

SSC-JE : ELECTRICAL ENGINEERING 

SSC - JE 2015

Electrical Engineering

Objective Paper : Questions & Solutions



ECT PUBLICATIONS



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Contact No. 9461673930 / 0141-2712805

ENGINEERING CAREER TUTORIAL

Premier Institute for preparation of GATE, ESE, PSUs & JEN

Cooperate Office: C-1, Bajaj Nagar Enclave,
Near Gandhi Nagar Rly Stn, Jaipur-302015.
Phone: 0141-2712805

Branch Office: 80/4, Kumbha Marg, Pratap Nagar,
Sanganer, Jaipur - 302030
Phone: 0141-2790367

Ajmer Office: 1758/41, Near Rly Over Bridge,
Adarsh Nagar, Nasirabad Road, Ajmer
Phone: 9828629645

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SSC Jr. Engineer-2015 PAPER ANALYSIS

Electrical

SUBJECT-WISE PAPER ANALYSIS

Subject	Total No. of Questions
Basic Electricals	36
Electrical Machine	27
Power System	13
Electrical Measurement & Instrumentation	12
Basic Electronics	6
Electrical Drives	6
Total	100

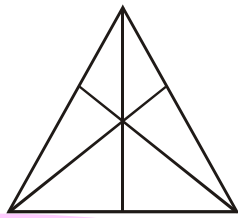
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GENERAL INTELLIGENCE & REASONING

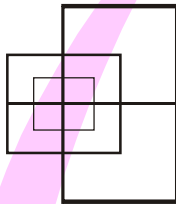
1. How many triangles are there in the figure?



- (a) 7
- (b) 10
- (c) 16
- (d) 20

Ans.(c)

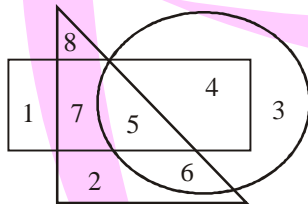
2. Find the number of minimum straight lines required to make figure



- (a) 13
- (b) 17
- (c) 15
- (d) 19

Ans.(a)

3. Write the number of space enclosed by rectangle and circle but not by triangle

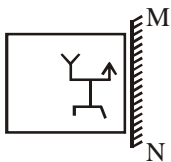


- (a) 3
- (b) 2
- (c) 1
- (d) 4

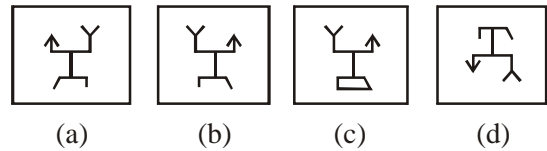
Ans.(d)

4. If a mirror is placed on the line MN, then which of the answer figures is the right image of the given figure?

Question figure



Answer figures



Ans.(a)

5. A word is represented by only one set of numbers as given in any one of the alternatives. The sets of numbers given in the alternatives are represented by two classes of alphabets as in two matrices given below. The columns and rows of Matrix I are numbered from 0 to 4 and that of Matrix II are numbered from 5 to 9. A letter from these matrices can be represented first by its row and next by its column, e.g. 'M' can be represented by 01, 14 etc., and 'S' can be represented by 58, 77 etc. Similarly, you have to identify the set the word 'ROHAN'.

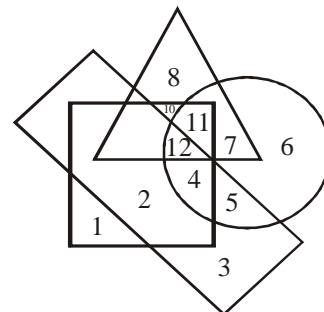
	0	1	2	3	4
0	H	M	X	W	K
1	N	R	N	Y	M
2	K	V	H	P	W
3	Y	Z	R	M	N
4	W	V	H	J	P

	5	6	7	8	9
5	A	D	E	S	B
6	T	U	O	G	Q
7	O	Q	S	D	A
8	S	E	U	E	D
9	Q	B	A	T	O

- (a) 11, 57, 00, 55, 12
- (b) 11, 75, 00, 55, 10
- (c) 32, 75, 21, 55, 10
- (d) 32, 67, 41, 55, 12

Ans.(b)

6. In the given figure, the circle stands for intelligent, square for hardworking, triangle for Post graduate and the rectangle for loyal employees. Study the figure and answer the following questions.



