



रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS

सी ई एन - ०१/२०२५ - CEN - 01/2025

सहायक लोको पायलट की भर्ती/ Recruitment of Assistant Loco Pilot



Test Date	28/07/2026
Test Time	2:30 PM - 5:00 PM
Subject	ALP Stage 2 Mechanic Diesel

* Note

Correct Answer will carry 1 mark per Question.

Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.

2. Chosen option on the right of the question indicates the option selected by the candidate.

Section : PART-A

Q.1 Let C be a circle, and AB and DE be two chords on C such that $AB = BE$. In the quadrilateral ABED, let AE and BD intersect at F, $\angle DBE = 55^\circ$ and $\angle BAE = 40^\circ$. Find $\angle FED$.

- Ans**
- ☒ A. 55°
 - ☒ B. 60°
 - ☒ C. 45°
 - ☒ D. 110°

Q.2 Which statement best describes how the mass and speed of an object affect its kinetic energy?

- Ans**
- ☒ A. An object with same mass but higher speed will have less kinetic energy.
 - ☒ B. An object with greater mass and higher speed will have more kinetic energy.
 - ☒ C. An object with less mass and lower speed will have more kinetic energy.
 - ☒ D. An object with greater mass but lower speed will have more kinetic energy.

Q.3 Which of the following statements best describes a triangle as used in engineering drawing?

- Ans**
- ☒ A. A triangle is a polygon with three straight sides and three angles.
 - ☒ B. A triangle must always have all sides of equal length.
 - ☒ C. A triangle is a polygon with four straight sides and four angles.
 - ☒ D. A triangle is a polygon having three curved sides.

Q.4 Which of the following correctly states the full form of CD and the technology used to store data on it?

- Ans**
- ☒ A. Compact Disc, Optical Storage
 - ☒ B. Compact Disc, Magnetic Storage
 - ☒ C. Compact Drive, Optical Storage
 - ☒ D. Compact Drive, Magnetic Storage

Q.5 The average of five numbers is 30. If four of the numbers are 25, 35, 28 and 32, then what is the fifth number?

- Ans**
- ☒ A. 35
 - ☒ B. 32
 - ☒ C. 28
 - ☒ D. 30

Q.6 The first shopkeeper allows two successive discounts of 3% and 7%, while a second shopkeeper allows two successive discounts of 2% and 8%. A third shopkeeper allows 10% discount on the same item. From which shopkeeper should a customer buy if the marked price is the same at the three shops?

- Ans**
- ☒ A. Buy from the first shopkeeper
 - ☒ B. Buy from the second shopkeeper
 - ☒ C. Buy from the third shopkeeper
 - ☒ D. Buy from the first or the second shopkeeper as both are the same.

Q.7 Based on the English alphabetical order, three of the following four letter-cluster pairs are alike in a certain way and thus form a group. Which letter-cluster pair DOES NOT belong to that group?

(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

- Ans**
- ☒ A. HB-IC
 - ☒ B. PJ-QK
 - ☒ C. RL-SN
 - ☒ D. FZ-GA

Q.8 Read the given statement(s) and conclusions carefully. Assuming that the information given in the statements is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statement(s).

Statements:

Some rugs are fans.

No fan is a car.

Conclusion (I) : Some rugs are cars.

Conclusion (II) : Some fans are rugs.

- Ans**
- ☒ A. Only conclusion (I) follows
 - ☒ B. Both conclusions (I) and (II) follow
 - ☒ C. Only conclusion (II) follows
 - ☒ D. Neither conclusion (I) nor (II) follows

Q.9 If $3x - 2y + 3z = 8$, $4x - 3y + 2z = 4$ and $2x + y - z = 1$, then find x, y and z, respectively.

- Ans**
- ☒ A. 2, 3 and 1
 - ☒ B. 3, 1 and 2
 - ☒ C. 1, 2 and 3
 - ☒ D. 2, 1 and 3

Q.10 A ladder is leaning against a wall and makes an angle of 60° with the ground. If the length of the ladder is 24 m, find the distance of the foot of the ladder from the wall.

- Ans**
- ☒ A. 9 m
 - ☒ B. 15 m
 - ☒ C. 12 m
 - ☒ D. 18 m

Q.11 Refer to the given letter series and answer the question that follows. Counting to be done from left to right only.

(Left) H S A N D D I A D F P A J O S K I O Z O T X (Right)

How many such consonants are there, each of which is immediately preceded by a consonant and also immediately followed by a vowel?

- Ans**
- ☒ A. Four
 - ☐ B. Three
 - ☐ C. Six
 - ☐ D. Five

Q.12 If 2 is subtracted from each odd digit and 2 is added to each even digit in the number 235234796423, what will be the sum of the digits that are third from the left and third from the right?

- Ans**
- ☐ A. 7
 - ☐ B. 6
 - ☒ C. 9
 - ☐ D. 8

Q.13 Why is a room thermometer generally mounted vertically on a wall?

- Ans**
- ☐ A. It helps the thermometer measure body temperature faster.
 - ☒ B. It ensures accurate reading by keeping the bulb exposed to room air.
 - ☐ C. It prevents the liquid from freezing inside the thermometer.
 - ☐ D. It protects the thermometer from breaking easily.

Q.14 Which of the following best describes the function of a speedometer in a vehicle?

- Ans**
- ☐ A. It calculates the average speed over a journey.
 - ☐ B. It shows the rate at which the vehicle's speed changes.
 - ☐ C. It measures the total distance the vehicle has traveled.
 - ☒ D. It displays the current speed at which the vehicle is moving.

Q.15 Refer to the following letter series and answer the question that follows. (Counting to be done from left to right only.)

(Left) Q K Q N X K G G V M L A W T W K N G V (Right)

How many such consonants are there each of which is immediately preceded by a vowel and also immediately followed by a consonant?

- Ans**
- ☐ A. None
 - ☐ B. Two
 - ☒ C. One
 - ☐ D. Three

Q.16 A question is followed by two statements numbered (I) and (II). You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and select the most appropriate answer.

Question:

Among five trees N, O, R, S, and T, each having a different height, which tree is the tallest?

Statements:

(I) T is taller than R. N is taller than T.

(II) R is shorter than O but taller than S.

- Ans**
- ☐ A. Data in Statement II alone is sufficient to answer the question while data in statement I is not
 - ☒ B. Both statements I and II together are NOT sufficient to answer the question
 - ☐ C. Both statements I and II together (and not statement I alone or statement II alone) are sufficient to answer the question
 - ☐ D. Data in Statement I alone is sufficient to answer the question while data in statement II is not

Q.17 A ramp is used to lift a box to a platform 2 m high. To reduce the effort required, the ramp length is increased from 4 m to 8 m. Assuming negligible friction, what remains unchanged?

- Ans**
- ☐ A. The mechanical advantage
 - ☒ B. The work done in raising the box
 - ☐ C. The distance moved along the ramp
 - ☐ D. The force required

Q.18 Which tool safety measure best prevents injuries when cleaning a workshop lathe after use?

- Ans**
- ☒ A. Using a brush to remove metal chips from the lathe
 - ☐ B. Blowing chips away with compressed air around the lathe
 - ☐ C. Wiping metal chips using bare hands directly
 - ☐ D. Using a rag to remove metal dust from the lathe

Q.19 Which scenario best demonstrates proactive workplace safety behavior?

- Ans**
- ☐ A. Reporting hazards after incidents happen
 - ☐ B. Waiting for a supervisor to notice hazards
 - ☐ C. Discussing only past safety problems in meetings
 - ☒ D. Identifying and correcting hazards before accidents occur

Q.20 A laboratory thermometer has a range from -10 degrees Celsius to 110 degrees Celsius and 120 equal divisions. What is the smallest value that this thermometer can read?

