MECHANICAL

1.
A flow in which the quantity of liquid flowing per second is constant, is called _____ flow.

(A)
Steady
(B)
Streamline
(C)
Turbulent
(D)
Unsteady

Ans:: steady

2.
Fluid is a substance that

(A)
Cannot be subjected to shear forces
(B)
Always expands until it fills any container
(C)
Has the same shear stress at a point regardless of its motion
(D)
Cannot remain at rest under action of any shear force

Ans:: Cannot remain at rest under action of any shear force

3.
Molecular volume of any perfect gas at 600×10^3 N/m^2 and 27°C will be

(A)
4.17 m^3/kg mol
(B)
400 m^3/kg mol
(C)
0.15 m^3/kg mol
(D)
41.7 m^3/kg mol

Ans:: 4.17 m^3/kg mol

4.
Which of the following operations is carried out at a minimum cutting velocity if the machines are equally rigid and the tool work materials are the same?

(A)
Turning
(B)
Grinding
(C)
Boring
(D)
Milling

Ans:: Milling

5.
In plunge grinding
(A)
The work is reciprocated as the wheel feeds to produce cylinders longer than the width of wheel face

(B)
The work rotates in a fixed position as the wheel feeds to produce cylinders equal to or shorter than the width of wheel face

(C)
The work is reciprocated as the wheel feeds to produce cylinders shorter than the width of wheel face

(D)
The work rotates in a fixed position as the wheel feeds to produce cylinders longer than the width of wheel face

Ans:: The work rotates in a fixed position as the wheel feeds to produce cylinders equal to or shorter than the width of wheel face

6.
The condition which must be fulfilled by two gear tooth profiles to maintain a constant angular velocity ratio between them is called_____

(A)

path of contact
(B)
interference
(C)
arc of contact
(D)
law of gearing

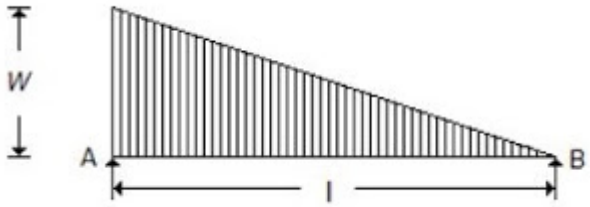
Ans:: path of contact

7.
Velocity of sliding at the pitch point = ($\omega_p + \omega_g$) x _____

(A)
arc of approach
(B)
path of contact
(C)
path of recess
(D)
0

Ans:: 0

8.
A simply supported beam with a gradually varying load from zero at ‘B’ and ‘w’ per unit length at ‘A’ is shown in the below figure. The shear force at ‘B’ is equal to



(A)
wl/6
(B)
wl/3
(C)
Wl
(D)
2wl/3

Ans:: wl/6

9.
If the columns are effectively held in position and restrained against rotation at both ends. Recommend the value of effective length.

(A)
0.6×l
(B)
0.65×l
(C)
0.77×l
(D)
0.9×l

Ans:: 0.65×l

10.
In Euler's formula, the column fails due to _____ alone.

(A)
Shear
(B)
Torsion
(C)
Tension
(D)
Bending

Ans:: Bending

11.
A fixed gear having 200 teeth is in mesh with another gear having 50 teeth. The two gears are connected by an arm. The number of turns made by the smaller

(A)
2
(B)
3
(C)
4
(D)
5

Ans:: 4

12.
The height of a Watt’s governor (in metres) in equal to

(A)
$8.95/N^2$
(B)
$89.5/N^2$
(C)
$895/N^2$
(D)
$8950/N^2$

Ans:: $895/N^2$

13.
For a simple pendulum, time period for a beat, is

(A)
$\pi \sqrt{l/g}$
(B)
$\pi \sqrt{2l/g}$
(C)
$\pi \sqrt{g/2l}$
(D)
$\pi \sqrt{l/2g}$

Ans:: $\pi \sqrt{l/g}$

14.
In a centrifugal clutch, what is ω?

(A)
Angular acceleration at which the engagement begins to take place
(B)
Angular running speed at which the engagement takes place
(C)
Angular running speed of the pulley
(D)
Angular acceleration of the pulley

Ans:: Angular running speed at which the engagement takes place

15.

