A

CODE : **KLO**

प्रश्नपुस्तिका क्रमांक
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प्रश्नपुस्तिका

एकूण प्रश्न : 100

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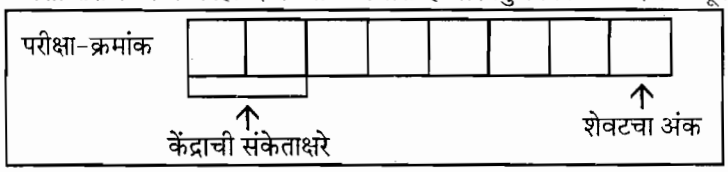
सूचना

(1) सदर प्रश्नपुस्तिकेत 100 अनिवार्य प्रश्न आहेत. उमेदवारांनी प्रश्नांची उत्तरे लिहिण्यास सुरुवात करण्यापूर्वी या प्रश्नपुस्तिकेत सर्व प्रश्न आहेत किंवा नाहीत याची खात्री करून घ्यावी. असा तसेच अन्य काही दोष आढळल्यास ही प्रश्नपुस्तिका समवेक्षकांकडून लगेच बदलून घ्यावी.



(2) आपला परीक्षा क्रमांक ह्या चौकोनांत **न विसरता बॉलपेनने** लिहावा.

(3) वर छापलेला प्रश्नपुस्तिका क्रमांक तुमच्या उत्तरपत्रिकेवर विशिष्ट जागी उत्तरपत्रिकेवरील सूचनेप्रमाणे **न विसरता नमूद करावा.**

(4) या प्रश्नपुस्तिकेतील प्रत्येक प्रश्नाला 4 पर्यायी उत्तरे सुचविली असून त्यांना 1, 2, 3 आणि 4 असे क्रमांक दिलेले आहेत. त्या चार उत्तरांपैकी सर्वात योग्य उत्तराचा क्रमांक उत्तरपत्रिकेवरील सूचनेप्रमाणे तुमच्या उत्तरपत्रिकेवर नमूद करावा. अशा प्रकारे उत्तरपत्रिकेवर उत्तरक्रमांक नमूद करताना तो संबंधित प्रश्नक्रमांकासमोर छायांकित करून दर्शविला जाईल याची काळजी घ्यावी, **ह्याकरिता फक्त काळ्या शाईचे बॉलपेन वापरावे, पेन्सिल वा शाईचे पेन वापरू नये.**

(5) सर्व प्रश्नांना समान गुण आहेत. यास्तव सर्व प्रश्नांची उत्तरे द्यावीत. घाईमुळे चुका होणार नाहीत याची दक्षता घेऊनच शक्य तितक्या वेगाने प्रश्न सोडवावेत. क्रमाने प्रश्न सोडविणे श्रेयस्कर आहे पण ***एखादा प्रश्न कठीण वाटल्यास त्यावर वेळ न घालविता पुढील प्रश्नाकडे वळावे.*** अशा प्रकारे शेवटच्या प्रश्नापर्यंत पोहोचल्यानंतर वेळ शिल्लक राहिल्यास कठीण म्हणून वगळलेल्या प्रश्नांकडे परतणे सोईस्कर ठरेल.

(6) उत्तरपत्रिकेत एकदा नमूद केलेले उत्तर खोडता येणार नाही. नमूद केलेले उत्तर खोडून नव्याने उत्तर दिल्यास ते तपासले जाणार नाही.

