

# RRB Secunderabad: Senior Section Engineers Exam

(Held on 21-12-2014)

సూచనలు

( దయచేసి, జాగ్రత్తగా చదవండి మరియు దానికి కట్టుబడి ఉండండి.)

1. అన్ని సూచనలను జాగ్రత్తగా చదవండి మరియు ఓఎమ్ఆర్ ఆన్సర్ షీటుయొక్క వెనక వైపు ఉన్న సూచనలను కూడా జాగ్రత్తగా చదవండి మరియు ఓఎమ్ఆర్ ఆన్సర్ షీటు మరియు క్వెస్టన్ బుక్ లెట్లో వివరాలను నింపండి.
2. పేజీ నెం.1లో ఒక పేరాగ్రాఫ్ హిందీ మరియు ఇంగ్లీష్ లు ఇవ్వబడ్డాయి. (అప్లికేషన్ ఫారంలో మీరు పేర్కొన్న భాష హిందీ లేదా ఇంగ్లీష్ ప్రకారం) పేరాగ్రాఫ్ను మీ రన్నింగ్ హ్యాండ్ లోకి కాపీ చేసుకోవడం తప్పని సరి. బ్లాక్ లెటర్లను ఉపయోగించవద్దు.
3. (ఎ) క్వెస్టన్ బుక్ లెట్ యొక్క సీరియల్ నెంబరును తప్పనిసరిగా రాయాలి మరియు ఓఎమ్ఆర్ ఆన్సర్ షీటులో ఇవ్వబడ్డ బబుల్స్ లో జాగ్రత్తగా మార్క్ చేయాలి.  
(బి) ఓఎమ్ఆర్ ఆన్సర్ షీటు నెంబరును క్వెస్టన్ బుక్ లెట్లో ఇవ్వబడ్డ స్థలంలో రాయండి.
4. బుక్ లెట్ ను తెరవమని ఆదేశాలు ఇచ్చిన తరువాత మాత్రమే, అభ్యర్థులు గ్రీన్ సీల్ ను తెరవాలి. పేజీ నెంబరు 15 నుంచి 150 ప్రశ్నలు ఉన్నాయా లేదా అని తనిఖీ చేసుకోండి.
5. ప్రశ్నాపత్రంలో 150 ప్రశ్నలుంటాయి. ఇది హిందీ, ఇంగ్లీష్, హిందీ, ఉర్దూ, అస్సామీ, బెంగాలీ, మణిపురి, ఒరియా, తెలుగు, మరాఠీ, గుజరాతీ, మరియు కన్నడ భాషలలో లభ్యం అవుతుంది. ఒకవేళ ఏదైనా సందేహం లేదా గందరగోళం ఉన్నట్లయితే ఆంగ్ల వెర్షన్ చెల్లుబాటు అవుతుంది.
6. అన్ని ప్రశ్నలు కూడా బహుళైచ్ఛిక ప్రశ్నలు. ప్రతి ప్రశ్నకు ఒకే ఒక సరైన సమాధానం ఉంటుంది మరియు దీనికి ఒక్కమార్కు లభిస్తుంది. తప్పు సమాధానాలకు నెగిటివ్ మార్కులున్నాయి. ప్రతి తప్పు సమాధానానికి 1/3 మార్కులు తగ్గించబడతాయి.
7. ప్రశ్న/ల్లో ఏదైనా తప్పు ఉన్నట్లయితే, అభ్యర్థులు శిక్షించబడరు. అయితే పరీక్ష సమయంలో ప్రశ్న/లకు సంబంధించి ఎలాంటి మార్కులు చేయబడవు.
8. సమాధానాలు రాయడానికి మీరు నీలం లేదా నలుపు రంగు పెన్సు మాత్రమే ఉపయోగించాలి. ఒక్కసారి రాసిన సమాధానాలను మార్చడం అనేది అనుమతించబడదు. సమాధాన పత్రంలో మీ సమాధానాలను ఎంతో జాగ్రత్తగా నమోదు చేయండి.
9. చిత్తు పని ఏదైనా ఉన్నట్లయితే, దానిని క్వెస్టన్ బుక్ లెట్ యొక్క చివర ఇవ్వబడ్డ స్థలంలో మాత్రమే చేయాలి. ఎలాంటి అదనపు పత్రం ఇవ్వబడదు.
10. లాగ్ పుస్తకాలు, కాలిక్యులేటర్లు, స్టేడ్ రూల్స్, మొబైల్ ఫోన్స్, పేపర్లు, డిజిటల్ కైరీలు లేదా ఏదైనా ఇతర ఎలక్ట్రానిక్ వస్తువులు/ఉపకరణాలు అనుమతించబడవు. వీటిని ఉపయోగించినట్లయితే అనర్హులుగా ప్రకటించబడతారు.
11. తుది గంట మోగే వరకు ఏ అభ్యర్థి కూడా పరీక్ష కేంద్రాన్ని విడిచిపెట్టకూడదు. పరీక్షా కేంద్రాన్ని విడిచిపెట్టడానికి ముందు, క్వెస్టన్ బుక్ లెట్ తో పాటు సమాధానాల షీటును కూడా ఇన్విజిలేటర్ ఇవ్వాలి.