A petrol engine of a car develops 125 Nm torque at 2700 r.p.m. The car is driven in second gear having gear ratio of 1.75. The final drive ratio is 4.11. If the overall transmission efficiency is 90%, then the torque available at the driving wheels is

(A)
8.091 Nm
(B)
80.91 Nm
(C)
809.1 Nm
(D)
8091 Nm

Ans:: 809.1 Nm

16.
Odometer is an instrument used for measurement of

(A)
Power
(B)
Fuel consumption
(C)
Engine r.p.m.
(D)
Distance

Ans:: Distance

17.
Which of the following is/are the correct sequence of the decreasing order of brake thermal efficiency of the three given basic types of engines?

(A)
4-stroke S.I. engine, 4-stroke C.I. engine, 2-stroke S.I. engine
(B)
4-stroke C.I. engine, 4-stroke S.I. engine, 2-stroke S.I. engine
(C)
4-stroke S.I. engine, 2-stroke S.I. engine, 4-stroke C.I. engine
(D)
2-stroke C.I. engine, 4-stroke C.I. engine, 4-stroke S.I. engine

Ans:: 4-stroke C.I. engine, 4-stroke S.I. engine, 2-stroke S.I. engine

18.

Which of the following statement is correct regarding normal cetane?

(A)
It is a standard fuel used for knock rating of petrol engines
(B)
Its chemical name is normal hexane
(C)
It has short carbon chain structure
(D)
It is a standard fuel used for knock rating of Diesel engines

Ans:: It is a standard fuel used for knock rating of Diesel engines

19.
Which are the main constituents of fuel from given options?

(A)
Carbon and Nitrogen
(B)
Oxygen and Hydrogen
(C)
Carbon and Hydrogen
(D)
Helium and Oxygen

Ans:: Carbon and Hydrogen

20.
Which fuel is called secondary stage in the formation of coal?

(A)
Lignite
(B)
Bituminous coal
(C)
Peat
(D)
Anthracite

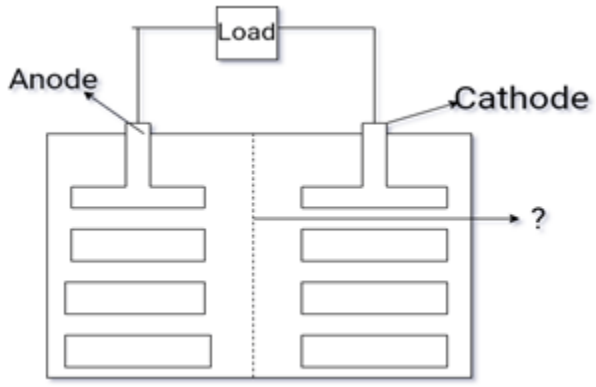
Ans:: Lignite

21.
Which of these gases or liquids are not used as source of hydrogen in fuel cells?
(A)
C_2H_6

(B)
C_2H_2
(C)
C_6H_6
(D)
C_2H_5OH

Ans:: C_2H_5OH

22.
Which of the following as shown below avoids the direct contact of the positive and negative plate in a lithium-ion battery?



(A)
Electrolyte
(B)
Separator
(C)
Load
(D)
Rectifier

Ans:: Separator

23.
The science of friction, lubrication and wear is called _____

(A)
Endiology
(B)
Geology
(C)
Tribology
(D)
Morpholog

Ans:: Tribology

24.
Industrial safety management if that branch of management which is concerned with _____ hazards from the industries.

(A)
Rearranging
(B)
cutting
(C)
moping
(D)
Eliminating

Ans:: Eliminating

25.
The following extinguisher is suitable for cotton or other textile fire

(A)
Water
(B)
Soda acid
(C)
Foam
(D)
Dry chemicals

Ans:: Dry chemicals

26.
Buying of the annual requirements of an item during its season is called _____

(A)
Seasonal Buying
(B)
Hand to mouth buying
(C)
Scheduled Buying
(D)
Speculative Buying

Ans:: Speculative Buying

27.
The first activity of Purchasing cycle is _____

(A)
Communicating requirement to the purchase
(B)
Source Selection and development
(C)
Recognizing the need for procurement
(D)
Inspection of goods