(7) **प्रस्तुत परीक्षेच्या उत्तरपत्रिकांचे मूल्यांकन करताना उमेदवाराच्या उत्तरपत्रिकेतील योग्य उत्तरांनाच गुण दिले जातील. तसेच ''उमेदवाराने वस्तुनिष्ठ बहुपर्यायी स्वरूपाच्या प्रश्नांची अचूक उत्तरेच उत्तरपत्रिकेत नमूद करावीत. अन्यथा त्यांच्या उत्तरपत्रिकेत सोडविलेल्या प्रत्येक चार चुकीच्या उत्तरांसाठी एका प्रश्नाचे गुण वजा करण्यात येतील''.**

(8) प्रश्नपुस्तिकेमध्ये विहित केलेल्या विशिष्ट जागीच कच्चे काम (रफ वर्क) करावे. प्रश्नपुस्तिकेव्यतिरिक्त उत्तरपत्रिकेवर वा इतर कागदावर कच्चे काम केल्यास ते कॉपी करण्याच्या उद्देशाने केले आहे, असे मानले जाईल व त्यानुसार उमेदवारावर शासनाने जारी केलेल्या ''परीक्षांमध्ये होणाऱ्या गैरप्रकारांना प्रतिबंध करण्याबाबतचे अधिनियम-82'' यातील तरतुदीनुसार कारवाई करण्यात येईल व दोषी व्यक्ती कमाल एक वर्षाच्या कारावासाच्या आणि/किंवा रुपये एक हजार रकमेच्या दंडाच्या शिक्षेस पात्र होईल.

पर्यवेक्षकांच्या सूचनेविना हे सील उघडू नये

ताकीद

ह्या प्रश्नपत्रिकेसाठी आयोगाने विहित केलेली वेळ संपेपर्यंत ही प्रश्नपुस्तिका आयोगाची मालमत्ता असून ती परीक्षाकक्षात उमेदवाराला परीक्षेसाठी वापरण्यास देण्यात येत आहे. ही वेळ संपेपर्यंत सदर प्रश्नपुस्तिकेची प्रत/प्रती, किंवा सदर प्रश्नपुस्तिकेतील काही आशय कोणत्याही स्वरूपात प्रत्यक्ष वा अप्रत्यक्षपणे कोणत्याही व्यक्तीस पुरविणे, तसेच प्रसिद्ध करणे हा गुन्हा असून अशी कृती करणाऱ्या व्यक्तीवर शासनाने जारी केलेल्या ''परीक्षांमध्ये होणाऱ्या गैरप्रकारांना प्रतिबंध करण्याबाबतचा अधिनियम-82'' यातील तरतुदीनुसार तसेच प्रचलित कायद्याच्या तरतुदीनुसार कारवाई करण्यात येईल व दोषी व्यक्ती कमाल एक वर्षाच्या कारावासाच्या आणि/किंवा रुपये एक हजार रकमेच्या दंडाच्या शिक्षेस पात्र होईल.

तसेच ह्या प्रश्नपत्रिकेसाठी विहित केलेली वेळ संपण्याआधी ही प्रश्नपुस्तिका अनधिकृतपणे बाळगणे हा सुद्धा गुन्हा असून तसे करणारी व्यक्ती आयोगाच्या कर्मचारीवृंदापैकी, तसेच परीक्षेच्या पर्यवेक्षकीयवृंदापैकी असली तरीही अशा व्यक्तीविरूद्ध उक्त अधिनियमानुसार कारवाई करण्यात येईल व दोषी व्यक्ती शिक्षेस पात्र होईल.

पुढील सूचना प्रश्नपुस्तिकेच्या अंतिम पृष्ठावर पहा

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

1. The hydraulic load cells are used to measure loads about upto _____.
   (1) 25 MN (2) 50 MN (3) 75 MN (4) 100 MN

2. In a compound level balance, the applied force is reduced to a level which is just sufficient to actuate a spring within the indicator dial head, by using :
   (1) a number of ratio levers (2) a gear train
   (3) a reduction pulley (4) pairs of linkages

3. This is the unit used to calculate the various grades of tolerance for a given basic size :
   (1) Shaft basis system unit (2) Hole basis system unit
   (3) Basic fit unit (4) Standard tolerance unit

4. The device with which measurement is made between the end face of a measuring rod and a measuring face is called as :
   (1) Vernier depth gauge (2) Depth micrometer
   (3) Differential micrometer (4) Surface plate