- 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 gate
- "Khalsa" was founded by-  
 (A) Guru Gobind Singh (B) Guru Ramdas (C) Guru Nanak (D) Guru Arjun Dev Singh
- 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
- The terms Cope, Drag and Core are associated with-  
 (A) Transformers (B) Castings (C) Laminar flow of liquid (D) Stellar evolution
- Conservation of energy corresponds to which law of thermodynamics?  
 (A) Zeroth law (B) First law (C) Second law (D) Third law
- According to IPCC, three factors contributing to Global warming are :  
 1) CO<sub>2</sub> 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
- 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
- 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<sup>3</sup> (D) µg/m<sup>3</sup>
- 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
- $2^{2^3} \div (2^2)^3$  is equal to:  
 (A) 2<sup>2</sup> (B) 2<sup>1</sup> (C) 2<sup>-2</sup> (D) 2<sup>-1</sup>
- 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
- In S.I system, unit of stress is:  
 (A) kg/cm<sup>2</sup> (B) N (C)  N/m<sup>2</sup> (D) Watt
- 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
- "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

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

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

16. Stomata are located in-

- (A) Red blood cells (B) Chlorophyll (C) Stomach (D) Leaves

17.  $\sin^{-1}(1/2) + \tan^{-1}(1) = ?$

- (A)  $30^\circ$  (B)  $45^\circ$  (C)  $75^\circ$  (D)  $90^\circ$

18. 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)  $\frac{7}{10}, \frac{3}{8}, \frac{4}{5}$

19. What is the boiling point of water in Kelvin Scale?

- (A) 100 K (B) 273 K (C) 373 K (D) 300 K

20. The sum of first  $n$  odd natural numbers is:

- (A)  $n^2 - 1$  (B)  $n^2$  (C)  $(n+1)^2$  (D)  $(n-1)^2$

21. Assume that a 1 ton air conditioner is required to cool a room of size  $14' \times 14' \times 14'$ . How many 1 ton ACs would be required for a hall of size of  $24' \times 24'$  of the same roof height as that of the previous room?

- (A) 2 (B) 3 (C) 4 (D) 5

22. Find the next number in the series.

$$33, 34, 32, 35, 31, 36, \underline{\hspace{2cm}}$$

- (A) 30 (B) 37 (C) 38 (D) 29

23. 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

24. To use an AC motor in a DC circuit, which equipment would be required additionally?

- (A) Inductor (B) Capacitor (C) Rectifier (D) Inverter

25. 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

26. Acid rain is caused by:

- (A) CO & CO<sub>2</sub> (B) SO<sub>2</sub> & O<sub>2</sub> (C) SO<sub>2</sub> & NO<sub>2</sub> (D) NO<sub>2</sub> & O<sub>2</sub>