- Ans**
- ☒ A. 1 degree Celsius
 - ☐ B. 10 degrees Celsius
 - ☐ C. 2 degrees Celsius
 - ☐ D. 0.5 degrees Celsius

Q.21 An astronaut weighs 600 N on Earth. During a moon mission, she performs an experiment to measure her weight on the moon. Which value is closest to her expected weight on the moon, and why?

- Ans**
- ☐ A. 600 N, because a person's weight remains unchanged on the Moon.
 - ☐ B. 200 N, because the Moon's gravity is about one-third of Earth's.
 - ☒ C. 100 N, because the Moon's gravity is about one-sixth of Earth's.
 - ☐ D. 300 N, because the Moon's gravity is about one-half of Earth's.

Q.22 A cyclist rides 60 meters north, then 80 meters south, and finally 70 meters north. What is the total distance the cyclist has traveled?

- Ans**
- ☒ A. 210 meters
 - ☐ B. 150 meters
 - ☐ C. 60 meters
 - ☐ D. 10 meters

Q.23 What information does a kilometer stone provide to travelers on a road?

- Ans**
- ☐ A. Speed of the vehicle
 - ☐ B. Time taken to reach destination
 - ☐ C. Direction of travel
 - ☒ D. Distance from a reference point

Q.24 A plane parallel to the base divides a cone of height 40 cm into two parts. If the volume of the upper smaller cone formed is $\frac{1}{64}$ of the volume of the original cone, calculate the height of the plane from the base of the cone.

- Ans**
- ☐ A. 10 cm
 - ☐ B. 40 cm
 - ☐ C. 20 cm
 - ☒ D. 30 cm

Q.25 12 is related to 1730 following a certain logic. Following the same logic, 13 is related to 2199. To which of the given options is 11 related, following the same logic?
(NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

- Ans**
- ☒ A. 1333
 - ☐ B. 1443
 - ☐ C. 1543
 - ☐ D. 1433

Q.26 When drawing repeated 67° angles on an engineering sheet, which practice best helps minimize cumulative alignment errors?

- Ans**
- ☐ A. Drawing all angles continuously without intermediate verification
 - ☐ B. Relying solely on the initial protractor alignment for all angles
 - ☐ C. Marking all angles lightly with a pencil before finalizing
 - ☒ D. Using the same reference line for all repeated angles

Q.27 A pump can fill a tank in 3 hours. Due to a leak in the tank, it takes 4.5 hours to fill the tank. In how much time can the leak empty the full tank if no other entry or exit routes are open?

- Ans**
- ☐ A. 7 hours
 - ☒ B. 9 hours
 - ☐ C. 6 hours
 - ☐ D. 8 hours

Q.28 Select the pair which follows the same pattern as that followed by the two pairs given below. Both pairs follow the same pattern.

ZOT - TLP
NIL - HFH

- Ans**
- ☐ A. BOC - VZT
 - ☐ B. VZZ - BCD
 - ☐ C. ABD - VZZ
 - ☒ D. BCD - VZZ

Q.29 Which factor increases the amount of heat produced in a wire when an electric current flows through it for a fixed time?

- Ans**
- ☐ A. Making the wire thicker
 - ☒ B. Increasing the resistance of the wire
 - ☐ C. Reducing the current in the wire
 - ☐ D. Decreasing the length of the wire

Q.30 Which type of personal protective equipment is most suitable for tasks involving airborne chemical particles in confined spaces?

- Ans**
- ☐ A. Hand protection using chemical-resistant gloves
 - ☐ B. Head protection with industrial-grade hard hats
 - ☐ C. Body protection with flame-retardant suits
 - ☒ D. Respiratory protection devices such as half-face masks

Q.31 Sohan covers a total distance of 760 km to reach his home, traveling partly by train and partly by car. He takes 8 hours when he travels 160 km by train and the rest by car. If he travels 240 km by train and the remaining distance by car, his journey takes 12 minutes longer. Find the difference between the speeds of the train and the car.

- Ans**
- ☒ A. 20 km/h
 - ☐ B. 27 km/h
 - ☐ C. 23 km/h
 - ☐ D. 21 km/h

Q.32 Find the compound interest on ₹5,70,000 for 1.5 years at 10% per annum compounded half-yearly.

- Ans**
- ☐ A. ₹89,946.25
 - ☐ B. ₹92,846.25
 - ☐ C. ₹88,846.25
 - ☒ D. ₹89,846.25

Q.33 Which combination best describes the main environmental challenges associated with plastic waste management?

- Ans**
- ☐ A. Thermal pollution and effective composting
 - ☐ B. Rapid biodegradation and chemical leaching
 - ☐ C. Neutralization and easy recycling
 - ☒ D. Persistence in the environment and microplastic formation

Q.34 When a cutting plane line passes through a hole and a rib, which feature should be sectioned in the resulting view according to standard conventions?

- Ans**
- ☐ A. Both the hole and the rib are shown unsectioned
 - ☐ B. The rib is sectioned but the hole is left unsectioned
 - ☒ C. The hole is sectioned but the rib is shown unsectioned
 - ☐ D. Both the hole and the rib are shown sectioned

Q.35 Five students, N, O, R, S and T, have different heights. T is taller than N. R is taller than S but shorter than O. S is taller than N. More than two people are taller than T. How many people are shorter than R?

- Ans**
- ☐ A. Two
 - ☒ B. Three
 - ☐ C. None
 - ☐ D. One

Q.36 If the height of an object is doubled while its mass remains constant, its gravitational potential energy will be:

- Ans**
- ☐ A. halved
 - ☒ B. doubled
 - ☐ C. unchanged
 - ☐ D. decreased to one-fourth

Q.37 Why does biomedical waste require special handling compared to general municipal waste?

- Ans**
- ☒ A. It may contain infectious agents that pose health risks.
 - ☐ B. It is always radioactive and requires heavy shielding.
 - ☐ C. It has higher chemical content and is always toxic.
 - ☐ D. It is more likely to be recycled than other types of waste.

Q.38 A crane lifts a 200 kg load to a height of 15 meters in 10 seconds. Assuming acceleration due to gravity is 10 m/s^2 and energy loss is negligible, what is the power output of the crane during this operation?

- Ans**
- ☐ A. 2000 W
 - ☒ B. 3000 W
 - ☐ C. 1000 W
 - ☐ D. 1500 W

Q.39 What is the primary purpose of a Local Area Network (LAN)?

- Ans**
- ☐ A. To connect global networks
 - ☐ B. To link wireless devices only
 - ☐ C. To connect social media accounts
 - ☒ D. To connect computers within a small geographical area

Q.40 What will come in the place of '?' in the following equation, if '+' and '-' are interchanged and 'x' and '÷' are interchanged?
 $5 \div 3 + 15 \times 5 - 3 = ?$

- Ans**
- ☐ A. 18
 - ☒ B. 15
 - ☐ C. 12
 - ☐ D. 9

Q.41 A 42-litre solution has sugar and water in the ratio 2 : 5. If, due to evaporation, the volume is reduced by 35%, and only water evaporates, what is the new ratio of sugar to water?

- Ans**
- ☒ A. 40 : 51
 - ☐ B. 31 : 50
 - ☐ C. 40 : 41
 - ☐ D. 51 : 42

Q.42 Pipes A and B can fill an entire tank in 8 hours and 12 hours, respectively. The water tank is one-fourth full. If both the pipes are opened together, then how long will it take to fill the remaining part of the tank?