5. Precision is the measure of :
   (1) accuracy (2) discrepancy (3) reproducibility (4) correction

6. Following is one of the recommended measuring range or Vernier Calipers, as per IS 3651 – 1974 :
   (1) 0 – 100 (2) 0 – 200 (3) 0 – 400 (4) 0 – 150

7. Following method is not used for the measurement of areas of irregular shapes :
   (1) planimeter (2) method of counting squares
   (3) trapezoidal rule (4) least square method

8. If the resultant of a measurement is expressed as $\bar{q} + 3\sigma$ where $\bar{q}$ = mean value and σ = standard deviation, it means that :
   (1) approximately 99% of the readings lie between $\pm 3\ \sigma$ limit
   (2) 76 readings out of 1000 will lie outside $\pm 3\ \sigma$ limit
   (3) 78% readings lie between $\pm 3\ \sigma$ limit
   (4) 50% readings lie between $\pm 3\ \sigma$ limit

SPACE FOR ROUGH WORK

9. The unit of energy in FPS system is :

(1) Calorie (2) Joule (3) Erg (4) Btu

10. According to Indian Standards IS : 3651-1974, how many types of Vernier Calipers have been specified to make external and internal measurements ?

(1) 2 (2) 3 (3) 4 (4) 5

11. The sensitivity of elastic strain gauge load-cell elements is affected by :

(1) force variation (2) temperature variation

(3) load variation (4) current variation

12. Which arrangement has the capability to measure the temperature of an object which may be either stationary or moving ?

(1) Thermocouples (2) Thermistors

(3) Total radiation pyrometer (4) Filled-in-system thermometers

13. Following is the device used for reading the level of contents within a closed container :

(1) dip stick (2) meter scale

(3) pressure gauge (4) sight glass

14. The difference between the maximum shaft and minimum hole is known as :

(1) allowance (2) tolerance (3) error (4) limit

15. A scale whose graduation marks are in a discontinuous manner and are composed of aligned numbers indicating directly the numerical value of the quantity measured is called :

(1) linear scale (2) equivalent scale

(3) regular scale (4) digital scale

16. For increasing the accuracy of direct observation methods, the following mechanical means of magnification should be adopted :

(1) Sight glasses method (2) Interference method

(3) Sine bar method (4) Lever method

SPACE FOR ROUGH WORK

17. If the instrument gauge factor value is 2 and the strain gauge factor is 3.5, then true strain will be equal to :

(1) indicated strain (2) indicated strain $\times \frac{3.5}{2}$

(3) indicated strain $\times \frac{2}{3.5}$ (4) $\frac{3.5}{2}$

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18. The following standard can be used for defining length :

(1) Light wave standard (2) Basic dimension standard

(3) Supplementary standard (4) Physical standard

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19. The smallest discernible scale division on the balance is referred as :

(1) sensitivity (2) least count (3) readability (4) precision

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20. A flow meter that measures flow rates which are independent of density is :

(1) rotameter (2) electromagnetic flow meter

(3) venturimeter (4) orifice meter

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21. Volumetric glass ware expands and contracts with rising and falling :

(1) pressure (2) temperature (3) levels of liquids (4) weights

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22. Aqueous solutions wet the wall of the buret, giving a shallow curve to the surface of the liquid, which is called as the :

(1) crest (2) trough (3) concavity (4) meniscus

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23. Slug is the :

(1) SI unit of mass measurement (2) FPS unit of mass measurement

(3) CGS unit of mass measurement (4) Metric technical unit of force

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24. The level measurement can be converted into the required measurement form, like volumetric or mass content, using :

(1) conversion coefficient (2) secondary measurement device

(3) sensing element (4) calibration

SPACE FOR ROUGH WORK

25. The method of level measurement used for corrosive or radioactive liquids is :

(1) pneumatic method (2) capacitive method

(3) float level gauge method (4) ultrasonic method

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26. Pneumatic load cell operates on the :

(1) force - deflection principle (2) force - balance principle

(3) gravity principle (4) deflection principle

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27. Odometer is :

(1) an instrument for B.H.P measurement.

(2) an instrument for distance measurement.