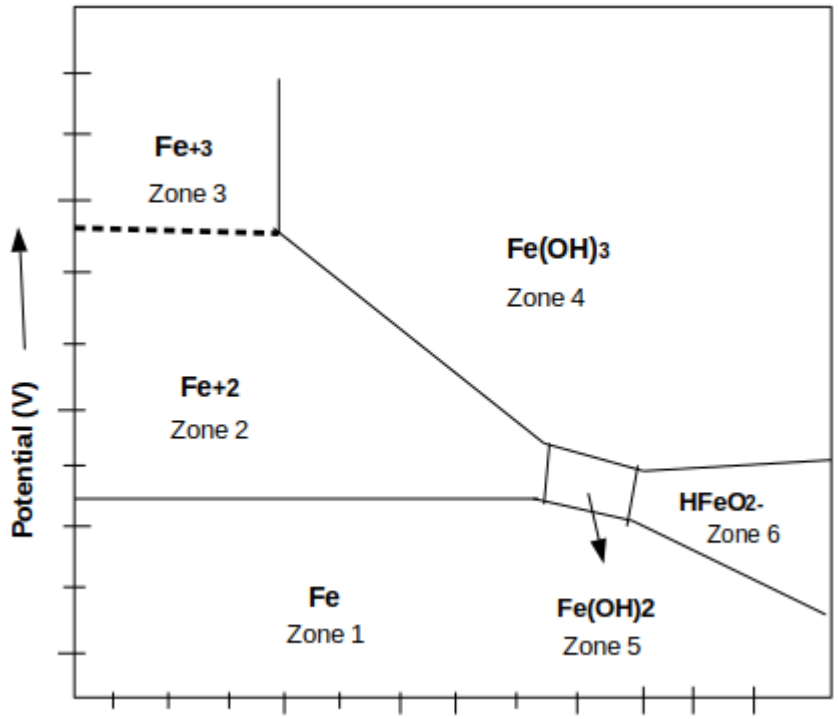
Ans:: Recognizing the need for procurement

28.
Calcium is an isobar of Argon. They differ in:
(A)
Atomic weight
(B)
Number of nucleons
(C)
Number of neutrons
(D)
None of the mentioned

Ans:: Number of neutrons

29.

What is depicted in the given figure?



(A)
Phase diagram of the Fe-C system
(B)
Pourbaix diagram for Fe-O_2 system
(C)
Pourbaix diagram for Fe-H_2O system
(D)
Colling curve pure iron

Ans:: Pourbaix diagram for Fe-H_2O system

30.
Nickel filler metals are heat resistant up to _____ in short time service.

(A)
610°C
(B)
982°C
(C)
1204°C
(D)
1666°C

Ans:: 1204°C

31.
What is the only difference between Plasma arc welding and TIG welding?

(A)
Flux is not used
(B)
Construction of torch is different
(C)
Gas is not used
(D)
Tungsten electrode is not used

Ans:: Construction of torch is different

32.
Which of the following can be easily be welded from flash butt welding process?

(A)
Tin
(B)
Lead
(C)
Cast irons
(D)
Carbon steel

Ans:: Carbon steel

33.
Which of the following materials are to be tested using an F-scale?

(A)
Bronze, gunmetal, and beryllium copper
(B)
Thermoplastics
(C)
Case hardened steels
(D)
Copper and brass

Ans:: Copper and brass

34.

The relation between the number of pairs (p) forming a kinematic chain and the number of links (l) is

(A)

l = 2p – 2
(B)
l = 2p – 3
(C)
l = 2p – 4
(D)
l = 2p – 5

Ans:: l = 2p – 4

35.
The lubricant which gives _____ force of friction is said to have greater oiliness.

(A)
greater
(B)
lesser
(C)
similar
(D)
equal

Ans:: lesser

36.
Which of the following will be the value of Refrigeration effect if m_1 = 4 kg/min, and enthalpies for the point 1, 2, 4, 5, 9 are 1350, 1550, 1480, 1620, and 280 kJ/kg. If the refrigeration effect is 4280 kJ/min and work done is 15 kW, then what is the value of C.O.P.?