27. Which planet has hot turbulent atmosphere dominated by carbon-di-oxide?

- (A) Venus (B) Mars (C) Jupiter (D) Neptune

28. 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

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



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

30. Statement A:

In coordinate geometry, distance between two points is given by :

$$S = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$$

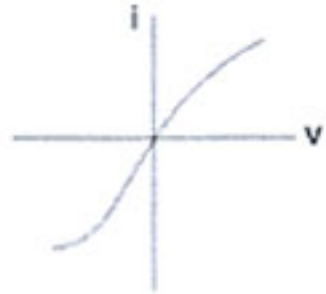
Statement B: Pythagoras theorem

Which of the following statements is correct?

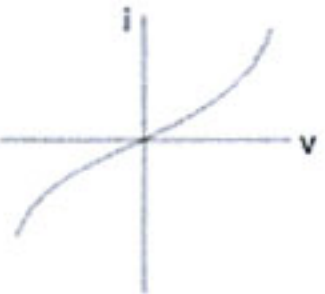
- (A) Statement A is proved by Statement B      (B) Statement B is proved by Statement A  
(C) Both the statements are independent      (D) None of these
31. What is the function of push rod in a diesel engine? It transfers force between -  
(A) Cam and rocker arm      (B) Connecting rod and piston      (C) Crankshaft and piston      (D) None of these
32. 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)  $1 - \frac{Q_1}{Q_2}$
33. Approximate quantity of CO<sub>2</sub> in the atmosphere in PPM (parts per million) is:  
(A) 2      (B) 20      (C) 200      (D) 400
34. 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
35. 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
36. 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
37. Average Albedo (overall) of the Earth is:  
(A)  $5 \times 10^6$  candela/day      (B)  $5 \times 10^7$  candela/day      (C) 30 to 35%      (D) 60 to 65%
38. 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
39. Intensity of earthquake is measured in -  
(A) Barometer scale      (B) Pyrometer scale      (C) Tachometer scale      (D) Richter scale
40. 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
41. Which of these rocks would have alumina as their main component?  
(A) Siliceous      (B) Argillaceous      (C) Calcareous      (D) Igneous
42. Which of the following is NOT an NGO?  
(A) Amnesty International      (B) World Watch      (C) PUCL      (D) NHRC
43. Match the following :

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

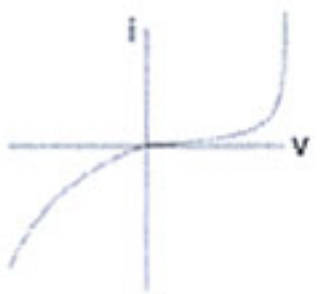
- (A) 1-b, 2-c, 3-a      (B) 1-c, 2-a, 3-b      (C) 1-a, 2-b, 3-c      (D) 1-a, 2-c, 3-b

44. 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.)
45. Bile is secreted by-  
 (A) Stomach (B) Liver (C) Large intestine (D) Gall bladder
46. Which of these is NOT an Operating System?  
 (A) Android (B) iOS (C) Linux (D) Power point
47. 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
48. Which of the following phenomenon is related to the formation of clouds?  
 (A) Condensation (B) Evaporation (C) Sublimation (D) Vulcanization
49. 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  $\Omega$  resistance in series with G (B) Add 1000  $\Omega$  resistance in series with G  
 (C) Add 1  $\Omega$  resistance in parallel with G (D) Add 0.1  $\Omega$  resistance in parallel with G
50. 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
51. 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
52. 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
53. Which of the Current (i) - Voltage (v) graphs represents a p-n junction diode characteristics?
- 


(A)



(B)



(C)



(D)
54. 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<sup>2</sup>)  
 (A) 10 Watts (B) 100 Watts (C) 500 Watts (D) 1 kW
55. 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)  $180 - \frac{360}{n}$

