

137/2025

Question Booklet
Alpha Code

A

Question Booklet
Serial Number

Total No. of questions : 100

Time : 1 Hour 30 Minutes

Maximum : 100 Marks

INSTRUCTIONS TO CANDIDATES

1. The question paper will be given in the form of a Question Booklet. There will be four versions of question booklets with question booklet alpha code viz. A, B, C & D.
2. The Question Booklet Alpha Code will be printed on the top left margin of the facing sheet of the question booklet.
3. The Question Booklet Alpha Code allotted to you will be noted in your seating position in the Examination Hall.
4. If you get a question booklet where the alpha code does not match to the allotted alpha code in the seating position, please draw the attention of the Invigilator IMMEDIATELY.
5. The Question Booklet Serial Number is printed on the top right margin of the facing sheet. If your question booklet is un-numbered, please get it replaced by new question booklet with same alpha code.
6. The question booklet will be sealed at the middle of the right margin. Candidate should not open the question booklet, until the indication is given to start answering.
7. Immediately after the commencement of the examination, the candidate should check that the question booklet supplied to him contains all the 100 questions in serial order. The question booklet does not have unprinted or torn or missing pages and if so he/she should bring it to the notice of the Invigilator and get it replaced by a complete booklet with same alpha code. This is most important.
8. A blank sheet of paper is attached to the question booklet. This may be used for rough work.
9. **Please read carefully all the instructions on the reverse of the Answer Sheet before marking your answers.**
10. Each question is provided with four choices (A), (B), (C) and (D) having one correct answer. Choose the correct answer and darken the bubble corresponding to the question number using Blue or Black Ball-Point Pen in the OMR Answer Sheet.
11. **Each correct answer carries 1 mark and for each wrong answer 1/3 mark will be deducted. No negative mark for unattended questions.**
12. No candidate will be allowed to leave the examination hall till the end of the session and without handing over his/her Answer Sheet to the Invigilator. Candidates should ensure that the Invigilator has verified all the entries in the Register Number Coding Sheet and that the Invigilator has affixed his/her signature in the space provided.
13. Strict compliance of instructions is essential. Any malpractice or attempt to commit any kind of malpractice in the Examination will result in the disqualification of the candidate.

137/2025

Maximum : 100 marks

Time : 1 hour and 30 minutes

1. In a drawing, a scale length of 20 cm represents 12 decametre. The scale used in this drawing is :
(A) 1:600 (B) 1:6000
(C) 1:240 (D) 1:2400
2. Untrimmed size of drawing sheet A2 is :
(A) 297×420 mm (B) 420×594 mm
(C) 450×625 mm (D) 625×880 mm
3. The thickness of the stem of gothic letters used in drawing about its height may varies :
(A) from $1/2$ to $1/3$ (B) from $1/2$ to $1/4$
(C) from $1/2$ to $1/5$ (D) from $1/5$ to $1/10$
4. The area of trimmed size drawing sheet A0 is :
(A) 1.25 sq.m (B) 1.50 sq.m
(C) 0.75 sq.m (D) 1.00 sq.m
5. Eccentricity is greater than one for a conic section :
(A) Hyperbola (B) Ellipse
(C) Circle (D) Parabola
6. In which regular polygon, its sides are equal to radius of circumscribed circle :
(A) Pentagon (B) Octagon
(C) Hexagon (D) Heptagon
7. Top view of a point is 30 mm above XY and its front view is 20 mm below the top view. The point is situated in which quadrant?
(A) First (B) Second
(C) Third (D) Fourth
8. The ratio of isometric length to true length :
(A) $\sqrt{3} : \sqrt{5}$ (B) $\sqrt{3} : \sqrt{2}$
(C) $\sqrt{2} : \sqrt{3}$ (D) $\sqrt{2} : \sqrt{5}$