(A)
4.75
(B)
6.00
(C)
5.50
(D)
4.85

Ans:: 4.75

37.
Which of the following refrigerants are used in Electrolux and Li-Br water refrigeration system?

(A)
Water and Bromide
(B)
Ammonia and Water
(C)
Ammonia and Lithium
(D)
Water and Wate

Ans:: Ammonia and Water

38.
What is the shape of the tool maker’s flats?

(A)
Circular
(B)
Rectangular
(C)
Square
(D)
Triangular

Ans:: Circular

39.
Which one of these is not a component of quality?

(A)
Reliability
(B)
Durability
(C)
Acceptance sampling
(D)
Serviceability

Ans:: Acceptance sampling

40.
Which of the following is not the aim of Kaizen process?

(A)
To make processes efficient
(B)
To make processes effective
(C)
To make processes controllable
(D)
To make processes uncontrollable

Ans:: To make processes uncontrollable

GENERAL INTELLIGENCE AND REASONING

41.
Amnesia: Memory :: Paralysis: ?

(A)
Movement
(B)
Limbs
(C)
Handicapped
(D)
Legs

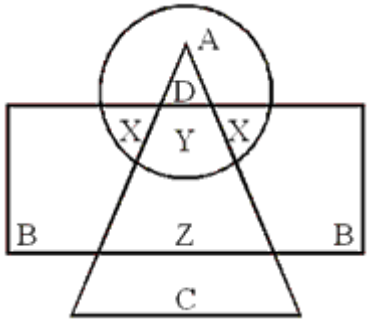
Ans:: Movement

42.
Pointing to a woman, Naman said, "She is the daughter of the only child of my grandmother. "How is the woman related to Naman?

(A)
Sister
(B)
Niece
(C)
Cousin
(D)
Data inadequate

Ans:: Sister

43.
In the following diagram, the circle represents College Professors, the triangle stands for Surgical Specialists, and Medical Specialists are represented by the rectangle.



College Professors who are also Surgical Specialists are represented by

(A)
A
(B)
B
(C)
C
(D)
D

Ans:: D

44.
Surgical Specialists who are also Medical Specialists but not Professors are represented by
(A)
B
(B)
X
(C)
Y
(D)
Z

Ans:: Z

45.
C represents

(A)
Medical Specialists
(B)

College Professors
(C)
Surgical Specialists
(D)
Medical and Surgical Specialists

Ans:: Surgical Specialists

46.
In each of the questions below are given four statements followed by four conclusions numbered I, II, III and IV, you have to take the given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts.
Question:
Statements: All silver are metals. All metals are steel. Some steel are stones. All stones are stands.
Conclusions: I. Some stands are metals. II. Some stones are silver. III. Some stands are steel. IV. Some stones are steel.

(A)
Only III and IV follow
(B)
Only I follow
(C)
Only II follows
(D)
Only III follows

Ans:: Only III and IV follow

47.
P, Q, R. S, T. V and W are sitting around a circle facing at the centre. V is second to the left of P and second to the right of W. T is third to the right of Q and is not an immediate neighbour of V. S is third to the right of R.
Question: Who is second to the right of Q?

(A)
R
(B)
W
(C)
T
(D)
S

Ans:: R

48.
As ‘Steal’ is related to ‘Factory’ in the same way ‘Wheat’ is related to what?

(A)
Field
(B)
Sky
(C)
Godown
(D)
Market

Ans:: Field

49.
Which is different from rest three?

(A)
Mountain
(B)
Plateau
(C)
Valley
(D)
Peak

Ans:: Mountain

50.
Find the odd word

(A)
Room
(B)
Chamber
(C)
Veranda
(D)
Cabin

Ans:: Veranda

GENERAL AWARENESS

51.
What has been a state religion in Japan?

(A)
Confucianism
(B)
Buddhism
(C)
Shintoism
(D)
Islam

Ans:: Shintoism

52.
Badrinath is situated on the bank of river

(A)
Ganga
(B)
Yamuna
(C)
Alaknanda
(D)
Saraswath

Ans:: Alaknanda

53.
Ethics is concerned precisely with the _____ to decide the right/wrong in human conduct.

(A)
will
(B)
norms
(C)
imagination
(D)
laws

Ans:: norms

54.
The polygraph or “lie detector” primarily measures which component of emotion?

(A)
attribution
(B)
emotional expression
(C)
physiological arousal
(D)
vocal modulation

