Question 15

A 5698

B 7894

C 9865

D 8793

Answer: D

Instructions

For the following questions answer them individually

Question 16

Which one of the given responses would be the English dictionary order of the following words ?

1. Protein
2. Problem
3. Proverb
4. Property
5. Project

A 2, 1, 4, 3, 5

B 1, 2, 3, 4, 5

C 3; 4, 5, 2, 1

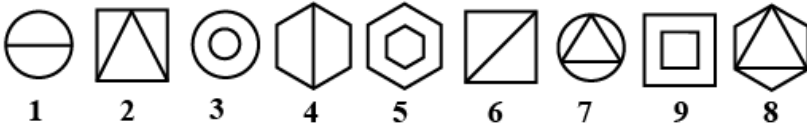
D 2, 5, 4, 1, 3

Answer: D

Question 17

A series of figures is given which can be grouped into classes. Select the group into which the figures can be classified from the given responses.

Question figures:



- A 1,2,3; 4,5,6; 7,8,9
- B 1,4,6; 2,7,9; 3,5,8
- C 1,3,7; 2,6,9; 4,5,8
- D 1,2,4; 3,6,5; 7,8,9

Answer: B

Question 18

Which one of the given responses would be a meaningful order of the following. words ?

1. Nation
2. Village
3. Taluk
4. District
- 5: State

- A 2,3,4,1,5
- B 1,3,5,4,2
- C 2,3,4,5,1
- D 1,2,3,4,5

Answer: C

Question 19

Which one set of letters when sequentially placed at the gaps in the given letter series shall complete it ?
beabbebbca_bcabbab

- A acaa
- B cabe
- C acba
- D cacc

Answer: B

Instructions

A series is given with one/ two term(s) missing . Choose the correct alternative from the given ones that will complete the series.

Question 20

4, 14, 34, ?, 104, 154

- A 64

B 54

C 74

D 84

Answer: A

Question 21

75, 77, 72, 80, 69, 83, ?, ?

A 65,87

B 66,80

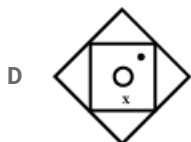
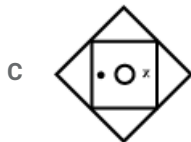
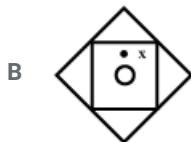
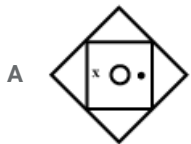
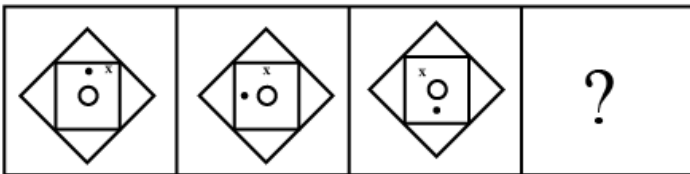
C 66,86

D 72,86

Answer: C

Question 22

Question figures:



Answer: A

Question 23

A, E, I, M, Q, U, ?

A V

B W

C Z

D Y

Answer: D

Question 24

CDF, DEC, EFH, ?

A FGI

B FGH

C FHG

D EFI

Answer: A

Instructions

For the following questions answer them individually

Question 25

Which number is wrong in the given series ?

7, 9, 15, 27, 51, 99

A 7

B 9

C 15

D 27

Answer: A

Question 26

The average age of 10 children in a class is 12 years. If two children aged 14 and 16 years join the class, it will raise the average age by how much?

A 2 months

B 4 months

C 6 months

D 8 months

Answer: C

Question 27

If in a certain code, TOWER is written as OTEWR, then in that code, which word will be written as RTAIL ?

A TRIAL

B TRAIL

C TRLAI

D TAILR

Answer: A

Question 28

If HARD is coded as 1357 and SOFT is coded as 2468, then 21448 stands for

A HSOOT

B SHOQS

C SHOOT

D RGOQT

Answer: C

Question 29

Choose one word out of the given alternatives, which can be formed from the letters of the word 'DISOBEDIENCE'.

