RRB
JE EE

Previous Year Paper
21 Dec 2014 Shift 1

THIS SHEET TO BE DETACHED/TORN OFF AND RETAINED BY INVIGILATOR ON COMPLETION OF EXAMINATION

परीक्षा के पूर्ति पर इस पन्ने को अलग करके / काटके निरीक्षक ध्वारा रखा जाए

Duration: 2 HOURS / 120 MINUTES समय : 2 घंटे / 120 मिनट		Exam Code : परीक्षा कोडः	TSG001
No. of pages / पृष्ठों की संख्याः 148		Total Marks / कुल अंक : 150	
Roll No.: अनुक्रमांक		Question Booklet No. प्रश्न पुस्तिका संख्या :	4058176
Date of Examination : परीक्षा तिथि :		OMR Answer Sheet No. OMR उत्तर शीट क्र.	
Candidate's Name / परीक्षार्थी नाम		Candidate's Signature / परीक्षार्थी का हस्ताक्षर	
*** As given in Application Form / आवेदन पत्र में दिए गए ***			

CANDIDATES SHOULD OPEN THE SEALS ONLY AFTER THEY ARE ASKED TO DO SO.
परीक्षार्थी निर्देश मिलने पर ही सील खोलें।

The question paper is made up of the following sections as tabulated below :
निम्न तालिका में दर्शाए अनुसार, इस प्रश्न पत्र को निम्नलिखित भागों में विभजित किया गया है:

Section / भाग	Language / भाषा	No. of Questions प्रश्नों की संख्या	Pages / पृष्ठ	
			From/ से	To/ तक
Section – I	English	150	15	26
Section – II	Hindi / हिन्दी	150	27	38
Section – III	Urdu / اردو	150	39	50
Section – IV	Assamese / অসমীয়া	150	51	61
Section – V	Bengali/ বাঙ্গালী	150	62	72
Section – VI	Manipuri / মনিপুরি	150	73	84
Section – VII	Odiya/ଓଡିଆ	150	85	96
Section – VIII	Telugu/ తెలుగు	150	97	109
Section – IX	Marathi/ ಮರಾಠಿ	150	110	121
Section - X	Gujarati /ગુજરાતી	150	122	133
Section - XI	Kannada/ ಕನ್ನಡ	150	134	146

English Paragraph : "All the details given by me in the Application Form are true and complete to the best of my knowledge. I understand that I may be issued with Call letter for the exam on the basis of above information and mere issue of Call letter will not confer on me any right to be eligible for the post. I also understand that in case any of my statements are found to be untrue at any stage of recruitment or thereafter, I shall be disqualified forthwith for the post applied for and I shall be liable for any other penal action under the extant rules."

हिन्दी पैरग्राफ़: "आवेदन पत्र में मेरे द्वारा दिया गए सभी विवरण मेरी अधिकतम जानकारी के अनुसार सत्य और पूर्ण है। मैं समझता/समझती हूँ कि मुझे परीक्षा के लिए उपर्युक्त सूचना के आधार पर बुलावा पत्र जारी किया जाएगा और केवल बुलावा पत्र जारी करना पद के लिए पात्र होने का मुझे कोई अधिकार नहीं देता है। मैं यह भी समझता/समझती हूँ कि यदि मेरा विवरण भर्ति के किसी चरण या तत्पश्चात् असत्य पाया जाता है, तो मैं आवेदित पद के लिए तत्काल निर्हरक हो जाऊँगा/जाऊँगी और मुझ पर लागू नियमों के तहत कोई अन्य दंडात्मक कार्रवाई की जाएगी।"

Signature of Invigilator : _____

Cut here after examination --- परीक्षा की पूर्ती पर यहाँ काटें

INSTRUCTIONS

(Please read carefully and comply)

1. Please read the complete set of instructions including the instructions on the reverse of the OMR Answer Sheet and fill the details in the OMR Answer Sheet and Question Booklet.

2. One paragraph each in Hindi and English is given on page 1. Copying of the paragraph in the space provided in the OMR Answer Sheet either in Hindi or English (as opted in the application form) in your running hand is compulsory. DO NOT USE BLOCK LETTERS.

3. (a) Question Booklet Serial number must be written clearly and marked in the bubbles in the space provided in the OMR Answer Sheet.
   (b) OMR Sheet number should be written in the space provided in the Question Booklet.

4. After being instructed to open the Booklet, the candidates will open the seals and check whether the booklet contains 150 questions and start the paper from page no.15.

5. The question paper comprises 150 questions which are available in congruent versions of English, Hindi, Urdu, Assamese, Bengali, Manipuri, Odiya, Telugu, Marathi, Gujarati and Kannada languages. In case of any doubt or confusion, English version shall prevail.

6. All questions are of objective type. There is only one correct answer to each question carrying one mark. There will be negative marking for wrong answers. **For every wrong answer, 1/3 mark will be deducted.**

7. In the event of any error in any question/s, candidates will not be penalized. However, no corrections will be made in question/s during the examination.