- Ans**
- ☐ A. 3 hours 16 minutes
 - ☐ B. 3 hours 6 minutes
 - ☐ C. 3 hours 26 minutes
 - ☒ D. 3 hours 36 minutes

Q.43 Based on the English alphabetical order, three of the following four letter-cluster pairs are alike in a certain way and thus form a group. Which letter-cluster pair DOES NOT belong to that group?

(Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)

- Ans**
- ☐ A. DG – EH
 - ☐ B. KE – LF
 - ☒ C. IT – KV
 - ☐ D. SJ – TK

Q.44 An article is bought for ₹300 and its price is increased by 5.5%. The resulting price is then reduced by 8%. Find the final selling price.

- Ans**
- ☒ A. ₹291.18
 - ☐ B. ₹284.45
 - ☐ C. ₹296.46
 - ☐ D. ₹288.24

Q.45 If a rectangular field is measured to be 120 meters long and 75 meters wide, what is its area in SI units?

- Ans**
- ☐ A. 1800 square meters
 - ☒ B. 9000 square meters
 - ☐ C. 15000 square meters
 - ☐ D. 19500 square meters

Q.46 Which one of the following statements correctly describes a characteristic of WANs?

- Ans**
- ☐ A. WANs typically use only wireless media to connect distant LANs.
 - ☐ B. WANs are limited to connecting devices within a radius of 1 to 2 km.
 - ☐ C. WANs are always public networks managed solely by Internet Service Providers (ISPs).
 - ☒ D. WANs can be built by connecting multiple LANs via wired or wireless links.

Q.47 Srinu starts from his home and drives 2 km towards the south, then takes a right turn and drives 5 km. He then takes a right turn and drives 6 km before taking a right turn again and driving 4 km further. Srinu finally takes a right turn and drives 4 km before stopping at his office. In which direction should Srinu drive to reach his home again? (All turns are 90-degree turns only unless specified.)

- Ans**
- ☐ A. North
 - ☒ B. East
 - ☐ C. West
 - ☐ D. South

Q.48 The price of sugar is increased by 20%. Manoj can increase his expenditure on sugar by only 15% from his income. In order to balance his expenditure, by what percentage should he reduce the quantity of sugar consumed?

- Ans**
- ☐ A. 5%
 - ☐ B. $5\frac{1}{3}\%$
 - ☐ C. 6.5%
 - ☒ D. $4\frac{1}{6}\%$

Q.49 The mean of 11 numbers is 10.9. If the mean of the first 6 numbers is 10.5 and the mean of the last 6 numbers is 11.4, then find the 6th number.

- Ans**
- ☐ A. 10
 - ☐ B. 10.5
 - ☒ C. 11.5
 - ☐ D. 11

Q.50 In a certain code language, 'SOIL' is coded as '1547' and 'COIL' is coded as '7124'. What is the code for 'C' in the given code language?

- Ans**
- ☐ A. 1
 - ☐ B. 4
 - ☐ C. 7
 - ☒ D. 2

Q.51 Two sets of numbers are given below. In each set of numbers, certain mathematical operation(s) on the first number result(s) in the second number. Similarly, certain mathematical operation(s) on the second number result(s) in the third number and so on. Which of the given options follows the same set of operations as in the given sets? (NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13 – Operations on 13 such as adding to/subtracting from/multiplying with 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.)

6 – 16 – 23 – 32; 7 – 19 – 26 – 35

- Ans**
- ☐ A. 4 – 14 – 21 – 30
 - ☐ B. 8 – 22 – 15 – 24
 - ☒ C. 12 – 34 – 41 – 50
 - ☐ D. 11 – 31 – 38 – 29

Q.52 A solid right circular cone is 7 cm high, and the radius of its base is 22.2 cm. It is melted and recast into a right circular cone with radius of its base 3.7 cm. Then the height (in cm) of the cone is _____.

- Ans**
- ☐ A. 159
 - ☐ B. 267
 - ☒ C. 252
 - ☐ D. 185

Q.53 What is the primary role of the Central Processing Unit (CPU) in a computer system?

- Ans**
- ☐ A. To display output on the screen
 - ☐ B. To manage network connections
 - ☒ C. To execute program instructions
 - ☐ D. To store long-term data

Q.54 What should come in place of the question mark (?) in the given series based on the English alphabetical order?

MDB PHE SLH VPK ?

- Ans**
- ☐ A. ZUO
 - ☒ B. YTN
 - ☐ C. XSM
 - ☐ D. ZTM

Q.55 Which symbol best represents a battery in an electric circuit diagram according to standard conventions?

- Ans**
- ☐ A. Two circles connected in series
 - ☐ B. A single long line only
 - ☐ C. Two short lines placed together
 - ☒ D. A pair of long and short parallel lines placed alternately

Q.56 A technician needs to select a fuse wire for a room heater. Which property should be considered most important for safety based on the heating effect of electric current?

- Ans**
- ☐ A. The fuse wire must have a shiny surface for efficient cooling.
 - ☒ B. The fuse wire must have a low melting point to break the circuit during excess current.
 - ☐ C. The fuse wire must have a high melting point for durability.
 - ☐ D. The fuse wire must have high resistance and be thick to prevent melting.

Q.57 A group of numbers/symbols is coded using letter codes as per the codes given below and the conditions that follow. The correct combination of codes following the conditions is your answer.

Note: If none of the conditions follow, then the codes for the respective number/symbol are to be followed directly as given in the table.

Number/symbol	3	@	8	4	\$	&	2	%	#	1	+	9	7	5
Code	U	G	B	K	M	F	X	R	E	Q	S	C	V	T

Conditions –

- (i) If the first element is a symbol and the last element an odd number, the codes for these two (the first and the last elements) are to be interchanged.
- (ii) If the first element is an odd number and the last an even number, the first and the last elements are to be coded as ©
- (iii) If both second and third elements are perfect squares, the third element is to be coded as the code for the second element.

What will be the code for the following group?
& 8 \$ 9 5

- Ans**
- ☒ A. FCBMT
 - ☒ B. TCMBF
 - ☒ C. FBMCT
 - ☒ D. TBMCF

Q.58 Which color is universally associated with emergency exit signs in industrial workplaces under international standards?

- Ans**
- ☒ A. Yellow background with black text or symbols
 - ☒ B. Red background with white text or symbols
 - ☒ C. Blue background with white text or symbols
 - ☒ D. Green background with white text or symbols

Q.59 A question is followed by two statements numbered (I) and (II). You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and decide the appropriate answer.

Among 5 sticks, B, U, N, M and D, each having a different height, which stick is the shortest?

- (I) D is shorter than U. M is shorter than B.
- (II) M is taller than D.

- Ans**
- ☒ A. Both statements I and II together are NOT sufficient to answer the question
 - ☒ B. Data in statement I alone is sufficient to answer the question while data in statement II is not
 - ☒ C. Both statements I and II together (and not statement I alone or statement II alone) are sufficient to answer the question
 - ☒ D. Data in statement II alone is sufficient to answer the question while data in statement I is not

Q.60 Why are electric wires in household appliances usually covered with plastic or rubber coating?

- Ans**
- ☒ A. To produce more heat
 - ☒ B. To make the wires heavier
 - ☒ C. To prevent electric shocks by insulation
 - ☒ D. To increase the flow of current

Q.61 A cyclist travels 120 km in 3 hours, rests for 1 hour, and then travels another 80 km in 2 hours. To determine the cyclist's average speed for the entire journey, which of the following quantities should be used?

