ENGLISH

1. A family has a man, his wife, their four sons and their wives. The family of every son also has 2 sons and one daughter. Find out the total number of female members in the whole family.

   (A) 13　　　　　　　(B) 11　　　　　　　(C) 9　　　　　　　(D) 7

2. The energy of thermal radiation u emitted per unit time by a blackbody of surface area A at temperature T (in absolnte scale) is given by

   $u = \sigma A T^4$ (where σ = Stefan-Boltzmann constant)

   The above statement is

   (A) Stefan-Boltzmann law　　　　　　　(B) Kirchhoff's law
   (C) Wien's displacement law　　　　　　(D) Prevost law

3. A horizontal force of 10 newton is necessary to just hold a block stationary against a vertical wall. The coefficient of friction between the block and the wall is 0.2. The weight of the block is

   (A) 2 newtons　　　　(B) 10 newtons　　　　(C) 20 newtons　　　　(D) 40 newtons

4. A pair of equal and opposite forces with different lines of action is known as a couple. A couple produces

   (A) rotation and translation　　　　　　(B) rotation without translation
   (C) translation without rotation　　　　　(D) first rotation and then translation

5. By operating at higher frequencies, transformers

   (A) can be physically more compact　　　(B) will be heavier and bigger
   (C) will operate with less core loss　　　(D) will be able to reduce conductor skin effect

6. Tulsidas was a contemporary of

   (A) Babar　　　　　(B) Akbar　　　　　(C) Shahjahan　　　　　(D) Jahangir

7. Low-carbon steel (mild steel) has

   (A) more than 0.60 % carbon　　　　　(B) less than 0.60 % carbon
   (C) more than 0.30 % carbon　　　　　(D) less than 0.30 % carbon

8. When a body is submerged in a fluid, the ratio of hydraulic stress to the corresponding hydraulic strain is called

   (A) bulk modulus　　(B) compressibility　　(C) shear modulus　　(D) Young's modulus

9. A computer virus is

   (A) a hardware　　　　　　　　　　　(B) a computer program
   (C) a client server　　　　　　　　　　(D) a read-only memory

10. Which of the following states does not share boundary with Nepal
    (A) Himachal Pradesh (B) Bihar   (C) Uttar Pradesh   (D) Sikkim

11. First woman judge of the supreme court of India was
    (A) Leila Seth   (B) Cornelia Sorabji   (C) Anna Chandi   (D) M. Fathima Beevi

12. A web page is a web document on the World Wide Web, usually in
    (A) MS - Excel   (B) MS - Access   (C) MS - DOS   (D) HTML format

13. A transistor cannot be used as
    (A) amplifier   (B) rectifier   (C) oscillator   (D) both (A) and (C)

14. A solid spherical metal of radius 10 cm is made into 1000 smaller solid spheres of equal sizes by melting. In this process, the total final surface area of the metal becomes X times the initial surface area. Then, X is equal to
    (A) 1000   (B) 100   (C) 10   (D) 1

15. Which are the species found in dry forests and arid forests of India?
    (A) teak, sal, bamboo   (B) bamboo, mahogany, rubber
    (C) kikar, babool, date palm   (D) teak, mango, neem

16. In India, the Jnanpith Award is a
    (A) film award   (B) sports award   (C) science award   (D) literary award

17. Banks in India are required to hold a certain proportion of their deposits in the form of cash. This minimum ratio as stipulated by RBI is known as
    (A) bank ratio   (B) repo rate   (C) bank rate   (D) cash reserve ratio

18. The height of a triangle as well as its base are increased by 30% . find the percentage increase in its area.
    (A) 15%   (B) 30%   (C) 45%   (D) 69%

19. A goat is tied to a corner of a square field of side 20 m with a rope of length 14 m. Find the area of the square field that the goat cannot graze.
    (A) 287 sq. m   (B) 246 sq. m   (C) 226 sq. m   (D) 208 sq. m

20. L.M. Singhvi committee studied Panchayati Raj in the year
    (A) 1986   (B) 1989   (C) 1980   (D) 1983

21. A total of 324 coins of 20 paise and 25 paise make a sum of Rs.71. the number of 20 paise coins is
    (A) 124   (B) 144   (C) 150   (D) 200

22. Fill in the blank :

_____ operate so quickly that they limit the total energy that passes into the circuit after development of the fault, helping to protect downstream equipment from damage.