Employees who are intelligent, hardworking and loyal but not Post graduate are represented by

- (a) 11
- (b) 5
- (c) 4
- (d) 3

Ans.(c)

Directions : In questions nos. 7 and 8, one/two statement(s) are given are followed by two conclusion/assumption, I and II. You have to consider the statements to be true even if they seem to be at variance from commonly known facts. You have to decide which of the given conclusion/assumptions, if any, follows from the given statements.

7. Statements : All students are girls.
Some students are not talented.

Conclusions : I. No students is talented
II. Some girls are talented

- (a) Only I follows
- (b) Only II follows
- (c) Both I and II follows
- (d) Neither I nor II follows

Ans.(d)

8. Statements : 1. Tigers do not fly
2. Hens do not fly.

Conclusions : I. Tigers are birds
II. All birds cannot fly

- (a) Only I follows
- (b) Only II follows
- (c) Both I and II follows
- (d) Neither I nor II follows

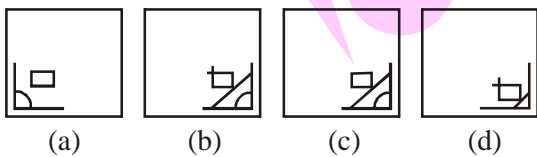
Ans.(d)

9. Which answer figure will complete the pattern in the question figure?

Question figure



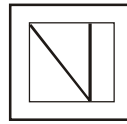
Answer figure



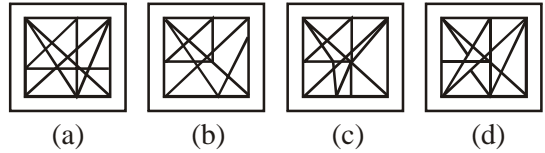
Ans.(b)

10. From the given answer figures, select the one in which the question figure is hidden/embedded.

Question figure



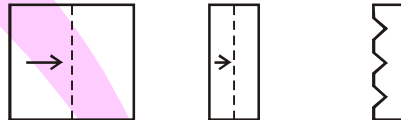
Answer figure



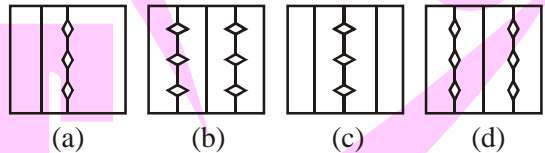
Ans.(a)

11. A piece of paper is folded and cut as shown below in the question figures. From the given answer figures, indicate how it will appear when opened.

Question figures



Answer figures



Ans.(b)

12. Ramu's mother has three sons. The eldest one is called onekari, the second one is called twokari. Then the third son's name is

- (a) Teenkari
- (b) Sandu
- (c) Ramu
- (d) Nokari

Ans.(c)

13. Ashok is heavier than Gopal. Mahesh is lighter than Jayesh. Prashant is heavier than Jayesh but lighter than Gopal. Who among them is heaviest?

- (a) Gopal
- (b) Ashok
- (c) Prashant
- (d) mahesh

Ans.(a)

14. From the given alternative words, select the word which cannot be formed using the letters of the given word :

KILOMETERS

- (a) OIL
- (b) MEET
- (c) TREES
- (d) STREET

Ans.(d)

15. In a certain code language, if the word 'RHOMBUS' is coded as TJQODWU, then how is the word 'RECTANGLE' in that language ?

- (a) TGEVCPIMG (b) TGEVCPING
(c) TGEWDPING (d) TGFWEPIING

Ans.(b)

16. If in a certain code 'Education' is written as 3 6 5 7 9 8 2 1 4 then how 'Conduct' can be written?

- (a) 7 1 4 6 5 7 8 (b) 6 5 4 7 8 7 1
(c) 1 4 5 8 7 7 6 (d) 6 4 8 5 7 6 7

Ans.(a)

17. If $7x = 8k$ and $5y = 6k$ then the value of ratio x is to y is

- (a) 20 : 21 (b) 21 : 20
(c) 35 : 48 (d) 48 : 35

Ans.(a)

18. If $44 + 12 = 30$, $77 + 14 = 61$, $84 + 16 = 66$ then what should be for $44 + 22 = ?$

- (a) 28 (b) 20
(c) 32 (d) 24

Ans.(b)

19. Select the set of symbols which can be fitted correctly in the equation,

$$8 \quad 4 \quad 2 \quad 6 \quad 3 = 32$$

- (a) $\times, -, +, \div$ (b) $+, \times, \div, -$
(c) $+, \div, \times, -$ (d) $-, \times, \div, +$

Ans.(a)

Directions : In question nos. 20 to 22, which one of the given responses would be a meaningful order of the following?