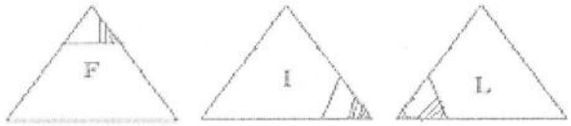
8. You must only use **Blue or Black ball-point pen** for answering. Altering or erasing of answers once entered will be treated as wrong answer. Enter the answers in the Answer Sheet carefully.

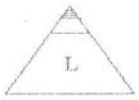
9. Rough work, if any, may be done in the space provided in the Question Booklet. No additional paper shall be provided.

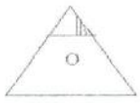
10. Use of Log tables, Calculators, Slide rules, Mobile phones, Pagers, Digital diary or any other electronic item/instrument etc. is not allowed. Their use will result in disqualification.

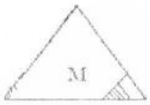
11. No candidate should leave the examination hall before the final bell. The Question Booklet as well as the Answer Sheet should be handed over together to the invigilator before leaving the Examination Hall

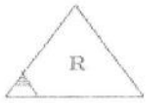
1. Complete the series logically.



(A) 

(B) 

(C) 

(D) 

2. How many Fundamental Rights are guaranteed by the Constitution of India?
(A) 7 (B) 3 (C) 5 (D) 6

3. To use an AC motor in a DC circuit, which equipment would be required additionally?
(A) Inductor (B) Capacitor (C) Rectifier (D) Inverter

4. Which of the following phenomenon is related to the formation of clouds?
(A) Condensation (B) Evaporation (C) Sublimation (D) Vulcanization

5. What is the function of push rod in a diesel engine? It transfers force between -
(A) Cam and rocker arm (B) Connecting rod and piston (C) Crankshaft and piston (D) None of these

6. Orthogonal projection of an object shows a rectangle of dimensions 5 cm x 10 cm on the X - Y plane and a circle of diameter 10 cm on the Y-Z plane. What is the volume of the object?
(A) 5000 cm^3 (B) $\pi.5^3$ (C) $\frac{\pi.10^3}{4}$ (D) 2500 cm

7. An eating disorder of excessive weight loss usually due to undue concern about body shape is known as:
(A) Anorexia nervosa (B) Appetitis (C) Autotrophic disorder (D) Autotrophic syndrome

8. Which of the following is NOT used for measurement of temperature?
(A) Thermocouples (B) Thermistors (C) Pyrometers (D) All are used

9. Perform the subtraction operation of binary digits 1001 - 10. The result is:
(A) 1010 (B) 101 (C) 100 (D) 111

10. In a circuit in which resistance, capacitance and inductance are in series, the impedance would be-
(A) $\frac{V}{\sqrt{R^2+(X_L-X_C)^2}}$ (B) $\sqrt{R^2+(X_L-X_C)^2}$ (C) $i\sqrt{R^2+(X_L-X_C)^2}$ (D) $\frac{1}{\sqrt{R^2+(X_L-X_C)^2}}$

11. What is morphology?
(A) Study of insects
(B) Study of Human evolution
(C) Study of forms and structural features of organisms
(D) Study of interdependence of organisms and environment

12. Chemical bonding which results in formation of molecules from atoms is basically-
(A) Nuclear force (B) Short range forces (C) Electrostatic force (D) Gravitational force

13. What is the purpose of turbo charging a diesel engine?
(A) Increase power of engine by burning more fuel
(B) Increase the fuel injection and rpm
(C) Increase exhaust gas temperature to increase thermal efficiency
(D) Increase inlet air so that engine fuel efficiency and power to weight ratio increases

14. Match the following :

1. Magnetic flux density	a. Tesla
2. Self inductance	b. Weber
3. Magnetic flux	c. Henry

(A) 1-b, 2-c, 3-a (B) 1-c, 2-a, 3-b (C) 1-a, 2-b, 3-c (D) 1-a, 2-c, 3-b

15. **A coin is tossed two times. On both occasions, the result is heads. When the coin is tossed a third time, what is the probability of getting a head?**

(A) 1 (B) $\frac{1}{2}$ (C) $\frac{1}{4}\times\frac{1}{2}$ (D) $\frac{3}{4}\times\frac{1}{2}$

16. **Soaps are manufactured by:**

(A) Reaction of alkalies with glycerol
(B) Reaction of fats with soluble hydroxides
(C) Reaction of calcium and magnesium ions with dilute sulphuric acid
(D) Reaction of dodecyl benzene with H_2SO_4 and then NaOH

17. **In a transistor radio, a frequency tuner circuit that was conventionally used, would consist of-**

(A) An inductor and a variable capacitor in parallel
(B) A bridge rectifier diode feeding the base of a transistor through variable resistance
(C) A multiple coil variac
(D) A potentiometer with variable resisitance

