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Indian Space Research Organisation



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Participant ID	
Participant Name	
Test Center Name	
Test Date	03/11/2022
Test Time	8:30 AM - 10:00 AM
Subject	TECHNICAL ASSISTANT (AUTOMOBILE) Post Code 017

Section : TECHNICAL ASSISTANT (AUTOMOBILE) Post Code 017

Q.1

A Four-Wheel Drive vehicle means

- a. Equal distribution of Power to the front wheels
- b. Equal distribution of Power to the rear Wheels
- c. Equal distribution of Power to all four wheels
- d. Vehicle is fitted with Four Wheels

Ans A. a
 B. b
 C. c
 D. d



Question ID : 1703224362
Status : Answered
Chosen Option : C

Q.2

Which of the following is **not** an advantage of ABS

- a. it prevents the locking of the wheel and thus eliminates the chances of skidding
- b. the skidding of the vehicle is completely removed, thus an excellent control during braking
- c. better steering control with the ABS system
- d. a vehicle with ABS is costlier as compared with a vehicle without ABS

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224395
Status : Answered
Chosen Option : C

Q.3

Engine stalls after high-speed driving is due to _____

- a. defective fuel injector
- b. worn carburetor jets
- c. vapour lock
- d. incorrect ignition timing

Ans A. a
 B. b
 C. c
 D. d



Question ID : 1703224408
Status : Answered
Chosen Option : D

Q.4

The angle between the vector $A = 25i + 25j$ and the positive x axis (having unit vector i) is

- a. 29°
- b. 45°
- c. 299°
- d. 100°

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224393
Status : Answered
Chosen Option : B

Q.5

Given two vectors $A = 8i + 12j + 30k$ and $B = 4i + 5j + k$, their Dot Product, $A \cdot B$ is

- a. 122
- b. $12i + 17j + 31k$
- c. $4i + 7j + 29k$
- d. 59

Ans A. a
 B. b
 C. c
 D. d



Question ID : 1703224399
Status : Answered
Chosen Option : A

Q.6

Limousine car means

- a. Roofline at decreased height
- b. Having separate luggage space
- c. A door at the back
- d. Driving compartment is separated from the rear compartment

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224398

Status : Answered

Chosen Option : D

Q.7

Type of spring used in valve mechanism is

- a. helical compression spring
- b. multi-leaf spring
- c. spiral spring
- d. helical torsion spring

Ans A. a
 B. b
 C. c
 D. d



Question ID : 1703224407

Status : Answered

Chosen Option : A

Q.8

When the plane is perpendicular to the axis of the cone, the intersecting curve is

a ____

- a. Ellipse
- b. Circle
- c. Hyperbola
- d. Parabola

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224384

Status : Answered

Chosen Option : B

Q.9

The cylinder bore oversize for re-boring is calculated on the basis of

- a. Minimum ovality in any cylinder
- b. Maximum ovality in any cylinder
- c. Average value of ovality in the cylinder
- d. Size of the piston available

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224390

Status : Answered

Chosen Option : D

Q.10

For a solid circular shaft of radius r , its polar moment of inertia is

- a. $\pi r^4/4$
- b. $\pi r^4/2$
- c. $\pi r^4/8$
- d. πr^4

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224381

Status : Answered

Chosen Option : B

Q.11

In a four stroke engine for each crank shaft revolution the cam shaft rotates by

- a. Half turn
- b. One turn
- c. Two turns
- d. Four turns

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224389

Status : Answered

Chosen Option : A

Q.12

The vehicle pulls to one side when braking. One of the following could **not** be the cause

- a. Oil or brake fluid on linings
- b. Air in the hydraulic system
- c. Defective wheel cylinder
- d. Shoes out of adjustment

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224400
Status : Answered
Chosen Option : A

Q.13

In a Thin walled pressure vessel of radius r and thickness t , with pressure p ;
The circumferential stress is =

- a. $pr / 2t$
- b. pr/t
- c. prt
- d. $2pt/r$

Ans A. a
 B. b
 C. c
 D. d



Question ID : 1703224356
Status : Answered
Chosen Option : B

Q.14

Identify the true statement; Weight of an object

- a. is same every where in this world
- b. depends on local acceleration due to gravity where the object is situated
- c. equals mass divided by acceleration due to gravity
- d. is defined only on earth and nowhere else

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224369

Status : Answered

Chosen Option : B

Q.15

Which of the following is the correct expression for the mechanical efficiency of an I.C. engine

[Where F.H.P = I.H.P- B.H.P]

- a. $\eta_m = \frac{I.H.P}{B.H.P}$
- b. $\eta_m = \frac{B.H.P}{I.H.P}$
- c. $\eta_m = \frac{F.H.P}{B.H.P}$
- d. $\eta_m = \frac{F.H.P}{I.H.P}$

Ans A. a
 B. b
 C. c
 D. d



Question ID : 1703224355

Status : Answered

Chosen Option : B

Q.16

What is Octane number of iso-octane fuel?