Ans:: physiological arousal

55.
Which state government will launch a unique programme “Ammaku Vandaman” in schools to pay tribute to mothers?

(A)
Karnataka
(B)
Andhra Pradesh
(C)
Kerala
(D)
Tamil Nadu

Ans:: Andhra Pradesh

56.
Which of the following Union Territories have Rajya Sabha members?
1.Delhi
2.Puducherry
3.Lakshadweep
4.Andaman & Nicobar Islands
Select the correct option from the codes given below:

(A)
1 only
(B)
1 & 2
(C)
1, 2 & 3

(D)
1, 2, 3 & 4

Ans:: 1 & 2

57.
Which country lifted the ICC Women's T20 World Cup Trophy in 2023?

(A)
India
(B)
South Africa
(C)
Australia
(D)
England

Ans:: Australia

58.
The land-attack version of which missile was test-fired in the Andaman and Nicobar?

(A)
BrahMos
(B)
Prithvi- III
(C)
Agni- III
(D)
Dhanush

Ans:: BrahMos

59.
Which is the highest peak in Andaman and Nicobar islands?

(A)
Mount Diavolo
(B)
Mount Thuiller
(C)
Saddle Peak
(D)
Mount koya

Ans:: Saddle Peak

60.
Which of the following is the aboriginal tribe who is considered as the most isolated Palaeolithic tribes of the world?

(A)
Sentinelese
(B)
Great Andamanese
(C)
Jarawa
(D)
Shompen

Ans:: Sentinelese

MECHANICAL

61.
In plunge grinding

(A)
The work is reciprocated as the wheel feeds to produce cylinders longer than the width of wheel face

(B)
The work rotates in a fixed position as the wheel feeds to produce cylinders equal to or shorter than the width of wheel face

(C)
The work is reciprocated as the wheel feeds to produce cylinders shorter than the width of wheel face

(D)
The work rotates in a fixed position as the wheel feeds to produce cylinders longer than the width of wheel face

Ans:: The work rotates in a fixed position as the wheel feeds to produce cylinders longer than the width of wheel face

62.
Ethics is concerned precisely with the _____ to decide the right/wrong in human conduct.

(A)
will
(B)
norms
(C)
imagination
(D)
laws

Ans:: imagination

63.
The expression for maximum hydraulic efficiency of pelton turbine is given by?

a)
(1+cos k)/2 where k is outlet blade angle
b)
(2+cos k)/2 where k is outlet blade angle
c)
(3+cos k)/2 where k is outlet blade angle
d)
(4+cos k)/2 where k is outlet blade angle

Ans:: (1+cos k)/2 where k is outlet blade angle

64.
What is the area of the heating surface of a Cochran boiler?

a)
100 m^2
b)
120 m^2
c)
150 m^2
d)
200 m^2

Ans:: 120 m^2

65.
Which of the following is NOT a fire tube boiler?

a)
Cochran Boiler
b)
Lancashire Boiler
c)
Locomotive Boiler
d)
Babcock and Wilcox Boiler

Ans:: Babcock and Wilcox Boiler

66.
Which is the effective inhibitor of pre-ignition?

a)
alcohol
b)
water
c)
lead
d)
acid

Ans:: water

67.
Which of the following is not true regarding three jaw chuck?

a)
if we rotate any one of three pinions, it may meshes with the teeth
b)
the scroll disc, which has a spiral groove cut on the bottom face meshes with the teeth on the jaws
c)
all these three jaws may be made to move simultaneously
d)
jaws may be specially machined to hold a particular type of job in two jaw chuck

Ans:: the scroll disc, which has a spiral groove cut on the bottom face meshes with the teeth on the jaws

68.
Arbor is connected with the milling machine spindle by_____

a)
milling bolt
b)
Arbor bolt
c)
draw bolt and driving bolt
d)
drilling bot

Ans:: draw bolt and driving bolt

69.
What will be the cutting time for machining the workpiece of width 1000 mm when the bull wheel is rotating at 150 rpm with the feed of 2 mm per stroke?

a)

90 sec
b)
120 sec
c)
200 sec
d)
500 sec

Ans:: 200 sec

70.
_____ scaffolding is used for light construction and finishing works.

a)
Ladder
b)
Brick layers
c)
Mason’s
d)
Suspended

Ans:: Suspended

71.
_____ scaffolding is used where it is not possible to fix the standards into the ground.

a)

Suspended
b)
Cantilever
c)
Steel
d)
Brick layers

Ans:: Cantilever

72.
What is the relationship between modulus of elasticity and modulus of rigidity?

a)
$C = E / 2(1 + \mu)$
b)
$C = E / (1 + \mu)$
c)
$C = 2E / (1 + \mu)$
d)
$C = 2E / 2(1 + \mu)$

Ans:: $C = 2E / (1 + \mu)$

73.
For a Whitworth quick return motion mechanism $\beta = 110°$. Find the ratio of time of cutting stroke to time of return stroke.