(A) Current-limiting fuses

(B) High voltage fuses

(C) High power fuses

(D) Glass cartridge fuses

23. Anil walks 10 km towards north. From there he walks 6 km towards south. Next, he walks 3 km towards east. How far and in which direction is he with reference to his starting point?

(A) 5 km west   (B) 8 km west   (C) 5 km north-east   (D) 5 km south-east

24. If a difference of temperature is maintained between the junctions of a circuit consisting of two different metallic conductors, an electric current is set up in the circuit. This is

(A) Peltier effect   (B) Thomson effect   (C) Seebeck effect   (D) Joule effect

25. The xylem in plants are responsible for

(A) transport of water

(B) transport of food

(C) transport of oxygen

(D) transport of amino acids

26. Fill in the blank :

A silicon crystal doped with _____ results in a n-type semiconductor.

(A) phosphorus   (B) indium   (C) boron   (D) aluminium

27. Rules of inheritance of traits in human beings were worked out by

(A) Miller   (B) Urey   (C) Mendel   (D) Haldane

28. Feeding connections in an ecological community is depicted by a

(A) food system   (B) food link   (C) food web   (D) ecological link

29. When a body is deformed, the elastic potential energy of the body is equal to

(A) $\frac{1}{2} \times (\text{stress})^2 \times \text{strain} \times \text{volume}$

(B) $\frac{1}{2} \times \text{stress} \times (\text{strain})^2 \times \text{volume}$

(C) $\frac{1}{2} \times \text{stress} \times \text{strain} \times (\text{volume})^2$

(D) $\frac{1}{2} \times \text{stress} \times \text{strain} \times \text{volume}$

30. In orthographic projection, if the object lies between the observer and the plane of projection, it is called

(A) first angle projection

(B) second angle projection

(C) third angle projection

(D) plane projection

31. Intrinsic carrier concentration of silicon at room temperature is about

(A) $9.65 \times 10^8/\text{cm}^3$ to $1.08 \times 10^9/\text{cm}^3$

(B) $9.65 \times 10^9/\text{cm}^3$ to $1.08 \times 10^{10}/\text{cm}^3$

(C) $8.65 \times 10^7/\text{cm}^3$ to $1.01 \times 10^8/\text{cm}^3$

(D) $8.65 \times 10^{11}/\text{cm}^3$ to $1.01 \times 10^{12}/\text{cm}^3$

32. $\dfrac{10 \times 0.2 \times 0.2 \times 0.1 \times 0.1 \times 10}{0.001 \times 0.01 \times 100} = ?$

(A) 20   (B) 40   (C) 200   (D) 400

33. A solid sphere and a solid hemisphere have the same radius. Find the ratio of their total surface areas.

(A) 3 : 1   (B) 2 : 1   (C) 5 : 3   (D) 4 : 3

34. The scores of Ashok and Raju are in the ratio 5:4. If the total score of Ashok and Raju is 135, find Ashok's score.

(A) 70   (B) 75   (C) 80   (D) 85

35. Out of the following, who is <u>not</u> related to the Revolt of 1857?

(A) Rani Laxmi Bai   (B) Nana Saheb
(C) Gopal Krishan Gokhale   (D) Tantia Tope

36. Compared to induction motors, power factor of synchronous motors

(A) is lower   (B) may be higher or lower
(C) is same   (D) is better

37. The treatment of the ore with suitable reagents which can selectively dissolve the ore but not the impurities, is known as