- a. 0
- b. 70
- c. 90
- d. 100

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224388
Status : Answered
Chosen Option : D

Q.17

The timing gears for driving the camshaft in cylinder block is to time ----

- a. opening and closing of the intake and exhaust valves
- b. starting of the engine
- c. intake and exhaust valves cooling
- d. both the gears to rotate in opposite directions

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224401
Status : Answered
Chosen Option : A

Q.18

The area of inlet valve of an engine is _____

- a. equal to area of exhaust valve
- b. more than the area of exhaust valve
- c. less than the area of exhaust valve
- d. none of these

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224385
Status : Answered
Chosen Option : B

Q.19

Major disadvantage of LPG as a fuel in automobile is

- a. reduction of life of the engine
- b. less power compared to gasoline
- c. both (a) and (b)
- d. knocking tendency

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224367
Status : Answered
Chosen Option : C

Q.20

Tires wear out more at center and less on sides when the tire pressure is _____

- a. higher
- b. lower
- c. perfect
- d. zero

Ans A. a

B. b

C. c

D. d

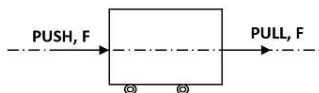
Question ID : 1703224368

Status : Answered

Chosen Option : A

Q.21

The effect of force, F , on a car when you push from back or pull from front at the points on a same line (see Figure)



- a. is same
- b. pull is smaller than push
- c. push is smaller than pull
- d. Unpredictable

Ans A. a

B. b

C. c

D. d

Question ID : 1703224353

Status : Answered

Chosen Option : B

Q.22

The value of $2 \cdot \tan(\pi/4) + \cos(\pi/2) + \sin(\pi)$ equals

- a. 2
- b. 0
- c. 1
- d. -10

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224357
Status : Answered
Chosen Option : A

Q.23

Which of the following is steering of the vehicle attached with?

- a. Gear box
- b. Engine
- c. Front axle
- d. Rear axle

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224352
Status : Answered
Chosen Option : C

Q.24

Which one of the following is **not** a friction clutch?

- a. Disc clutch
- b. Centrifugal clutch
- c. Jaw clutch
- d. Cone clutch

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224396
Status : Answered
Chosen Option : B

Q.25

In SI engines, as the compression ratio increases, knocking tendency.....

- a. decreases
- b. increases
- c. not effected
- d. none of the above

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224371
Status : Answered
Chosen Option : B

Q.26

In a four cylinder engine, the power impulse occurs after 'x' degrees of cranks where 'x' is

- a. 90°
- b. 180°
- c. 240°
- d. 380°

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224358
Status : Answered
Chosen Option : D

Q.27

If $y = e^x$, where symbols carry usual meaning, then the derivative dy/dx equals

- a. xe^x
- b. x
- c. e^x
- d. e^x/x

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224410
Status : Answered
Chosen Option : D

Q.28

The type of steering gear box used in tractors is _____

- a. Worm and sector type
- b. Worm and worm wheel
- c. Rack and pinion
- d. Cam and roller

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224391
Status : Answered
Chosen Option : C

Q.29

The process of removing burnt gases in the cylinder by the incoming fresh charge is called:

- a. Scavenging
- b. Idling
- c. Ignition
- d. Suction

Ans A. a B. b C. c D. d

Question ID : 1703224392

Status : Answered

Chosen Option : A

Q.30

Supercharging increases the power output of the engine by

- a. increasing the charge temperature
- b. increasing the charge pressure
- c. increasing the speed of the engine
- d. increasing the quantity of the fuel admitted