- Ans**
- ☒ A. Total displacement divided by total time taken
 - ☒ B. Distance travelled in a particular direction divided by time
 - ☒ C. Change in velocity divided by total time taken
 - ☒ D. Total distance travelled divided by the total time taken

Q.62 Which intervention most effectively reduces ground-level pollutant concentrations during a winter temperature inversion?

- Ans
- ☐ A. Reducing local wind speed to minimize horizontal dispersion
 - ☐ B. Increasing surface temperatures near emission sources
 - ☐ C. Elevating emission sources above inversion layers
 - ☒ D. Enhancing vertical air mixing through artificial turbulence

Q.63 Simplify the following expression.

$$11 \text{ of } 7 + 125 \div 5 + 99 \div 11 \times 7 - 17 \text{ of } 7 + 7 \times 6 - (91 \div 7 + 7 \times 5)$$

- Ans
- ☐ A. 48
 - ☐ B. 44
 - ☒ C. 40
 - ☐ D. 36

Q.64 Which of the following pairs of numbers is co-prime?

- Ans
- ☒ A. (17, 54)
 - ☐ B. (28, 49)
 - ☐ C. (14, 28)
 - ☐ D. (21, 33)

Q.65 What will come in place of the question mark (?) in the following equation if '+' and '-' are interchanged and 'x' and '÷' are interchanged?
 $42 \times 6 \div 7 - 35 + 19 = ?$

- Ans
- ☐ A. 69
 - ☐ B. 63
 - ☒ C. 65
 - ☐ D. 67

Q.66 A, B, C, D and E have different heights. E is taller than C but shorter than A. Only one person is taller than A. D is shorter than C. Who amongst them is the third tallest?

- Ans
- ☒ A. E
 - ☐ B. C
 - ☐ C. B
 - ☐ D. A

Q.67 The cost of a diamond varies directly with the square of its weight. A diamond broke into four pieces with weights in the ratio 2:4:1:3. If it had been broken into four equal pieces, the loss would have been ₹60,000. What was the original cost of the diamond?

- Ans
- ☒ A. ₹80,000
 - ☐ B. ₹82,000
 - ☐ C. ₹75,000
 - ☐ D. ₹78,000

Q.68 A boy uses a wheelbarrow to carry sand. The wheel acts as the pivot, the sand is placed in the tray, and the boy lifts the handles. In this arrangement, the sand represents _____.

- Ans
- ☐ A. Effort
 - ☐ B. Fulcrum
 - ☒ C. Load
 - ☐ D. Arm

Q.69 A cyclist travels from the kilometer stone marked 52 to the stone marked 79. How far has the cyclist traveled?

- Ans**
- ☒ A. 52 kilometers
 - ☒ B. 27 kilometers
 - ☒ C. 31 kilometers
 - ☒ D. 131 kilometers

Q.70 Read the given statement(s) and conclusions carefully. Assuming that the information given in the statement(s) is true, even if it appears to be at variance with commonly known facts, decide which of the given conclusions logically follow(s) from the statement(s).

Statements:

All chocolates are paneers.
No paneer is a milk.

Conclusions:

- (I) No chocolate is a milk.
(II) Some milks are paneers.

- Ans**
- ☒ A. Only conclusion (I) follows.
 - ☒ B. Both conclusions (I) and (II) follow.
 - ☒ C. Neither conclusion (I) nor (II) follows.
 - ☒ D. Only conclusion (II) follows.

Q.71 What is a key feature of single stroke lettering in technical drawings?

- Ans**
- ☒ A. Each character is outlined and then filled.
 - ☒ B. Each character is shaded after drawing.
 - ☒ C. Each character is made with several parallel lines.
 - ☒ D. Each character is made with one continuous stroke.

Q.72 If $x + \frac{1}{x} = 5$, then $\frac{x^3 - 5x^2 + 5x}{x^2 + 1}$ is equal to:

- Ans**
- ☒ A. $\frac{1}{5}$
 - ☒ B. $\frac{3}{5}$
 - ☒ C. $\frac{4}{5}$
 - ☒ D. $\frac{2}{5}$

Q.73 Seven boxes, P, Q, S, T, U, V, and W, are kept one over the other, but not necessarily in the same order. There are exactly two boxes between T and P. Only Q is kept above U. No box is kept below P. S is kept somewhere below W but above V. Based on the given information, which box is kept third above V?

- Ans**
- ☒ A. W
 - ☒ B. T
 - ☒ C. P
 - ☒ D. S

Q.74 P, Q and R are three batsmen. The ratios of runs scored by them in a certain match were as follows:

$P : Q = 5 : 7$ and $Q : R = 2 : 3$.

If they scored a total of 765 runs, then find the number of runs scored by R.

- Ans**
- ☒ A. 350
 - ☒ B. 357
 - ☒ C. 336
 - ☒ D. 378

Q.75 What should come in place of '?' in the given series?
11, 22, 44, 88, 176, ?

- Ans**
- ☒ A. 358
 - ☒ B. 342
 - ☒ C. 352
 - ☒ D. 356

Q.76 The salary of a person is increased by 10%, 20% and 25% successively in three consecutive years. Find the overall percentage increase in the salary at the end of the third year.

- Ans**
- ☒ A. 65%
 - ☒ B. 30%
 - ☒ C. 50%
 - ☒ D. 60%

Q.77 Why does restricting certain chemical refrigerants effectively reduce damage to the ozone layer?

- Ans**
- ☒ A. Refrigerants release substances that catalyze ozone breakdown.
 - ☒ B. Refrigerants increase oxygen production, supporting ozone recovery.
 - ☒ C. Refrigerants emit greenhouse gases that warm the stratosphere.
 - ☒ D. Refrigerants contain particles that absorb harmful UV light.

Q.78 An engineer is updating a schematic for a control panel and needs to indicate a normally closed push button. Which approach best ensures the symbol is universally understood among engineers referring to standard engineering drawings?

- Ans**
- ☒ A. Describe the normally closed push button in words within the schematic diagram clearly
 - ☒ B. Use the standardized symbol for a normally closed push button as per conventions
 - ☒ C. Substitute the normally closed push button symbol with a general switch symbol
 - ☒ D. Draw a hand made representation of the push button with a note explaining function

Q.79 Which of the following statements best describes a cuboid as used in engineering drawing?

- Ans**
- ☒ A. A cuboid is a solid where all faces are parallelograms but not necessarily rectangles.
 - ☒ B. A cuboid is a solid with six rectangular faces, and opposite faces are equal.
 - ☒ C. A cuboid has all faces as squares of equal size.
 - ☒ D. A cuboid has all sides and angles equal, making it similar to a cube.

Q.80 A dealer buys a table for ₹2,750. He first marks it up by 28%, then allows a 12% discount to a customer. If the customer also pays 5% GST on the selling price, find the profit percentage (excluding GST) made by the dealer.

- Ans**
- ☒ A. 13.81%
 - ☒ B. 10.36%
 - ☒ C. 12.64%
 - ☒ D. 15.12%

Q.81 In a certain code language,
A + B means 'A is the mother of B',
A – B means 'A is the brother of B',
A × B means 'A is the wife of B' and
A % B means 'A is the father of B'.

How is Satish related to Mayank if 'Satish + Deep × Piyush – Hitesh % Mayank'?

- Ans**
- ☐ A. Mother's brother's wife's sister
 - ☐ B. Mother's brother's wife's mother
 - ☐ C. Father's brother's wife's sister
 - ☒ D. Father's brother's wife's mother

Q.82 SANZ is related to YUTT in a certain way based on the English alphabetical order. In the same way, MTHM is related to SNNG. To which of the following is LJRE related to following the same logic?