(A) leaching   (B) roasting   (C) smelting   (D) amalgamation

38. The surveying instrument which is used for rapid measurements of distance to target, which operates electronically or electro-optically and measures distance indirectly, is

(A) prismatic compass (B) tacheometer   (C) sextant   (D) pentaprism

39. Many bacteria and protozoa simply divide into two or more daughter cells. This process is known as

(A) propagation   (B) fission   (C) budding   (D) fragmentation

40. Diverting a small amount of the power generated by the generator to an electromagnetic field coil allows the generator to produce substantially more power. This concept is called

(A) feed-back excitation   (B) booster-excitation
(C) self-excitation   (D) supercharge-excitation

41. The younger, outermost wood, which is living wood in a growing tree, is known as

(A) softwood   (B) outerwood   (C) whitewood   (D) sapwood

42. Polymers formed by direct addition of repeated monomers without elimination of any by-product product molecules are known as

(A) total polymers   (B) condensation polymers
(C) addition polymers   (D) long chain polymers

43. The chord of the ellipse through its one focus and perpendicular to the major axis or parallel to the directrix, is called the

(A) auxiliary line of the ellipse

(B) perpendicular chord of the ellipse

(C) parallel chord of the ellipse

(D) latus rectum of the elipse

44. In *P*-type semiconductors, conduction of electricity is due to

(A) motion of holes

(B) motion of negative charges

(C) motion of electrons

(D) motion of electrons and holes

45. The number of boys in a class is exactly three times the number of girls. Which one of the following numbers cannot represent the total number of children in the class?

(A) 62　　　　　(B) 68　　　　　(C) 72　　　　　(D) 88

46. 'poise' is the unit of

(A) surface tension　　(B) viscosity　　(C) impulse　　(D) pressure

47. Ozone at the higher levels of the atmosphere is a product of

(A) infrared radiation acting on oxygen molecules

(B) infrared radiation acting on nitrogen molecules

(C) ultraviolet radiation acting on nitrogen molecules

(D) ultraviolet radiation acting on oxygen molecules

48. Thermal pollution is the rise in the temperature of a natural water body caused by human influence. Elevated water temperature

(A) increases oxygen level

(B) decreases oxygen level

(C) does not affect oxygen level

(D) may increase or decrease oxygen level

49. P-N junction diode is equivalent to a

(A) resistor　　(B) OR logic gate　　(C) capacitor　　(D) NAND logic gate

50. If a gas is heated against a pressure, keeping the volume constant, then the work done will be

(A) positive

(B) negative

(C) equal to zero

(D) equal to pressure × volume

51. In which months are the Kharif crops sown?

(A) March-April　　(B) June-July　　(C) September-October　　(D) November-December

52. A diagram that represents workflow or process, showing the steps as boxes of various kinds, and their order by connecting them with arrows, is known as a

(A) bar chart　　(B) scatter diagram　　(C) flow chart　　(D) Venn diagram

53. Which of the following is not a Computer Operating System?

(A) MS - DOS   (B) COBOL   (C) WINDOWS   (D) LINUX

54. Electrical power plants utilizing coal are among the greatest contributors to gaseous pollutions that are responsible for

(A) greenhouse effect   (B) decrease in nitrogen level
(C) decrease in water vapour   (D) acid rain

55. Rahim purchased three dozens oranges at Rs 10 per dozen, two dozens oranges at Rs 15 per dozen and five dozens Oranges at Rs 16 per dozen. Find the average cost per dozen of the oranges that he purchased.