56. 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
57. What is the common property between  $\text{LiAlH}_4$ , Sodium amalgam and  $\text{NaBH}_4$ ?
- (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
58. 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)  $p(64, 2)$
59. By what least number should 192,000 be divided so as to become a perfect cube?
- (A) 2 (B) 5 (C) 3 (D) 7

60. Match the following -

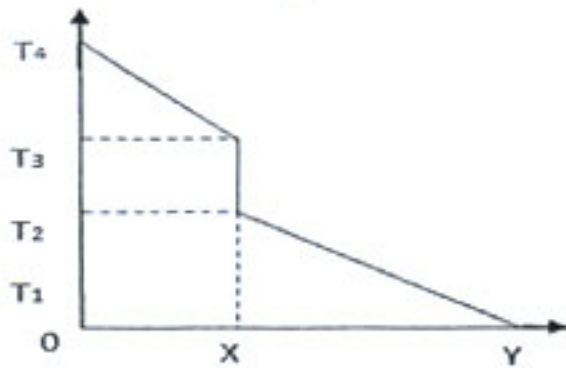
|           |   |
|-----------|---|
| 1. Nickel | a. Radiator, Water cooling system                         |
| 2. Brass  | b. Bearings, Gears, Propellers                            |
| 3. Bronze | c. Hard, Corrosion resistant and used in plating on steel |

- (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
61. 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
62. 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
63. 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
64. Loudness of noise is measured in-
- (A) Richter (B) Tesla (C) Decibels (D) Hertz
65. 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  $\text{H}_2\text{SO}_4$  and then NaOH
66. 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)  $U \rightleftharpoons HL \rightleftharpoons C \rightleftharpoons ML \rightleftharpoons \text{Comp}$  (B)  $U \rightleftharpoons C \rightleftharpoons ML \rightleftharpoons HL \rightleftharpoons \text{Comp}$   
(C)  $U \rightleftharpoons C \rightleftharpoons HL \rightleftharpoons ML \rightleftharpoons \text{Comp}$  (D)  $U \rightleftharpoons ML \rightleftharpoons HL \rightleftharpoons C \rightleftharpoons \text{Comp}$

67. 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
68. 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
69. "Mahabharata" the epic was written by-  
 (A) Vyasa                      (B) Kalidasa                      (C) Tulsidasa                      (D) Valmiki
70. By which constitutional amendment did the Parliament acquire the right to amend Fundamental Rights?  
 (A) 23<sup>rd</sup>                      (B) 24<sup>th</sup>                      (C) 25<sup>th</sup>                      (D) 26<sup>th</sup>
71. 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
72. 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
73. English Bond, Flemish Bond, Dutch Bond pertain to-  
 (A) Masonry work                      (B) Cement bonding                      (C) Bonding between beams                      (D) Bonding in foundation
74. River Damoder is called the 'Sorrow of \_\_\_\_\_'.  
 (A) Assam                      (B) Bengal                      (C) Orissa                      (D) Uttar Pradesh
75. 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
76. 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
77. Sensitive low voltage electronic components are protected from-  
 (A) Static charge                      (B) Induction circuit                      (C) Lightening                      (D) All of these
78. 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)  $3 \times 10^8$  m/sec                      (D) None of these
79. 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
80. 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

