भारत सरकार :: अंतरिक्ष विभाग
Government of India :: Dept. of Space
सतीश धवन अंतरिक्ष केंद्र शार, श्रीहरिकोटा
भारतीय अंतरिक्ष अनुसंधान संगठन
Indian Space Research Organisation
SATISH DHAWAN SPACE CENTRE SHAR
Sriharikota
सत्यमेव जयते
इसरो ISRO

Section : **Automobile Engineering**

Q.1 पंजीकरण नंबर प्लेट होना चाहिए

A. अरबी अंकों के साथ अंग्रेजी भाषा में

B. देवनागरी अंकों के साथ प्रांतीय भाषा में

C. सामने की ओर अंग्रेजी भाषा एवं पीछे प्रांतीय भाषा में

D. रोमन अंकों के साथ अंग्रेजी भाषा में

Ans ✔ 1. A
✘ 2. B
✘ 3. C
✘ 4. D

Question ID : **5834934601**

Q.2 Thermal indicative diagram of 4 cylinder & 4 stroke engine is having area of 12cm^2, length of diagram is 6cm and the spring value is 100MPa per m. What is the mean effective pressure in the cylinder?

A. 1.5 MPa

B. 0.2 MPa

C. 2.0 MPa

D. 10.0 kg/cm^2

Ans ✘ 1. A
✘ 2. B
✔ 3. C
✘ 4. D

Question ID : **5834934566**

Q.3 The following fuel produces more heat per gram than any other fuel

A. Oxygen

B. Diesel

C. LPG

D. Hydrogen

Ans ✘ 1. A
✘ 2. B
✘ 3. C
✔ 4. D

Question ID : **5834934584**

Q.4 Which of the following statement is wrong with respect to low aspect ratio tyres application?

A. Smoother ride due to vertical stiffness

B. Wider tire contact results difficulty in water drainage

C. Reduction in tire deflection hence less rolling resistance

D. Larger cornering force hence faster on turns

Ans ✔ 1. A

✘ 2. B

✘ 3. C

✘ 4. D

Question ID : **5834934609**

Q.5 A single cylinder two stroke engine is rotating at 3000 rpm. The no of power strokes per minute is

A. 750

B. 1500

C. 3000

D. 6000

Ans ✘ 1. A

✘ 2. B

✔ 3. C

✘ 4. D

Question ID : **5834934603**

Q.6 Waste gate valve is used in the

A. Exhaust system

B. Fuel system

C. Coolant system

D. CRDI fuel system

Ans ✔ 1. A

✘ 2. B

✘ 3. C

✘ 4. D

Question ID : **5834934587**

Q.7 The height of water column which is equivalent to 30 cm height of mercury is

A. 408 mm

B. 40.8 m

C. 408 cm

D. 40.8 cm

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834934558**

Q.8 Slope of tangent to curve $x = a\sin^3 t$, $y = b\cos^3 t$ at the point where $t = \frac{\pi}{4}$ is

A. $\frac{b}{a}$

B. -1

C. $\frac{-b}{a}$

D. $\frac{-a}{b}$

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834934615**

Q.9 Overdrive is provided in the transmission of a vehicle to

A. Reach higher road speeds

B. Improve fuel efficiency

C. Achieve better acceleration

D. Carry more load.

Ans
✗ 1. A
✓ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934590**

Q.10 Modern high speed diesel engines work on thermodynamic cycle of

A. Otto cycle

B. Diesel Cycle

C. Dual Combustion cycle

D. Bryton cycle

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834934559**

Q.11 In four cylinder in-line four-stroke engine, No. 1 piston is performing the power stroke then No. 4 piston is in the following stroke.

A. Suction

B. Compression

C. Power

D. Exhaust

Ans
✓ 1. A
✗ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934575**

Q.12 Broken yellow line on centre of the road means

A. Vehicles traveling in the opposite direction can overtake with care

B. Lane changing zone

C. No overtaking in both the directions

D. Only light vehicles can overtake

Ans
✓ 1. A
✗ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934602**

Q.13 Which one of the following is amorphous material?

A. Lead

B. Mica

C. Glass

D. Rubber

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834934544**

Q.14 Greenhouse effect is related with

A. Warming of earth surface

B. Depletion of ozone layer

C. Three-way catalytic converter

D. Growing green plants

Ans
✓ 1. A
✗ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934620**

Q.15 Bromine gas is used in the following

A. Incandescent bulb

B. Halogen bulb

C. Gas Discharge Lamp

D. Light Emitting Diode

Ans
✗ 1. A
✓ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934572**

Q.16 Which air cleaner is considered to be most effective in diesel engines?