9. 36 km per hour = _____ metre per second.
(A) 36 (B) 360
(C) 3600 (D) 10
10. The area of a square plot whose perimeter is 48 m is :
(A) 144 sq.m. (B) 96 sq.m.
(C) 2304 sq.m. (D) 192 sq.m.
11. The height of an equilateral triangle whose side is 4 cm :
(A) 4 (B) $4\sqrt{3}$
(C) $2\sqrt{3}$ (D) 16
12. The circumference of a circle whose diameter is 14 cm :
(A) 14π (B) 14
(C) 28 (D) 7π
13. Volume of a cube whose surface area is 216 sq.cm :
(A) 216 cu.m (B) 1296 cu.m
(C) 1296 sq.m (D) 432 cu.m
14. The Shortcut for tool palette :
(A) Ctrl + 3 (B) Ctrl + 6
(C) Ctrl + 2 (D) Ctrl + 5
15. The Short key for manages defined user coordinate system :
(A) MU (B) UC
(C) MO (D) MC
16. The number of ways a circle can be created in AutoCAD :
(A) 7 (B) 8
(C) 6 (D) 5
17. Which command prompt to reinsert erased object :
(A) ops (B) oop
(C) oops (D) ps

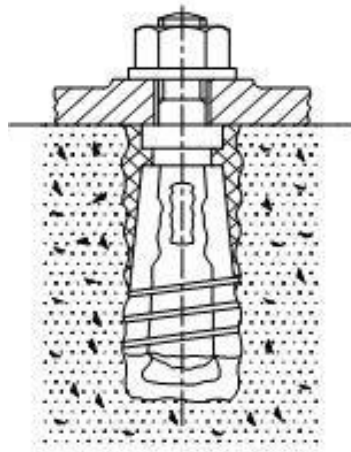
18. How many grip points does a arc have?
(A) 7 (B) 5
(C) 6 (D) 4
19. In Autocad UCS stands :
(A) Universal CAD Settings
(B) United CAD System
(C) Universal Coordinate System
(D) User Coordinate System
20. In polar co-ordinates systems, how will you create a line representing length 20 units at an angle of 45 degrees with respect to the positive direction of the X-axis and the first point of the line is not at the origin?
(A) 45 < 20 (B) @40, 40
(C) @45, 20 (D) @20 < 45
21. The rocks have a distinct plane of division along which stones can easily be split is called :
(A) Natural bed of stone (B) Line of least resistance
(C) Stratification (D) Cleavage
22. The process of clay is brought to a proper degree of hardness and it is made fit for the moulding is termed as :
(A) Weathering (B) Blending
(C) Tempering (D) Drying
23. Which test is carried to know about the presence of soluble salt in the brick?
(A) Absorption test (B) Efflorescence test
(C) Soundness (D) Hardness test
24. Which type cement suitable for heavy construction of heavy abutment, large piers, retaining wall etc.?
(A) High alumina cement
(B) Hydrophobic cement
(C) Modified portland cement
(D) Extra rapid hardening cement

25. Sand passing through a sieve with clear opening of 7.62 mm is known as :
(A) Aggregate (B) Gravelly sand
(C) Coarse sand (D) Fine sand
26. An appearance of fluffy white patches on the structure caused by poorly washed aggregates is called :
(A) Efflorescence (B) Segregation
(C) Bleeding (D) Laitance
27. When a piece of timber has twisted out of shape it is said :
(A) Bow (B) Cup
(C) Case-hardening (D) Warp
28. What is the name of horizontally silced building viewed from top?
(A) Plan (B) Section
(C) Elevation (D) Sectional elevation
29. What should be the horizontal distance between building and electric supply mains?
(A) 1.0 – 1.8 m (B) 1.0 – 2.0 m
(C) 1.2 – 2.0 m (D) 1.5 – 2.0 m
30. What is the minimum scale at which a building plan need to be drawn according to NBC 2005?
(A) 1:50 (B) 1:100
(C) 1:200 (D) 1:400
31. Which type of building comes in group H?
(A) Hazardous (B) Industrial
(C) Storage (D) Business
32. What is the plastering area for a pillar?
(A) Length $\times$ breadth $\times$ height
(B) Section area $\times$ height
(C) Perimeter
(D) Perimeter $\times$ height

33. What is the density of mild steel?
- (A) 0.785 q/cu.m (B) 7.85 q/cu.m
(C) 78.5 q/cu.m (D) 785 q/cu.m
34. What is the approximate out-turn of mason constructing stone arch work per day?
- (A) 0.40 cu.m (B) 0.55 cu.m
(C) 0.80 cu.m (D) 0.90 cu.m
35. When an oven-dried sample is kept open in the atmosphere, it absorbs some amount of water from the atmosphere. This is known as its :
- (A) Hygroscopic water
(B) Capillary water
(C) Gravitational water
(D) None of these
36. A _____ is constructed to store water during floods and release it gradually at a safe rate, when the flood recedes.
- (A) Diversion dam (B) Detention dam
(C) Overflow dam (D) Gravity dam
37. The _____ is a solid obstruction put across the river to raise its water level and divert the water into the canal.
- (A) dam (B) weir
(C) head regulator (D) weathering
38. The ratio of the mass of a fluid to its volume is known as :
- (A) Viscosity (B) Specific weight
(C) Density (D) None of these
39. The pressure which is measured with the help of a pressure measuring instrument, in which the atmospheric pressure is taken as datum is known as :
- (A) Absolute pressure
(B) Gauge pressure
(C) Vacuum pressure
(D) None of these