(3) an instrument for measuring fuel consumption.

(4) an instrument for smoke analysis.

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28. The coil of spring altered with temperature change, causes change in load-deflection calibration (in case of spring scale). This is referred to as :

(1) scale error (2) deflection error

(3) variation error (4) environmental error

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29. Originally, the meter was intended to be one ten-millionth of the earth's :

(1) Diameter (2) Circumference

(3) Quadrant (4) None of the above

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30. The degree of accuracy which can be obtained while making measurements with a steel rule or scale depends upon :

(1) Hardness of steel used for scale (2) Size of scale

(3) Clearly engraved lines (4) Skill of the user

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31. In load cells, a cell should be correctly installed into the weigher structure, to retain its :

(1) weight (2) performance (3) shape (4) size

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32. Suspended coil, torsion instruments and pivoted coil, direct indicating instruments are used to measure :

(1) power (2) energy (3) current (4) flow

SPACE FOR ROUGH WORK

33. If graduations on beam of a Vernier gauge are marked at every $\frac{1}{2}$ mm and 10 divisions on Vernier scale are on a distance of 9.5 mm, then least count is :

(1) 0.1 mm (2) 0.05 mm (3) 0.01 mm (4) 0.02 mm

34. The energy meters record energy in :

(1) Volts (2) Amps (3) kW-Hr (4) Webers

35. In case of nucleonic belt weigher, the operating temperature range of the detector is

(1) -10 to 40 °C (2) greater than 100 °C

(3) 50 to 100 °C (4) -100 to 0 °C

36. An absorption dynamometer which is used to measure electrical power in an alternating current circuit is the :

(1) power meter (2) energy meter (3) dynamometer (4) wattmeter

37. A well-type manometer is used in preference to a simple U-tube manometer to obtain :

(1) better accuracy (2) better precision

(3) a constant zero (4) higher sensitivity

38. The resistance strain gauges are :

(1) active transducers (2) passive transducers

(3) resistors (4) neutral transducers

39. The angular velocity of a rotating wheel is expressed in :

(1) m/s (2) rad/s

(3) deg/s (4) None of the above

40. For a hexagon of side 'a', area will be equal to :

(1) $\frac{3\sqrt{3}}{2} \cdot a^2$ (2) $\frac{2\sqrt{3}}{3} \cdot a^2$ (3) $\frac{3\sqrt{3}}{2} \cdot a$ (4) $\frac{2\sqrt{3}}{3} \cdot a$

SPACE FOR ROUGH WORK

41. The coefficient of cubic expansion is almost :

(1) equal to the coefficient of linear expansion

(2) twice the coefficient of linear expansion

(3) three times coefficient of linear expansion

(4) four times coefficient of linear expansion

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42. Strain gauge load cells are excellent force measuring devices, particularly for :

(1) static pressures (2) dynamic pressures

(3) transient and non-steady forces (4) torques

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43. The ordinary springs are capable of giving results accurately within the accuracy of :

(1) 0.5 to 1% (2) 2 to 5% (3) 5 to 10% (4) 1 to 2%

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44. 1 bar pressure is equal to :

(1) $1N/m^2$ (2) 760 mm mercury

(3) 10^5 Pa (4) 133.3 Pa

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45. The surface area of a cylinder is given by :

(1) $2\pi r(h-r)$ (2) $2\pi r$ (3) $2\pi rh$ (4) $2\pi r(h+r)$

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46. The circumferential strain gauges on load cells simultaneously undergo tension leading to :

(1) increase in resistance (2) decrease in resistance

(3) increase in distortion (4) increase in compression

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47. This type of instrument is normally used in automobiles when the scale is calibrated in linear velocity :

(1) Eddy current or magnetic drag tachometer.

(2) Vibrating reed tachometer.

(3) Stroboscopic tachometer.

(4) Photoelectric pick-up tachometers.