A DISTANCE

B OBEDIENT

C BESIDE

D DEFENCE

Answer: C

Question 30

Sachin walked 10 kms to north, turned left and walked 5 kms. Again he turned south and walked 4 kms. Finally, again he turned left and walked 5 kms. In which direction is Sachin from the starting point?

A East

B West

C North

D South

Answer: C

Question 31

A boy starts from home, which faces south. He walks a distance of 10 m, turns right and walks 10 m. Then he turns right and walks 10 m, then turns left and walks 10 m and walks back 5 m. What is the distance between the home and the boy?

A 35m

B 45m

C 15m

D 20 m

Answer: C

Question 32

Five students M,N,O, P and @ are standing in 2 row. O, who is the third to the left of P, is to the immediate right of M and second to the left of @ Q, who is not at any of the ends, is the third to the right of M. P is at one of the ends. Then who is standing in the middle ?

- A M
- B N
- C o
- D Q

Answer: B

Question 33

Among 5 sons of Raghav, Anand is the elder brother of Bhima, and Chandra is the elder brother of Anand. Bhima has younger brothers Dhanu and Ishwar. Who is the eldest son of Raghav?

- A Bhima
- B Anand
- C Chandra
- D Dhanu

Answer: C

Question 34

Amul is Atul's brother. Darly is Atul's mother. Lali is Darly's mother. Prakash is Lali's father. How is Amul related to Prakash ?

- A Son-in-law
- B Grandson
- C Great-grandson
- D Son

Answer: C

Question 35

A father's age is 3 times of his son's age at present. 10 years back, the father's age was 5 times of his son's age. What is the age of the son at present ?

- A 20 years
- B 30 years
- C 25 years
- D 15 years

Answer: A

Question 36

I am twelfth in the queue from either end. How many persons are there in the queue ?

- A 13
- B 23
- C 14
- D 24

Answer: B

Question 37

Choose one word out of the given alternatives, which cannot be formed from the letters of the word 'COMMENTATOR'.

- A MENTOR
- B COMMON
- C ROTATE
- D MEMBER

Answer: D

Question 38

Statements:

1. Some teachers are students.
2. All Students are girls.

Conclusions:

- I. All teachers are girls.
- II. Some girls are teachers.
- III. Some girls are students.
- IV. All students are teachers.

- A Only I follows
- B Only I and III follow
- C Only II and III follow
- D All follow

Answer: C

Question 39

Statements :

1. All young ladies are modern.
2. No modern men are religious minded.

Conclusions:

- I. No young ladies are religious minded.
- II. No young men are religious minded.

- A Only I follows
- B Only II follows
- C Both I and II follow

D Neither I nor II follows

Answer: D

Question 40

There is an address which has been reproduced against (a), (b), (c) and (d). Three of these have some mistake or the other. The one without any mistake is your answer.

**The Manager R&C Finance Limited
The Metropolitan, 10 Floor, B Block, Bandra (W)
Mumbai-400051**

The Manager
R&C Finance Limited

A The Metropolitan, 10 Floor B Block, Bandra
(W)
Mumbai – 500051

The Manager
R&C Finance Limited

B The Metropolitan, 10th Floor, B Block, Bandra
(W)
Mumbai – 400051

The Manager,
R&C Finance Limited

C The Metropolitan, 11th Floor, D Block, Bandra
(W)
Mumbai – 400051

The Manager
R&C Finance Limited

D The Metropolitan, 10th Floor, B Block, Bandra
(W)
Mumbai – 400050

Answer: B

Instructions

Select the missing number from the given responses.

Question 41

8	3	9
6	4	2
4	8	?
192	96	324

A 48

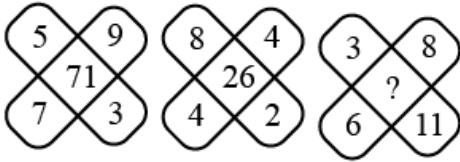
B 28

C 18

D 38

Answer: C

Question 42



- A 66
- B 68
- C 70
- D 62

Answer: D

Instructions

For the following questions answer them individually

Question 43

If ' \div ' stands for ' \times ', ' $-$ ' for ' $+$ ', ' $+$ ' for ' \div ', then which of the following equations is correct ?

