

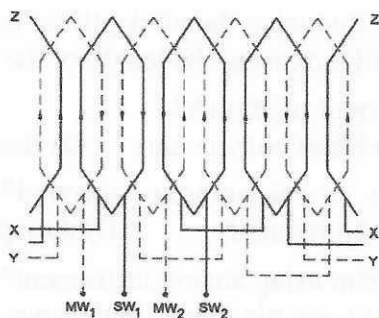
**SUPERINTENDING ENGINEER, ELECTRICAL CIRCLE,
UT CHANDIGARH**

**Posts: (i) Junior Technician (Electrician) &
(ii) Junior Technician (Lift Operator)**

Question Booklet & Answer Key

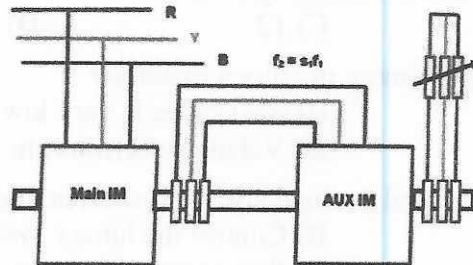
30.4.2023 Sunday (Morning)

38. What is the condition for obtaining maximum efficiency from transformer?
 A) Copper loss > Iron loss B) Copper loss < Iron loss
 C) Copper loss = Iron loss D) Copper loss = Eddy current loss
39. Which construction technique is used to reduce copper loss in larger transformers?
 A) Use of laminated core B) By reducing core thickness
 C) By using grain oriented core D) Use stepped core arrangement
40. Which is determined by the crackle test of transformer oil?
 A) Acidity B) Moisture C) Viscosity D) Dielectric strength
41. What is the function of buchholz relay in power transformer?
 A) Protection from high temperature B) Protection from moisture entering in oil
 C) Protection from pressure loading in tank
 D) Protection from both overloading and short circuit
42. Why ferrite core is used in radio receivers?
 A) To reduce the constant losses B) To reduce electric interference
 C) To increase the quality of sound D) To increase the efficiency of receivers
43. Which rule is used to find the direction of induced emf in D.C generator?
 A) Cork screw rule B) Right hand palm rule
 C) Fleming's left-hand rule D) Fleming's right hand rule
44. Which energy is converted into electrical energy by generator?
 A) Heat B) Kinetic C) Chemical D) Mechanical
45. How interpoles are connected in a DC generator?
 A) In series with armature B) In parallel with armature
 C) In series with shunt field D) In parallel with shunt field
46. What is the function of split rings in DC generator?
 A) Maintain constant voltage B) Collects the current unidirectional
 C) Reduces the voltage drop at brushes D) Increases the terminal voltage than rated
47. Why commutators are sparking heavily?
 A) Incorrect brush position B) Incorrect field connection
 C) Incorrect direction of rotation D) Incorrect armature connection
48. Which insulating material used in winding, is a highly non-hygroscopic and possess good electrical strength?
 A) Empire cloth B) Triplex paper C) Millinex paper D) Leatheroid paper
49. What is the formula to calculate the slip speed of 3 phase squirrel cage induction motor?
 A) $N_{slip} = N_s - N_r$ B) $N_{slip} = N_r - N_s$ C) $N_{slip} = N_s - N_r / N_r$ D) $N_{slip} = N_s - N_r / N_s$
50. What is the phase displacement between windings in 3 phase motor?
 A) 90° B) 120° C) 180° D) 360°
51. What is the name of the coil winding?



- A) Concentric coil winding B) Distributed coil winding
 C) Mesh shaped coil winding D) Diamond mesh shaped coil winding
52. What is the synchronous speed of a A.C 3 phase induction motor having 6 poles at a frequency of 50 Hertz?
 A) 800 rpm B) 1000 rpm C) 1200 rpm D) 1440 rpm

53. Which type of test is conducted using internal growler in AC motor winding?
 A) Ground test B) Polarity test C) Continuity test D) Short circuit test
54. Which type of motor is used to provide high starting torque at variable speed?
 A) Universal motor B) Permanent capacitor motor
 C) 3 Phase slip ring induction motor D) 3 Phase single squirrel cage induction motor
55. What is the starting current of an A.C 3 phase induction motor?
 A) 1 to 2 times of full load current B) 2 to 3 times of full load current
 C) 4 to 5 times of full load current D) 5 to 6 times of full load current
56. What is the speed control method of 3 phase induction motor?