(A) Rs 14   (B) Rs 13   (C) Rs 12   (D) Rs 11

56. A relay that uses an electromagnet to control one or more switches and the contacts are of magnetic material and the electromagnet acts directly on them without requiring an armature to move them, is known as a

(A) reed relay   (B) solid-state relay   (C) latching relay   (D) coaxial relay

57. The period of first five year plan was

(A) 1951-56   (B) 1952-57   (C) 1953-58   (D) 1954-59

58. Two sound waves having equal amplitude but slightly different frequencies f_1 and f_2, produce beats whose frequency is

(A) $f_1 \times f_2$ (B) $2 \times f_1 \times f_2$ (C) $|f_1 - f_2|$ (D) $f_1 + f_2$

59. Oxygen-rich blood from the lungs comes to the

(A) right atrium of the heart   (B) left atrium of the heart
(C) right ventricle of the heart   (D) septum of the heart

60. Which of the following statements is NOT true about Microsoft Windows?

(A) This is a series of operating systems.
(B) Windows is written in FORTRAN language.
(C) Multilingual support is built into windows.
(D) Windows is used for personal computers.

61. Find out the statement which is TRUE :

(A) Isometric projections are same as perspective projections.
(B) Objects drawn with isometric projection do not appear smaller as they extend away from the viewer.
(C) lines drawn along the three coordinate axes are at 100° to one another.
(D) In isometric projection, all the three coordinate axes do not appear equally foreshortened.
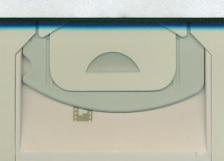
62. Where all active programs and data of a computer are stored, so that they are readily available and easily accessed by the Central Processing Unit, that is known as

(A) read-only memory
(B) random added memory
(C) ready access memory
(D) random access memory

63. Dimensions of Inductance :

(A) $\text{length}^2 \times \text{mass} \times \text{time}^2 \times \text{electric current}^{-2}$

(B) $\text{length}^2 \times \text{mass}^2 \times \text{time}^{-2} \times \text{electric current}^{-2}$

(C) $\text{length}^2 \times \text{mass} \times \text{electric current}^2 \times \text{time}^{-2}$

(D) $\text{length}^2 \times \text{mass} \times \text{time}^{-2} \times \text{electric current}^{-2}$

64. The normal term of office of a member of the Rajya Sabha is

(A) 3 years (B) 4 years (C) 5 years (D) 6 years

65. When a spherical body of radius a, falls through a fluid of coefficient of viscosity η with a velocity v, the viscous drag force F is equal to

(A) $2\pi\eta av$ (B) $2\pi\eta a^2 v$ (C) $6\pi\eta a^2 v$ (D) $6\pi\eta av$

66. How many terms are there in the series 201, 208, 215, 222, ..., 369?

(A) 23 (B) 25 (C) 27 (D) 29

67. The first term and the last term of an arithmetic progression are 9 and 69 respectively. If the sum of all the terms in 468, find the number of terms.

(A) 12 (B) 11 (C) 14 (D) 13

68. Which of the following methods is *not* used to improve fatigue strength of manufactured products.

(A) increasing surface roughness
(B) providing fine surface finish
(C) shot-peening
(D) roller burnishing

69. Fill in the blank:

Areawise, India is the _____ largest country in the world.

(A) fifth (B) seventh (C) eighth (D) ninth

70. First Indian to win an individual Olympic Gold

(A) Abhinav Bindra (B) Sushil Kumar (C) K.D. Jadhav (D) Saina Nehwal

71. Six boys A, B, C, D, E and F are sitting in a row facing towards north. C is sitting between A and E. D is not at the end. B is sitting immediate right to E. F is not at the right end. How many persons are there to the right of D?