- A $21 - 3 + 9 \div 12 = 51$
- B $21 + 3 \div 9 - 12 = 75$
- C $21 \div 9 + 3 - 12 = 51$
- D $21 - 3 \div 9 + 12 = 75$

Answer: B

Question 44

Some equations are solved on the basis of a certain system. On the same basis, find out the correct answer for the unsolved equation.

If $4 + 3 = 25$ and $5 + 2 = 29$, then $6 + 4 = ?$

- A 52
- B 100
- C 50
- D 48

Answer: A

Question 45

Postal PIN codes of 25 letters are given below. The first digit from the left indicates the zone and the last three digits the delivery Post Office. How many maximum letters are meant for the same delivery Post Office under Zone 2 ?

101012	221718	303051	221104	421015
221054	310032	101113	221108	230221
308015	308012	221054	101012	221054
111118	221054	210502	221054	101114
210512	182114	128107	183115	610014

- A 3

B 4

C 5

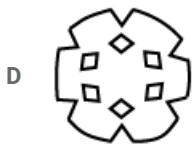
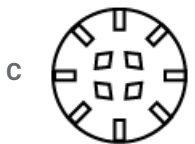
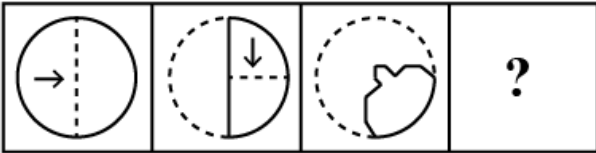
D 6

Answer: D

Question 46

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 figures:

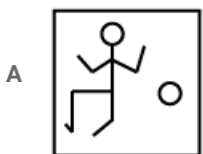
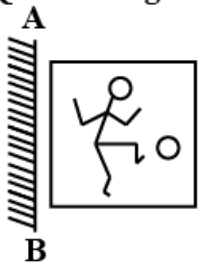


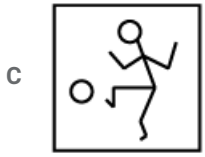
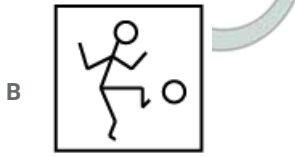
Answer: B

Question 47

If a mirror is placed on the line AB, then which of the answer figures is the correct image of the given question figure ?

Question figures:



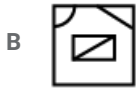
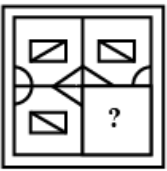


Answer: C

Question 48

Which answer figure will complete the question figure?

Question figures:



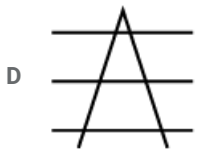
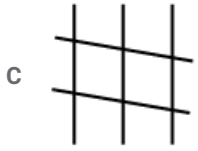
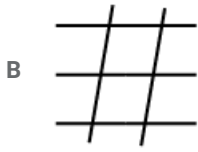
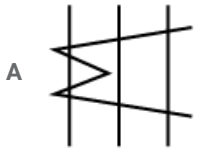
Answer: B

Question 49

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

Question figures:

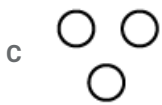
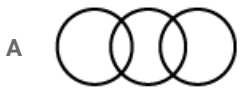




Answer: D

Question 50

Which of the given diagrams correctly represents the relationship among Mammals, Reptiles and Birds ?



Answer: C

General Awareness

Instructions

For the following questions answer them individually

Question 51

Who was the first Mughal ruler to introduce prohibition ?

- A Babar

- B Akbar
- C Humayun
- D Jahangir

Answer: D

Question 52

The Congress adopted the 'Purna Swaraj' resolution at Lahore on

- A 31st April, 1929
- B 31st December, 1929
- C 12th March, 1930
- D 8th August, 1942

Answer: B

Question 53

Which one of the following is not a basic industry?