18. **When we switch on an electric bulb or a fan in our house, the appliance starts almost immediately. The drift velocity of electrons in the wires would be close to-**

(A) 1 mm/sec (B) 1 m/sec (C) 3×10^8 m/sec (D) None of these

19. $\log_4 5 \times \log_5 6 \times \log_6 7$ **is equal to:**

(A) $\log\left(\frac{7}{4}\right)$ (B) $\log_4 7$ (C) $\log\left(\frac{4}{7}\right)$ (D) $\log_7 4$

20. **"Khalsa" was founded by-**

(A) Guru Gobind Singh (B) Guru Ramdas (C) Guru Nanak (D) Guru Arjun Dev

21. **River Damoder is called the 'Sorrow of _____' .**

(A) Assam (B) Bengal (C) Orissa (D) Uttar Pradesh

22. **Match the following -**

1. Lysosomes	a. Power House
2. DNA	b. Chromosomes
3. Mitochondria	c. Suicide bags

(A) 1-a, 2-c, 3-b (B) 1-c, 2-b, 3-a (C) 1-b, 2-c, 3-a (D) 1-c, 2-a, 3-b

23. **In a classical blood pressure measuring instrument in which the doctor observes the rise and fall of mercury, the hand air pump is attached to a-**

(A) Isobar (B) Transducer (C) Manometer (D) Mercury column

24. **A map mentions the scale 1 cm = 1 km.**
The scale is in the ratio:

(A) $1 : 10^3$ (B) $1 : 10^4$ (C) $1 : 10^5$ (D) $1 : 10^6$

25. In a building, water is to be pumped to a height of 10m at the rate of 1 litre/second. Power requirement would be approx:
(Take 'g' 10 m/sec^2)
(A) 10 Watts (B) 100 Watts (C) 500 Watts (D) 1 kW

26. Angle between two sides of a regular polygon having n vertices is:
(A) $\frac{360}{n}$ (B) $90+\frac{180}{n}$ (C) $\frac{180}{n}$ (D) $180-\frac{360}{n}$

27. Arrange the following fractions in ascending order.
$\frac{7}{10}, \frac{3}{8}, \frac{4}{5}$
(A) $\frac{3}{8}, \frac{7}{10}, \frac{4}{5}$ (B) $\frac{3}{8}, \frac{4}{5}, \frac{7}{10}$ (C) $\frac{4}{5}, \frac{3}{8}, \frac{7}{10}$ (D) $\frac{7}{10}, \frac{3}{8}, \frac{4}{5}$

28. A, B & C invest ₹ 26000, ₹ 34000 and ₹ 10000 respectively in a business. They earn a profit of ₹ 3500. B's share in the profit is:
(A) ₹ 1200 (B) ₹ 1500 (C) ₹ 1700 (D) ₹ 1900

29. Complete the series:
ab_ab_b_aba_aab
(A) bbab (B) abaa (C) aaaa (D) aaab

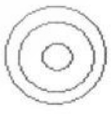
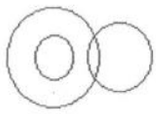
30. Match the following:

1. Rectifier	a. Power electronics, Motor speed control, Battery charging, Phase control
2. Transistor	b. Rectifiers, Wave clipper circuits
3. SCR	c. Amplifiers, Switches

(A) 1-a, 2-c, 3-b (B) 1-b, 2-a, 3-c (C) 1-b, 2-c, 3-a (D) 1-c, 2-a, 3-b

31. A man drives a car 20 km in the North east direction and further 20 km in the South east direction. In which direction will he have to drive to come back to his starting point?
(A) East (B) West (C) North (D) South

32. Which of the following is NOT an NGO?
(A) Amnesty International (B) World Watch (C) PUCL (D) NHRC

33. Which of the following Venn diagram represents the relationship between Human beings, Educated and Teachers?
(A)  (B)  (C)  (D) 

34. Approximate quantity of CO_2 in the atmosphere in PPM (parts per million) is:
(A) 2 (B) 20 (C) 200 (D) 400

35. "Ensure correct joint preparation, correct nozzle size and filler rod size and correct travel speed". We are talking about-
(A) Gas welding (B) Arc welding (C) Thermit welding (D) Steam welding

36. "Mahabharata" the epic was written by-
(A) Vyasa (B) Kalidasa (C) Tulsidasa (D) Valmiki

37. A galvanometer(G) measures upto 100 mA current. It is to be converted to a voltmeter to measure upto 100 volts. What is required to be done?
(A) Add 100 Ω resistance in series with G (B) Add 1000 Ω resistance in series with G
(C) Add 1 Ω resistance in parallel with G (D) Add 0.1 Ω resistance in parallel with G