Ans A. a B. b C. c D. d

Question ID : 1703224379

Status : Answered

Chosen Option : B

Q.31

A tyre is marked as 8.25 X 20 X 6PR, here, 20 represents_____

- a. thickness of tyre from shoulder to shoulder in inches
- b. thickness of tyre from shoulder to shoulder in cm
- c. diameter of bead circle in cm
- d. diameter of bead circle in inches

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224380
Status : Answered
Chosen Option : A

Q.32

Critical whirling speed of a shaft is increased by

- a. Increasing its length
- b. Decreasing its length
- c. Decreasing its diameter
- d. Increasing its diameter

Ans A. a
 B. b
 C. c
 D. d



Question ID : 1703224406
Status : Answered
Chosen Option : A

Q.33

An effective method of prevention of detonation is by

- a. cooling the charge
- b. heating the charge
- c. locating spark plug at one end of the combustion chamber
- d. reducing the quantity of aromatics in the fuel used

Ans A. a B. b C. c D. d

Question ID : 1703224383

Status : Answered

Chosen Option : C

Q.34

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

- a. Beginning of suction stroke
- b. End of suction stroke
- c. Beginning of exhaust stroke
- d. End of exhaust stroke

Ans A. a B. b C. c D. d

Question ID : 1703224386

Status : Answered

Chosen Option : B

Q.35

Four resistors are connected in series. Two of them have resistances each of 120 Ohms and the other two have resistances each of 150 Ohms. The total resistance is

- a. 540 Ohms
- b. 270 Ohms
- c. 133 Ohms
- d. 0 Ohms

Ans A. a B. b C. c D. d

Question ID : 1703224365

Status : Answered

Chosen Option : A

Q.36

Inertia of Flywheel on a crankshaft compared to other rotating masses should be

- a. Higher
- b. Smaller
- c. Equal
- d. Zero

Ans A. a B. b C. c D. d

Question ID : 1703224405

Status : Answered

Chosen Option : A

Q.37

Why Reaming is done ?

- a. to achieve a drilled hole diameter closer to tolerance limits
- b. When correct size drill bit not available
- c. Reaming improves the strength
- d. Reaming is done to add a rim to the hole

Ans A. a

B. b

C. c

D. d

Question ID : 1703224373

Status : Answered

Chosen Option : A

Q.38

Lead compounds were added in gasoline to

- a. reduce HC emissions
- b. reduce knocking
- c. reduce exhaust temperature
- d. None of the above

Ans A. a

B. b

C. c

D. d

Question ID : 1703224375

Status : Answered

Chosen Option : A

Q.39

The purpose of the canister fitted to the vehicle

- a. To reduce the emissions
- b. To restrict the vapour lock
- c. To regulate the fuel supply
- d. None of the above

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224378
Status : Answered
Chosen Option : A

Q.40

If the spark timing is at TDC (Top Dead Centre), the work is less as

- a. the peak pressure is high
- b. the peak pressure is low
- c. the friction is high
- d. none of the above

Ans A. a
 B. b
 C. c
 D. d



Question ID : 1703224363
Status : Answered
Chosen Option : A

Q.41

With usual notation of symbols, BHP equals

- a. $2\pi NT/4500$
- b. $\pi NT /4500$
- c. $2\pi N/4500$
- d. $2\pi T/4500$

Ans A. a B. b C. c D. d

Question ID : 1703224397

Status : Answered

Chosen Option : A

Q.42

The firing order of a 6-cylinder engine is

- a. 1-2-3-4-5-6
- b. 2-3-4-5-6-1
- c. 1-5-3-6-2-4
- d. 1-2-3-4-6-5

Ans A. a B. b C. c D. d

Question ID : 1703224377

Status : Answered

Chosen Option : C

Q.43

Camshaft in an engine is always mounted

- a. parallel to the crank shaft
- b. perpendicular to the crank shaft
- c. inclined to the crank shaft
- d. none of these

Ans A. a

B. b

C. c

D. d

Question ID : 1703224359

Status : Answered

Chosen Option : A

Q.44

In the primary circuit of ignition system, contact breaker points are opened by cam and closed by _____

- a. magnetic force
- b. centrifugal force
- c. centripetal force
- d. spring tension

Ans A. a

B. b

C. c

D. d

Question ID : 1703224364

Status : Answered

Chosen Option : B

Q.45

Which of the following type of drives transmit power by friction?