20. 1. Village 2. State
3. Nation 4. District
(a) 1, 2, 4, 3 (b) 1, 4, 2, 3
(c) 2, 3, 1, 4 (d) 4, 2, 3, 1

Ans.(b)

21. 1. Branches 2. Root
3. Trunk 4. Leaf
5. Flower
(a) 4, 1, 3, 2, 5 (b) 2, 3, 1, 4, 5
(c) 1, 2, 3, 4, 5 (d) 4, 3, 1, 2, 5

Ans.(b)

22. 1. Adulthood 2. Babyhood
3. Childhood 4. Infancy
(a) 4, 3, 2, 1 (b) 4, 2, 3, 1
(c) 4, 1, 2, 3 (d) 4, 3, 1, 2

Ans.(b)

Directions : In question nos. 23 to 28, a series is given with one term missing. Choose the correct alternative from the given ones that will complete the series.

23. CDDP DEER EFFT FGGV GHXX ?
(a) ZIIH (b) HIIZ
(c) HJJY (d) HIJZ

Ans.(b)

24. l m n m n o p n o p q r ?
(a) pqrst (b) lmnop
(c) opqrs (d) hpqrs

Ans.(c)

25. R I A T N I E ?
(a) A (b) B
(c) C (d) D

Ans.(b)

26. $(\frac{1}{8}), (\frac{1}{4}), (\frac{1}{2}), 1, ?, 4$
(a) $(\frac{3}{8})$ (b) $(\frac{2}{8})$
(c) 2 (d) 6

Ans.(c)

27. 11, 12, 16, 25, ?
(a) 45 (b) 41
(c) 43 (d) 49

Ans.(b)

28. 3, 9, 21, 45, ?
(a) 54 (b) 78
(c) 87 (d) 93

Ans.(d)

Directions : In question nos. 29 and 30, select the missing number from the given responses.

29.

13	15	12
02	04	05
04	05	08
30	65	?

- (a) 64 (b) 69
(c) 65 (d) 68

Ans.(d)

30.

20	30	12
3	4	8
80	?	116

- (a) 120 (b) 60
(c) 100 (d) 140

Ans.(d)

31. Hospital is 12 km towards east of Rupin's house. His school is 5 km towards south of Hospital. What is the shortest distance between Rupin's house and school?

- (a) 16 km (b) 17 km
(c) 12 km (d) 13 km

Ans.(d)

32. Two cars started from a particular spot. The car A ran straight at the speed of 30 kmph for 2 hours north and then took a right turn. It ran 40 km and again turned right. It stopped after east at the speed of 20 kmph for 2 hours and then turned left. It ran for 100 km and then stopped. How far were there two cars from each other when both of them stopped at last ?

- (a) 17 km (b) 18 km
(c) 19 km (d) 20 km

Ans.(d)

Direction : In question nos. 33 to 41, select the related word/letters/number from the given alternatives.

33. CHAIR : FURNITURE :: FORK : ?

- (a) SPOON (b) CUTLERY
(c) CROCKERY (d) FOOD

Ans.(b)

34. Compass : Ship :: Vastu : ?

- (a) Building (b) Flat
(c) Home (d) Land

Ans.(c)

35. BOOK : LIBRARY :: ? : FILE

- (a) COMPUTER (b) DATA
(c) FOLDER (d) BYTES

Ans.(b)

36. q : d :: b : ?

- (a) p (b) d
(c) q (d) b

Ans.(a)

37. ABB : EGJ :: FHL : ?

- (a) BDH (b) JMT
(c) FHH (d) JJJ

Ans.(b)

38. EV : KP :: TG : ?

- (a) ZA (b) AZ
(c) ZZ (d) AA

Ans.(a)

39. 21 : 65 :: 31 : ?