- A) Cascade operation method B) Rotor rheostat control method
 C) Changing applied voltage method D) Injecting emf in rotor circuit method
57. Calculate the number of coils /phase/ pole for a 3 phase double layer distributed winding for a motor having 36 slots, 36 coils and 4 poles?
 A) 3 coils/phase/pole B) 6 coils/phase/pole
 C) 9 coils/phase/pole D) 12 coils/phase/pole
58. What happens to a 3 phase induction motor if one phase fails during running?
 A) Motor runs normally B) Motor stop instantaneously
 C) Motor runs slowly, finally it burns D) Motor runs with irregular speed
59. What is the reason for frequent blowing of fuse after a motor runs for some time?
 A) Improper earthing B) Over loading of motor
 C) Heavy voltage fluctuation D) Poor insulation in winding
60. Which fault condition thermal overload relay protects A.C induction motor?
 A) Short circuit B) Open circuit C) Over current D) Under voltage
61. How to produce starting torque in a shaded pole fan motor?
 A) Using rings on poles B) Using capacitor on winding circuits
 C) Interchanging cage rotor windings by switch
 D) Interchanging the field coil windings by switch
62. What is the supply frequency of an alternator having 6 poles runs at 1000 rpm?
 A) 25 Hz B) 40 Hz C) 50 Hz D) 60 Hz
63. What is the purpose of damper winding in alternator?
 A) Reduces the copper loss B) Reduces windage losses
 C) Reduces the hunting effect D) Improves the voltage regulation
64. Calculate the voltage regulation in percentage if the load is removed from an alternator, the voltage rises from 480V to 660V?
 A) 27.2 % B) 32.5 % C) 37.5 % D) 38.5 %
65. What is the cause for hunting effect in alternators?
 A) Due to over load B) Running without load
 C) Running with fluctuation of speed D) Due to continuous fluctuation in load
66. Why D.C supply is necessary for synchronous motor operation?
 A) Reduce the losses B) Start the motor initially
 C) Run the motor with over load D) Run the motor at synchronous speed

67. Which application requires only DC?
 A) Electroplating
 B) Stepping up of voltage
 C) Operating induction motor
 D) Operating Repulsion motor
68. How the synchronous motor is used as a synchronous condenser?
 A) Varying the motor load
 B) Varying the rotor excitation
 C) Varying stator voltage in motor
 D) Varying stator current in motor
69. Why the LED's are avoided as converters in rectifier diodes?
 A) Heavily doped device
 B) Very low power device
 C) Designed for light emitting
 D) Very sensitive to temperature
70. How many characters are in hexadecimal number system?
 A) 6
 B) 8
 C) 12
 D) 16
71. What is the reason for barrier voltage is more in silicon material?
 A) Lower atomic number
 B) Resistance is very low
 C) Doping percentage is more
 D) Valance electrons are two only
72. What is the purpose of using binary coded decimal (BCD) system in digital circuits?
 A) Storing the data inputs
 B) Control the binary system
 C) Interface to binary system
 D) Segregating the input parameters
73. Why negative feedback is required in amplifier circuits?
 A) To reduce the distortion
 B) To increase the amplification factor
 C) To increase the output voltage gain
 D) To increase the output current gain
74. What is the main application of a Field Effect Transistor (FET)?
 A) Voltage control device
 B) Current control device
 C) Positive feedback device
 D) Low input impedance device
75. What is the peak voltage of 220V rms AC voltage?
 A) 310.02 V
 B) 311.17 V
 C) 312.25 V
 D) 315.20 V
76. Which cable ties are used to bunch the wires?
 A) Silk ties
 B) P.V.C ties
 C) Nylon ties
 D) Cotton ties
77. Which device protects from overload and short circuit in a panel board?
 A) Isolating switch
 B) Time delay relay
 C) Thermal overload relay
 D) Miniature circuit breaker
78. Which is the correct sequence operation of contactors for operating automatic star delta starter?
 A) Timer→Delta→Star→Main
 B) Delta→Timer→ Main→Star
 C) Star→Delta→Timer→Main
 D) Delta→Main→Timer→Star
79. Which device controls the operations in sequential control systems?
 A) Timer
 B) Relays
 C) Contactor
 D) Control transformer
80. How the contacts in a contactor can be engaged for working?
 A) By manual operation
 B) By mechanical settings
 C) By operating electromagnet to change the position
 D) By using bimetallic strip to change the position
81. Which control system consumes very low power for motion control in AC and DC motors?
 A) Field control
 B) Drives control
 C) Voltage control
 D) Armature control
82. Why it is necessary to keep V/F ratio constant in a drive?
 A) Keep the stator flux maximum
 B) Maintain the rotor current minimum
 C) Maintain the speed of motor constant
 D) Maintain the rated torque at all speeds
83. What is the full form of abbreviation UPS?
 A) Uniform Power Supply
 B) Universal Power Supply
 C) Unregulated Power Supply
 D) Uninterrupted Power Supply
84. Which is the application of automatic stepped voltage stabilizer?
 A) Geyser
 B) Grinder
 C) Television
 D) Pump motor