- A Steel
- B Fertilizer
- C Paper
- D Cement

Answer: D

Question 54

'Agmark' seal is issued for commodities like

- A atta, ghee and honey
- B biscuit, egg and notebooks
- C milk, cotton and sweets
- D cream, vegetables and snacks

Answer: A

Question 55

SEZ stands for

- A Southern Economic Zone
- B South European Zone
- C Special Economic Zone
- D Special Eastern Zone

Answer: C

Question 56

The Agricultural Prices Commission was set up in the year

- A 1945
- B 1955
- C 1965
- D 1975

Answer: C

Question 57

Prof. Amartya Sen was awarded Nobel Prize in Economics in 1988 for his work on

- A Food and Famines
- B Welfare Economics
- C Poverty
- D Empowerment of women

Answer: B

Question 58

Who is the ultimate authority to decide whether a Bill is a Financial Bill or not ?

- A Finance Minister
- B Speaker (Lok Sabha)
- C Prime Minister
- D President of India

Answer: D

Question 59

The writ that looks into the authority of a person in performing an official act is

- A Habeas Corpus
- B Mandamus
- C Prohibition
- D Quo warranto

Answer: A

Question 60

Shimla Pact was signed by

- A India and Pakistan
- B India and Sri Lanka

C India and Nepal

D India and China

Answer: A

Question 61

The Vice-President of India is elected by

A State Legislatures (Assemblies)

B two Houses of Parliament

C State Government

D People

Answer: B

Question 62

In addition to Rashtrapati Bhavan at Delhi, whereelse in India are official residences of the President located ?

A Hyderabad, Bengaluru

B Hyderabad, Shimla

C Hyderabad, Bhopal

D Hyderabad, Lucknow

Answer: B

Question 63

Which language was mostly used for the propagation of Buddhism in ancient period ?

A Sanskrit

B Pali

C Prakrit

D Sauraseni

Answer: B

Question 64

In which of the following reptiles is the heart a 4- chambered structure ?

A Lizard

B Turtle

C crocodile

D Snake

Answer: C

Question 65

Dogs are used for detective work by the police because they

- A Can hear ultrasonic waves of frequency upto 50,000 Hz
- B can hear infrasonic waves
- C can hear ultrasonic waves of frequency upto 1,20,000 Hz
- D Can hear sound waves of frequency in the range 20 Hz to 20,000 Hz

Answer: A

Question 66

The working principle of 'Jet engine' is the conservation of

- A linear momentum
- B angular momentum
- C energy
- D mass-energy

Answer: A

Question 67

Rabindranath Tagore renounced his knighthood as a protest against

- A Jallianwala Bagh massacre
- B Partition of Bengal
- C Execution of Chapekar brothers
- D Simon Commission

Answer: A

Question 68

Who popularised the slogan 'Jai Jawan, Jai Kisan' and 'Jai Hind' in all platforms?

- A Jawaharlal Nehru
- B Indira Gandhi
- C Lal Bahadur Shastri
- D Morarji Desai

Answer: C

Question 69

Rings of Saturn are made up of

- A ice
- B dust

C gas

D rock

Answer: A

Question 70

What is the name of Bhramaputra river in Tibet?

A Dihang

B Dibang

C Lohit

D Tsangpo

Answer: D

Question 71

Which one of the following is referred to as the 'Gold mine of timber' ?

A AndamanIslands

B Lakshadweep Islands

C Meghalaya

D Tripura

Answer: A

Question 72

The world's highest road from Manali to Leh has been constructed at an average height of

A 4000m

B 4500m

C 6230m

D 5300m

Answer: A

Question 73

The raw material for making artificial silk is

A Wool

B Cellulose

C Silk

D Lines

Answer: B

Question 74

The plant which flowers outside and fruit development occurs inside the soil is

- A Groundnut
- B Cluster bean
- C Soyabean
- D Chick pea

Answer: A

Question 75

The largest flower in the world is

- A Orchid
- B Rafflesia
- C Sunflower
- D Musa

Answer: B

Question 76

The number of teeth which grow twice are

- A 08
- B 12
- C 14
- D 20

Answer: D

Question 77

Which of the following diseases is not a water-borne disease ?