- (a) 78 (b) 80
(c) 85 (d) 95

Ans.(d)

40. 17 : 102 :: 23 : ?

- (a) 112 (b) 138
(c) 216 (d) 413

Ans.(b)

41. 25 : 36 :: ?

- (a) 9 : 25 (b) 16 : 25
(c) 25 : 49 (d) 81 : 121

Ans.(b)

Directions : In question nos 42 to 49, find the odd word/number pair from the given alternatives.

42. (a) stare (b) glance
(c) look (d) hug

Ans.(d)

43. (a) Analogy (b) Reasoning
(c) Decoding (d) Cycling

Ans.(d)

44. (a) Nephrology (b) Astrology
(c) Pathology (d) Entomology

Ans.(b)

45. (a) accdff (b) prrsu
(c) mnnoqq (d) egghij

Ans.(c)

46. (a) OQTX (b) JMNQ
(c) EGJN (d) XZCG

Ans.(b)

47. (a) NMOK (b) PKQJ
(c) RLSK (d) TGUF

Ans.(a)

48. (a) 997 (b) 976
(c) 778 (d) 895

Ans.(a)

49. (a) 8 (b) 87
(c) 111 (d) 96

Ans.(a)

50. Pick the odd number from the sequence below :

2, 3, 6, 7, 11, 15, 30

- (a) 7 (b) 11
(c) 6 (d) 30

Ans.(b)

GENERAL AWARENESS

51. The storage form of glucose is

- (a) Insulin (b) Glycogen
(c) Glucagon (d) Fructose

Ans.(b)

52. Thigmotropism is the response of the plant to

- (a) Gravity (b) Water
(c) Light (d) Contact

Ans.(d)

53. Root hairs are produced from

- (a) trichotnes (b) trichiblast
(c) rhizodermis (d) epidermis

Ans.(c)

54. Second Ozone hole was detected over

- (a) Antartica (b) Artica
(c) Sweden (d) Northern hemisphere

Ans.(a)

55. Glycolysis during fermentation results in not gain of

- (a) 1 ATP (b) 2 ATPs
(c) 3 ATPs (d) 4 ATPs

Ans.(b)

56. The disadvantage of self-pollination is

- (a) seeds are less in number
(b) no dependence of pollinating agents
(c) mechanism is too simple
(d) no wastage of pollengrains

Ans.(a)

57. By increasing the intensity of incident light on the surface, the photo electric current

- (a) increases
(b) decreases
(c) unchanged
(d) increases initially and then decreases

Ans.(d)

58. The Phenomenon of light splitting into seven distinct colours when it passes through prism is

- (a) diffraction (b) polarisation
(c) dispersion (d) reflection

Ans.(c)

59. A block placed on an inclined plane of slope angle θ slides down with a constant speed. The coefficient of kinetic friction is equal to

- (a) $\sin \theta$ (b) $\cos \theta$
(c) $\tan \theta$ (d) $\cot \theta$

Ans.(c)

60. A plumb bob is hanging from the ceiling of a car. If the car moves with an acceleration a , the angle made by the string with the vertical is

- (a) $\sin^{-1}\left(\frac{a}{g}\right)$ (b) $\sin^{-1}\left(\frac{g}{a}\right)$
(c) $\tan^{-1}\left(\frac{a}{g}\right)$ (d) $\tan^{-1}\left(\frac{g}{a}\right)$

Ans.(c)

61. Who is called the 'Father of Indian Cinema'?

- (a) Raj Kapoor (b) Dilip kumar
(c) Mehboob Khan (d) Dada Saheb Phalke

Ans.(d)

62. Name the first Indian woman to climb Mount Everest

- (a) Santosh Yadav (b) Backhendri Pal
(c) Rita Farai (d) Leela Seth

Ans.(b)

63. Which IPL Team won the eighth edition of the Indian Premier League?

- (a) Mumbai Indians (b) Chennai Super Kings
(c) Delhi Daredevils (d) Kolkata Knight Riders

Ans.(a)

64. Nehru Trophy is associated with which sport in India?

- (a) Football (b) Cricket
(c) Hockey (d) None of the above

Ans.(c)