85. Which is the conventional power generation?
 A) Wind power generation B) Tidal power generation
 C) Solar power generation D) Thermal power generation
86. What happens to solar cell, if the intensity of light is low?
 A) Output increases B) Output decreases C) Output remain same D) No output in the cell
87. Which type of A.C transmission is universally adopted?
 A) Two phase four wire B) Two phase three wire
 C) Single phase two wire D) Three phase three wire
88. What is the purpose of trip coil used in circuit breakers?
 A) Easy operation B) Remote operation
 C) Accurate operation D) Emergency operation
89. The electric current is due to flow of
 A) Positive charges B) Negative charges
 C) Both positive and negative charges D) Neutral particles only
90. If the current in an electric bulb drops by 2%, the power decreases by
 A) 2% B) 4% C) 1% D) 16%
91. A battery is made by combination of 6 cells in series, each capable to deliver 4 amperes at 2 volts. How much voltage and current can it deliver
 A) 12 V and 24 A B) 2 V and 24 A C) 12 V and 4 A D) 2 V and 4 A
92. In a series RLC circuit, $V_R = 24$ V, $V_L = 15$ V, $V_C = 45$ V, what is the source voltage?
 A) 38.42 V B) 45 V C) 15 V D) 24 V
93. Two incandescent light bulbs of 40 W and 60 W rating are connected in series across the mains, then
 A) The bulbs together consume 100 W B) The bulbs together consume 50 W
 C) The 60 W bulb glows brighter D) The 40 W bulb glows brighter
94. W_1 and W_2 are the readings of two wattmeter used to measure power of a three phase balanced load. The reactive power drawn by the load is
 A) $W_1 + W_2$ B) $W_1 - W_2$ C) $\sqrt{3} (W_1 - W_2)$ D) $\sqrt{3} (W_1 + W_2)$
95. The three resistors each of R ohm are connected in star. When they are formed into delta connections the resistance of each arm will be
 A) 2R ohms B) 3R ohms C) 4R ohms D) R/2 ohm
96. Which kind of heat transmission takes places by up-ward flow?
 A) Conduction B) Convection C) Radiation D) Reflection
97. Which one is heat insulator?
 A) Thermocole B) Copper C) Brass D) Aluminium
98. What is the filament resistance if a 6 volt bulb draws a current of 0.5 Amps?
 A) 12 Ω B) 10 Ω C) 3 Ω D) 1.2 Ω
99. Which insulating material is used for making switches?
 A) Porcelain B) PVC C) Bakelite D) Ebonite
100. Which alloy steel is used for making precious instrument?
 A) Silicon steel B) Manganese steel C) Invar steel D) Vanadium
101. In a certain code language, 'PRISM' is written as 'OSHTL' and 'RUBLE' is written as 'QVAMD'. How will 'WHORL' be written in that same code?
 A) XIPSM B) VGNQK C) UINSK D) VINSK
102. In a certain code language, '617' means 'sweet and hot', '735' means 'coffee is sweet' and '263' means 'tea is hot'. Which of the following would mean 'coffee is hot'?
 A) 731 B) 536 C) 367 D) 753

103. In the following question, there is a certain relationship between two given numbers on one side of '::' and one number is given on the other side of '::' while another number is to be found from the given alternatives having the same relationship with this number as the numbers of the given pair. Choose the best alternative.

35 : 13 :: 91 : ?

- A) 40 B) 35 C) 32 D) 71

104. Choose the group of letters which are different from others.

- A) EH2 B) FL5 C) KS6 D) QZ8

Directions (Q.No. 105 - 107) Ten students A, B, C, D, E, F, G, H, I and J are sitting in a row facing west. B and F are not sitting on either of edges. G is sitting to the left of D and H is sitting to the right of J. There are four persons between E and A. I is to the North of B and F is to the South of D. J is in between A and D and G is in between E and F. There are two persons between H and C.

105. Who is sitting at the fourth place counting from right.

- A) H B) C C) J D) Either H or C

106. Who among the following is definitely sitting at one of the ends?

- A) C B) H C) E D) Cannot be determined

107. Who are the immediate neighbours of I?

- A) B and C B) B and H C) C and H D) either option A) or B)

108. A person starts from a point A and travels 3 km eastwards to B and then turns left and travels thrice that distance to reach C. He again turns left and travels five times the distance he covered between A and B and reaches his destination D. How far and in which direction is he from the starting point A.