A. Dry type

B. Wet type

C. Oil bath type

D. All are equally effective

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834934580**

Q.17 A hot plug has a

A. Long heat path

B. Short heat path

C. Heat dam

D. Long insulator

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834934605**

Q.18 In a Hole Basis Tolerance System, Basic size is equal to

A. Maximum size of the hole

B. Minimum Size of Hole

C. Maximum size of Fit

D. None of the above.

Ans
✗ 1. A
✓ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934553**

Q.19 Efficiency of diesel engine depends on

A. Compression ratio

B. Compression ratio & Cut-off ratio

C. Cut-off ratio & pressure ratio

D. Cut-off Ratio

Ans
✗ 1. A
✓ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934564**

Q.20 SI unit of Kinematic Viscosity is

A. Stokes

B. m/s^2

C. m^2/s

D. kg/m-s

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834934555**

Q.21 The Area (in sq. units) bounded by a curve $y = x^2 - 6x + 8$ and the x – axis is

A. $\frac{4}{3}$

B. $\frac{3}{4}$

C. $\frac{3}{8}$

D. $\frac{5}{16}$

Ans ✔ 1. A

✗ 2. B

✗ 3. C

✗ 4. D

Question ID : **5834934621**

Q.22 The reaction time of an average driver from recognizing an obstacle to apply brake is taken as

A. 0.5 to 1.7 seconds

B. 2 to 3.5 seconds

C. 3.5 to 4.5 seconds

D. 4.5 to 6.0 seconds

Ans ✔ 1. A

✗ 2. B

✗ 3. C

✗ 4. D

Question ID : **5834934593**

Q.23 खतरनाक/जोखिम युक्त सामान ले जा रहे वाहन का चालक

A. वाहन सावधानीपूर्वक चलाना आता हो

B. कम से कम अग्निशमन में डिप्लोमा हो

C. बहाव/रिसाब के कारण आपात स्थिति में प्राथमिक उपचार एवं कार्रवाईयों का ज्ञान हो

D. लाइसेंस मिलने के पश्चात 5 साल का अनुभव अनिवार्य

Ans ✗ 1. A

✗ 2. B

✔ 3. C

✗ 4. D

Question ID : **5834934598**

Q.24 The unit of dynamic viscosity of fluid is

A. Pa.s

B. Poise

C. $N.s/m^2$

D. All of the above

Ans
✗ 1. A
✗ 2. B
✗ 3. C
✓ 4. D

Question ID : **5834934556**

Q.25 Identify at what temperature a mild steel block, may develop cracks when drops on the floor.

A. 273° C

B. 800° C

C. -273° C

D. 1400° C

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834934608**

Q.26 Which of the following materials is most elastic?

A. Rubber

B. Steel

C. Aluminum

D. Wrought iron

Ans
✗ 1. A
✓ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934542**

Q.27 The ratio of central deflection of simply supported beam with load 'W' at its centre to that of same beam with uniformly distributed load of 'W' is

A. $\frac{8}{5}$

B. $\frac{5}{8}$

C. $\frac{5}{4}$

D. $\frac{4}{5}$

Ans ✔ 1. A

✗ 2. B

✗ 3. C

✗ 4. D

Question ID : **5834934546**

Q.28 Which equation shows the battery is charged?

A. $PbO_2 + 2H_2SO_4 + Pb$

B. $PbSO_4 + 2Pb$

C. $2PbSO_4 + 2H_2O$

D. $2H2O + Pb + 2SO_4$

Ans ✔ 1. A

✗ 2. B

✗ 3. C

✗ 4. D

Question ID : **5834934571**

Q.29 The stroke is increased when the

A. Piston is shortened

B. Connecting rod is lengthened

C. Crankshaft throw is lengthened

D. Piston pin is moved nearer to the crank shaft

Ans ✗ 1. A

✗ 2. B

✔ 3. C

✗ 4. D

Question ID : **5834934579**

Q.30 As compression ratio in an engine goes up, the octane requirement of the fuel