- A Cholera
- B Typhoid
- C Asthma
- D Amoebic dysentery

Answer: C

Question 78

Name the bird which can fly backward.

- A Albatross
- B Crane

C Hummingbird

D Penguin

Answer: C

Question 79

"ECOMARC which is granted to a product having no harmful effect on the environment has a mark of

A Sun behind mountains

B Lotus flower in full bloom

C River flowing in mountains

D A tilted Pot on ground

Answer: D

Question 80

Which of the following is used to disinfect water in a non-chemical way ?

A Chlorine dioxide

B Ultraviolet light

C Ozone

D Chloramine

Answer: B

Question 81

According to a decision notified by the finance minister, coins of all denominations below 50 paise coin will cease to be legal currency from the date

A March 31, 2011

B June 30, 2011

C September 30, 2011

D December 31, 2011

Answer: B

Question 82

A bird sitting on a live wire does not get electrocuted because

A no current flows through it

B bird is light

C bird has no resistance

D bird has high resistance

Answer: A

Question 83

Apparent brightness of diamonds due to

- A reflection of light
- B refraction of light
- C total internal reflection
- D scattering of light

Answer: C

Question 84

Which of these is a component of a presentation graphics software ?

- A Page
- B Worksheet
- C Slide
- D Table

Answer: C

Question 85

The main aim of using information technology in business is

- A use the latest technology
- B improve business processes
- C transfer the duty of decision making to the computing system
- D increase the speed of the transactions

Answer: B

Question 86

The aviation fuel used in jet engines is

- A Coal gas
- B Refined kerosene
- C Petrol
- D Diesel

Answer: B

Question 87

The inert gas produced in the nuclear fusion process is

- A Helium
- B Argon

C Neon

D Krypton

Answer: A

Question 88

Which of the following is referred to as a breathing molecule in plants ?

A Chlorophyll

B Myoglobin

C Nitrogenase

D Haemoglobin

Answer: A

Question 89

Ethylene glycol is used in car radiators to

A facilitate evaporation of water

B lower the evaporation of water

C lower the freezing point of water

D lower the viscosity of water in the radiator

Answer: C

Question 90

Ganga action plan was initiated in

A 1982

B 1986

C 1989

D 1984

Answer: B

Question 91

In 1987 use of ozone degrading chemicals was banned in the convention held at

A Rio de Janeiro

B Montreal

C Chicago

D Delhi

Answer: B

Question 92

Which one of the following is not included in the list of the new seven wonders of the world announced in Lisbon, the capital of Portugal, on July 7, 2007 ?

- A Taj Mahal of India
- B Petra (Jordan)
- C The Hanging Garden of Babylon
- D Machu Picchu (Peru)

Answer: C

Question 93

India's intercontinental Ballistic missile AgniV, proposed to be tested in the year 2011, will have a range of

- A over 4500kms
- B Over 5000 kms
- C over 5500 kms
- D over 6000 kms

Answer: C

Question 94

The first Indian to win the Hoover Medal is

- A Dr. Manmohan Singh
- B Dr. Montek Singh Ahluwalia
- C Dr. Amartya Sen
- D Dr. APJ. Abdul Kalam

Answer: D

Question 95

A.P.J. Abdul Kalam has co-authored a book with a Jain Monk. The title of the book is

- A Branding India : An Incredible Story
- B The Family and the Nation
- C Getting a Grip on MyBody, My Mind, My Self
- D A Better India, A Better World

Answer: B

Question 96

Which one of the following India's World Heritage Sites included in UNESCO's list has not been matched correctly with its location ?

- A Humayun's Tomb - Delhi

- B Valley of Flowers - Uttarakhand
- C Airavatesvara Temple - Karnataka
- D Manas Wildlife Sanctuary - Assam

Answer: C

Question 97

Who of the following is not associated with Carnatic music ?