- A) 12 km NW B) 15 km NW C) 15 km NE D) 18 km NW

109. In a row of boys, Rajan is 10th from the right and Suraj is 10th from the left. When Rajan and Suraj interchange their positions, Suraj will be 27th from the left. Which of the following will be Rajan's position from the right?

- A) 27th B) 26th C) 29th D) 25th

Directions (Q.No. 110 - 112) A, B, C, D, E, F and G are the seven members of a family. There are three females among them. There are two married couples in the family. Each of them has a different profession from Architect, Lawyer, Doctor, Teacher, Engineer, Manager and Musician, not necessarily in the same order.

B is the Lawyer and he is married to F, the Manager. A is brother of G, who is the Architect. C is the Doctor and is an unmarried lady. D is the Teacher and the sister of G. E is not an Engineer.

110. Which of the following combinations is definitely correct?

- A) B- Male- Manager B) B- Female – Lawyer
C) C- Female –Musician D) E- Male – Musician

111. What is E's profession?

- A) Doctor B) Musician C) Teacher D) Data inadequate

112. Which of the following pairs is a married couple?

- A) BF B) AE C) ED D) Both option A) & C)

113. Find the missing term of the given series?

32, 87, 332, 1635, ?

- A) 9000 B) 8775 C) 9774 D) 6549

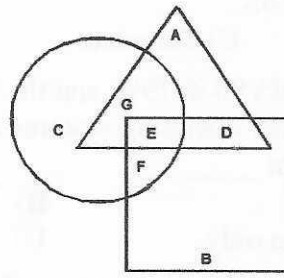
114. Samir's age is one-fourth of his father's age and two-third of his sister Reema's age. What is the ratio of the ages of Samir, Reema and their father respectively?

- A) 2 : 3 : 8 B) 3 : 4 : 8 C) 3 : 2 : 8 D) 4 : 3 : 8

115. Ravi is son of Aman's father's sister. Sahil is son of Divya, who is the mother of Gaurav and grandmother of Aman. Ashok is the father of Tanya and grandfather of Ravi. Divya is wife of Ashok. How is Gaurav's wife related to Tanya?

- A) Niece B) Sister C) Sister- in- law D) Data inadequate

116. Study the diagram given below and answer the question:



The Triangle in the above figures depicts the Villages, the Square depicts the Unemployed Women and the Circle depicts the Educated Women. Educated unemployed women in villages are represented by :

- A) A B) B C) D D) E

117. Three statements followed by two conclusions are given. Assuming the statements to be true decide which of the the given conclusions logically follow from the given statements disregarding common known fact.

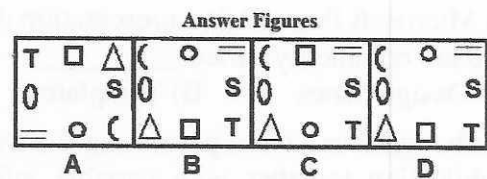
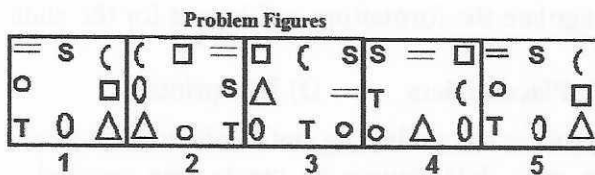
Statements: All rings are fingers. Some ears are fingers. All ears are necklaces.

Conclusions : I) Some necklaces are fingers.

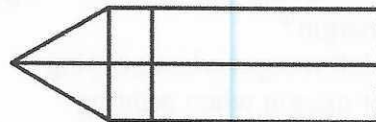
II) Some necklaces are rings.

- A) None follows B) Only I follows C) Only II follows D) Both I and II follow

118. Which one of the four answer figures should come at the right of the problem figures, if the sequence is to be continued.

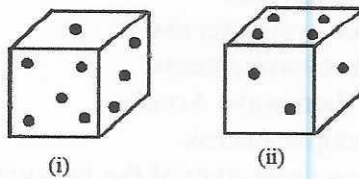


119. How many rectangles are there in the following figure?



- A) 7 B) 12 C) 8 D) 9

120. Two Positions of a dice are shown below. When there are two dots at the bottom, the number of dots at the top will be



- A) 2 B) 3 C) 5 D) 6

121. What is the difference between an Internet and Intranet?

- A) Internet is used to access worldwide information via computers & modems and Intranet is used to access information within a particular environment.
 B) Intranet is used to access worldwide information via computers & modems and Internet is used to access information within a particular environment.
 C) Intranet is more global compared to Internet.
 D) Internet and Intranet are the same.