%

38. **Which of the following statement is correct?**
(A) n linear equations with n variables may have a unique solution
(B) n linear equations with n variables may have no solution
(C) Both A & B are correct
(D) Both A & B are wrong

39. **$\sin^{-1}(½) + \tan^{-1}(1) = ?$**
(A) 30° (B) 45° (C) 75° (D) 90°

40. **In C.G.S system, the unit of strain is:**
(A) cm/kg (B) m/kg (C) no unit (D) None of these

41. **The heart of the 'Microwave oven' that produces the microwave range of radiation is called-**
(A) Cyclotron (B) Oscillotron (C) Variable frequency oscillator (D) Magnetron

42. **Strength of commonly used concrete, for constructing low rise residential buildings is:**
(A) 300 psi (B) 8000 psi (C) 15000 psi (D) 25000 psi

43. **French power declined in India after the battle of-**
(A) Plassey (B) Buxar (C) Talikota (D) Wandiwash

44. **In S.I system, unit of stress is:**
(A) kg/cm^2 (B) N (C) N/m^2 (D) Watt

45. **Currently which 5 year plan is under execution in India?**
(A) 12^{th} (B) 13^{th} (C) 14^{th} (D) 15^{th}

46. **A man drives a car and reaches his destination in 4 hours. Had he increased his speed by 10 km/hr, he would have reached in 3 hours, 12 minutes. What distance did the man cover?**
(A) 80 km (B) 120 km (C) 160 km (D) 210 km

47. **Consider the following orthogonal projections of an object is and answer what could this object be:**

(A) Circle (B) Sphere (C) Ellipse (D) Spheroid

48. **The transformer equation $V_1I_1 = V_2I_2$ is the manifestation of-**
(A) Ampere's law (B) Coloumb's law (C) Law of energy conservation (D) Biot Savart's law

49. **A shop reduced the price of an article by 25%. Its sale for that article increased by 25%. What is the net effect on sales in rupees?**
(A) No change (B) Increase by 5.75% (C) Decrease by 5.75% (D) Decrease by 6.25%

50. **By which constitutional amendment did the Parliament acquire the right to amend Fundamental Rights?**
(A) 23^{rd} (B) 24^{th} (C) 25^{th} (D) 26^{th}

51. **Stomata are located in-**
(A) Red blood cells (B) Chlorophyll (C) Stomach (D) Leaves

52. **By what least number should 192,000 be divided so as to become a perfect cube?**
(A) 2 (B) 5 (C) 3 (D) 7

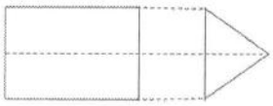
53. **Which of the following statements is true?**
(A) Value of $\sin\theta$ increases with increase in θ
(B) Value of $\cos\theta$ decreases with increase in θ
(C) Between 0° & 90°, value of $\cot\theta$ increases with increase in θ
(D) Between 0° & 90°, value of $\tan\theta$ decreases with decrease in θ

54. **Tachymeter (or Tacheometer) is an instrument for measuring-**
(A) rpm (B) Torque (C) Rotational kinetic energy (D) Distances

55. **In an orthogonal projection the axis of a cylinder or a cone is denoted by-**
(A) A thin line (B) A medium dashed line (C) A sequence of long and short dashes (D) Dashes of uniform lengths

56. **Which of the following information is NOT contained in engineering drawings?**
(A) Tolerances (B) Material composition
(C) Surface finish (D) All of these are included in engineering drawing

57. **Consider the following orthogonal projections of an object.**



This object is a-

(A) Tetrahedron (B) Conical cylinder (C) Prism (D) Trapezium

58. **Who wrote/invented the Linux software?**
(A) Microsoft (B) Apple INC (C) IBM (D) None of these

59. **Based on the choice of the 'Q' point on the current voltage characteristics of the transistor, the amplifiers are classified as:**
(A) Class I, II, III and IV (B) Class A, B, C and AB
(C) Class A, B, C and D (D) Class IA, IB, IIA and IIB

60. **In a computer system there are softwares and languages at various levels, like High level Language (HL), Machine Language (ML), Compiler (C). Which of the following is the correct indicative representation from user (U) to the computer (COMP)?**
(A) $U \rightleftharpoons HL \rightleftharpoons C \rightleftharpoons ML \rightleftharpoons Comp$ (B) $U \rightleftharpoons C \rightleftharpoons ML \rightleftharpoons HL \rightleftharpoons Comp$
(C) $U \rightleftharpoons C \rightleftharpoons HL \rightleftharpoons ML \rightleftharpoons Comp$ (D) $U \rightleftharpoons ML \rightleftharpoons HL \rightleftharpoons C \rightleftharpoons Comp$

61. **"Common Base" configuration refers to the configuration of a-**
(A) Rectifier (B) Transistor (C) Diode (D) Inverter

62. **Radiation of a black body, in terms of its temperature follows:**
(A) Newton's law of cooling (B) Plank's law (C) Stefan's law (D) Einstein Bose equation

63. **Find the next number in the series.**
1, 2, 6, 24, 120, _____.
(A) 240 (B) 480 (C) 560 (D) 720

64. **A clock is placed on the floor upside down at 9 O'clock. If the minute hand is pointing South East, the hour hand would be pointing-**
(A) North east (B) North west (C) South east (D) South west

65. **A rectangular garden has an area of 48 sq.m and perimeter of 28 m. What is the length of its diagonal?**
(A) 8 m (B) 10 m (C) 12.5 m (D) 14.14 m (approx.)