- Ans**
- ☐ A. REXZ
 - ☒ B. RDX Y
 - ☐ C. QEYZ
 - ☐ D. QDYY

Q.83 Which statement best describes the front view in an engineering drawing?

- Ans**
- ☒ A. It shows the object's height and width as seen from the front
 - ☐ B. It shows the object's depth and height as seen from the side
 - ☐ C. It shows only one dimension of the object
 - ☐ D. It shows only the object's bottom or right side

Q.84 A sum of money invested at simple interest amounts to ₹21,500 in 5 years and ₹26,000 in 8 years. Find the principal amount (in ₹).

- Ans**
- ☒ A. 14,000
 - ☐ B. 7,500
 - ☐ C. 12,000
 - ☐ D. 15,500

Q.85 G is the mother of Y. Y is the sister of V. S is the father of L. L is the son of V. How is G related to L?

- Ans**
- ☐ A. Mother
 - ☐ B. Mother's sister
 - ☒ C. Mother's mother
 - ☐ D. Sister

Q.86 A hiker lifts a backpack from the ground to a ledge 2 meters above the ground. Which situation would result in the greatest increase in the backpack's gravitational potential energy?

- Ans**
- ☒ A. Lifting a heavier backpack to the same 2-meter ledge
 - ☐ B. Lifting the same backpack to a 1-meter ledge
 - ☐ C. Carrying the same backpack horizontally for 2 meters
 - ☐ D. Lifting a lighter backpack to the same 2-meter ledge

Q.87 Which statement best describes the side view in engineering drawing?

- Ans**
- ☐ A. It shows the object as seen clearly from the front
 - ☒ B. It shows the object as seen from left or right side
 - ☐ C. It shows a combination of all views of the object
 - ☐ D. It shows the object as seen from above or below

Q.88 An engineering firm is tasked with creating a set of technical drawings for a large-scale project. The client specifies that all components must fit on a single sheet without reducing the drawing scale, and the total drawing area required is approximately 1 square meter. Based on standard drawing sheet sizes, which sheet should the firm select to best meet these requirements?

- Ans**
- ☒ A. A0 size sheet
 - ☐ B. A3 size sheet
 - ☐ C. A1 size sheet
 - ☐ D. A2 size sheet

Q.89 Which of the following is the best example of municipal solid waste?

- Ans**
- ☐ A. Industrial process waste
 - ☒ B. Household kitchen garbage
 - ☐ C. Hospital biomedical waste
 - ☐ D. Mining tailings

Q.90 What does the term 'HAZOP' stand for in occupational safety?

- Ans**
- ☐ A. Handling and Organizing Safety
 - ☐ B. Hazardous Operations Safety
 - ☒ C. Hazard and Operability Study
 - ☐ D. Hazardous Operation Standard

Q.91 Which of the following letter-number clusters will replace the question mark (?) in the given series to make it logically complete?

GXM 5, JVN 11, MTO 24, PRP 51, ?

- Ans**
- ☒ A. SPQ 106
 - ☐ B. TPQ 106
 - ☐ C. TPQ 107
 - ☐ D. SPQ 107

Q.92 What is the primary color used in warning signs to alert workers of potential hazards?

- Ans**
- ☐ A. Red with white symbol or text
 - ☐ B. Green with white symbol or text
 - ☒ C. Yellow with black symbol or text
 - ☐ D. Blue with white symbol or text

Q.93 Refer to the given letter series and answer the question that follows.

(Left) A X T N K R Q K C P S I D F J U D O R G Z M B E L (Right)

How many letters are there in the English alphabetical series between the letter that is fourth from the right end and the letter that is third from the left end of the series?

- Ans**
- ☐ A. 3
 - ☒ B. 6
 - ☐ C. 5
 - ☐ D. 4

Q.94 What should come in place of the question mark (?) in the given series?

1 2 7 20 61 ?

- Ans**
- ☐ A. 183
 - ☐ B. 185
 - ☒ C. 182
 - ☐ D. 181

Q.95 If the mean of the following data is 45, then what is the value of x?

Class	10-20	20-30	30-40	40-50	50-60
Frequency	23	30	31	45	X

- Ans**
- ☒ A. 180
 - ☒ B. 188
 - ☒ C. 160
 - ☒ D. 162

Q.96 Two trains are moving in opposite directions. The first train is 120 m long and runs at 54 km/h. The second train is 180 m long and runs at 72 km/h. How much time will they take to cross each other completely?
(Rounded up to two decimal places)

- Ans**
- ☒ A. 8.43 seconds
 - ☒ B. 9.25 seconds
 - ☒ C. 8.57 seconds
 - ☒ D. 7.57 seconds

Q.97 A, B, C, D, X, Y and Z are sitting around a circular table facing the centre of the table.
Only two people sit between Y and C when counted from the left of C. D sits third to the left of B. A sits to the immediate right of B. A sits second to the left of Y. Z is not an immediate neighbor of D.
Who sits third to the right of X?

- Ans**
- ☒ A. D
 - ☒ B. C
 - ☒ C. Y
 - ☒ D. A

Q.98 What does CPU stand for in computing?

- Ans**
- ☒ A. Control Processing Unit
 - ☒ B. Central Processing Unit
 - ☒ C. Core Processing Unit
 - ☒ D. Computer Processing Unit

Q.99 A car travels from point A to point B in a zigzag path, covering a total distance of 200 meters. If the shortest straight-line distance between A and B is 120 meters, which statement best describes the car's distance and displacement?

- Ans**
- ☒ A. The distance is 200 meters; the displacement is 120 meters
 - ☒ B. The distance is 120 meters; the displacement is 200 meters
 - ☒ C. The distance is 120 meters; the displacement is 120 meters
 - ☒ D. The distance is 200 meters; the displacement is 200 meters

Q.100 Seven boxes S, T, U, V, W, X, and Y are kept one over the other but not necessarily in the same order. U is kept exactly third from the top. Only one box is kept between U and T. W is kept immediately above T. Only three boxes are kept between X and S. V is kept on one of the positions below Y. Only two boxes are kept between U and S. Which box is kept second from the top?

- Ans**
- ☒ A. X
 - ☒ B. U
 - ☒ C. V
 - ☒ D. T

Q.1 Which repair action is directly associated with restoring smooth current transfer in a damaged commutator in the starter motor?

- Ans**
- ☐ A. Tightening
 - ☐ B. Lubricating
 - ☒ C. Regrounding
 - ☐ D. Rewinding

Q.2 In planning a new industrial site, engineers must select vehicles for internal goods movement. If safety and maneuverability are both priorities, which vehicle classification by wheels is most suitable?

- Ans**
- ☒ A. Four-wheel electric cart
 - ☐ B. Six-wheel articulated truck
 - ☐ C. Three-wheel scooter with mixed tires
 - ☐ D. Two-wheel hand trolley

Q.3 Which of the following is a common application of pneumatic systems in automobiles?

- Ans**
- ☐ A. Powering headlights in cars
 - ☒ B. Operating heavy vehicle brakes
 - ☐ C. Starting the engine in cars
 - ☐ D. Running the fuel pump in cars

Q.4 If the oil return passages are blocked and the piston rings are worn, what is the likely outcome in a diesel engine?

- Ans**
- ☐ A. Poor battery charging
 - ☐ B. Overheated starter motor
 - ☐ C. Reduced fuel pressure
 - ☒ D. Excessive oil consumption

Q.5 In an industrial engine, the cooling water temperature unexpectedly rises above normal, but oil pressure and oil flow remain consistent. How does this condition affect the oil cooler's ability to regulate engine oil temperature?