65. Aung San Suu Kyi, a prodemocracy compaigner, is from which of the following countries?

- (a) Nepal (b) Myanmar
(c) Bangladesh (d) China

Ans.(b)

66. Usain Bolt is famous as

- (a) an astronaut (b) a boxer
(c) an athlete (d) a cricketer

Ans.(c)

67. Which of the following is the morning 'Ragg' in music ?

- (a) Sohini (b) Bhairavi
(c) Sarang (d) Malhaar

Ans.(b)

68. When was the first All India Postage Stamp issued?

- (a) 1854 (b) 1858
(c) 1850 (d) 1856

Ans.(a)

69. In which country was paper currency first used?

- (a) India (b) Egypt
(c) China (d) Japan

Ans.(c)

70. The murder of Archduke Ferdinand and his wife triggered off which of the following events?

- (a) Crimean War (b) Balkan War
(c) First World War (d) Second World War

Ans.(b)

71. .com represents ?

- (a) communication domain (b) Educational domain
(c) Commercial domain (d) Government domain

Ans.(a)

72. IKE stands for

- (a) Internet Key Exchange
(b) Information Key Execution
(c) Information Key Exchange
(d) Infrastructure Key Encryption

Ans.(a)

73. When salt is added to water, the boiling point of water is

- (a) Lowered (b) Unaffected
(c) Increased (d) Constant

Ans.(c)

74. The gas dissolved in water that makes it acidic

- (a) hydrogen (b) nitrogen
(c) carbon dioxide (d) ammonia

Ans.(c)

75. The hydrogen ion concentration of a solution is measured using a

- (a) thermometer (b) pH meter
(c) hydrometer (d) barometer

Ans.(b)

76. Non-bonding valence electrons are

- (a) Involved only in covalent bond formation
(b) Involved only in ionic bond formation
(c) Involved in both ionic and covalent bond formation
(d) Not involved in covalent bond formation

Ans.(c)

77. When is the World Earth Day celebrated?

- (a) 4 April (b) 22 April
(c) 1 May (d) 23 March

Ans.(b)

78. World "No Tobacco Day" was observed globally on

- (a) 31 May (b) 2 June
(c) 15 June (d) 20 June

Ans.(a)

79. The greenhouse gases, otherwise called radioactively active gases include

- (a) Carbon dioxide (b) CH₄
(c) N₂O (d) All of these

Ans.(d)

80. The most serious environmental effect posed by hazardous wastes is

- (a) air pollution
(b) contamination of ground water
(c) increased use of land of landfills
(d) None of the above

Ans.(b)

81. Which Delhi Sultan resorted to price control and rationing?

- (a) Balban
(b) Muhammad-bin-Tughluq
(c) Bahlul Lodi
(d) Alaud-din-Khilji

Ans.(d)

- 82.** The Maratha ruler Shivaji ruled his kingdom with the help of a Council of Ministers called
- (a) Ashtapradan (b) Ashtadigajas
(c) Navarathnas (d) Mantriparishad

Ans.(a)

- 83.** Ms. Florence Nightingale was associated with
- (a) Seven years War (b) Thirty Years War
(c) Crimean War (d) Hundred Years War

Ans.(c)

- 84.** Who among the following Gupta emperor was known as 'Vikramaditya'?
- (a) Samudra Gupta (b) Kumar Gupta
(c) Chandra Gupta I (d) Chandra Gupta II

Ans.(d)

- 85.** The finely painted cotton fabric made in Golkanda was called
- (a) Calico (b) Muslin
(c) Kalamkari (d) Palampore

Ans.(c)

- 86.** Which of the best type of cotton grown in the world?
- (a) Long staple (b) Medium staple
(c) Short staple (d) Thick staple

Ans.(a)

- 87.** Which one of the following is first multipurpose project constructed in India?
- (a) Rihand (b) Thungabadra
(c) Farraka Barrage (d) Damodar

Ans.(d)

- 88.** What is the symbol of (WWF) World Wildlife Fund?
- (a) Red Panda (b) Rhododendron
(c) Bear (d) White Tiger

Ans.(a)

- 89.** Market Gardening comes in this category
- (a) Horticulture (b) Monoculture
(c) Subsistence farming (d) Sericulture