SPACE FOR ROUGH WORK

48. Following is not the part of micrometer :

(1) Frame (2) Anvil (3) Ratchet (4) Scriber

49. Errors which may be variable in both magnitude and nature (positive or negative) are classified as :

(1) hysterisis errors (2) random errors

(3) systematic errors (4) interaction errors

50. In these types of thermometers, the indication is due to the difference in expansion of two solids :

(1) Bimetallic (2) Liquid-in-glass

(3) Resistance (4) Thermocouples

51. The volume of a sphere can be calculated using formula :

(1) $\frac{3}{4}\pi r^2$ (2) $\frac{3}{4}\pi r^3$ (3) $\frac{4}{3}\pi r^2$ (4) $\frac{4}{3}\pi r^3$

52. Variable head flow meters can be used for measurement of flow of :

(1) liquids only (2) liquids and gases

(3) slurries only (4) liquids, gases and slurries

53. Volumetric or transfer pipets are designed to deliver a specified volume of liquid between :

(1) 0.5 and 100 m*l* (2) 1 and 10 m*l* (3) 10 and 100 m*l* (4) 0 and 100 m*l*

54. An electric overhead crane is specified by :

(1) span (2) power (3) no. of rails (4) control

55. Which of the following flow meters is capable of measuring the rate of flow as well as totalized flow ?

(1) Nutating disc flow meter (2) Electromagnetic flow meter

(3) Orifice meter (4) Lobed impeller flow meter

SPACE FOR ROUGH WORK

56. Force is one of the major derived physical parameters having dimensions of :

(1) weight and displacement (2) mass and distance

(3) weight, distance and time (4) mass, length and time

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57. The most popular method of weighing the solid material in a tank or storage bin is the :

(1) direct method (2) indirect method

(3) count method (4) continuous level method

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58. An object having 20 kg mass weighs 19.60 kg on a spring balance. The value of 'g' in m/sec^2 for the place is :

(1) 10.00 (2) 9.80 (3) 10.10 (4) 10.20

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59. For octagon of side 'a', area will be equal to :

(1) $2a^2\left(1+\sqrt{2}\right)$ (2) $2a\left(1-\sqrt{2}\right)$ (3) $2a\left(1+\sqrt{2}\right)$ (4) $2a^2\left(1-\sqrt{2}\right)$

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60. The volume of a thin spherical shell of radius 'r' and thick 't' is given by :

(1) $4\pi r^2 t$ (2) $4\pi rt$ (3) $2\pi r^2 t$ (4) $2\pi rt$

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61. In unequal lever balance, the balance is obtained by :

(1) adding known mass on long side of lever

(2) adding known mass on short side of lever

(3) sliding a known mass along the lever

(4) sliding unknown mass along the lever

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62. Accurate level measurement is achieved in both the brewing and petroleum industry by using :

(1) Hook gauge (2) Bubbler level gauge

(3) Ultrasonic system (4) Dip stick

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63. The confirmity of the output to the true value of the measurement is called :

(1) precision (2) accuracy (3) sensitivity (4) hysteresis

SPACE FOR ROUGH WORK

64. All Blood Pressure measurements are made with reference to :

(1) absolute pressure (2) body pressure

(3) atmospheric pressure (4) vacuum

65. In strain gauge force transducer, strain gauges are attached to the column and their electrical resistance alters according to the :

(1) pressure (2) voltage (3) column height (4) load

66. Which metal/non-metal has the highest temperature range ?

(1) Semiconductors (2) Nickel (3) Copper (4) Platinum

67. The shape of a suspended cable under its own weight is :

(1) Elliptical (2) Catenary (3) Semi-circle (4) Parabolic

68. The use of four identical strain gauges in each arm of the bridge provides :

(1) stability (2) accuracy

(3) full temperature compensation (4) full load

69. The coefficient of linear expansion may be defined as the increase in length per unit length when the temperature is raised by :

(1) 1 K (2) 100 °C (3) 1° F (4) 1R

70. The volume of a circular cone is given by :

(1) $\pi r^2 h$ (2) $\frac{1}{2}\pi r^2 h$ (3) πrh (4) $\frac{1}{3}\pi r^2 h$

71. Manometers measure unknown pressure by :

(1) measuring liquid levels

(2) measuring height of glass tube

(3) noting the deflection of a pointer

(4) balancing the unknown force produced by pressure against a known force

SPACE FOR ROUGH WORK

72. The S.I. unit system has :

(1) Five base units and three supplementary units of angle.