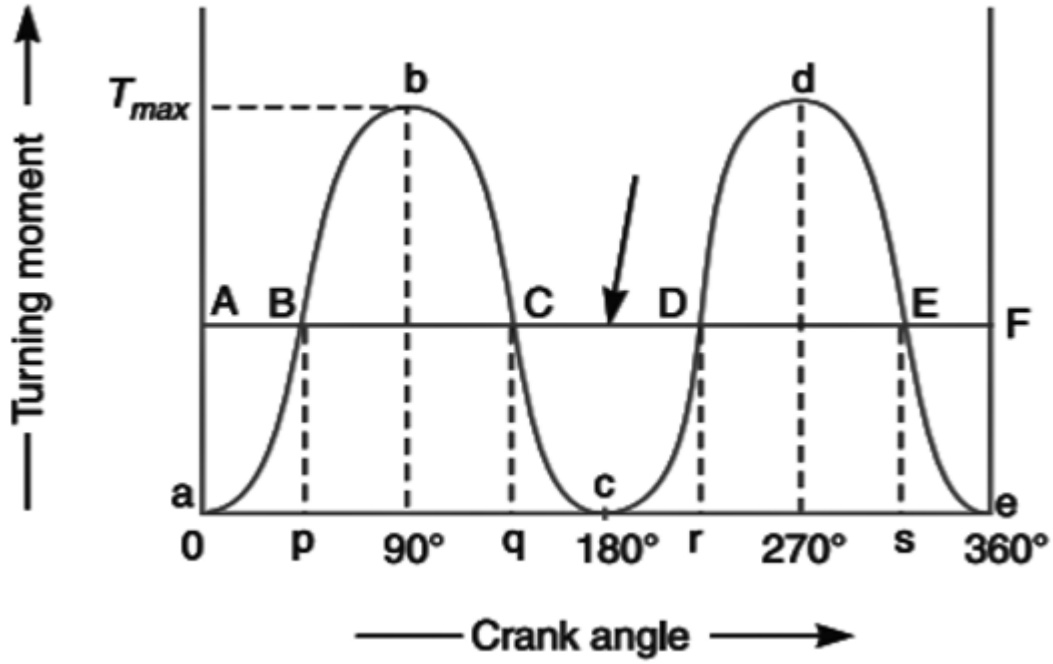
a)

0.42
b)
0.44
c)
2.27
d)
2.37

Ans:: 2.27

74.

In the figure given below, the areas BbC, CcD represent _____



a)
Power generated
b)
Power lost
c)
Fluctuation of energy
d)
Change in momentum

Ans:: Fluctuation of energy

75.
Determine the couple moment acting on the triangular plane shown.

a)
1600Nm
b)

100Nm
c)
2600Nm
d)
600Nm

Ans:: 2600Nm

76.
Which of these terms represent convection in the momentum equation?

a)
$\text{div}(u\vec{V})$
b)
$\text{div}(\rho\vec{V})$
c)
$\nabla.(u\vec{V})$
d)
$\text{div}(\rho u\vec{V})$

Ans:: $\text{div}(\rho u\vec{V})$

77.
Which one of these is a Sports car?

a)
BMW X6
b)
Mercedes-Benz S-Class
c)
Audi A6
d)
Porsche 911

Ans:: Porsche 911

78.
Stagnation pressure or the total pressure is the sum of _____

a)
Kinetic and potential energy
b)
Static and dynamic pressure
c)

Kinetic energy +potential energy +gravity
d)
Cannot be determined

Ans:: Static and dynamic pressure

79.
What is the advantage of fuel injection in an SI engine?

a)
low initial cost
b)
low maintenance requirements
c)
increased volumetric efficiency
d)
high initial cost