Ans.(a)

- 90.** A deep or french in the ocean floor is called
- (a) Ridges (b) Crest
(c) Trough (d) Continental Shelf

Ans.(b)

- 91.** Name the co-operative society that provides housing loan facility at reasonable rates
- (a) Credit co-operatives
(b) Housing co-operatives
(c) Consumer co-operatives
(d) Producer's co-operatives

Ans.(b)

- 92.** Name the biggest employer in India
- (a) Steel Authority of India Ltd (SAIL)
(b) Post & Telecom Department
(c) Food Corporation of India (FCI)
(d) Indian Railways

Ans.(d)

- 93.** Which of the following is an allied activity of agriculture
- (a) Livestock (b) Small Scale Industry
(c) Money lending (d) Insurance

Ans.(a)

- 94.** Disguised unemployment means
- (a) Working as Self-Employed
(b) Not working whole day
(c) Marginal Productivity is zero
(d) Production is less

Ans.(c)

- 95.** Cartel is a part of
- (a) Monopoly (b) Oligopoly
(c) Perfect competition (d) Monopolistic competition

Ans.(b)

- 96.** In the presidential system of government, the President is
- (a) Head of the state
(b) Head of the state and Head of the Government
(c) Head of the Government
(d) Head of the Executive

Ans.(b)

- 97.** The Chief Election Commissioner of India is appointed by
- (a) Chief Justice of India (b) Prime Minister
(c) President (d) Parliament

Ans.(c)

98. The Election Commission of India is

- (a) An independent body
- (b) Quasi-judicial body
- (c) Quasi-legislative body
- (d) Executive body

Ans.(a)

99. Articles 23 and 24 of the Indian Constitution deal with

- (a) Right against Exploitation
- (b) Right to Freedom
- (c) Right to Freedom of Religion
- (d) Right to Education

Ans.(a)

100. Which of the following ideologies aims at the spiritualization of politics?

- (a) Marxism
- (b) Socialism
- (c) Sarvodaya
- (d) Pularlism

Ans.(c)



ECT

ELECTRICAL ENGINEERING

- 101.** the reactive power generated by a synchronous alternator can be controlled by
- changing the prime move input
 - changing the alternator speed
 - changing the field excitation
 - changing the terminal voltage

Ans.(c)

- 102.** The per phase DC armature resistance of an alternator is 0.5Ω . The effective AC armature resistance would be about
- 0.25Ω
 - 0.5Ω
 - 0.75Ω
 - 1Ω

Ans.(c)

- 103.** Base load of a power station stands for
- 2 – 4 hours/day
 - 4 – 8 hours/day
 - 8 – 12 hours/day
 - 12 – 24 hours/day

Ans.(d)

- 104.** If the power factor is high, then the consumer maximum KVA demand
- increases
 - decreases
 - remains constant
 - becomes zero

Ans.(c)

- 105.** A circuit breaker is rated as follows:
1500 A, 33 KV, 3 sec, 3-phase oil circuit breaker. Determine the making current
- 1.5 KA
 - 35 KA
 - 89 KA
 - 110 KA

Ans.(d)

- 106.** Which of the following fault is coming under symmetrical fault?
- LG fault
 - LL fault
 - LLG fault
 - LLLG fault

Ans.(d)

- 107.** If span length is doubled with no change in other factors, the sag of the line will become
- 0.5 time
 - 2 times
 - 4 times
 - 8 times

Ans.(c)

- 108.** An alternator is supplying a load of 300 kW at a power factor of 0.6 lagging. If the power factor is raised to unity, how many more kW can alternator supply ?
- 100 kW
 - 150 kW
 - 200 kW
 - 300 kW

Ans.(c)

- 109.** What is the maximum number of point of light, fan and socket-outlets that can be connected in one sub-circuit ?
- Four
 - Six
 - Ten
 - Twelve

Ans.(c)

- 110.** In dc operation of fluorescent tube, the life of the tube
- increases by about 80% as that with ac operation
 - decreases by about 80% as that with ac operation
 - remain same
 - may increase or decrease

Ans.(b)

- 111.** For painful shock, what is the range of electric shock current at 50 Hz?
- 0 – 1 mA
 - 0 – 3 mA
 - 3 – 5 mA
 - 5 – 10 mA