A. Goes down

B. Goes up

C. Stay about the same

D. No effect

Ans ✗ 1. A

✓ 2. B

✗ 3. C

✗ 4. D

Question ID : **5834934583**

Q.31 The Ideal Fluid is

A. Viscous and compressible

B. Non-viscous and incompressible

C. No color with negligible viscosity

D. Viscous and incompressible

Ans ✗ 1. A

✓ 2. B

✗ 3. C

✗ 4. D

Question ID : **5834934557**

Q.32 Galvanization is method to

A. Protect the iron metal from corrosion

B. Extract iron from its ore

C. protect food from rancidity

D. improve the ductility property of metal

Ans ✓ 1. A

✗ 2. B

✗ 3. C

✗ 4. D

Question ID : **5834934617**

Q.33 Which one of the following communication systems is named after King Harald?

A. LIDAR

B. Bluetooth

C. Wi-Fi

D. RFID

Ans
✗ 1. A
✓ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934570**

Q.34 The more effective way of increasing efficiency of heat engine is

A. Increase of source temperature

B. Decrease of fuel quantity

C. Increase in Compression ratio

D. Decrease of Sink temperature

Ans
✗ 1. A
✗ 2. B
✗ 3. C
✓ 4. D

Question ID : **5834934562**

Q.35 An automatic transmission works on the principle of

A. Centrifugal device making up changes proportional to road speed

B. Centrifugal device connected to crank shaft making up changes propeller shaft to engine speed.

C. Makes changes depending on throttle position in conjunction with road speed governor

D. Makes gear change at equal intervals at set road speeds

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834934594**

Q.36 How can we use engine as brakes?

A. By selecting reverse gear

B. By selecting high gear

C. By selecting neutral gear

D. By selecting lower gear

Ans
✗ 1. A
✗ 2. B
✗ 3. C
✓ 4. D

Question ID : **5834934592**

Q.37 A flashing red light at an intersection means

A. You should slow down and drive with increased caution

B. You should slow down and give right of way to vehicles approaching from left or right side

C. Signal light is out of order and as such you should proceed with caution

D. You should stop, give way to vehicles in the priority road and proceed only when the way is clear

Ans
✗ 1. A
✗ 2. B
✗ 3. C
✓ 4. D

Question ID : **5834934600**

Q.38 Commonly used antifreeze solution in automobile is

A. Liquid ammonia

B. Glycol

C. Ammonium chloride

D. Freon 12

Ans
✗ 1. A
✓ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934577**

Q.39 In an Arc welding process, the voltage and current are 90 volts and 200 Amps respectively. The Arc transfer efficiency is 0.8 and welding speed is 6 mm/s. The heat input (joules) per mm is

A. 3700

B. 3200

C. 2900

D. 2400

Ans
✗ 1. A
✗ 2. B
✗ 3. C
✓ 4. D

Question ID : **5834934550**

Q.40 In a light vehicle truck, one of the axles is with a load of 10 KN. The wheel track of vehicle is 1.8m and distance between spring centers is 1.5m. The bending Moment in the axle is

A. 750 Nm

B. 1500 Nm

C. 7500 Nm

D. 9000 Nm

Ans
✓ 1. A
✗ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934545**

Q.41 A 230V electric heater draws 10A and it operates for 10min duration in a volume contains air. Neglecting the heat losses, the work done on the air is

A. 1280 kJ

B. 1280 kcal

C. 1140 kJ

D. 1306 kcal.

Ans
✓ 1. A
✗ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934565**

Q.42 CNG is stored in the vehicle at a pressure of

A. 200 bar

B. 20 bar

C. 1200 bar

D. 2 bar

Ans
✔ 1. A
✘ 2. B
✘ 3. C
✘ 4. D

Question ID : **5834934586**

Q.43 If anti-freeze coolant is not used in vehicles, in subzero temperature the following may happen

A. Water volume reduces and engine overheats.

B. Water volume increases and radiator cracks.

C. Engine will not start

D. None of the above

Ans
✘ 1. A
✔ 2. B
✘ 3. C
✘ 4. D

Question ID : **5834934611**

Q.44 Mechanical Properties of a Material remains same in all directions, then the material is