40. _____ are impermeable formations which contain water but are not capable of transmitting and supplying a significant quantity.
- (A) Aquifer (B) Aquifuge
(C) Aquitard (D) Aquiclude
41. In a closed square container its side length is 8 cm. What is the total developed surface area?
- (A) 384 cm × cm (B) 374 cm × cm
(C) 364 cm × cm (D) 354 cm × cm
42. What is developed surface area of closed oil drum, its radius is 10 cm and height is 20 cm? ($\pi = 3.14$)
- (A) 1684 cm × cm (B) 1784 cm × cm
(C) 1884 cm × cm (D) 1984 cm × cm
43. What shape to get a right circular cone cut with a section plane parallel to its axis of the cone not passing through the vertex?
- (A) Ellipse (B) Hyperbola
(C) Parabola (D) Circle
44. In a screw thread the line joining the root and the crest is called?
- (A) Pitch (B) Lead
(C) Angle of thread (D) Flank
45. Which nut protects the bolt end thread from damage?
- (A) Cap nut (B) Castle nut
(C) Slotted nut (D) Knurled nut
46. What is the symbol for a seam weld?
- (A)  (B) 
(C)  (D) 
47. Which key is useful for fitting on tapered shaft?
- (A) Feather key (B) Woodruff key
(C) Gib head key (D) Flat saddle key

48. What is the name of foundation bolt?



- | | |
|---------------|-----------------|
| (A) Rag bolt | (B) Bent bolt |
| (C) Rawl bolt | (D) Cotter bolt |

49. Which of the statement given below will inversely affected to the belt efficiency?

- I. Heavy belt of multiple ply construction used on small diameter pulley
- II. 'V' Belt drives used on short distance shafts
- III. Jockey pulley introduced in short distanced pulleys
- IV. Vertical drive between pulleys

- | | |
|-------------------|---------------------|
| (A) Only I | (B) Only II and III |
| (C) Only I and IV | (D) Only II and IV |

50. Water flowing or dripping from the tap even after firmly closed. The reason is/are

- I. Worn out or defective washer
- II. Valve loose on the spindle
- III. Spindle thread worn out
- IV. Defective seating

- | | |
|----------------------|--------------------|
| (A) Only I and IV | (B) Only I and III |
| (C) All of the above | (D) Only II and IV |

51. Frequent belt spoilage may be due to :

- I. Less tension on belt
- II. Excessive heat and shock load
- III. Misalignment and overloaded drive
- IV. Oilness in the groove of the pulley or belt

- | | |
|-------------------|---------------------|
| (A) Only I and II | (B) Only I and III |
| (C) Only I and IV | (D) Only II and III |

52. Sometimes crushing of metal may caused while doing riveted joints. The reason may be :
- (A) Thickness of plate is more (B) Thickness of plate is less
(C) Diameter of rivet is too large (D) Diameter of rivet is too small
53. Which of the following reason is responsible for splitting of metal in the riveted joints?
- (A) Pitch of the rivet is too large
(B) Holes of the rivets are drilled too near from the edge of the plate
(C) Pitch of the rivet is too small
(D) Holes of the rivets are drilled too far from the edge of the plate
54. Which of the statement given is/are correct about mitre gears?
- I. They transmit motion between shafts at various angles
II. They are widely used for speed reduction purposes
III. They are used to change rotary motion to linear motion
IV. They are symmetrical to each other and transmit motion at right angles
- (A) Only IV (B) Only I and III
(C) Only II and IV (D) Only I and II
55. Which of the statement given are true relating to “V” belt drives?
- I. They are used to transmit torque when a large distance between the shafts
II. Owing to the wedging action between the belt and the sides of the groove in the pulley they less likely to slip
III. They are shaped roughly like a trapezium in cross section
IV. Less vibration and noise
- (A) Only IV (B) Only I and IV
(C) Only I, II and III (D) Only II, III and IV
56. Out of the statements given below which are correct about chain drive :
- I. There is positive contact between the chain and sprocket which eliminates the possibility of slip
II. They can withstand heat, dirt and weather exposure
III. There is possibility of creep and slip
IV. They can absorb shock
- (A) All of the above (B) Only I, II and III
(C) Only II and IV (D) Only I, II and IV