- Ans**
- ☐ A. The oil cooler cools oil faster due to greater heat exchange rate
 - ☐ B. The oil cooler compensates automatically, keeping oil temperature stable
 - ☐ C. The oil cooler maintains oil temperature by increasing water pressure
 - ☒ D. The oil cooler becomes less effective, resulting in higher oil temperature

Q.6 During routine workshop maintenance, 80 liters of used engine oil are collected. If each disposal drum has a marked capacity of 25 liters and regulations require drums to be filled to only 80 percent for safe transport, how many drums are required?

- Ans**
- ☐ A. 5 drums
 - ☒ B. 4 drums
 - ☐ C. 3 drums
 - ☐ D. 6 drums

Q.7 In a scenario where flatness and minimal material removal are both critical, which lapping abrasive trait should be prioritized when selecting a compound?

- Ans**
- ☒ A. Controlled abrasive friability
 - ☐ B. Chemical inertness
 - ☐ C. High thermal conductivity
 - ☐ D. High initial hardness

Q.8 What is a key diagnostic sign of low oil pressure in a Hydraulic Electronic Unit Injector (HEUI) system?

- Ans**
- ☐ A. Rapid fuel consumption rate
 - ☒ B. Engine misfires or rough running
 - ☐ C. High exhaust temperature
 - ☐ D. Timing chain rattle noise

Q.9 In an electrical machine, interaction between stator and rotor magnetic fields produces:

- Ans**
- ☐ A. Thermal insulation
 - ☐ B. Electrochemical action
 - ☐ C. Optical energy
 - ☒ D. Mechanical torque

Q.10 When using outside calipers to compare two shafts, what is the best approach?

- Ans**
- ☐ A. Use inside calipers for both shafts
 - ☐ B. Measure both shafts together at once
 - ☒ C. Set calipers to one shaft and check the other
 - ☐ D. Estimate by eye after using calipers

Q.11 In a hydraulic system, why is a non-return valve used when connecting a pump to a cylinder?

- Ans**
- ☒ A. To ensure one-way fluid flow & no backflow
 - ☐ B. To reduce leakage between connections
 - ☐ C. To increase the pressure in the cylinder only
 - ☐ D. To permit fluid flow in both directions

Q.12 Why does using oil with incorrect viscosity contribute to low engine oil pressure in a diesel engine?

- Ans**
- ☐ A. High viscosity oil restricts oil flow and increases pressure
 - ☒ B. Low viscosity oil flows too easily and reduces pressure
 - ☐ C. Overfilled oil sump increases oil pressure
 - ☐ D. Underfilled oil sump increases oil pressure

Q.13 Which piston pin locking system is NOT commonly preferred in high-speed engines because of vibration loosening?

- Ans**
- ☐ A. Wire lock locking
 - ☐ B. Circlip locking
 - ☒ C. Set screw locking
 - ☐ D. End pad locking

Q.14 Which type of wire is used for the pull-in winding in a solenoid switch?

- Ans**
- ☐ A. Thick Aluminium wire
 - ☐ B. Thin Copper wire
 - ☒ C. Thick Copper wire
 - ☐ D. Silver wire

Q.15 What property should a diesel engine bearing material have to withstand high loads?

- Ans**
- ☐ A. High porosity
 - ☒ B. High fatigue strength
 - ☐ C. Low thermal conductivity
 - ☐ D. Low melting point

Q.16 Which vehicle body classification has a fixed roof, moderate passenger capacity, and a separate luggage compartment, commonly used as a family car?

- Ans**
- ☒ A. Sedan
 - ☐ B. Van
 - ☐ C. Hatchback
 - ☐ D. Convertible

Q.17 In a series circuit, all components are connected in:

- Ans**
- ☒ A. A single current path
 - ☐ B. Parallel paths only
 - ☐ C. Separate branches
 - ☐ D. Independent voltage loops

Q.18 A technician must prevent vibration-induced loosening in a bolted assembly on a high-speed machine. Which type of washer is suitable for this situation?

- Ans**
- ☐ A. Flat washer
 - ☐ B. Plain washer
 - ☐ C. Taper washer
 - ☒ D. Spring lock washer

Q.19 Valve seat inserts are commonly made from which type of material?

- Ans**
- ☐ A. Lead-tin alloy
 - ☐ B. Aluminum alloy base
 - ☐ C. Copper and tin mixture
 - ☒ D. High-strength alloy steel

Q.20 Which process best describes the use of a cylindrical lap in achieving a high-quality surface finish on hardened steel shafts?

- Ans**
- ☐ A. Rubbing the lap manually without compound
 - ☐ B. Using the lap without abrasive compound applied
 - ☐ C. Applying compound but not rotating the lap
 - ☒ D. Rotating the lap with abrasive compound applied evenly

Q.21 What type of gears is most commonly used in a ship's reduction gearbox?

- Ans**
- ☐ A. Bevel gears
 - ☐ B. Spur gears
 - ☒ C. Double helical gears
 - ☐ D. Worm gears

Q.22 Which part of the crankshaft connects to the connecting rod in a diesel engine?

- Ans**
- ☐ A. Main journal
 - ☒ B. Crankpin
 - ☐ C. Flywheel
 - ☐ D. Flange

Q.23 A maintenance supervisor is designing a test to evaluate the effect of radiator cap pressure on engine cooling systems. He uses three identical engines but fits each with radiator caps rated at 0.7 bar, 1.0 bar, and 1.3 bar, respectively. Which system will allow the coolant to reach the highest temperature before boiling?

- Ans**
- ☐ A. All systems will boil at the same temperature
 - ☐ B. System with the 1.0 bar radiator cap installed
 - ☒ C. System with the 1.3 bar radiator cap installed
 - ☐ D. System with the 0.7 bar radiator cap installed

Q.24 While welding, an operator observes sparks flying towards a nearby electrical extension board. What should be done to minimize electrical hazards during this activity?

- Ans**
- ☒ A. Relocate the extension board outside the hazard zone
 - ☐ B. Place a damp cloth over the electrical extension board
 - ☐ C. Leave the electrical board in its current position
 - ☐ D. Shield the extension board using a metal cover

Q.25 When performing external checking of a forged component with outside callipers, which practice ensures reliable results?

- Ans**
- ☒ A. Zeroing calliper to a known standard before use
 - ☐ B. Reading values directly from the calliper scale
 - ☐ C. Recalibrating the tool after every measurement
 - ☐ D. Applying excessive force to ensure contact

Q.26 In which situation is a paper gasket used as a sealing element in automotive applications?

- Ans**
- ☐ A. Sealing joints exposed to heavy oils and chemicals
 - ☐ B. Sealing high-temperature exhaust manifolds
 - ☐ C. Sealing uneven, rough surfaces in high vibration areas
 - ☒ D. Sealing flat, smooth surfaces with low pressure

Q.27 The total surface area of a cylinder is given by _____.

- Ans**
- ☐ A. $\pi r^2 h$
 - ☐ B. $4\pi r^2$
 - ☐ C. $2\pi r h$
 - ☒ D. $2\pi r(h + r)$

Q.28 Which environmental problem is most closely linked to increased carbon dioxide emissions?

- Ans**
- ☐ A. Formation of acid rain on buildings
 - ☐ B. Thinning of ozone layer in upper sky
 - ☐ C. Soil erosion in agricultural fields
 - ☒ D. Rising global temperatures over long periods

Q.29 What is the main function of the evaporative emission control system?