81. 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
82. "Common Base" configuration refers to the configuration of a-  
 (A) Rectifier  
 (B) Transistor  
 (C) Diode  
 (D) Inverter
83. The transformer equation  $V_1 I_1 = V_2 I_2$  is the manifestation of-  
 (A) Ampere's law  
 (B) Coloumb's law  
 (C) Law of energy conservation  
 (D) Biot Savart's law
84. Who wrote/invented the Linux software?  
 (A) Microsoft  
 (B) Apple INC  
 (C) IBM  
 (D) None of these
85. What is the common between Rockwell, Brinell and Shore? They pertain to-  
 (A) Surface finish  
 (B) Heat treatment  
 (C) Metal turning  
 (D) Hardness
86. 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
87. Which of the following statements is true?  
 (A) Value of  $\sin\theta$  increases with increase in  $\theta$   
 (B) Value of  $\cos\theta$  decreases with increase in  $\theta$   
 (C) Between  $0^\circ$  &  $90^\circ$ , value of  $\cot\theta$  increases with increase in  $\theta$   
 (D) Between  $0^\circ$  &  $90^\circ$ , value of  $\tan\theta$  decreases with decrease in  $\theta$
88. Strength of commonly used concrete, for constructing low rise residential buildings is:  
 (A) 300 psi  
 (B) 8000 psi  
 (C) 15000 psi  
 (D) 25000 psi
89. If  $12a+6b=54$ , what is the average of  $a$  &  $b$ ?  
 (A) 2.25  
 (B) 4.5  
 (C) 6  
 (D) Data insufficient
90. 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
91. Consider the following truth table in Boolean Algebra. 2
- | 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
92. A tuning 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
93. 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
94. Find the next number in the series.  
 1, 2, 6, 24, 120, \_\_\_\_\_.  
 (A) 240  
 (B) 480  
 (C) 560  
 (D) 720



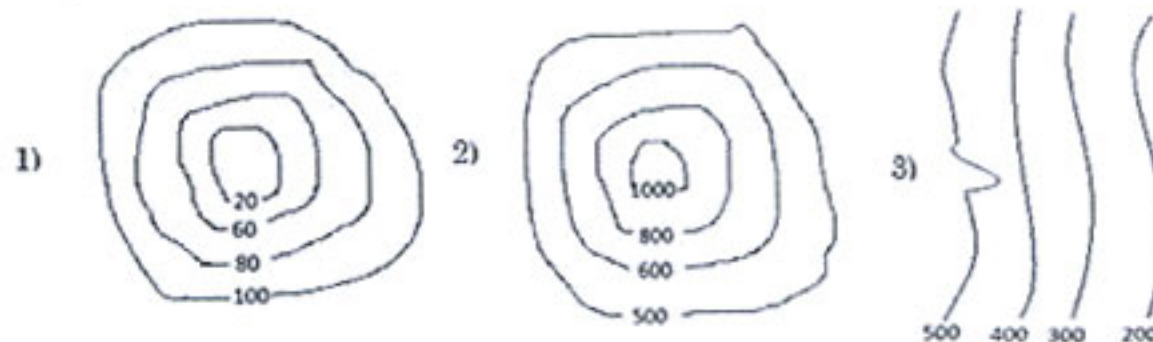
95. A, B & C invest ₹ 26000, ₹ 34000 and ₹ 10000 respectively in a business. They earn a profit of ₹ 3500. B's share in the profit is:  
 (A) ₹ 1200 (B) ₹ 1500 (C) ₹ 1700 (D) ₹ 1900
96. A shop reduced the price of an article by 25%. Its sale for that article increased by 25%. What is the net effect on sales in rupees?  
 (A) No change (B) Increase by 5.75% (C) Decrease by 5.75% (D) Decrease by 6.25%
97. 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
98. Complete the series:  
 ab ab b aba aab  
 (A) bbab (B) abaa (C) aaaa (D) aaab
99. Find the value of:  
 $3 + 0.03 + 0.003 + 0.0003$   
 (A) 12 (B) 3.0333 (C) 3.3333 (D) 6.0333
100. Currently which 5 year plan is under execution in India?  
 (A) 12<sup>th</sup> (B) 13<sup>th</sup> (C) 14<sup>th</sup> (D) 15<sup>th</sup>
101. Who authored the book "My Experiments with Truth"?  
 (A) Abraham Lincoln (B) Mark Twain (C) Louis Carol (D) M.K Gandhi
102. Which of the following Venn diagram represents the relationship between Human beings, Educated and Teachers?  
 (A)  (B)  (C)  (D) 
103. 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
104. 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 resistance
105. The famous queen Chand Bibi who fought against Akbar, defended the city of -  
 (A) Berar (B) Ahmad nagar (C) Golconda (D) Mysore
106. Tachymeter (or Tacheometer) is an instrument for measuring-  
 (A) rpm (B) Torque (C) Rotational kinetic energy (D) Distances
107. Which of the following is NOT used for measurement of temperature?  
 (A) Thermocouples (B) Thermistors (C) Pyrometers (D) All are used
108. 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
109. Lufthansa Airlines is from which country?  
 (A) USA (B) Malaysia (C) Germany (D) Russia