122. Which of the following statement(s) is/are true with regard to websites?

P: A blog is a website that consists of posts in reverse chronological order.

Q: A wiki is a website that is designed to allow people to collaborate easily.

- A) P only B) Q only C) Both P and Q D) Neither P nor Q

123. A _____ is a small program that helps to automate a frequently used series of commands in most productivity software tools.
 A) Macro B) Utility C) Template D) Wizard
124. Microsoft introduced the taskbar in Windows 95 in 1995 and the feature has been a defining aspect of Microsoft Windows and many other operating systems and desktop environments since. Task bar in Windows can be placed at _____.
 A) Bottom edge of your screen only. B) Top edge of your screen only.
 C) Bottom edge or Top edge of your screen only. D) Any edge of your screen.
125. In the context of MS-EXCEL, what happens when dollar signs (\$) are entered in a cell address? (e.g. \$B\$2:\$B\$10)
 A) An absolute cell address is created.
 B) Cell address will change when it is copied to another cell.
 C) The sheet tab is changed. D) The status bar does not display the cell address.
126. Consider the following Excel spreadsheet:

	A	B	C	D	E
1	3	5	1	2	
2	2	3	5	2	
3	4	5	7	2	

- What is the value of the formula: =IF(A3<B3, IF(A3<C3, "Small", "Medium"), "Large")
 A) Small B) Medium C) Large D) A3<C3
127. In Microsoft PowerPoint, presentation designs regulate the formatting and layout for the slide and are commonly called _____.
 A) Design plates B) Templates C) Placeholders D) Blueprints
128. With regard to a word processing software, the process of combining static information in a publication together with variable information in a data source to create one merged publication is called
 A) Electronic mail B) Data sourcing C) Mail merge D) Spam mail
129. In MS-WORD, what is gutter margin?
 A) Margin that is added to the left margin when printing
 B) Margin that is added to right margin when printing
 C) Margin that is added to the binding side of page when printing
 D) Margin that is added to the outside of the page when printing
130. From what has the term 'Wi-Max' been derived?
 A) Worldwide Interoperability for Microwave Access
 B) Worldwide Interconnection for Microwave Access
 C) Worldwide Interchangeability for Microwave Access
 D) Worldwide Interconnection for Multiple Access

Directions (Q.No.131-133): Choose the correct synonym of the following words out of the four options

131. Hedonism
 A) Self-indulgence B) Inertia C) Gaiety D) Pessimism
132. Cabal
 A) Cable B) Clique C) Cagey D) Correlated
133. Desultory
 A) Opposite B) Wide C) Casual D) Attractive

Directions (Q.No.134-136): Choose the correct antonym of the following words out of the four options

134. Sever
 A) Severe B) Hard C) Join D) Separate

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Que.	Ans.	Que.	Ans.	Que.	Ans.	Que.	Ans.	Que.	Ans.	Que.	Ans.
1	C	26	D	51	D	76	C	101	D	126	A
2	B	27	C	52	B	77	D	102	B	127	B
3	B	28	C	53	D	78	B	103	C	128	C
4	A	29	A	54	C	79	A	104	C	129	C
5	D	30	B	55	D	80	C	105	D	130	A
6	A	31	D	56	A	81	B	106	C	131	A
7	B	32	B	57	A	82	D	107	D	132	B
8	C	33	A	58	C	83	D	108	C	133	C
9	B	34	B	59	D	84	C	109	A	134	C
10	C	35	D	60	C	85	D	110	D	135	C
11	C	36	B	61	A	86	B	111	B	136	B
12	C	37	D	62	C	87	D	112	D	137	A
13	D	38	C	63	C	88	B	113	C	138	B
14	B	39	D	64	C	89	C	114	A	139	B
15	A	40	B	65	D	90	B	115	C	140	D
16	C	41	D	66	D	91	C	116	D	141	A
17	C	42	A	67	A	92	A	117	B	142	C
18	B	43	D	68	B	93	D	118	C	143	C
19	C	44	D	69	B	94	C	119	D	144	A
20	D	45	A	70	D	95	B	120	B	145	B
21	D	46	B	71	A	96	B	121	A	146	B
22	B	47	A	72	A	97	A	122	C	147	B
23	D	48	C	73	A	98	A	123	A	148	B
24	A	49	A	74	A	99	C	124	D	149	A
25	A	50	B	75	B	100	C	125	A	150	D