66. **Woolen clothes keep the body warm in winter because-**
(A) Wool is a bad conductor of heat (B) Wool is a good conductor of heat (C) Wool increases body temperature (D) Wool decreases body temperature

67. **Sensitive low voltage electronic components are protected from-**
(A) Static charge (B) Induction circuit (C) Lightening (D) All of these

68. English Bond, Flemish Bond, Dutch Bond pertain to-
(A) Masonry work (B) Cement bonding (C) Bonding between beams (D) Bonding in foundation

69. A merchant is mixing two qualities of rice, one which he procures at ₹ 70/Kg and second at ₹ 40/Kg in the ratio of 7 : 3 respectively. At what price should he sell the mixture to earn a profit of 20%?
(A) ₹ 73.20/Kg (B) ₹ 74/Kg (C) ₹ 74.6/Kg (D) ₹ 75.4/Kg

70. Cash-reserve ratio of a commercial bank is fixed by-
(A) Ministry of Finance (B) Ministry of Commerce (C) RBI (D) Management of the commercial bank

71. Bile is secreted by-
(A) Stomach (B) Liver (C) Large intestine (D) Gall bladder

72. An electrical appliance has a yoke, stator winding, rotor, commutator, carbon brush. The appliance could be a-
(A) DC motor (B) AC induction motor (C) AC generator (D) Both (B) and (C)

73. Earthquakes cause damage when-
(A) Stress exceeds the strain of materials (B) Stress exceeds the strength of materials
(C) Strain exceeds the strength of materials (D) Strength exceeds the strain of materials

74. If 'h' is the depth of water held by a dam and 'A' is the cross section area of the water and 't' is the thickness of wall of the dam, then the maximum pressure on the wall of the dam will depend upon:
(A) A, h & t (B) A & h (C) h & t (D) h

75. Once 'X' is turned ON, even after removing the gate voltage, 'X' remains ON. 'X' is a:
(A) Transistor (B) FET (C) Thyristor (D) MOSFET

76. Several nations are following a protocol which binds them to reduce emission targets. This protocol was adopted in:
(A) Kyoto, Japan (B) Geneva, Switzerland (C) New York, USA (D) Paris, France

77. Air India's losses in previous financial year were to the tune of (in crores of rupees):
(A) 4 (B) 40 (C) 400 (D) 4000

78. If a : b = 4 : 3 and b : c = 7 : 9, then a : b : c : ?
(A) 24 : 21 : 30 (B) 12 : 15 : 21 (C) 8 : 6 : 12 (D) 28 : 21 : 27

79. Processing speed of computer is measured in-
(A) MIPS(Million Instruction Per Second) (B) MHz of clock
(C) Both (A) and (B) (D) None of these

80. Who authored the book "My Experiments with Truth"?
(A) Abraham Lincoln (B) Mark Twain (C) Louis Carol (D) M.K Gandhi

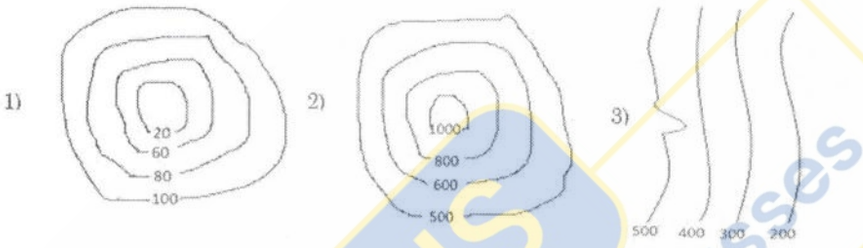
81. In a digital circuit a counter is basically a _____ which counts the number of clock pulses that have arrived at its clock input. Counters use _____ as their basic unit. Fill in the blanks respectively.
(A) Register, Flip-flop (B) NAND gate, Register (C) Register, NAND gate (D) Flip-flop, Toggle

82. According to IPCC, three factors contributing to Global warming are :
1) CO_2 emissions
2) Change of land use deforestation
3) Non-veg food
Place them in the order of their contribution to global warming.
(A) 1, 2, 3 (B) 1, 3, 2 (C) 3, 1, 2 (D) 2, 1, 3

83. If a cube is broken into 27 equal cubes, the total surface area is increased how many times?
(A) 3 times (B) 6 times (C) 9 times (D) 27 times