(2) Three base units and two supplementary units.

(3) Six base units and three supplementary units.

(4) Seven base units and two supplementary units of angle.

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73. Suppose, F_1 and F_2 are the two different forces applied to a given particle of Mass and a_1 and a_2 are the resulting accelerations. The mass and weight are related through Newton's second law of motion as follows :

(1) $\frac{F_1}{a_2} = \frac{F_2}{a_1}$ (2) $\frac{a_2}{F_1} = \frac{a_1}{F_2}$

(3) $\frac{F_1}{a_1} = \frac{F_2}{a_2}$ (4) $\frac{F_1}{F_2} = a_1 + a_2$

---

74. Bonded strain gauge load cells are devices producing :

(1) electrical output (2) displacement output

(3) heat output (4) expansion output

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75. A hydraulic ram is a device to :

(1) store the energy of water.

(2) increase the pressure of water.

(3) to lift water from deep.

(4) to lift small quantity of water to greater height when a large quantity of water is available at smaller height.

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76. If the confidence level is 0.95, then the values laying outside the confidence interval are :

(1) 1 in 5 (2) 1 in 20 (3) 1 in 100 (4) 1 in 1000

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77. Following is not the part of nucleonic belt weigher :

(1) conveyor belt (2) radiation shutter and detector

(3) scintillation counter (4) fibrescope

SPACE FOR ROUGH WORK

78. Which of the following error can arise, as a result of mistakes in reading, parallax, improper instrument location and inadequate lighting ?

(1) construction error (2) transmission error

(3) observation error (4) translation error

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79. The amount of liquid stored in 1 m^3 capacity tank will be :

(1) 219.969 gal (2) 0.219969 gal

(3) 219.969×10^3 gal (4) 1.75980 pint

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80. What represents the departure of the observed readings from arithmatic mean of the group of readings ?

(1) Dispersion (2) Deviation (3) Variance (4) Median

---

81. The equal-arm-balance device operates on the principle of :

(1) force comparison (2) pressure comparison

(3) momentum comparison (4) weight comparison

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82. For oblique frusta of right circular cylinders, volume =

(1) $\pi r^2 l$ (2) $\pi r l$ (3) $\frac{\pi}{2} r$ (4) $\frac{\pi r^2 l}{2}$

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83. A weighing machine commercially known as scales is used for the measurement of force and torque by comparison of :

(1) gravity (2) mass (3) weights (4) pressure

---

84. In smaller sizes, the analytical balance may be constructed to have sensitivities of :

(1) 0.001 mg (2) 0.01 mg (3) 0.1 mg (4) 1.0 mg

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85. The precision of the measurement in nucleonic belt weigher is :

(1) ± 1% (2) ± 5% (3) ± 10% (4) ± 0.1%

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86. A simple analytical balance is an example of :

(1) an equal lever balance (2) unequal lever balance

(3) compound lever balance (4) force-balance system

SPACE FOR ROUGH WORK

87. Among the base metals, following metal has the highest temperature coefficient with the best linearity :

(1) Aluminium (2) Gold (3) Copper (4) Silver

88. Temperature is the measure of the :

(1) Mean kinetic energy of molecules of the substance.

(2) Potential energy of molecules of substance.

(3) Total energy of molecules of substance.

(4) Flow of energy in the substance.