- Ans**
- ☐ A. It increases the engine operating temperature
 - ☐ B. It increases the overall fuel consumption of the vehicle
 - ☒ C. It prevents fuel vapours entering the atmosphere
 - ☐ D. It improves the performance and grip of tyres

Q.30 What would happen if the intake valve in a diesel engine is too small?

- Ans**
- ☐ A. More fuel would flow into the engine
 - ☐ B. Exhaust gases would increase
 - ☐ C. The engine would cool faster
 - ☒ D. Less air would enter the cylinder

Q.31 Which of the following represents the total surface area of a sphere?

- Ans**
- ☐ A. $2\pi r^2$
 - ☒ B. $4\pi r^2$
 - ☐ C. πr^2
 - ☐ D. $3\pi r^2$

Q.32 A mechanic observes that the engine temperature indicator on the instrument panel has moved into the red zone during operation. What does this instrument primarily indicate in the context of the cooling system?

- Ans**
- ☐ A. It measures the oil pressure in the engine block.
 - ☐ B. It displays the engine RPM on the instrument panel.
 - ☐ C. It shows the fuel level in the fuel tank only.
 - ☒ D. It indicates the temperature of water in engine water jackets.

Q.33 How does the flywheel contribute to the operation of other engine accessories?

- Ans**
- ☒ A. By providing a mounting surface
 - ☐ B. By regulating valve operation
 - ☐ C. By cooling lubricant
 - ☐ D. By filtering fuel

Q.34 Apart from drawing circles, a large compass is also used for:

- Ans**
- ☐ A. Measuring temperature
 - ☐ B. Printing drawings
 - ☐ C. Cutting sheets
 - ☒ D. Taking large measurements

Q.35 A diesel mechanic is asked why carburetors are essential for petrol engines but not used in standard diesel engines. Based on the working principle, what is the best explanation?

- Ans**
- ☐ A. Carburetors increase fuel atomization in diesel engines
 - ☒ B. Carburetors create air-fuel mixtures required in petrol engines
 - ☐ C. Carburetors adjust exhaust emissions for diesel engines only
 - ☐ D. Carburetors control engine cooling in both engine types

Q.36 While manufacturing a cutting tool, which mechanical property is most important for the material to resist wear and scratching during operation?

- Ans**
- ☒ A. Hardness
 - ☐ B. Ductility
 - ☐ C. Toughness
 - ☐ D. Elasticity

Q.37 Increasing current through a conductor increases the heat produced because heat is proportional to:

- Ans**
- ☐ A. Voltage only
 - ☒ B. Square of current
 - ☐ C. Current
 - ☐ D. Resistance only

Q.38 Why are Bharat Stage standards updated periodically for diesel engine vehicles in India?

- Ans**
- ☐ A. They are updated to maintain older diesel engine designs and keep them functional
 - ☒ B. They are updated to reduce pollution and match global emission requirements
 - ☐ C. They are updated to improve fuel efficiency and decrease maintenance costs
 - ☐ D. They are updated to increase vehicle sales and purchasing capacity in India

Q.39 Why are fillets provided at the junctions of crank pins and webs?

- Ans**
- ☒ A. Reduce stress concentration
 - ☐ B. Enhance combustion efficiency
 - ☐ C. Improve fuel atomization
 - ☐ D. Decrease exhaust noise

Q.40 Which scenario best demonstrates the correct use of a wire brush in an ITI workshop?

- Ans**
- ☐ A. Cutting a metal pipe for measurement tasks
 - ☒ B. Cleaning a metal pipe before using a scribe
 - ☐ C. Measuring the pipe length accurately
 - ☐ D. Painting a metal pipe for finishing

Q.41 Which part interacts directly with the camshaft lobe to open an engine valve?

- Ans**
- ☐ A. The flywheel ring gear
 - ☒ B. The valve lifter or follower
 - ☐ C. The crankshaft main journal
 - ☐ D. The piston ring assembly

Q.42 In a scenario where multiple remedies are possible, how should a mechanic address persistent engine noise after all standard procedures have failed?

- Ans**
- ☐ A. Replacing air filter with high-quality type
 - ☐ B. Lubricating piston rings using correct oil
 - ☐ C. Adjusting valve clearance to manufacturer recommendations
 - ☒ D. Conducting a comprehensive engine teardown and inspection

Q.43 What is the main advantage of using superchargers in marine engines?

- Ans**
- ☐ A. Reduces air compression
 - ☒ B. Increases thermal efficiency
 - ☐ C. Increases engine size
 - ☐ D. Decreases engine efficiency

Q.44 Which combination of actions helps prevent engine overheating due to coolant flow issues?

- Ans**
- ☐ A. Adjust injector pressure and clean air intake
 - ☒ B. Flush cooling system and replace thermostat
 - ☐ C. Change fuel type for better combustion
 - ☐ D. Replace exhaust manifold gasket and inspect timing

Q.45 What issue can occur in the charging system due to a worn out or sticking brush in the alternator?

- Ans**
- ☐ A. Alternator noise
 - ☐ B. Over charging condition
 - ☒ C. No charging condition
 - ☐ D. Low output

Q.46 Which of the following is an important step to ensure personal safety in an auto workshop?

- Ans**
- ☐ A. Keeping tools scattered on the floor of the workshop
 - ☐ B. Ignoring warning signs in the workshop
 - ☒ C. Wearing protective gloves and goggles
 - ☐ D. Working with wet hands near electrical equipments

Q.47 Which maintenance task is critical for a Hydraulic Electronic Unit Injector (HEUI) system reliability?

- Ans**
- ☐ A. Routine air filter replacement
 - ☒ B. Regular engine oil changes
 - ☐ C. Regular injector nozzle cleaning
 - ☐ D. Frequent fuel filter cleaning

Q.48 The extension lines are used together with _____ in engineering drawing dimensioning.

- Ans**
- ☐ A. Border lines
 - ☒ B. Dimension lines
 - ☐ C. Cutting plane lines
 - ☐ D. Hidden lines

Q.49 An engine with a two-part mechanical fuel pump design is experiencing intermittent fuel supply issues. During inspection, the technician finds that all external connections are secure and the mounting bolts are tight. What should the technician examine next to identify the source of the problem?

- Ans**
- ☐ A. The technician should check the fuel quality in the tank.
 - ☐ B. The technician should examine electrical connections to the pump.
 - ☐ C. The technician should inspect the pump exterior for leaks.
 - ☒ D. The technician should inspect the internal rocker cam connection.

Q.50 A mechanic turns the ignition key in a vehicle fitted with an electrical fuel pump. What happens to the pump at that moment?

- Ans**
- ☐ A. The pump starts after engine warms up fully
 - ☒ B. The pump starts operating immediately upon ignition
 - ☐ C. The pump starts after fuel pressure drops
 - ☐ D. The pump starts when the vehicle begins moving

Q.51 In engineering drawing, what angle do two radii form within a quadrant?

- Ans**
- ☒ A. 90°
 - ☐ B. 360°
 - ☐ C. 45°
 - ☐ D. 180°

Q.52 A thermocouple generates thermoelectric voltage when its two junctions are at:

- Ans**
- ☐ A. Equal resistance
 - ☐ B. Equal temperatures
 - ☒ C. Different temperatures
 - ☐ D. Zero pressure

Q.53 Which engine is generally more compact for the same power output?

- Ans**
- ☐ A. Stirling engine
 - ☐ B. Steam engine
 - ☐ C. External combustion engine
 - ☒ D. Internal combustion engine

Q.54 If an engine is operated in a tilted position for extended periods, which lubrication system is most likely to ensure reliable oil supply to all parts?