- A Tygaraja
- B Muthuswami Dikshitar
- C Bhatkhande
- D Shyam Shashtri

Answer: C

Question 98

At the 57th National Film Awards for 2009 in Delhi on September 15, 2010, separate awards were announced for Best Feature Film on 'National Integration' and Best Film on 'Other Social Issues'. Which film was adjudged as the Best Film on Other Social Issues?

- A Paa
- B Delhi-6
- C Well Done Abba
- D Lahore

Answer: C

Question 99

Who of the following got gold in Women's Freestyle Wrestling (59 kg) in the XIX Commonwealth Games 2010 held at Delhi?

- A Anita
- B Alka Tumar
- C Geeta Devi
- D Deepika Kumari

Answer: B

Question 100

As per the decision of the Olympic Council of Asia (OCA) and the Incheon Asian Games Organising Committee (IAGOC), two games to be retained / included in the next edition of the Asian Games in 2014 are

- A Cricket and Kabaddi
- B Chess and Cricket
- C Chess and Kabaddi

D Cue Sports and Cricket

Answer: A

General Engineering (Mechanical)

Instructions

For the following questions answer them individually

Question 101

The stress which a material fractures under large number of reversal of stresses is called

- A Endurance limit
- B Creep
- C Ultimate strength
- D Residual stress

Answer: A

Question 102

Hartnell governor could be classified under the head of

- A Inertia type governor
- B Pendulum type governor
- C Centrifugal type governor
- D Dead weight type governor

Answer: C

Question 103

Sensitivity of an isochronous governor is

- A Zero
- B One
- C Two
- D Infinity

Answer: D

Question 104

How many links would the simplest cam mechanism have ?

- A 1
- B 2
- C 3
- D 4

Answer: D

Question 105

The kinetic energy of a flywheel having moment of inertia 'I' and angular speed 'w' is given by

- A $I\omega$
- B $I\omega^2$
- C $\frac{1}{2}I\omega^2$
- D None of the above

Answer: C

Question 106

The flywheel of moment of Inertia 9.8 kg.m^2 fluctuates by 30 rpm for a fluctuation in energy of 1936 joules. The mean speed of the flywheel, in rpm is:

- A 600
- B 900
- C 968
- D 2940

Answer: A

Question 107

Which of the following is called antifriction bearing?

- A Slide contact bearing
- B Collar bearing
- C Rolling contact bearing
- D all of the above

Answer: C

Question 108

Whenever velocity ratio required is to be very exact between two shafts at very small distance, and then it is transmitted by

- A Belts
- B Gears
- C Leaves
- D chain

Answer: B

Question 109

In a slider crank chain used in reciprocating steam engine cross-head and guides from a

- A Turning pair
- B Sliding pair
- C Rolling pair
- D Spherical pair

Answer: B

Question 110

The gear train in which the first and last gear have the same axis, is called a/an

- A Epicycle gear train
- B Reverted gear train
- C Simple gear train
- D Compound gear train

Answer: B

Question 111

A solid shaft of diameter D carries a twisting moment that develops maximum shear stress. If the shaft is replaced by a hollow one of $OD = D$ and $ID = \frac{3}{4} D$; then the maximum shear stress will be

- A $\frac{16}{15} \tau$
- B $\frac{15}{16} \tau$
- C $\frac{256}{175} \tau$
- D $\frac{175}{256} \tau$

Answer: C

Question 112

With the increase of slenderness ratio, the compressive strength of the column is

- A Increased
- B Decreased
- C Unchanged
- D May increase or decrease

Answer: B

Question 113

A simply supported beam of length ' L ' carries a concentrated load W at its center. If EI is the flexural rigidity of the beam, strain energy due to bending is

- A $\frac{W^3 L^3}{12EI}$

B $\frac{W^2 L^3}{24EI}$

C $\frac{W^2 L^3}{48EI}$

D $\frac{W^3 L^3}{96EI}$

Answer: D

Question 114

When a rectangular bar of length l , breadth b and thickness t is subjected to an axial pull of P , the linear strain is given by (where E = modulus of elasticity)