A. Orthotropic

B. Homogenous

C. Isotropic

D. Anisotropic

Ans
✘ 1. A
✘ 2. B
✔ 3. C
✘ 4. D

Question ID : **5834934543**

Q.45 Valve lifter in its mechanism is used to

A. Transfer the rotary motion of the camshaft lobe to the push rod

B. Transmit motion from the push rod to the valve stem

C. Connect the crank shaft

D. None of the above

Ans ✔ 1. A
✗ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934578**

Q.46 Wheel base of a vehicle is the

A. Distance between front and rear axles

B. Distance between the front tyres

C. Extreme length of the vehicle

D. Width of tyres

Ans ✔ 1. A
✗ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934589**

Q.47 The lip angle of twist drill generally

A. 90^0

B. 108^0

C. 118^0

D. 136^0

Ans ✗ 1. A
✗ 2. B
✔ 3. C
✗ 4. D

Question ID : **5834934547**

Q.48 Supercharging in IC engines means

A. Supplying fuel with increased pressure

B. Supplying air above the atmospheric pressure

C. Supplying air and fuel with increased pressure

D. None of the above

Ans
✗ 1. A
✓ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934581**

Q.49 At a pedestrian zebra crossing not controlled by traffic signals

A. Vehicles and pedestrians have equal right of way

B. Cyclists and pedestrians have equal right of way

C. All vehicles have to stop for pedestrians as they have right of way at all the times

D. Vehicle drivers have the right of way

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834934599**

Q.50 Whenever a conductor cuts the magnetic flux, an e.m.f is induced in the same. The statement refers to

A. Joule' s law

B. Coulomb's law

C. Faraday's law

D. Lenz's law

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834934574**

Q.51 In Brazing usual melting point of filler rod is

A. Above 450^0C and below melting point of parent metal

B. Below 450^0C and above 330^0C

C. Around 330^0C

D. Above melting point of parent metal.

Ans
✔ 1. A
✗ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934548**

Q.52 The device used to reduce the exhaust noise is known as

A. Exhaust manifold

B. Exhaust pipe

C. Tail pipe

D. Muffler

Ans
✗ 1. A
✗ 2. B
✗ 3. C
✔ 4. D

Question ID : **5834934576**

Q.53 If 1kg of hydrogen requires 8 kg of Oxygen, what is the theoretical mass of air required?

A. 11.6 kg

B. 34.8 kg

C. 32 kg

D. 48 kg

Ans
✗ 1. A
✔ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934588**

Q.54 Which of the following answer is related to Dynamo compared with Alternator

A. AC to DC -Electrical

B. Low weight to High output

C. DC output tapped from Armature

D. High speed application

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834934573**

Q.55 Which one is the common crawler gear ratio in a heavy-duty truck?

A. 6.7 : 1

B. 19 : 1

C. 4 : 1

D. 0.85: 1

Ans
✗ 1. A
✓ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934610**

Q.56 The temperature of saturated air which has the same vapor pressure as the air condition under consideration is called

A. Dry bulb temperature

B. Wet Bulb Temperature

C. Dew Point temperature

D. None of the above

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834934607**

Q.57 FAME II is the term associated with

A. Bharat Stage VI

B. Electric vehicle

C. Bus body standards

D. NHAI

Ans
✗ 1. A
✓ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934597**

Q.58 Air is categorized as

A. Elements

B. Compound

C. Mixture

D. Alloy

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834934585**

Q.59 Highest efficiency possible to achieve in a heat engine which is operating between maximum temperature of 1327^0C and minimum temperature of 127^0C is

A. 75%

B. 80%

C. 65%

D. 45%

Ans
✓ 1. A
✗ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934563**

Q.60 Ignition advance is expressed in terms of

A. Crank angle

B. Millimeters of piston travel before TDC

C. Time in milli seconds

D. Any of the above

Ans
✗ 1. A
✗ 2. B
✗ 3. C
✓ 4. D

Question ID : **5834934619**

Q.61 Regeneration is the term related to

A. Diesel Particulate Filter

B. Antilock Brake System

C. Diesel Oxidation Catalyst

D. Single Catalyst Reduction

Ans
✓ 1. A
✗ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934569**

Q.62 The fins at the top of a motor cycle engine cylinder are longer than those at the bottom because

A. Hot air rises

B. Top is the hottest part

C. They are in an unexposed position

D. Extra strength is required at the top

Ans
✗ 1. A
✓ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934604**

Q.63

If $A = \begin{bmatrix} 2 & 4 \\ 1 & 2 \end{bmatrix}$ then A^{-1} is

A. $\begin{bmatrix} 2 & 1 \\ 4 & 2 \end{bmatrix}$

B. $\frac{1}{2}\begin{bmatrix} 1 & 2 \\ -1/2 & 1 \end{bmatrix}$

C. $\begin{bmatrix} -2 & -1 \\ -4 & -2 \end{bmatrix}$

D. Not exists

Ans
✗ 1. A
✗ 2. B
✗ 3. C
✓ 4. D

Question ID : **5834934616**

Q.64 Which of the following is not a thermodynamic property?