57. What is the situation in which the pressure switch of a Compressor restarts?
- (A) Pressure level reaches to the maximum level
 - (B) Pressure level drops to high level
 - (C) Pressure level reaches to minimum level
 - (D) Pressure level drops to the pre-set level
58. Which valve controls the direction of the flow of the fluid?
- (A) Non-return valve
 - (B) Directional control valve
 - (C) Pressure control valve
 - (D) Flow control valve
59. Which valve is used for mechanical position to sense in machine automation system?
- (A) Roller Valve
 - (B) Flow control valve
 - (C) Directional control valve
 - (D) Pressure control valve
60. What is the 'grade of tolerance'?
- (A) Unilateral tolerance
 - (B) Bilateral tolerance
 - (C) Fundamental tolerance
 - (D) Fundamental deviation
61. Which term refers to the relationship that exists between two mating parts?
- (A) Fit
 - (B) Limit
 - (C) Tolerance
 - (D) Allowance
62. What is the maximum limit of size, if the basic size of the hole is 25 mm and the deviation is ± 0.2 mm?
- (A) 24.08 mm
 - (B) 25.02 mm
 - (C) 24.8 mm
 - (D) 25.2 mm
63. Why the Double Row Ball Bearing is used?
- (A) To take radial load
 - (B) To take heavy radial load
 - (C) To take heavy axial load
 - (D) To take axial load
64. Which Bearing material is used in connecting rod and electrical motor?
- (A) Aluminium alloy
 - (B) White metal
 - (C) Copper lead alloy
 - (D) Sintered alloy
65. Which type of bearing used for taking high axial thrust load?
- (A) Tapered roller bearing
 - (B) Roller bearing
 - (C) Self Align roller bearing
 - (D) Angular contact bearing

66. In chain survey, the area is divided into a network of :
- (i) Rectangles
 - (ii) Triangles
 - (iii) Squares
 - (iv) Trapeziums
- (A) All options are correct (B) Options (i) and (iii) are correct
(C) Only option (ii) is correct (D) Only option (iv) is correct
67. The staff readings taken at two points using a dumpy level are 3.335 m and 2.450 m. The elevation difference between the two points is :
- (A) 0.815 m (B) 5.785 m
(C) 0.885 m (D) None of these
68. The fore bearing of line AB is 198° and CD is $24^\circ 15''$. Their back bearings of line AB and CD will be :
- (A) 18° and $155^\circ 45''$ respectively
(B) $222^\circ 15''$ and $155^\circ 45''$ respectively
(C) 18° and $222^\circ 15''$ respectively
(D) None of these
69. The horizontal angle between magnetic meridian and true meridian during the time of observation is called :
- (A) Magnetic Declination (B) Magnetic meridian
(C) True meridian (D) Geographic meridian
70. The length of a survey line measured with a 30 m chain was found to be 631.5 m. The chain was found to be 0.1 m too long when compared with a standard chain. The true length of the survey line will be :
- (A) 634.61 m
(B) 629.4 m
(C) Cannot be calculated with the data given
(D) 633.61 m
71. A 20 cm theodolite means :
- (A) Height of standards is 20 cm
(B) Length of telescope is 20 cm
(C) Diameter of lower graduated circle is 20 cm
(D) Radius of upper plate is 20 cm