(A) two (B) three (C) four (D) five

72. A three-carbon chain with a double bond is called propene and if it has a triple bond, it would be called
    (A) propanone   (B) propyne   (C) propin   (D) propanal

73. An elevation is a
    (A) top view   (B) bottom view   (C) side view   (D) sectional view

74. Working Principle of a Thermocouple is based on
    (A) Huygens' principle   (B) Prevost theory of exchange
    (C) Newton's law of cooling   (D) thermoelectric effect

75. Most accurate holes are produced by the following sequence of operations:
    (A) centring, drilling, reaming and boring
    (B) drilling, centring, reaming and boring
    (C) drilling, centring, boring and reaming
    (D) centring, drilling, boring and reaming

76. Methane gas
    (A) is a greenhouse gas   (B) is harmful to the ozone layer
    (C) is a radioactive pollutant   (D) produces very strong acid

77. The ratio of peak value of modulating signal to the peak value of carrier wave is known as
    (A) modulation ratio   (B) modulation index
    (C) modulation number   (D) modulation power

78. In a row of boys, Kamal is fifth from the left and Tarun is sixth from the right. When they exchange their positions, Kamal becomes thirteenth from the left. What will be Tarun's position from the right?
    (A) 10th   (B) 14th   (C) 16th   (D) 18th

79. If a : b = 2 : 7; what is the value of $\dfrac{7a+3b}{2a+2b}$?

    (A) $\dfrac{18}{35}$ (B) $\dfrac{35}{18}$ (C) $\dfrac{37}{18}$ (D) $\dfrac{7}{4}$

80. Forged crankshafts are widely used due to their
    (A) low cost   (B) good look
    (C) lighter weight and compact dimensions   (D) better ability to transfer heat

81. The main advantage of the just-in-time production (JIT) is
    (A) low rejection rate   (B) low inventory-carrying costs
    (C) fast detection of defects   (D) production of high quality products

82. Cranial nerves emerge from the
   (A) brain
   (B) central part of spinal cord
   (C) lower part of spinal cord
   (D) upper part of spinal cord

83. Starting with the same initial conditions, an ideal gas expands from volume V_1 to V_2 in three different ways. The work done by the gas is W_1, if the process is purely isothermal; W_2, if purely isobaric and W_3, if purely adiabatic. Then
   (A) $W_2 > W_1 > W_3$ (B) $W_2 > W_3 > W_1$ (C) $W_1 > W_2 > W_3$ (D) $W_1 > W_3 > W_2$

84. Fill in the blank :
   Half-wave rectification requires _____ in a three-phase supply.
   (A) a single diode   (B) two diodes   (C) three diodes   (D) four diodes

85. 20 men take 10 days to complete a job working 12 hours a day. Find the number of men required to complete a job, twice as large, in 30 days working 8 hours a day.
   (A) 15   (B) 30   (C) 35   (D) 20

86. If the price of milk goes up by $33\frac{1}{3}\%$, what should be the percentage by which its consumption must be reduced so that the expenditure on it remains unchanged?
   (A) 25%   (B) 30%   (C) $33\frac{1}{3}\%$ (D) 40%

87. Paradip port of India mainly handles
   (A) food grains and steel
   (B) iron ore and coal
   (C) crude oil and petroleum
   (D) edible oil

88. A screw gauge gives the following readings when used to measure the diameter of a wire.
   Main scale reading : 0 mm
   Circular scale reading : 52 divisions
   Given that 1 mm on main scale corresponds to 100 divisions of the circular scale. The diameter of wire from the above data is
   (A) 0.005 cm   (B) 0.026 cm   (C) 0.052 cm   (D) 0.52 cm

89. $\dfrac{0.1 \times 0.1 \times 0.1 \times 10 \times 10 \times 2 \times 31}{0.1 \times 0.1 \times 10} = ?$
   (A) 62   (B) 620   (C) 31   (D) 310

90. Raju purchased some goods for Rs 1800. He sold one-third of the goods purchased at 20% loss. Find the profit percentage at which the rest of the goods must be sold to realize an overall profit of 20%.
   (A) 30%   (B) 35%   (C) 40%   (D) 50%

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91. The strength of a beam section depends upon
    (A) its length   (B) its sectional area   (C) its section modulus   (D) its weight