84. Statement A:
In coordinate geometry, distance between two points is given by :
$$S = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$$
Statement B: Pythagoras theorem
Which of the following statements is correct?
(A) Statement A is proved by Statement B (B) Statement B is proved by Statement A
(C) Both the statements are independent (D) None of these

85. Consider following contours:



Match the following a) Hill b) Pond c) Slope
(A) 1-b, 2-a, 3-c (B) 1-a, 2-b, 3-c (C) 1-a, 2-c, 3-b (D) 1-c, 2-b, 3-a

86. What are capacitor banks in the context of electricity supply to a city?
(A) They add capacitance to the supply so that electricity is stored in case of breakdown
(B) These banks are storage spaces so that capacitors are available to maintenance engineers in case of failures
(C) They balance the inductive component of transformer coils to smoothen the supply
(D) They balance the inductive loads to improve the power factor

87. Which of the following software is generally used for managing large number of activities of a civil engineering project?
(A) MS Eng (B) MS Project (C) SQL Projects (D) d Base Project

88. What is the ratio of angular speed of second's needle and hour's needle of a clock?
(A) 1 : 60 (B) 60 : 1 (C) 3600 : 1 (D) 720 : 1

89. A tunic fork when sounded together with another tuning fork of known frequency of 240 Hz, emits 2 beats. On loading the tuning fork of known frequency the number of beats heard are one per second. The frequency of the tuning fork is:
(A) 241 Hz (B) 242 Hz (C) 239 Hz (D) 238 Hz

90. The average score of girls in a class is 75 marks. The average scores of boys in the class is 65 marks. If the average of the class is 68.75 marks, what is the ratio of boys to girls in the class?
(A) 2 : 5 (B) 5 : 2 (C) 3 : 5 (D) 5 : 3

91. If 12a+6b=54, what is the average of a & b?
(A) 2.25 (B) 4.5 (C) 6 (D) Data insufficient

92. In a certain code, "All The Best" is written as 534; "Best of Luck" is written as 675; "The Good Luck" is written as 478. In this code "Good" would be written as:
(A) 8 (B) 7 (C) 6 (D) 5

93. India's first war of Independence (related to Meerut mutiny) was in:
(A) 1835 (B) 1857 (C) 1892 (D) 1905

94. The chemical reaction between cement and water is:
(A) Hydration (B) Chlorination (C) Calcination (D) None of these

95. Intensity of earthquake is measured in -
(A) Barometer scale (B) Pyrometer scale (C) Tachometer scale (D) Richter scale

96. Loudness of noise is measured in-
(A) Richter (B) Tesla (C) Decibels (D) Hertz

97. The sum of first n odd natural numbers is:
(A) n^2-1 (B) n^2 (C) $(n+1)^2$ (D) $(n-1)^2$

98. Two bulbs are rated 100W, 220 V each. If these bulbs are connected in series to the mains supply, 220 V, the total power consumed by both the bulbs would be-
(A) 25 Watts (B) 50 Watts (C) 100 Watts (D) 200 Watts

99. A man said to a lady "Rishi's mother is the only child of your father". How is the lady related to Rishi?
(A) Mother (B) Sister (C) Wife (D) Daughter

100. Find the value of:
$3 + 0.03 + 0.003 + 0.0003$
(A) 12 (B) 3.0333 (C) 3.3333 (D) 6.0333

101. In a car race course, the race starts in North East direction. The road starts curving in a circular path after 5 Km. After 3/4 th of the circle the road is straight. In which direction would the cars be running on this straight road?
(A) North west (B) South west (C) South east (D) Insufficient data

102. $2^{2^3} \div \left(2^2\right)^3$ is equal to:
(A) 2^2 (B) 2^1 (C) 2^{-2} (D) 2^{-1}

103. Government stipulates limit of concentration of sulphur dioxide in ambient air at 50 units. The unit is:
(A) g/cc (B) mg/litre (C) mg/m^3 (D) $\mu g/m^3$

104. Value of π (approx. value 3.14) is :
(A) Terminating decimal (B) Recurring decimal
(C) Non-terminating non-repeating decimal (D) Indeterminate

105. An interpretation of the Indian Constitution is based on the spirit of the-
(A) Fundamental rights (B) Fundamental duties (C) Preamble (D) Directive principles

106. Arya samaj was founded by-
(A) Raja Ram Mohan Roy (B) Gopal Krishna Gokhale (C) Swami Dayanand Saraswati (D) Anne Besant

107. Toaster and electric iron, that are commonly used electrical appliances are mainly-
(A) Inductive load (B) Capacitive load (C) Resistive load (D) None of these