72. Which among the following is not a method of building estimate preparation?
- (A) Centre line method
 - (B) Individual wall method
 - (C) Plinth area method
 - (D) Line plan method
73. The area obtained from which of the following will be equal to one acre?
- (i) 10000 square metre
 - (ii) 43560 square feet
 - (iii) 10 square Gunter's chain
 - (iv) 100 cents
- (A) All options are correct
 - (B) Options (i), (ii) and (iii) are correct
 - (C) Options (ii), (iii) and (iv) are correct
 - (D) Only options (iii) and (iv) are correct
74. Choose the correct statement :
- (A) Tacheometry is preferred over chaining in all situations
 - (B) Tacheometry is not suitable for preliminary location surveys
 - (C) The purpose of an anallactic lens in a tacheometer is to make staff intercept proportional to its distance from the tacheometer
 - (D) A subtense bar is used to measure large distances
75. Which among the following statements are correct?
- (i) An instrument used to reproduce plans to a different scale is called planimeter
 - (ii) An instrument used to reproduce plans to a different scale is called Pantagraph
 - (iii) An instrument used for measuring the area in a plan or map is called planimeter
 - (iv) A clinometer is used for measuring horizontal angles
- (A) Only (i) is correct
 - (B) Only (ii) and (iv) are correct
 - (C) Only (ii) and (iii) are correct
 - (D) Options (ii), (iii) and (iv) are correct

- 76.** Which among the following statements is not correct?
- (A) GPS is a navigation system based on a network of earth-orbiting satellites
 - (B) In passive remote sensing, the portion of the electromagnetic spectrum that is absorbed to the objects on the earth's surface is measured by the sensors
 - (C) GIS stands for Geographic Information System
 - (D) GLONASS is a radio-based satellite navigation system, developed by Russian Aerospace Defence Forces
- 77.** Which of the following methods is commonly used for measuring horizontal angles with a theodolite?
- (i) Method of repetition
 - (ii) Method of reiteration
 - (iii) Method of deflection
 - (iv) Method of trilateration
- (A) Only (i) is correct
 - (B) Options (ii) and (iv) are correct
 - (C) Options (i) and (ii) are correct
 - (D) Options (i), (ii) and (iii) are correct
- 78.** A GPS device uses data from satellites to locate a specific point on the earth in a process called :
- (A) Photogrammetry
 - (B) Trilateration
 - (C) Remote sensing
 - (D) Navigation
- 79.** The detailed scaled drawing showing all the detailed information needed for the execution is called :
- (A) Structural drawing
 - (B) Working drawing
 - (C) Architectural drawing
 - (D) Block plan
- 80.** Which of the following statements are correct?
- (A) Simpson's rule for calculating area is applicable only when the ordinates are even
 - (B) Prismoidal Formula is used in volume computation in surveying
 - (C) Both Simpson's Rule and Prismoidal Formula require an even number of intervals
 - (D) The greater the difference in the end areas, the lesser will be the error in the volume computed by the end area formula

81. The following statements describes the four stages of gully development process :

- (i) During this stage, the gully bed and sides attains stable condition and vegetation begins to grow in abundance
- (ii) During this stage, there is no appreciable erosion of gully in any form and local vegetation begins to get established and healing process of gully starts.
- (iii) During this stage, major formation of gully and erosion takes place
- (iv) During this stage, channel erosion and deepening of gully bed takes place

Choose the correct Option :

- (A) Statement (i) represents 'Stage 1' of gully development
Statement (ii) represents 'Stage 2' of gully development
Statement (iii) represents 'Stage 4' of gully development
Statement (iv) represents 'Stage 3' of gully development
- (B) Statement (i) represents 'Stage 4' of gully development
Statement (ii) represents 'Stage 3' of gully development
Statement (iii) represents 'Stage 2' of gully development
Statement (iv) represents 'Stage 1' of gully development
- (C) Statement (i) represents 'Stage 3' of gully development
Statement (ii) represents 'Stage 4' of gully development
Statement (iii) represents 'Stage 2' of gully development
Statement (iv) represents 'Stage 1' of gully development
- (D) Statement (i) represents 'Stage 4' of gully development
Statement (ii) represents 'Stage 2' of gully development
Statement (iii) represents 'Stage 1' of gully development
Statement (iv) represents 'Stage 3' of gully development

82. Erodibility can be defined as :

- (A) Potential ability of rain to cause erosion
- (B) Potential ability of soil to cause erosion
- (C) Vulnerability or susceptibility of the soil to Erosion
- (D) Vulnerability or susceptibility of water to erosion

83. The Universal Soil Loss Equation can be expressed as :

$$A = RKLSCP$$

Choose the correct expression for variables 'C' and 'P' used in the equation from the following options

- (A) C = Conservation Practice factor
P = Cropping management factor
- (B) C = Soil erodibility factor
P = Conservation Practice factor
- (C) C = Cropping management factor
P = Conservation Practice factor
- (D) C = Cropping management factor
P = Rainfall erosivity index