110. 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

111. 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
112. In C.G.S system, the unit of strain is:  
 (A) cm/kg (B) m/kg (C) no unit (D) None of these
113. 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
114. 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
115. The chemical reaction between cement and water is:  
 (A) Hydration (B) Chlorination (C) Calcination (D) None of these
116. Arya samaj was founded by-  
 (A) Raja Ram Mohan Roy (B) Gopal Krishna Gokhale (C) Swami Dayanand Saraswati (D) Anne Besant
117. In potable water, the dissolved oxygen is stipulated as-  
 (A)  $<6\mu\text{g/l}$  (B)  $>6\mu\text{g/l}$  (C)  $<6\text{mg/l}$  (D)  $>6\text{mg/l}$
118. 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
119. 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
120. The process of 'Upsetting' pertains to-  
 (A) Casting (B) Forging (C) Turning (D) Milling
121. Consider following contours:

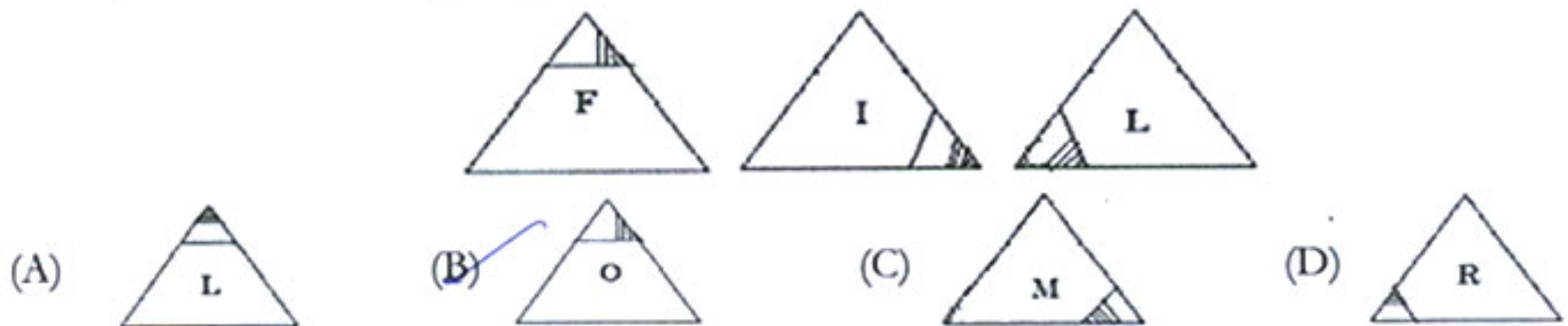


Match the following a) Hill b) Pond c) Slope

- (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

122. India's first war of Independence (related to Meerut mutiny) was in:  
 (A) 1835 (B) 1857 (C) 1892 (D) 1905
123. Perform the subtraction operation of binary digits  $1001 - 10$ . The result is:  
 (A) 1010 (B) 101 (C) 100 (D) 111
124. 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)
125. The linkage of atoms of the same elements into longer chains is called:  
 (A) Sublimation (B) Catenation (C) Affiliation (D) Linkage
126. How many Fundamental Rights are guaranteed by the Constitution of India?  
 (A) 7 (B) 3 (C) 5 (D) 6
127. Value of  $\pi$  (approx. value 3.14) is :  
 (A) Terminating decimal (B) Recurring decimal  
 (C) Non-terminating non-repeating decimal (D) Indeterminate
128. 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)  $h$