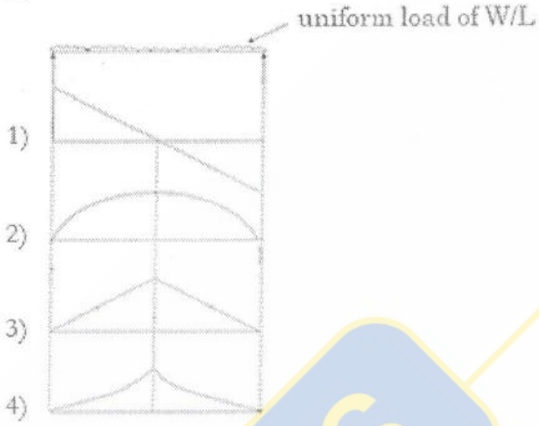
108. The fidelity of a radio receiver relates to-
(A) Reproduction of a. f waves (B) Detection of carrier waves (C) Tuning of radio waves (D) None of these

109. Which of these devices performs the function of both input device and output device for a computer?
(A) Joy Stick (B) Mouse (C) Modem (D) Printer

110. What is the boiling point of water in Kelvin Scale?
(A) 100 K (B) 273 K (C) 373 K (D) 300 K

111. Which planet has hot turbulent atmosphere dominated by carbon-di-oxide?
(A) Venus (B) Mars (C) Jupiter (D) Neptune

112. In the case of a uniformly distributed load on a simply supported beam, the bending moment diagram would be-



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

113. What is the common property between $LiAlH_4$, Sodium amalgam and $NaBH_4$?
(A) They are used in removing slag from molten metals (B) They are used in manufacturing esters
(C) They are reducing agents (D) They are coated on welding electrodes

114. Which of the following tissues transports water and minerals from roots to other parts of the plant?
(A) Phloem (B) Vessel (C) Sieve tube (D) Xylem

115. A, B and C can do a piece of work in 12, 15 and 20 days respectively. How long will they take to finish the work together?
(A) 10 days (B) 5 days (C) 8 days (D) 12 days

116. Which of the following logic gates is a universal gate i.e. its combinations can be used to construct the logic of any other logic gate?
(A) OR (B) AND (C) NAND (D) NOT

117. Out of the following, which is NOT a type of welding?
(A) AC Arc (B) DC Arc
(C) MIG (D) All of these are different types of weldings

118. A software user interface feature that allows the user to view something very similar to the end result while the document is being created is called-
(A) Format creator (B) Format fidelity (C) WYSIWYG (D) WYGIWYS

119. Lufthansa Airlines is from which country?
(A) USA (B) Malaysia (C) Germany (D) Russia

120. Consider the following truth table in Boolean Algebra.

X	Y	A	B	C	D
0	0	0	0	1	1
0	1	1	0	0	0
1	0	0	1	1	0
1	1	1	1	0	1

Which of the four options A, B, C, D represent the function
$F = xy + xy'$?

(A) A (B) B (C) C (D) D

121. The famous queen Chand Bibi who fought against Akbar, defended the city of -
(A) Berar (B) Ahmad nagar (C) Golconda (D) Mysore

122. Acid rain is caused by:
(A) CO & CO_2 (B) SO_2 & O_2 (C) SO_2 & NO_2 (D) NO_2 & O_2

123. A hardened steel file is used for removing metal or giving good finish to metals. Arrange the files in the increasing order of smoothness.
(1) Rough file (2) Bastard file (3) Second cut file (4) Smooth file
(A) 4, 3, 2, 1 (B) 1, 2, 3, 4 (C) 2, 1, 3, 4 (D) 4, 3, 1, 2

124. The terms Cope, Drag and Core are associated with-
(A) Transformers (B) Castings (C) Laminar flow of liquid (D) Stellar evolution

125. Efficiency of Carnot cycle is:
(A) $1-\frac{Q_1}{Q_1+Q_2}$ (B) $1-\frac{T_1}{T_2}$ (C) $1-\frac{T_1}{T_1+T_2}$ (D) $1-\frac{Q_1}{Q_2}$

126. In potable water, the dissolved oxygen is stipulated as-
(A) <6μg/l (B) >6μg/l (C) <6mg/l (D) >6mg/l

127. In the context of action of medicines on human body,match the following:

1. Receptors	a. Catalysts
2. Enzymes	b. Neurologically active
3. Tranquilizers	c. Proteins

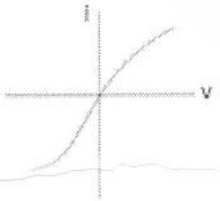
(A) 1-c, 2-a, 3-b (B) 1-a, 2-c, 3-b (C) 1-b, 2-a, 3-c (D) 1-a, 2-b, 3-c

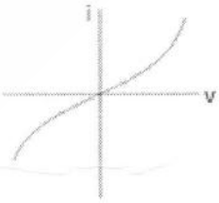
128. What is the common between Rockwell, Brinell and Shore? They pertain to-
(A) Surface finish (B) Heat treatment (C) Metal turning (D) Hardness