A $\frac{btE}{P}$

B $\frac{bt}{PE}$

C $\frac{P}{btE}$

D $\frac{PE}{bt}$

Answer: C

Question 115

A simply supported beam of span l carries a distributed load that varies linearly from zero at either of the ends, to $w \frac{kg}{m}$ at the mid-span. The shear force will be zero at

A Supported ends

B Mid span

C A distance $\frac{l}{4}$ from either end

D Nowhere in the entire span

Answer: B

Question 116

The variation of bending moment in a simply-supported beam carrying a uniformly distributed load is

A Linear

B Parabolic

C Hyperbolic

D None of the above

Answer: B

Question 117

During adiabatic process, essentially

A Entropy remains constant

B Enthalpy remains constant

- C No work transfer takes place
- D No heat transfer takes place

Answer: D

Question 118

The product of tangential force acting on a shaft and its radius is known as

- A Bending moment
- B Twisting moment
- C Torsional rigidity
- D Flexural rigidity

Answer: B

Question 119

Maximum shear stress obtained from Mohr's circle is

- A Equal to the radius of the Mohr's circle
- B Greater than the radius of the Mohr's circle
- C Less than the radius of the Mohr's circle
- D None of the above

Answer: A

Question 120

An engine receives $278 \frac{kJ}{s}$ of heat at a fixed temperature of 283°C and rejects heat at the rate of $208 \frac{kJ}{s}$ to a sink maintained at 5°C . The cycle on which the engine works may be classified as

- A Reversible
- B Irreversible
- C Impossible
- D Unpredictable

Answer: B

Question 121

According to Kelvin Planck statement, a perpetual motion machine

- A Of first kind is possible
- B Of first kind is impossible
- C Of Second kind is impossible
- D Of Second kind is possible

Answer: C

Question 122

A certain engine at full load delivers 80 kW. It requires 20 kW to rotate it without load. The mechanical efficiency at full load condition will be

- A 60 %
- B 70 %
- C 80 %
- D 90 %

Answer: C

Question 123

For polytropic process $pv^n = c$ for a perfect gas, change in entropy is given by the expression

- A $\frac{\gamma-n}{\gamma-1} R \ln \frac{V_2}{V_1}$
- B $\frac{\gamma-n}{\gamma-1} R \ln \frac{P_2}{P_1}$
- C $\frac{n-1}{n} R \ln \frac{V_2}{V_1}$
- D $C_v \left(\frac{\gamma-n}{\gamma-1} \right) R \ln \frac{T_2}{T_1}$

Answer: D

Question 124

In a four-stroke cycle I.C. engine, the minimum temperature inside the engine cylinder occurs at the

- A of suction stroke
- B End of suction stroke
- C Beginning of exhaust stroke
- D End of exhaust stroke

Answer: A

Question 125

For testing of I.C. engine, dynamometer is used to find the

- A Indicated power
- B Brake power
- C Fuel power
- D Friction power

Answer: B

Question 126

The boiler accessory installed to recover heat from exhaust flue gas for feed water heating is called

- A Superheater
- B Economiser
- C Air preheater
- D Reheater

Answer: B

Question 127

Efficiency of diesel engine can be increased by

- A Decreasing the compression ratio
- B Decreasing the cut-off ratio
- C Increasing the cut-off ratio
- D Increasing the clearance volume

Answer: B

Question 128

In a four-stroke cycle of an I.C. engine, the operations are, in sequence

- A Suction, compression, expansion and exhaust
- B Suction, expansion, compression and exhaust
- C Expansion, compression, Suction and exhaust
- D Compression, Expansion, Suction and exhaust

Answer: A

Question 129

The continuity equation

- A Requires that newton's second law to be valid
- B Relates mass rate of flow along a stream tube
- C States that velocity at the boundary should be zero
- D Relates rate of change of momentum