- Ans**
- ☐ A. Wet sump lubrication system
 - ☐ B. Oil mist lubrication system
 - ☐ C. Splash lubrication system
 - ☒ D. Dry sump lubrication system

Q.55 While servicing a diesel engine, a technician notes that the extractor manifold helps maintain a specific gas velocity. What design feature of the extractor primarily supports this function?

- Ans**
- ☐ A. Changing the type of fuel supplied to engine
 - ☐ B. Modifying the timing of ignition sparks
 - ☐ C. Adjusting the size of engine pistons used
 - ☒ D. Choosing the correct tube diameter for flow

Q.56 Which factor most influences the completeness of combustion in a diesel engine?

- Ans**
- ☒ A. The mixing of air and fuel
 - ☐ B. The octane number of fuel
 - ☐ C. The frequency of high voltage
 - ☐ D. The engine's battery condition

Q.57 Which of the following best describes the use of a non-continuous/dashed lines in engineering drawing?

- Ans**
- ☒ A. To indicate hidden outlines and edges
 - ☐ B. To show dimension and extension lines
 - ☐ C. To represent visible outlines and edges
 - ☐ D. To indicate cutting planes

Q.58 When designing an automated cutting machine that requires precise blade positioning from both sides, why is a double-ended cylinder preferred over a single-ended one?

- Ans**
- ☐ A. It requires more manual adjustment for alignment
 - ☐ B. It makes synchronization with separate cylinders easier
 - ☐ C. It allows use of different cylinder sizes for each side
 - ☒ D. It balances force and movement bilaterally for accuracy

Q.59 Which feature distinguishes a taper reamer from a straight reamer?

- Ans**
- ☐ A. The handles are always longer on taper reamers
 - ☒ B. A taper reamer's edges match the required taper
 - ☐ C. The number of flutes is always greater on taper reamers
 - ☐ D. Taper reamers have serrated teeth for faster cutting

Q.60 Which part of the micrometer should be cleaned to remove debris after use?

- Ans**
- ☐ A. Lock nut
 - ☒ B. Measuring faces
 - ☐ C. Ratchet stop
 - ☐ D. Thimble

Q.61 What is the main purpose of a diesel engine cylinder head?

- Ans**
- ☐ A. To drive the crankshaft
 - ☐ B. To supply fuel
 - ☐ C. To lubricate pistons
 - ☒ D. To seal the combustion chamber

Q.62 A senior technician explains that the recovery system's design allows expelled coolant to return to the radiator instead of being lost. How does this benefit overall cooling system performance?

- Ans**
- ☐ A. It enhances coolant flow rate and improves engine performance
 - ☐ B. It improves fuel efficiency and reduces exhaust emissions
 - ☒ C. It maintains system volume and reduces risk of overheating or air entry
 - ☐ D. It lowers engine noise and reduces mechanical vibration

Q.63 Which engine type is more suitable for vehicles requiring frequent speed changes and quick acceleration?

- Ans**
- ☒ A. Internal combustion engine
 - ☐ B. Stirling engine
 - ☐ C. Steam engine
 - ☐ D. External combustion engine

Q.64 In Marine Engines, which sequence best describes the coolant flow in a heat exchange cooling system after leaving the expansion tank?

- Ans**
- ☐ A. Direct to engine, then to oil cooler, then to cores
 - ☐ B. To exhaust manifold, then to oil cooler, then to cores
 - ☐ C. To keeling coil, then to engine, then to expansion tank
 - ☒ D. Around cores, to oil cooler, to engine coolant pump inlet

Q.65 An engine exhibits erratic idling and excessive smoke after the induction manifold was reinstalled. What should be evaluated first regarding the diesel induction system's function?

- Ans**
- ☐ A. Clean the air cleaner to restore unrestricted intake flow
 - ☒ B. Check for manifold air leaks affecting air supply consistency
 - ☐ C. Inspect the intake valve for proper seating and movement
 - ☐ D. Adjust the timing to optimize combustion efficiency

Q.66 Which part of a Vernier caliper is used to measure the depth of a hole?

- Ans**
- ☐ A. The fixed jaw
 - ☐ B. The main scale
 - ☒ C. The depth measuring blade
 - ☐ D. The locking screw

Q.67 How does the crankshaft help maintain engine balance during operation?

- Ans**
- ☒ A. By using counterweights
 - ☐ B. By increasing fuel injection
 - ☐ C. By controlling valve timing
 - ☐ D. By reducing exhaust gases

Q.68 Which feature makes a scribe suitable for marking on metal surfaces?

- Ans**
- ☐ A. Graduated measuring scale
 - ☐ B. Flexible rubber grip
 - ☒ C. Hard pointed tip
 - ☐ D. Wide flat blade

Q.69 During troubleshooting, a mechanic finds premature bearing wear in a diesel engine with infrequent oil filter changes. What does this suggest about the filter's function?

- Ans**
- ☐ A. It is used for reducing operational noise in oil
 - ☐ B. It is necessary for changing oil flow direction only
 - ☐ C. It is important for raising the total oil volume always
 - ☒ D. It is critical for removing abrasive particles from oil

Q.70 Which combination of components allows a vernier calliper to measure both internal and external dimensions accurately?

- Ans**
- ☐ A. Fixed jaw and locking screw
 - ☐ B. Locking screw and main scale
 - ☐ C. Depth measuring blade and main scale
 - ☒ D. Fixed jaw, movable jaw & vernier scale

Q.71 If a supercharger is driven directly by the engine through gears and shafts, what will happen for engine operation at higher speeds?

- Ans**
- ☒ A. It increases compressed intake-charge delivery.
 - ☐ B. It keeps intake-charge delivery unchanged.
 - ☐ C. It decreases compressed intake-charge delivery.
 - ☐ D. It stops compressed intake-charge delivery.

Q.72 A mechanic observes that the gear shift indicator suggests an upshift during steady driving at moderate speed. Why is following the gear shift indicator's recommendation beneficial in this scenario?

- Ans**
- ☒ A. Following the gear shift indicator's recommendation reduces unnecessary engine load and improves fuel efficiency.
 - ☐ B. Following the gear shift indicator's recommendation enhances rapid acceleration and shortens journey times.
 - ☐ C. Following the gear shift indicator's recommendation increases transmission temperature and reduces driver comfort.
 - ☐ D. Following the gear shift indicator's recommendation maintains high engine speed and increases exhaust emissions.

Q.73 Which condition can lead to low engine oil pressure in a diesel engine?

- Ans**
- ☐ A. Oil pressure relief valve stuck closed
 - ☐ B. Oil pressure gauge showing excessive pressure
 - ☐ C. Oil of higher-than-recommended viscosity
 - ☒ D. Insufficient oil level in the sump

Q.74 A mechanic inspects a modern diesel vehicle and notices the seat belt warning light remains active even when the passenger seat is empty. Based on the dashboard instrument design, which action should the mechanic prioritize to ensure system reliability?

- Ans**
- ☐ A. Replace the dashboard instrument cluster immediately
 - ☐ B. Check for blown seat belt indicator bulbs only
 - ☐ C. Update the vehicle's onboard software system
 - ☒ D. Inspect the seat weight sensor wiring for faults

Q.75 Which of the following aspects is most important for controlling vehicle emissions in modern diesel vehicles?

- Ans**
- ☐ A. Using high-content carbon fossil fuels results in lower vehicle emissions
 - ☐ B. Ignoring engine maintenance and overhauling leads to reduced emissions
 - ☒ C. Using proper emission control systems reduces harmful exhaust gases
 - ☐ D. Increasing engine size helps reduce emission levels in diesel vehicles