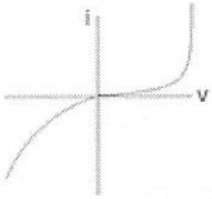
129. Assume that a 1 ton air conditioner is required to cool a room of size 14' x 14' x 14'. How many 1 ton ACs would be required for a hall of size of 24' x 24' of the same roof height as that of the previous room?
(A) 2 (B) 3 (C) 4 (D) 5

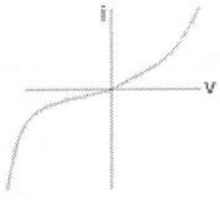
130. Which of these rocks would have alumina as their main component?
(A) Siliceous (B) Argillaceous (C) Calcareous (D) Igneous

131. Average Albedo (overall) of the Earth is:
(A) 5×10^6 candela/day (B) 5×10^7 candela/day (C) 30 to 35% (D) 60 to 65%

132. Which of the Current (i) - Voltage (v) graphs represents a p-n junction diode characteristics?
(A) 

(B) 

(C) 

(D) 

133. The illumination of a beam of light due to scattering on collision with particles suspended in a fluid, is called:
(A) Raman effect (B) Tyndall effect (C) Snell's effect (D) Huygens effect

134. Match the following -

1. Nickel	a. Radiator, Water cooling system
2. Brass	b. Bearings, Gears, Propellers
3. Bronze	c. Hard, Corrosion resistant and used in plating on steel

(A) 1-b, 2-a, 3-c (B) 1-a, 2-b, 3-c (C) 1-c, 2-a, 3-b (D) 1-a, 2-c, 3-b

135. Conservation of energy corresponds to which law of thermodynamics?
(A) Zeroth law (B) First law (C) Second law (D) Third law

136. Glycerol can be represented by chemical formula:
(A) $C_2H_5O_2$ (B) C_3H_7OH (C) C_3H_5OH (D) $C_3H_8O_3$

137. Raja Ravi Varma was famous for:
(A) His struggle against the British (B) Music & Singing (C) Paintings (D) Hindu reforms

138. A technique of anonymous communication over a computer network using encryption of messages and splitting between the nodes, is called-
(A) Spice routing (B) Onion routing (C) Cabbage routing (D) Flower routing

139. In September 2014, which state was affected by flood?
(A) Karnataka (B) Madhya Pradesh (C) Gujarat (D) Jammu & Kashmir

140. Find the next number in the series.
33, 34, 32, 35, 31, 36, _____.
(A) 30 (B) 37 (C) 38 (D) 29

141. The first Indian railway train journey between Bombay and Thane was in the year-
(A) 1857 (B) 1853 (C) 1818 (D) 1854

142. No Go Ring Gauge will have diameter based on _____ diameter of the component.
(A) Minimum tolerance diameter (B) Maximum tolerance diameter (C) Nominal diameter (D) Average diameter

143. Which of these is NOT an Operating System?
(A) Android (B) iOS (C) Linux (D) Power point

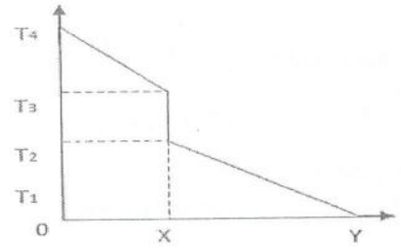
144. In our house when we switch on heavy load appliances, we notice that there is slight dip in the glow of the bulb that was already switched on. This is due to-
(A) Heavy current drawn by heavy load
(B) Additional resistance added to the circuit
(C) Resistance of electrical wiring
(D) Resistance of part of the circuit decreasing from infinity to a positive value

145. The process of 'Upsetting' pertains to-
(A) Casting (B) Forging (C) Turning (D) Milling

146. A person puts 1 grain of rice in the first square of a chess board. In the subsequent squares, he puts twice that of the previous square. How many grains would he need to put on all the squares of the chess board?
(A) 64! (B) 2^{64}-1 (C) 2^{63}-1 (D) p(64, 2)

147. El Nino effect is:
(A) Development of low pressure areas in south east Asian region
(B) Reduction in ice caps resulting in variation in insolation absorption
(C) Prolonged warming in the Pacific Ocean surface area
(D) Sustained tornados in the eastern coast of North America

148. Consider that two solid bodies A and B are touching each other and transmitting heat through conduction. In the graph below, OX represents the first body and XY represents the second body.



State True (T) or False(F).

1)Temperature gradient is more in A than in B

2)The heat flow is determined by Fourier's law

3) Area under the curve represents heat dissipation rate.

(A) T, T, T (B) T, T, F (C) T, F, T (D) F, F, T

149. Plants get water through roots because of:

(A) Viscosity (B) Elasticity (C) Gravity (D) Surface tension

150. The linkage of atoms of the same elements into longer chains is called:

(A) Sublimation (B) Catenation (C) Affiliation (D) Linkage