A. Pressure
B. Temperature
C. Density
D. Heat

Ans
✗ 1. A
✗ 2. B
✗ 3. C
✓ 4. D

Question ID : **5834934561**

Q.65

GDI system exists in

A. Diesel engine

B. CNG engines

C. Petrol engine

D. All the above

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834934582**

Q.66

Profile of a gear tooth is checked by

A. Vernier Micrometer

B. Optical pyrometer

C. Optical Projector

D. Stylus Comparator

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834934554**

Q.67

Clutch slippage while clutch is engaged is particularly noticeable

A. During idling

B. At low speed

C. During acceleration

D. While starting the engine

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834934596**

Q.68 Modulus of complex number $\frac{1-i}{1+i}$ is

A. 0
B. -i
C. +1
D. -1

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834934613**

Q.69 The angle of camber is usually

A. Less than $1/2^0$
B. Between $1/2^0$ and 2^0
C. 2^0 to 5^0
D. 5^0 to 7^0

Ans
✗ 1. A
✓ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934591**

Q.70 Honing is a machining process associated with the following part of engine

A. Crank shaft
B. Cylinder Block
C. Piston
D. Connecting rod

Ans
✗ 1. A
✓ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934549**

Q.71 Which of the following is least accurate measuring device?

A. Vernier caliper

B. Micrometer

C. Steel Rule

D. Measuring tape.

Ans
✗ 1. A
✗ 2. B
✗ 3. C
✓ 4. D

Question ID : **5834934551**

Q.72 The angle between vectors A = i+2j+2k and B = 2i+j-2k is

A. $\frac{\pi}{4}$

B. 0

C. $\frac{\pi}{2}$

D. $\frac{\pi}{3}$

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834934612**

Q.73 Nanometer is

A. 10^{-3} m

B. 10^{-9}m

C. 10^{-6}m

D. 10^{-2}m

Ans
✗ 1. A
✓ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934618**

Q.74 Internal energy of a thermodynamic system is depending on

A. Pressure

B. Heat input

C. Entropy

D. Temperature

Ans
✗ 1. A
✗ 2. B
✗ 3. C
✓ 4. D

Question ID : **5834934560**

Q.75 The type of hub used on a heavy commercial vehicle is a

A. Quarter floating

B. Semi floating

C. Three quarter floating

D. Fully floating

Ans
✗ 1. A
✗ 2. B
✗ 3. C
✓ 4. D

Question ID : **5834934595**

Q.76 A 1.0 kW electric heater is submerged in a 4 kg water and kept ON for 7 min. During this heating, temperature rise of water is (neglect heat losses)

A. 20 ^{0}C

B. 25 ^{0}C

C. 30 ^{0}C

D. 35 ^{0}C

Ans
✗ 1. A
✓ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834934567**

Q.77 Integral body construction is called

A. Monocoque

B. Articulated design

C. Vestibule design

D. Saloon

Ans
✔ 1. A
✘ 2. B
✘ 3. C
✘ 4. D

Question ID : **5834934568**

Q.78 Tachometers are used to measure

A. Acceleration

B. Angular Velocity

C. Linear speed

D. Vibration

Ans
✘ 1. A
✔ 2. B
✘ 3. C
✘ 4. D

Question ID : **5834934552**

Q.79 What is total heat load?

A. The total amount of heat to be removed from a given area in a specific time

B. The total amount of heat absorbed in a charge of state.

C. The amount of heat required to raise a substance 1° F

D. The amount of heat required to raise one pound of water 1° F

Ans
✔ 1. A
✘ 2. B
✘ 3. C
✘ 4. D

Question ID : **5834934606**

Q.80

Fourteenth (14^{th}) term of $(3\text{-}a)^{15}$

A. $1945\ a^{13}$

B. $-945\ a^{13}$

C. $1945\ a^{14}$

D. $945\ a^{14}$

Ans

✗ 1. A

✓ 2. B

✗ 3. C

✗ 4. D

Question ID : **5834934614**