Ans:: increased volumetric efficiency

80.
The speed range of turbocharger is from _____

a)
10000 to 20000 r.p.m
b)
20000 to 30000 r.p.m
c)
30000 to 40000 r.p.m
d)
40000 to 50000 r.p.m

Ans:: 20000 to 30000 r.p.m

81.
A good fuel should possess _____ calorific value.

a)
high
b)
low
c)
very low
d)
moderate

Ans:: high

82.
Which kind of burners are used for efficient combustion of liquid fuels?

a)
Wesman burner
b)
Dual-fuel burner
c)
Oil burners
d)
Pressure jet burner

Ans:: Wesman burner

83.
Which of the SI engine can be run on biogas?

a)
Diesel engine
b)
Petrol engine
c)
IC engine
d)
External combustion engine

Ans:: Petrol engine

84.
The colour of exhaust from diesel engine is generally _____

a)
white
b)
bluish
c)
black
d)
violet

Ans:: black

85.
The science of friction, lubrication and wear is called _____

a)
Endiology
b)
Geology
c)
Tribology
d)
Morphology

Ans:: Tribology

86.
The following is indirect cost of accident

(A)
Money paid for treatment of worker
(B)
Compensation paid to worker
(C)
Cost of lost time of injured worker
(D)
Lost time at work

Ans:: Cost of lost time of injured worker

87.
Materials Management has an important role in _____ management.

A.
maintenance
B.
control
C.
work management
D.
Supply chain

Ans:: Supply chain

88.
A big advantage of PERT over Gantt charts is that in the former case

A.
Activities and events are clearly shown
B.
Early start and late finish of an activity are clearly marked
C.
Activity times are clear
D.
Interrelationship among activities is clearly shown

Ans:: Interrelationship among activities is clearly shown

89.
Due to the presence of which of the following does white cast iron appear white?

a)
Pearlite
b)
Ledeburite
c)
Martensite
d)
Cementite

Ans:: Cementite

90.
Cooling of hypoeutectoid steel post heating forms _____ ferrite.

a)
Proeutectoid
b)
Posteutectoid
c)
Hypereutectoid 2.08%
d)
Mild eutectoid

Ans:: Proeutectoid

GENERAL ENGLISH

91.
Choose the correct antonym of the given word “Facilitate”
(A)

Further
(B)
Impede
(C)
Expiate
(D)
Assist

Ans:: Impede

92.
Choose the correct synonym of the given word: “Domain”

(A)
Fielding
(B)
Marketing
(C)
Main
(D)
Area

Ans:: Area

93.
It is dangerous to enter ___ the enemy’s camp.

(A)
through
(B)
On
(C)
in
(D)
into

Ans:: into

94.
These were reduced to skeletons for they had long been _____ for food.

(A)
famishing
(B)
longing

(C)
craving
(D)
impinging

Ans:: famishing

95.
He played many games.

(A)
Many games was played by him.
(B)
Many games were not played by him.
(C)
Many games had been played by him.
(D)
Many games were played by him.

Ans:: Many games were played by him.

APTITUDE

96.
The average temperature for Wednesday, Thursday and Friday was 40oC. The average for Thursday, Friday and Saturday was 41°C. If temperature on Saturday was 42° C, what was the temperature on Wednesday?

(A)
39° C
(B)
44° C
(C)
38° C
(D)
41° C

Ans:: 39° C

97.
A man's speed with the current is 15 km/hr and the speed of the current is 2.5 km/hr. The man's speed against the current is:

(A)
8.5 km/hr
(B)
9 km/hr
(C)
10 km/hr
(D)
12.5 km/hr

Ans:: 10 km/hr

98.
The reflex angle between the hands of a clock at 10.25 is:

(A)
180°
(B)
192 ½
(C)
195°
(D)
197 ½

Ans:: 197 ½

99.
What decimal of an hour is a second ?

(A)
.0025
(B)
.0256
(C)
.00027
(D)
.000126

Ans:: .00027

100.
A man standing at a point P is watching the top of a tower, which makes an angle of elevation of 30º with the man's eye. The man walks some distance towards the tower to watch its top and the angle of the elevation becomes 60º. What is the distance between the base of the tower and the point P?

(A)
4 √3 units
(B)
8 units
(C)
12 units
(D)
Data inadequate

Ans:: Data inadequate