84. In designing a grassed waterway, the channel grade should be checked with maximum non-erosive velocity for various conditions by using which of the following Equation :

- (A) Rational Formula
- (B) Manning's Formula
- (C) Chezy's formula
- (D) Continuity equation

85. As per the most widely accepted method of land capability classification made by the Soil Conservation Service of the United States Department of Agriculture (USDA), the soil under this group have slope in the range of 8 to 12 %, the soil should not be cultivated but kept under permanent vegetation. Such type of soil will come under which of the following classes :

- (A) Class V
- (B) Class VI
- (C) Class VII
- (D) Class VIII

86. Pasteurisation of milk is performed by :

- (i) Heating every particle of milk to at least 61°C and holding it at that temperature for 30 minutes
- (ii) Heating the milk to 71°C and holding it at that temperature for 15 seconds

Choose the correct answer from the following options :

- (A) Both statements are not correct
- (B) Statement (i) alone is correct
- (C) Statement (ii) alone is correct
- (D) Both statements are correct

87. CO₂ Packaging and N₂ packaging is associated with which of the following packaging technique :

- (A) Vacuum Packaging
- (B) Modified /Controlled Atmosphere Packaging
- (C) Aseptic Packaging
- (D) Flexible Packaging

88. Read the following statements regarding moisture content of agricultural materials :

- (i) Value of dry basis moisture content is more than wet basis moisture content
- (ii) Value of dry basis moisture content is less than wet basis moisture content

Choose the correct answer from the following options :

- (A) Statement (i) alone is correct
- (B) Statement (ii) alone is correct
- (C) Both Statements are correct
- (D) Both Statements are incorrect

89. If ' D_e ' is the diameter of a sphere having same volume as that of agricultural material/particle and ' D_c ' is the diameter of the smallest circumscribing sphere, then Sphericity; an engineering property of granular agricultural material can be expressed as :

- (A) Sphericity = $D_e \times D_c$
- (B) Sphericity = $\frac{D_c}{D_e}$
- (C) Sphericity = $\frac{D_e - 1}{D_c}$
- (D) Sphericity = $\frac{D_e}{D_c}$

90. Read carefully the following statements regarding controlled and modified atmosphere storage of grain :

- (i) It involves alteration of concentration of the normal atmospheric gases present in a storage
- (ii) It gives an artificial atmosphere that is insecticidal
- (iii) It prevents mould growth and quality deterioration of the stored product

Choose the correct options

- (A) Only statement (ii) and (iii) are correct
- (B) Only statement (i) and (iii) are correct
- (C) All the statements (i), (ii) and (iii) are correct
- (D) None of the statements is correct

91. In diesel cycle, the heat is added at :

- (A) Constant pressure
- (B) Constant volume
- (C) Constant temperature
- (D) Constant pressure and volume

- 92.** The clutch transmits the power between :
 (A) Driving and driven members (B) Piston and crank shaft
 (C) P.T.O. and hydraulic (D) Differential and hydraulic
- 93.** When a plough works around a strip of ploughed land, it is said to be :
 (A) Casting (B) Gathering
 (C) Bunching (D) Treading
- 94.** In Power tillers, steering is achieved with the help of :
 (A) Rack and pinion (B) Dog clutch
 (C) Worm and sector (D) Bevel gears
- 95.** The mechanical efficiency is the ratio of :
 (A) BHP/IHP (B) IHP/BHP
 (C) DHP/BHP (D) IHP/DHP
- 96.** Calibration of seed drill is essential to evaluate :
 (A) Row to row spacing (B) Plant to plant spacing
 (C) Seed rate (D) Speed of the drill
- 97.** The imaginary line connecting the centre of resistance of the plough to the centre of pull is :
 (A) Line of centre of gravity (B) Line of resistance
 (C) Draw bar pull (D) Line of draft
- 98.** When the centre of knife sections are at the centre of the guards at the end of each stroke, the mower knife is said to be in :
 (A) Registration (B) Eccentricity
 (C) Alignment (D) Epicenter
- 99.** Chemically correct air-fuel ratio by mass for a petrol engine is approximately :
 (A) 6:1 (B) 10:1
 (C) 15:1 (D) 20:1
- 100.** SAE number is used to designate the _____ of the lubricating oil.
 (A) Solubility (B) Specific gravity
 (C) Flash point (D) Viscosity

SPACE FOR ROUGH WORK

SPACE FOR ROUGH WORK