89. Radiation pyrometers are used in the temperature range of :

(1) 0 – 500 °C (2) 500 – 1000 °C

(3) −250 – 500 °C (4) 1200 – 2500 °C

90. Load cells are elastic devices that can be used for measurement of force through :

(1) direct methods (2) indirect methods

(3) electrical methods (4) gravity methods

91. Volumetric flasks are calibrated to contain a particular volume of liquid at :

(1) 0 °C (2) 10 °C (3) 20 °C (4) 35 °C

92. The smallest possible value that can be read on the scale is called as :

(1) Scale division (2) Graduation Range

(3) Threshold value (4) Scale value

93. The area of rhombus of side 'a' and diagonals 'd_1' and 'd_2' is given by :

(1) 4a (2) $\frac{1}{2}a.d_1.d_2$ (3) $\frac{1}{2}d_1.d_2$ (4) $d_1.d_2$

94. In strain gauge load cells, the electrical resistance changes in direct proportion to the applied :

(1) voltage (2) current (3) force (4) resistance

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95. When both the gauges are mounted on the top of the cantilever beam (half bridge circuit), the voltage is :

(1) maximum (2) minimum

(3) zero (4) moderate

---

96. In nucleonic belt weigher, following source is used to measure the mass of material and mass flow rate :

(1) electrical (2) hydraulic

(3) pneumatic (4) radiation from gamma ray

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97. For rings, volume is equal to :

(1) $\frac{\pi}{4}(R - r)^2$ (2) $\frac{\pi}{4}(R - r)^2 \pi(R)$

(3) $\frac{\pi^2}{4}(R - r)^2 (R + r)$ (4) $\frac{\pi}{4}(R - r)^2 \ \pi(R - r)$

---

98. What is the name of the device used to measure small areas by tracing the area boundary ?

(1) odometer (2) planimeter (3) collimeter (4) distance meter

---

99. 1 gm mass is equal to :

(1) 0.035274 oz (2) 0.035274 cwt

(3) 1.000274 klb (4) 1.000274 gal

---

100. The mean deviation $\bar{d}$ in terms of deviations from the mean value of n readings is :

(1) $\frac{\Sigma|d|}{n}$ (2) $\frac{\Sigma d}{n}$ (3) $\frac{\sqrt{\Sigma d^2}}{n}$ (4) $\sqrt{\frac{\Sigma d^2}{n}}$

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सूचना – (पृष्ठ 1 वरुन पुढे....)

(9) सदर प्रश्नपत्रिकेसाठी आयोगाने विहित केलेली वेळ संपल्यानंतर उमेदवाराला ही प्रश्नपुस्तिका स्वत: बरोबर परीक्षाकक्षाबाहेर घेऊन जाण्यास परवानगी आहे. **मात्र परीक्षाकक्षाबाहेर जाण्यापूर्वी उमेदवाराने आपल्या उत्तरपत्रिकेचा भाग-1 समवेक्षकाकडे न विसरता परत करणे आवश्यक आहे.**

नमुना प्रश्न

प्रश्न.क्र. **51.** An engine is approaching a stationary observer. It sounds a whistle. Indicate whether :

(1) the observer hears the same frequency
(2) the observer hears slightly lower frequency
(3) the observer hears slightly higher frequency
(4) the observer hears the same frequency but of a different quality

ह्या प्रश्नाचे योग्य उत्तर "(3) the observer hears slightly higher frequency" असे आहे. त्यामुळे या प्रश्नाचे उत्तर "(3)" होईल. आता प्र.क्र. **51** समोरील उत्तर-क्रमांक "③" चा वर्तुळ खालीलप्रमाणे पूर्ण छायांकित करून दाखविणे आवश्यक आहे.

प्र.क्र. **51.** ① ② ● ④

अशा पद्धतीने प्रस्तुत प्रश्नपुस्तिकेतील प्रत्येक प्रश्नाचा तुमचा उत्तरक्रमांक हा तुम्हाला स्वतंत्ररीत्या पुरविलेल्या उत्तरपत्रिकेवरील त्या त्या प्रश्नक्रमांकासमोरील संबंधित वर्तुळ पूर्णपणे छायांकित करून दाखवावा. **ह्याकरिता फक्त काळ्या शाईचे बॉलपेन वापरावे. पेन्सिल वा शाईचे पेन वापरू नये.**

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK