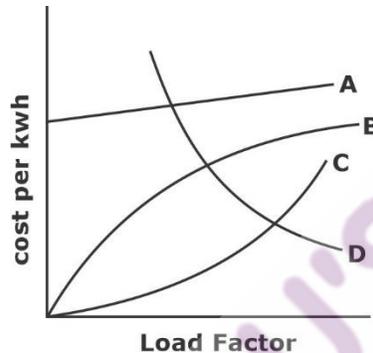


GROUP-A DOMAIN SKILLS

1. An emf is induced in the windings of an armature of a d.c. generator when the armature rotates in
 - A. alternating magnetic flux
 - B. magnetic field
 - C. electrostatic field
 - D. electromagnetic flux
2. The efficiency of a power transformer is maximum at
 - A. nearly full load
 - B. 1/2 full load
 - C. 1/4 full load
 - D. 1/8 full load
3. The essential condition for parallel operation of two single-phase transformers is that they should have same
 - A. polarity
 - B. phase sequence
 - C. voltage ratio
 - D. percentage impedance
4. In an RCL series circuit, during resonance, the impedance will be
 - A. zero
 - B. minimum
 - C. maximum
 - D. none of these
5. Which of the following are the necessary conditions for an entire 3- \emptyset system to be balanced?
 - I. The line voltages are equal in magnitude.
 - II. The phase difference between successive line voltages are equal
 - III. The impedances in each of the phases are identical.Select the correct answer using the codes given below :
 - A. I, II and III
 - B. I & III
 - C. I & II
 - D. II & III
6. Torque/weight ratio of an instrument indicates
 - A. selectivity
 - B. accuracy
 - C. fidelity
 - D. sensitivity
7. Which method can be used to measure the power in a three phase unbalanced load system.
 - A. One wattmeter method
 - B. Two wattmeter method
 - C. Three voltmeter method
 - D. Three ammeter method
8. A 10 mH inductor carries a sinusoidal current of 1 A at a frequency of 50 Hz. The average power dissipated by the inductor is
 - A. 0 W
 - B. 0.25 W
 - C. 0.5 W
 - D. 1.0 W
9. In forward region of its characteristics, a diode appears as
 - A. an ON switch
 - B. an OFF switch
 - C. a capacitor
 - D. a high resistor

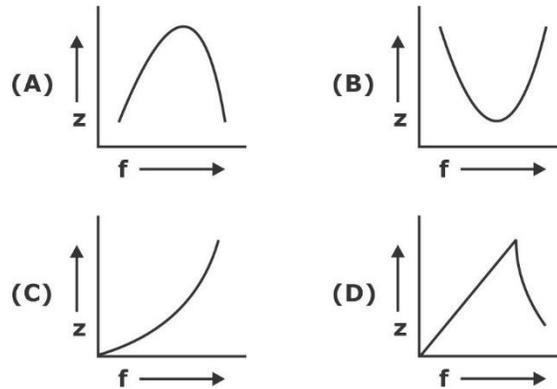
- 10.** Synchronous motors generally have
- A. salient pole rotor
 - B. smooth cylindrical rotor
 - C. either salient pole or smooth cylindrical
 - D. None of the above
- 11.** In double cage induction motor the inner cage has
- A. high resistance and high leakage reactance
 - B. high resistance and low leakage reactance
 - C. low resistance and high leakage reactance
 - D. low resistance and low leakage reactance
- 12.** The energy in wind is proportional to..... of its velocity.
- A. Directly
 - B. Square
 - C. Square root
 - D. Inversely
- 13.** Main constituents of glass are
- A. SiO₂
 - B. B₂O₃
 - C. Al₂O₃
 - D. CaCO₃
- 14.** LVDT is always used as
- A. secondary transducer
 - B. primary transducer
 - C. primary signal generator
 - D. None of these
- 15.** The breakdown voltage of a cable depends on
- A. time of application of the voltage
 - B. working temperature
 - C. presence of moisture
 - D. all of the above
- 16.** A flip-flop is a
- A. combinational logic circuit and edge sensitive
 - B. sequential logic circuit and edge sensitive
 - C. combinational logic circuit and level sensitive
 - D. sequential logic circuit and level sensitive
- 17.** The specific speed (N_s) of a turbine is given by the equation
- A. $N_s = \frac{N\sqrt{P}}{H^{0.75}}$
 - B. $N_s = \frac{\sqrt{N} \cdot P}{H^{3/2}}$
 - C. $N_s = \frac{N\sqrt{P}}{H^{1.25}}$
 - D. $N_s = \frac{N\sqrt{P}}{H^{2/3}}$
- 18.** The power output from a hydroelectric power plant depends on
- A. head, type of dam and discharge
 - B. head, discharge and efficiency of the system
 - C. type of draft tube, type of turbine and efficiency of the system
 - D. type of dam, discharge and type of catchment area

- 19.** Nuclear Reactor generally employs
- A. Fusion
 - B. Fission
 - C. Both fusion and fission
 - D. None of these
- 20.** The capital cost per MW is highest in case of
- A. Steam power plants
 - B. Nuclear power plants
 - C. Gas turbine power plants
 - D. Diesel engine power plants
- 21.** In the figure shown which curve represents the variation of cost of generation per kWh with the load factor, for a thermal power plant?



- A. curve A
 - B. curve B
 - C. curve C
 - D. curve D
- 22.** The advantage of neutral earthing is
- A. simplified design of earth fault protection
 - B. over-voltages due to lightning can be discharged to the earth
 - C. freedom from persistent arcing grounds
 - D. All of the above
- 23.** Which relay is used to detect and protect internal faults of a transformer?
- A. Buchholz
 - B. Directional relay
 - C. Thermal relay
 - D. Distance relay
- 24.** Compensating winding is provided in a dc motor
- A. to increase main field ampere - turns
 - B. to prevent large speed drop.
 - C. to prevent commutator flash-over upon sudden change in load.
 - D. to achieve good commutations
- 25.** In a distribution transformer, normally
- A. core losses are equal to copper losses.
 - B. core losses are more than copper losses.
 - C. core losses are less than copper losses.
 - D. core losses are half of the copper losses

26. The shape of impedance versus frequency curve for a parallel resonance circuit is of the shape as shown in:



- A. figure A
B. figure B
C. figure
D. figure D
27. For delta connected circuit the correct relationship is
- A. $V_L = V_p h$
B. $I_p h \times \sqrt{3} = I_L$
C. $V_L = I_L \times \sqrt{3}$
D. both A and B
28. The deflecting torque of a moving iron instrument is
- A. $I^2 \frac{dL}{d\theta}$
B. $\frac{1}{2} I^2 \frac{dL}{d\theta}$
C. $I \frac{dL}{d\theta}$
D. $\frac{1}{2} I \frac{dL}{d\theta}$
29. Inductance is measured by which one of the following
- A. Wien bridge
B. Schering bridge
C. Maxwell bridge
D. Owen bridge
30. A Schottky diode is
- A. a majority carrier device
B. a minority carrier device
C. a fast recovery diode
D. None of these
31. The short-circuit characteristic of an alternator is
- A. always linear
B. always nonlinear
C. either of A. or B.
D. none of these
32. In a synchronous motor
- A. stator mmf rotates slightly faster in comparison to stator mmf.
B. the rotor mmf and stator mmf are stationary with respect to each other.
C. rotor mmf rotates slightly faster in comparison to stator mmf.
D. none of the above

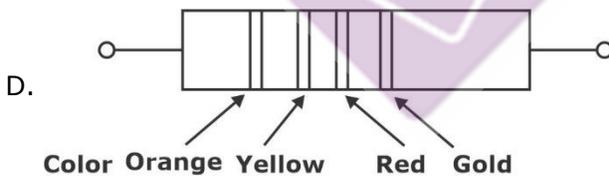
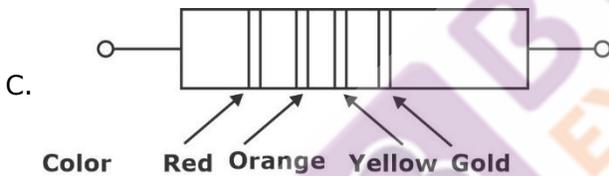
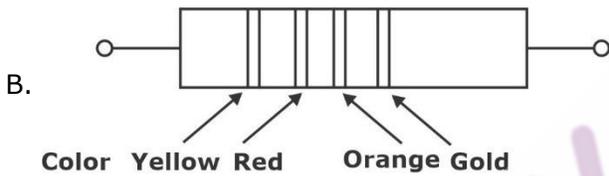
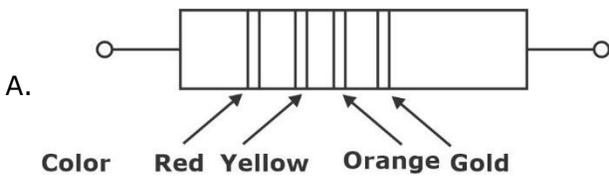
- 33.** Graphite is a good lubricant because
- A. sheets of atoms are bonded together ionvalently (electrovalent).
 - B. the atoms in the sheets are bonded ionvalently (electrovalent) to one another.
 - C. the sheets are bonded to one another by Vandar waal's forces.
 - D. All of these.
- 34.** When a dielectric is subjected to an alternating electric field of angular frequency ' ω ', its power loss is proportional to
- A. ω
 - B. ω^2
 - C. $1/\omega$
 - D. $1/\omega^2$
- 35.** Breakdown in a cable insulation may occur due to
- A. puncture
 - B. thermal instability
 - C. tracking
 - D. any of the above
- 36.** The enriched Uranium consists of approximately
- A. 10% of U235 and 90% of U238
 - B. 20% of U235 and 80% of U238
 - C. 30% of U235 and 70% of U238
 - D. None of these
- 37.** If the current is going away from the observer then the direction of magnetic lines of force will be ____.
- A. Outside the plane
 - B. Anti-clockwise
 - C. Inside the plane
 - D. Clockwise
- 38.** If ACSR conductor has specification as 48/7, which of the following statement is correct for the conductor?
- A. The conductor has 48 strands
 - B. The conductor has 55 strands
 - C. The conductor has 48 aluminium and 7 steel strands
 - D. The conductor has 48 steel and 7 aluminium strands
- 39.** Suspension type insulators are used for voltages beyond
- A. 220 V
 - B. 400 V
 - C. 11 kV
 - D. 33 kV
- 40.** The lightning arrester is connected
- A. in series with the line
 - B. between line and earth
 - C. to a pole near the line
 - D. None of these
- 41.** The length of earthing electrode is about
- A. 0.5 m
 - B. 1.0 m
 - C. 2.5 m
 - D. 5 m

- 42.** Merze-Price protection is used to protect
- A. Transmission line and transformers
 - B. Motors only
 - C. Transformers and generators
 - D. Transformers only

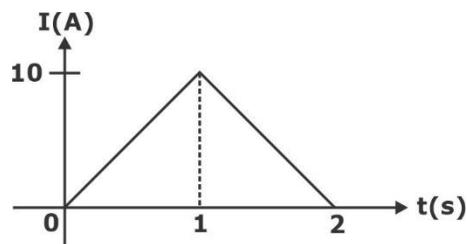
- 43.** The distance between two poles is called

- A. Sag
- B. Span
- C. Strand
- D. Armouring

- 44.** According to colour code of the given resistance, the least valued resistor is



- 45.** Find the average value of current shown graphically, from $t = 0$ to $t = 2$ second.