Ans.(c)

- 112.** The permissible voltage drop from supply terminal to any point on the wiring system should not exceed
- 4% + 1 volt
 - 3% + 1 volt
 - 2% + 1 volt
 - 1% + 1 volt

Ans.(b)

- 113.** In batton wiring the cables are carried on seasoned teak wood perfectly straight and well varnished teak wood bottom of thickness not less than
- 1 cm
 - 2 cm
 - 3 cm
 - 4 cm

Ans.(a)

- 114.** For cleat wiring and 250 volts supply, the cables will be placed _____ apart centre to centre for single core cables
- 2.5 cm
 - 3 cm
 - 4 cm
 - 4.5 cm

Ans.(c)

115. The aluminium conductor of size_____is used for a subcircuit in domestic wiring

- (a) 1/1.2 mm
- (b) 1/1.4 mm
- (c) 1/1.8 mm
- (d) 1/2.24 mm

Ans.(b)

116. If in an RLC series circuit, the frequency is below the resonant frequency, then

- (a) $X_c = X_L$
- (b) $X_c < X_L$
- (c) $X_c > X_L$
- (d) None of the above

Ans.(c)

117. An RLC series circuit has $R = 10\Omega$, $L = 2\text{ H}$. What value of capacitance will make the circuit critically damped ?

- (a) 0.02 F
- (b) 0.08 F
- (c) 0.2 F
- (d) 0.4 F

Ans.(b)

118. When a series RL circuit is connected to a voltage source V at $t = 0$, the current passing through the inductor L at $t = 0$ is

- (a) $\frac{V}{R}$
- (b) infinite
- (c) zero
- (d) $\frac{V}{L}$

Ans.(c)

119. Three wattmeter method of power measurement can be used to measure power in

- (a) Balanced circuits
- (b) Unbalanced circuits
- (c) Both balanced and unbalanced circuits
- (d) None of the above

Ans.(c)

120. In a three phase system, the volt ampere rating is given by

- (a) $3 V_L I_L$
- (b) $\sqrt{3}V_L I_L$
- (c) $V_L I_L$
- (d) $V_{ph} I_{ph}$

Ans.(b)

121. In a parallel RLC circuit if the lower cut-off frequency is 2400 Hz and the upper cut-off frequency is 2800 Hz what is the bandwidth ?

- (a) 400 Hz
- (b) 2400 Hz
- (c) 2800 Hz
- (d) 5200 Hz

Ans.(a)

122. The errors in current transformers can be reduced by designing them with

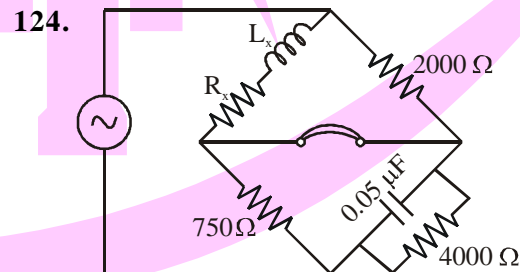
- (a) high permeability and low loss core materials, avoiding any joints in the core and also keeping the flux density to a low value
- (b) using primary and secondary windings as close to each other as possible
- (c) using large cross-section for both primary and secondary winding conductors
- (d) All of these

Ans.(d)

123. A CRO screen has ten divisions on the horizontal scale. If a voltage signal $5 \sin(314 t + 45^\circ)$ is examined with a line base setting of 5 m sec/div, the number of cycle of signal displayed on the screen will be

- (a) 0.5 cycle
- (b) 2.5 cycles
- (c) 5 cycles
- (d) 10 cycles

Ans.(b)



In the Maxwell bridge as shown in the figure the values of resistance R_x and inductance L_x of a coil are to be calculated values are shown in the figure at balance. The values of R_x and L_x will respectively be

- (a) 375 ohm, 75 mH
- (b) 75 ohm, 150 mH
- (c) 37.5 ohm, 75 mH
- (d) 75 ohm, 75 mH

Ans.(a)