92. Identify the wrong number in the series: 69, 55, 26, 13, 5
    (A) 69   (B) 26   (C) 13   (D) 5

93. Computer languages which can easily interact with the hardware, are called
    (A) hard languages   (B) high level languages
    (C) low level languages   (D) middle level languages

94. For production of ordinary Portland cement, to sinter the materials into clinker, materials are heated up to
    (A) about 1400 °C – 1500 °C   (B) about 600 °C – 700 °C
    (C) about 900 °C – 1000 °C   (D) about 300 °C – 400 °C

95. When plane mirror is rotated through an angle θ, the reflected ray turns through
    (A) θ   (B) 2θ   (C) 3θ   (D) θ/2

96. SI unit of thermal conductivity is
    (A) $\dfrac{\text{metre - kelvin}}{\text{watt}}$ (B) $\dfrac{\text{watt}}{\text{metre - kelvin}}$ (C) $\dfrac{\text{watt}}{(\text{metre})^2 \text{ kelvin}}$ (D) $\dfrac{\text{kelvin}}{\text{watt - metre}}$

97. Lattice energy of an ionic compound depends upon
    (A) charge on the ion only   (B) packing of ions only
    (C) size of the ion only   (D) charge on the ion and size of the ion

98. PQRS is a rhombus such that diagonal PR = 32 cm and diagonal QS = 24 cm. Find the perimeter of the rhombus PQRS
    (A) 60 cm   (B) 80 cm   (C) 84 cm   (D) 88 cm

99. Out of the following, which place is famous for iron and steel industry?
    (A) Firozabad   (B) Bokaro   (C) Darjeeling   (D) Hathras

100. If *A* stands for '+', *B* stands for '–', *C* stands for '×', then what is the value of (10 *C* 4) *A* (4 *C* 4) *B* 6?
    (A) 54   (B) 56   (C) 52   (D) 50

101. Which of the following countries is *not* in Asia?
    (A) Kazakhstan   (B) Azerbaijan   (C) Tunisia   (D) Yemen

102. The Supreme Court of India came into being in the year
    (A) 1950   (B) 1951   (C) 1947   (D) 1948

103. Fill in the blank:

Two-stroke internal combustion engines are used where low cost, compactness and _____ are of important considerations.

(A) good look

(B) high volumetric efficiency

(C) light weight

(D) high thermal efficiency

104. Fill in the blank:

The _____ summer monsoon from the Arabian sea and the Bay of Bengal bring rainfall to almost entire India.

(A) north-west   (B) north-east   (C) south-west   (D) south-east

105. The total route length of Indian Railways is approximately

(A) 55,000 kilometres

(B) 60,000 kilometres

(C) 65,000 kilometres

(D) 70,000 kilometres

106. The maximum shear stress occurs on

(A) 45° with principal planes

(B) principal planes

(C) 30° with principal planes

(D) 90° with principal planes

107. If R_0 and R_t are the values of electrical resistance at 0°C and t°C respectively and α is the temperature coefficient of resistivity of the material, then over a temperature range that is not too large, we have approximately

(A) $R_t = R_0 (1 - \alpha t)$ (B) $R_t = R_0 (1 + \alpha t)$ (C) $R_t = R_0 (1 - \alpha t^2)$ (D) $R_t = R_0 (1 + \alpha t^2)$

108. A room is 12 m long, 4 m broad and 3 m high. Find the length of the longest possible rod that can be placed within it.

(A) 12 m   (B) 13 m   (C) 14 m   (D) 15 m

109. The outer Himalayas, which form the foothills and lie between the middle Himalayas and the great Indian plains, are known as

(A) Himadri   (B) Himachal   (C) Mahendragiri   (D) Shiwalik

110. If John's salary is 20% less than that of Rita, then how much per cent is Rita's salary more than John?

(A) 20%   (B) 21%   (C) 23%   (D) 25%

111. The height of a cone is 40 cm. A small cone is cut off at the top of a plane parallel to its base. If its volume be $\dfrac{1}{64}$ of the volume of the given cone, what is the height of the small cone?