129. Complete the series logically.



130. Raja Ravi Varma was famous for:  
 (A) His struggle against the British (B) Music & Singing (C) Paintings (D) Hindu reforms
131. 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
132. French power declined in India after the battle of-  
 (A) Plassey (B) Buxar (C) Talikota (D) Wandiwash
133. 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)  $\frac{3}{4} \times \frac{1}{2}$
134. 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

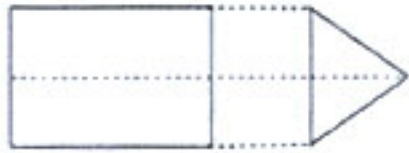
135. Orthogonal projection of an object shows a rectangle of dimensions 5 cm x 10 cm on the X - Y plane and a circle of diameter 10 cm on the Y-Z plane. What is the volume of the object?

- (A) 5000 cm<sup>3</sup>      (B)  $\pi \cdot 5^3$       (C)  $\frac{\pi \cdot 10^3}{4}$       (D) 2500 cm

136. 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

137. Consider the following orthogonal projections of an object.



This object is a-

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

138. 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

139. An interpretation of the Indian Constitution is based on the spirit of the-

- (A) Fundamental rights      (B) Fundamental duties      (C) Preamble      (D) Directive principles

140. 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

141. In September 2014, which state was affected by flood?

- (A) Karnataka      (B) Madhya Pradesh      (C) Gujarat      (D) Jammu & Kashmir

142. 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

143. 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

144. 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

145. A map mentions the scale 1 cm=1 km.

The scale is in the ratio:

- (A) 1 : 10<sup>3</sup>      (B) 1 : 10<sup>4</sup>      (C) 1 : 10<sup>5</sup>      (D) 1 : 10<sup>6</sup>

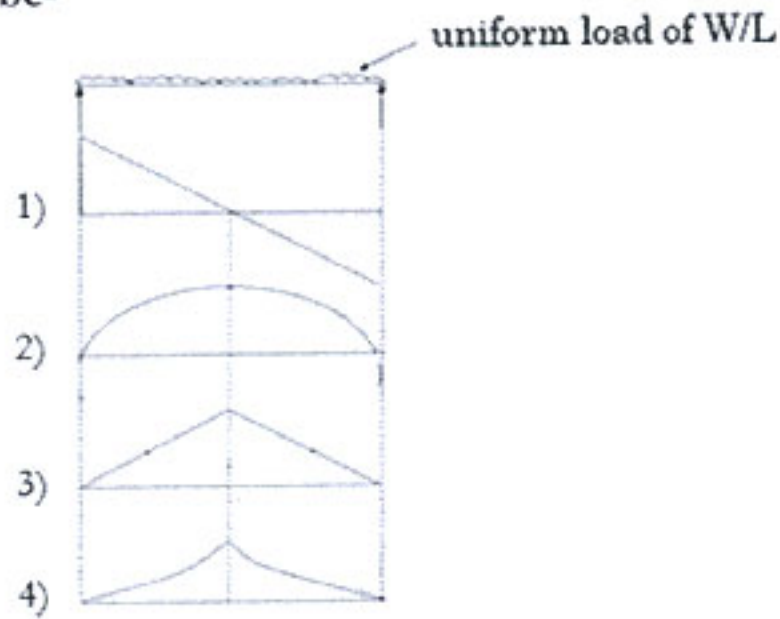
146. Plants get water through roots because of:

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

147. 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)  $\frac{1}{\sqrt{R^2 + (X_L - X_C)^2}}$

148. 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

149. The first Indian railway train journey between Bombay and Thane was in the year-

- (A) 1857 (B) 1853 (C) 1818 (D) 1854

150. Glycerol can be represented by chemical formula:

- (A)  $C_2H_5O_2$  (B)  $C_3H_7OH$  (C)  $C_3H_5OH$  (D)  $C_3H_8O_3$