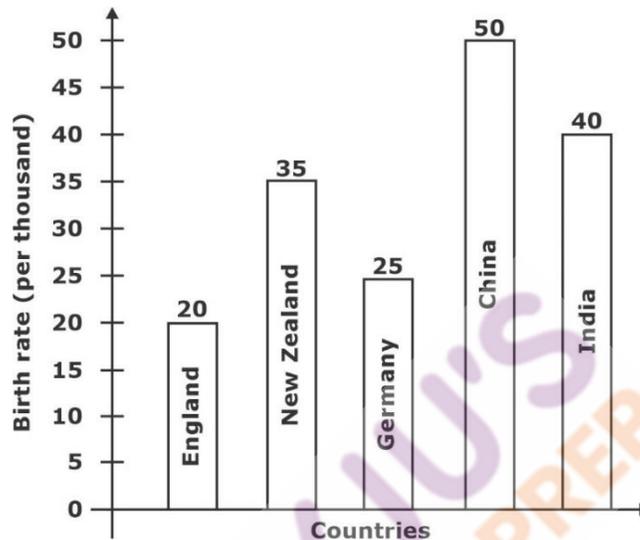
- A. 10 A
- B. 2.5 A
- C. 20 A
- D. 5 A

GROUP-B-APTITUDE TEST

- 61.** In an election, two candidates, participated were 40% voters did not vote, 10% of the votes were declared invalid and the winner gets 70% of the valid votes and he wins by 5,400 votes. Find the number of listed voters.
- A. 25500
B. 2550
C. 2500
D. 25000
- 62.** The distance between two poles of length 16 metres and 4 metres respectively, is y meters. If two angle of elevation of their respective top from the mid-point are complementary to each other than the value of y is -
- A. 18 m
B. 24 m
C. 16 m
D. 22 m
- 63.** The area of the region bounded by the curves $y = |x - 2|$, $x = 1$, $x = 3$ and the x-axis is
- A. 4
B. $1/2$
C. 2
D. 1
- 64.** A bag contains 1 rupee, 2 rupee and 5 rupee coins in the ratio of 5 : 6 : 2. If the total amount of money in the bag is Rs. 1350, then find the number of 2 rupee coins?
- A. 100
B. 250
C. 300
D. 150
- 65.** Read the following statements and answer the following question.
- (i) Komal can play cricket, but not tennis
(ii) Ranjana can play badminton, but not hockey
(iii) Mamta can play hockey, but not cricket
(iv) Gita can play both cricket and hockey
- If a person can play two games, who would be like Gita?
- A. Mamta
B. Ranjana
C. Komal
D. None of these
- 66.** A thief steals a car exactly at 1 : 30 P.M. and drives it at 18 km/h. The thief is discovered at 2 : 30 P.M. and the owner sets off in another car at 24 km/h. He will catch the thief at -
- A. 5 : 30 P.M.
B. 7 : 30 P.M.
C. 4 : 30 P.M.
D. 5 : 00 P.M.
- 67.** In a certain code language, 'FATIGUE' is written as 'VFTRGZU'. Similarly, how will 'MONKEY' be written in that code?
- A. NLMPVB
B. BVPMLN
C. BVMPLN
D. VBPMPLN

68. Which of following has maximum value?
 A. Half of the half
 B. One fourth of half
 C. Two third of one third
 D. On third of one third

Study the bar diagram given below carefully and answer the question no. 69 based on it.



69. The birth rate of New Zealand is what percent of the birth-rate of England ?
 A. 165%
 B. 125%
 C. 135%
 D. 175%
70. Which of the following contaminants causes blackfoot disease (BFD)?
 A. Mercury
 B. Cadmium
 C. Arsenic
 D. Nitrate
71. Which state of India is leading in solar energy generation?
 A. Rajasthan
 B. Tamilnadu
 C. Andhra Pradesh
 D. Haryana
72. Which metal is known as "White Gold"?
 A. Calcium
 B. Platinum
 C. Zinc
 D. Titanium
73. When was the broadcasting of colour TV started in India?
 A. 1882
 B. 1984
 C. 1982
 D. 1980
74. Which of the following is a line or surface drawn on a map or chart that indicates connected points of equal salinity in the ocean?
 A. Isodiaphere
 B. Isohaline
 C. Isogyre
 D. None of these

Directions (84-86): In these Questions, out of the 4 alternatives, choose the one that which best expresses the meaning (Synonym) of the given word.

- 84.** COGNIZANCE
A. IGNORANCE
B. HEEDLESSNESS
C. NEGLECT
D. ATTENTION
- 85.** INEBRIATE
A. STUPEFIED
B. DREAMY
C. DRUNKEN
D. UNSTEADY
- 86.** STERILE
A. ARID
B. CHILDLESS
C. BARREN
D. DRY

Directions (87 - 89) : Find the correctly spelt word.

- 87.** A. KNAWLEDGE
B. KNAWLEDGE
C. KNOWLADGE
D. KNOWLEDGE
- 88.** A. EXCESSIVE
B. EXCESSIVE
C. EXCESIVE
D. EXCESSEVE
- 89.** A. BUREACRACY
B. BEREACRACY
C. BUEREACRACY
D. BUREAUCRACY

Directions (90 - 92) : A sentence / a part of the sentence is underlined. Four alternatives are given to the underlined part which will improve / correct the sentence. Choose the right option to correct the sentence.

- 90.** He pretends to be absent, whenever I call on him
A. call
B. called
C. was calling
D. had called
- 91.** As a school girl I often go to school on foot.
A. went
B. gone
C. had gone
D. has gone
- 92.** My niece paint the furniture whenever she had time
A. paints
B. had painted
C. painted
D. was painting

Directions (93-95) : Choose the appropriate alternative to complete the sentence in the following questions

- 93.** The chess master promised to _____ havoc upon his opponent's pawns for taking his bishop.
A. wreak
B. warrant
C. ensue
D. placate
- 94.** The _____ rumours did a great deal of damage even though they turned out to be false.
A. bemused
B. apocryphal
C. ebullient
D. tantamount
- 95.** As _____ beings we live each day conscious of our shortcomings and victories.
A. sensational
B. sentient
C. sentimental
D. senile