(A) 8 cm   (B) 10 cm   (C) 12 cm   (D) 14 cm

112. As per the Indian census of 2011, the sex ratio (number of females per 1000 males) was approximately

(A) 910   (B) 920   (C) 940   (D) 960

113. A byte represents a group of
    (A) 8 bits   (B) 10 bits   (C) 22 bits   (D) 32 bits

114. Compression ratio of diesel engines usually is in the range of
    (A) 7 : 1 to 10 : 1   (B) 11 : 1 to 13 : 1   (C) 15 : 1 to 21 : 1   (D) 25 : 1 to 31 : 1

115. Movement of information in the Internet is achieved via a system of interconnected computer networks that share data by using the
    (A) standard internet protocol suite   (B) e-mail
    (C) copper wires   (D) public switched telephone networks

116. Fill in the blank :
    Freshwater in the world is only about _____ of the total water available on this planet.
    (A) 0.5%   (B) 1%   (C) 2.5%   (D) 4.5%

117. Which of the following devices is *not* an output device?
    (A) visual display unit (B) plotter   (C) key board   (D) printer

118. Surface tension of a liquid is
    (A) a force per unit area   (B) the surface energy per unit length
    (C) the surface energy per unit area   (D) a force per unit volume

119. The wind system which has the highest air pressure at the centre and lowest air pressure at the outer margins are known as
    (A) cyclone   (B) jet stream   (C) anticyclone   (D) tornado

120. The process by which absorption of radiation and emission of infrared radiation by gases in a planet's atmosphere warm its lower atmosphere, is known as
    (A) gas effect   (B) radiation effect   (C) infrared effect   (D) greenhouse effect

121. Two cylinders A and B fitted with massless pistons contain equal amounts of an ideal diatomic gas at 300 K. The piston of A is free to move, while that of B is held fixed. The same amount of heat is given to the gas in each cylinder. If the rise in temperature of the gas in A is 30 K, then rise in temperature of the gas in B is
    (A) 50 K   (B) 42 K   (C) 30 K   (D) 18 K

122. Electric current induced within conductors by a changing magnetic field in the conductor, which flow in closed loops within conductors, is known as
    (A) Lenz's current   (B) Fleming's current   (C) eddy current   (D) secondary current

123. Plasma-arc welding is often used where deep and narrow welds are required. A plasma is a
   (A) ionized hot gas
   (B) beam of electrons
   (C) beam of protons
   (D) beam of alpha particles

124. Which material, out of the following, is not used for reinforcement in reinforced concrete?
   (A) steel
   (B) copper
   (C) glass fibre
   (D) fibres of polymer

125. Which of the following Logic Gates may be called a Universal Logic Gate ?
   (A) AND
   (B) OR
   (C) NOT
   (D) NOR

126. In how many vertical columns (groups) are the elements in the modern Periodic Table arranged?
   (A) 15
   (B) 16
   (C) 17
   (D) 18

127. A is 3 years older than B and 3 years younger than C, while B and D are twins. How many years older is C than D?
   (A) 6
   (B) 3
   (C) 2
   (D) equal in age

128. How many molecules of sulphur are present in 256 grams of sulphur (S_8) ?
   (A) 1.505×10^{23} molecules
   (B) 2.007×10^{23} molecules
   (C) 6.023×10^{23} molecules
   (D) 12.046×10^{23} molecules

129. The series-wound dc motor develops its highest torque at
   (A) high speed
   (B) low speed
   (C) medium speed
   (D) very high speed

130. The girders made up from separate structural steel plates by welding or revetting, are known as
   (A) web girders
   (B) flange girders
   (C) plate girders
   (D) rolled girders

131. The speeds of three trains are in the ratio 3 : 4 : 5. The ratio between the times taken by them to travel a fixed distance is
   (A) 3 : 4 : 5
   (B) 5 : 4 : 3
   (C) 20 : 15 : 12
   (D) 12 : 15 : 20