Answer: B

Question 130

In an impulse reaction turbine, the pressure drops

- A Only in the nozzles
- B Only in the moving blades
- C Only in the fixed blades

D Both in fixed and in moving blades

Answer: D

Question 131

When starting a centrifugal pump, the delivery valve is kept

A Fully open

B Fully closed

C Half open

D Less than half open

Answer: B

Question 132

Cavitation may occur in a fluid flow if

A Its enthalpy suddenly increases

B Its enthalpy suddenly decreases

C Its velocity suddenly reduces to zero

D Its pressure reduces to the level of vapour pressure

Answer: D

Question 133

A device in which some portion of waste heat of flue gases is recovered to heat the air before it passes into the furnace for combustion purpose, is known as

A Superheater

B Air preheater

C Reheater

D Economiser

Answer: B

Question 134

Which aspect is not valid for a fire tube locomotive boiler?

A Externally fired

B Horizontal placement

C Multi-tubular

D Mobile unit

Answer: A

Question 135

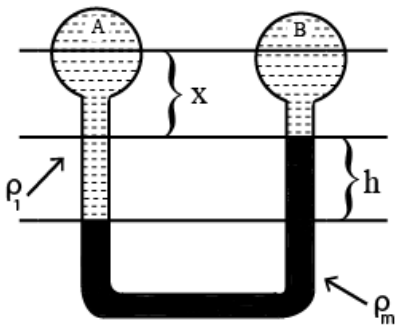
An ideal fluid

- A Has no velocity
- B Is compressive
- C Obeys Newton's law of velocity
- D In both incompressible and non-viscous

Answer: D

Question 136

Refer to the figure:- $P_A - P_B$ is



- A $h \left(\frac{\rho_m}{\rho_1} \right) \delta$
- B $h (\rho_m - \rho_1) \delta$
- C $h (\rho_m \rho_1) \delta$
- D $h (\rho_m + \rho_1) \delta$

Answer: B

Question 137

For a body placed in water, the resultant hydrostatic force at its:

- A center of gravity
- B Metacenter
- C Center of pressure
- D Center of buoyancy

Answer: D

Question 138

Flux used in brazing is

- A Aluminium
- B Borax
- C Zinc chloride
- D Calcium carbide

Answer: B

Question 139

A Rota meter is used to measure

- A Flow rate of fluids
- B Viscosity of fluids
- C Density of fluids
- D Rotational energy of fluids

Answer: A

Question 140

In pressure welding, the pressure required to consummate the weld is

- A Mechanical
- B Hydraulic
- C Spring
- D Air

Answer: C

Question 141

Carburising heat treatment is used for

- A Softening the metal
- B Refining grain structure
- C Hardening outer surface
- D Relieving internal stress

Answer: C

Question 142

Molten steel is poured into water cooled vertical copper moulds is

- A Centrifugal casting
- B Continuous casting
- C Die casting
- D Permanent mould casting

Answer: B

Question 143

Cast iron steel pipes are produced by

- A Slush casting
- B Investment casting

C True centrifugal casting

D Die casting

Answer: C

Question 144

Weld spatter defect in welding is due to:

A Low voltage

B High voltage

C Too high welding current

D Too low welding current

Answer: D

Question 145

Tool signature comprises of

A 5 elements

B 6 elements

C 7 elements

D 8 elements

Answer: C

Question 146

Single point thread cutting tool should ideally have

A Positive rake angle

B Negative rake angle

C Zero rake angle

D Normal rake angle

Answer: C

Question 147

Investment casting uses pattern of

A Wax

B Clay

C Wood

D Metal

Answer: A

Question 148

The undercutting defect in welding is due to

- A Faulty electrode manipulation
- B Faulty electrode usage
- C Current too high
- D All of the above reasons

Answer: C

Question 149

Crater wear is predominant in

- A Carbon tool steel
- B Tungsten carbide tools
- C H.S.S. tools
- D Ceramic tools

Answer: C

Question 150

Which of the following is not a casting defect?

- A Scar
- B Hot tear
- C Hot cracking
- D Cold shut

Answer: B