- a. spur gear drive
- b. chain drive
- c. worm gear drive
- d. belt drive

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224411

Status : Answered

Chosen Option : D

Q.46

An indicator diagram taken from a single-cylinder, four-stroke CI engine has a length of 4 cm and an area 2 sq.cm. The indicator pointer deflects a distance of 1 cm for pressure increment of 10 bar in the cylinder. If the bore and stroke of the engine cylinder are both 10 cm. What is the mean effective pressure?

- a. 50 bar
- b. 20 bar
- c. 10 bar
- d. 5 bar

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224372

Status : Answered

Chosen Option : C

Q.47

The tendency of petrol to detonate in terms of octane number is determined by comparison of fuel with which of the following?

- a. Mixture of methane and ethane
- b. Mixture of normal heptane and iso-octane
- c. Iso-octane
- d. Naphthalene

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224403
Status : Answered
Chosen Option : B

Q.48

A two-piece propeller shaft requires

- a. One UJ cross
- b. The shaft to be solid
- c. A center support bearing
- d. None of the above

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224374
Status : Answered
Chosen Option : C

Q.49

Where should the spark plug be located for minimizing the knocking tendency in S.I. engines?

- a. Near exhaust valve
- b. Near inlet valves
- c. Midway between inlet & exhaust valves
- d. Away from both inlet & exhaust valves

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224402
Status : Answered
Chosen Option : C

Q.50

Coil springs are not capable of resisting_____

- a. shear stress
- b. bending stress
- c. torsion
- d. both shear and bending stresses

Ans A. a
 B. b
 C. c
 D. d



Question ID : 1703224376
Status : Answered
Chosen Option : C

Q.51

Heat flow occurs

- a. from cooler to hotter body
- b. from hotter to cooler body
- c. When both bodies have same temperature
- d. Regardless of temperature of bodies

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224361
Status : Answered
Chosen Option : B

Q.52

The purpose of supercharging an engine is _____

- a. to reduce specific fuel consumption
- b. to increase power output of engine
- c. to reduce noise of the engine
- d. to increase cooling of cylinders

Ans A. a
 B. b
 C. c
 D. d



Question ID : 1703224387
Status : Answered
Chosen Option : B

Q.53

The chemical symbol for Carbon Monoxide is

- a. CaMo
- b. CO₂
- c. CO
- d. CaO

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224382

Status : Answered

Chosen Option : C

Q.54

Governor is provided in engine to

- a. monitor the brakes and speed conditions
- b. distribute the fuel according varying load and speed of the vehicle
- c. monitor the torque and speed of the vehicle
- d. None of the above

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224354

Status : Answered

Chosen Option : B

Q.55

In a simple gear train, if the number of idler gears is odd, then the direction of motion of driven gear will _____

- a. depend upon the number of teeth on the driving gear
- b. depend upon the number of teeth on the driven gear
- c. be same as that of the driving gear
- d. be opposite to that of the driving gear

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224394

Status : Answered

Chosen Option : C

Q.56

Ignition quality of diesel fuel is given by

- a. Octane Number
- b. Cetane number
- c. Pre-Ignition
- d. Detonation

Ans A. a
 B. b
 C. c
 D. d



Question ID : 1703224366

Status : Answered

Chosen Option : B

Q.57

The advantage of using aluminium alloy in Automobile engine

- a. Reduce the weight and increase the thermal conductivity
- b. Increase the engine output
- c. Less cost and less weight
- d. None

Ans A. a B. b C. c D. d

Question ID : 1703224409

Status : Answered

Chosen Option : A

Q.58

Choose a single point cutting tool from the following.

- a. hacksaw
- b. grinding wheel
- c. milling cutter
- d. parting tool

Ans A. a B. b C. c D. d

Question ID : 1703224404

Status : Answered

Chosen Option : D



Q.59

The distance between the centers of crank shaft and crank pin is equal to

- a. Full Stroke length
- b. 3/4th stroke length
- c. 1/2 the stroke length
- d. 1/4th stroke length

Ans A. a
 B. b
 C. c
 D. d

Question ID : 1703224360
Status : Answered
Chosen Option : D

Q.60

The value of a^{-100} multiplied by a^{+100} where 'a' is any base, equals

- a. $a^{\text{abs}(100)}$
- b. 1
- c. a
- d. 0

Ans A. a
 B. b
 C. c
 D. d



Question ID : 1703224370
Status : Answered
Chosen Option : B