132. Find out the HCF of 204, 1190 and 1445, and find out the correct option.
   (A) 17
   (B) 18
   (C) 19
   (D) 34

133. What is the capital of Mizoram?
   (A) Kavaratti
   (B) Aizawl
   (C) Kohima
   (D) Imphal

134. While taking measurement using vernier callipers, zero error is always _____ from measured length.
   (A) algebraically subtracted
   (B) ignored
   (C) algebraically added
   (D) multiplied by 2 and then algebraically added

135. Hollow cylindrical parts are generally produced by
    (A) die casting
    (B) true centrifugal casting
    (C) investment casting
    (D) squeeze casting

136. 1400 is divided into 4 parts such that twice the first part, thrice the second part, 4 times the third part and 12 times the last part are all equal. Find the first part.
    (A) 500
    (B) 550
    (C) 600
    (D) 650

137. Find the length of the platform which a train 400 m long, travelling at 45 km/hour, can cross in 40 seconds.
    (A) 100 m
    (B) 110 m
    (C) 120 m
    (D) 150 m

138. For a perfect gas, $\dfrac{V}{T}$ = constant, if P is held constant, where V = volume, T = Temperature (kelvin) and P = pressure. This gas law is
    (A) Boyle's law
    (B) Avogadro's law
    (C) Gay-Lussac's law
    (D) Charles's law

139. If the arithmetic mean of 25, 27, 31, 35, 39 and x is 38, find x.
    (A) 69
    (B) 70
    (C) 71
    (D) 73

140. A car covers a certain distance at 90 km/hour speed and returns back to the starting point at 60 km/hour speed. Find its average speed for the entire journey.
    (A) 70 km/hour
    (B) 72 km/hour
    (C) 75 km/hour
    (D) 80 km/hour

141. Choose the correct statement :
    (A) Commons base amplifiers give higher power gain than common-emitter amplifier.
    (B) Common-base amplifiers give higher current gain than common-emitter amplifier.
    (C) In common-base amplifier the emitter terminal is common to both input and output circuits.
    (D) Common-emitter amplifiers give higher power gain than common base amplifiers.

142. The approximate flame temperature produced by oxy-acetylene flame is
    (A) 2200 °C to 2500 °C
    (B) 2600 °C to 3000 °C
    (C) 3200 °C to 3500 °C
    (D) 3700 °C to 4000 °C

143. Out of the following computer languages, which was the first language to appear ?
    (A) PASCAL
    (B) C++
    (C) JAVA
    (D) FORTRAN

144. The junction diode, formed from a metal-semiconductor junction rather than a *p-n* junction, is known as
    (A) Schottky diode
    (B) metal diode
    (C) Fleming diode
    (D) Bose diode

145. Fill in the blank :

_____ is zero-referenced against ambient air pressure.

(A) Absolute pressure (B) Gauge pressure   (C) Differential pressure   (D) Total pressure

146. In the 17th Asian Games held in the year 2014, total number of medals won by India was

(A) 57   (B) 47   (C) 53   (D) 59

147. 'Wings of Fire' is a book written by

(A) Dr A P J Abdul Kalam   (B) Khushwant Singh
(C) Vikram Seth   (D) Arundhati Roy

148. The ages of Ashok and Raju are in the ratio 5 : 7. Eight years ago, their ages were in the ratio 7 : 13. Find their present ages.

(A) 15 years and 18 years   (B) 20 years and 28 years
(C) 10 years and 14 years   (D) 15 years and 21 years

149. Find the compound interest on Rs 14000 for 2 years at 5% per annum.

(A) Rs 1335   (B) Rs 1370   (C) Rs1410   (D) Rs 1435

150. Each kidney has a large number of filtration units called

(A) filtrons   (B) cup filters   (C) bladder   (D) nephrons