125. Creeping in a single phase induction type energy meter may be due to

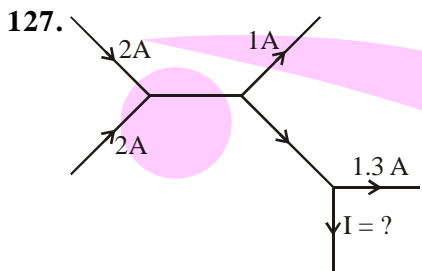
- (a) over compensation for friction
- (b) over voltage
- (c) vibrations
- (d) All of these

Ans.(a)

126. Which instrument is used to measure the high resistance?

- (a) Kelvin's Double bridge
- (b) Wheatstone bridge
- (c) Carey-Foster bridge
- (d) Megger

Ans.(d)



The current I in the electric circuit shown is

- (a) 1.7 A
- (b) 1 A
- (c) 2.7 A
- (d) 3.7 A

Ans.(a)

128. The superposition theorem is used when the circuit contains

- (a) a single voltage source
- (b) a number of voltage sources
- (c) passive elements only
- (d) active elements only

Ans.(b)

129. Thevenin's theorem cannot be applied to

- (a) active circuit
- (b) linear circuit
- (c) nonlinear circuit
- (d) passive circuit

Ans.(c)

130. A node in a circuit is defined as a

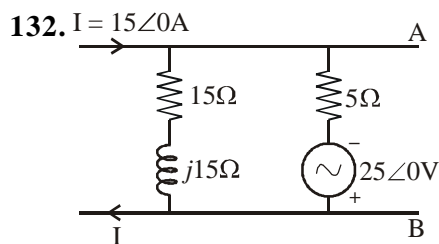
- (a) closed path
- (b) junction of two or more elements
- (c) group of interconnected elements
- (d) open terminal of an element

Ans.(b)

131. When a source is delivering maximum power to the load, the efficiency will be

- (a) maximum
- (b) below 50%
- (c) above 50%
- (d) 50%

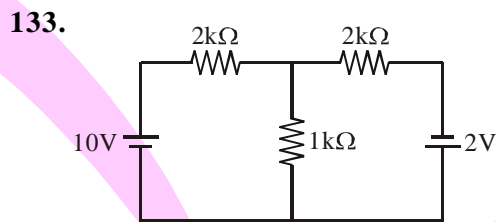
Ans.(d)



For the circuit shown, the Norton's equivalent current source as terminals A & B is given

- (a) $10\angle 0^\circ \text{A}$
- (b) $20\angle 0^\circ \text{A}$
- (c) $16\angle 36.86^\circ \text{A}$
- (d) $14\angle 36.86^\circ \text{A}$

Ans.(a)



The voltage across the $1\text{ k}\Omega$ resistor of the network shown in the given figure is

- (a) 6 V
- (b) 4 V
- (c) 2 V
- (d) 1 V

Ans.(c)

134. The internal resistance of a voltage source is 10Ω and has 10 volts at its terminals. Find the maximum power that can be transferred to the load.

- (a) 0.25 W
- (b) 25 W
- (c) 2.5 W
- (d) 5 W

Ans.(c)

135. Mutual inductance between two coils is 4 H. If current in one coil changes at the rate of 2 A/sec, then emf induced in the other coil is

- (a) 8 V
- (b) 2 V
- (c) 0.5 V
- (d) 5.0 V

Ans.(a)

136. If the number of turns of a coil is increased, its inductance

- (a) remains the same
- (b) is increased
- (c) is decreased
- (d) None of the above

Ans.(b)

137. The e.m.f. induced in a coil of N turns is given by

- (a) $\frac{d\phi}{dt}$ (b) $N \frac{d\phi}{dt}$
 (c) $-N \frac{d\phi}{dt}$ (d) $N \frac{dt}{d\phi}$

Ans.(c)

138. When the current through the coil of an electromagnet reverses, the

- (a) direction of the magnetic field reverses
 (b) direction of the magnetic field remains unchanged
 (c) magnetic field expands
 (d) magnetic field collapses

Ans.(d)

139. A short shunt compound generator supplies a load current of 100 A at 250 V. The generator has the following winding resistances :

shunt field = 130Ω , armature = 0.1Ω and the brush drop is 1 V per brush

- (a) 262.0 volt (b) 262.2 volt
 (c) 272.0 volt (d) 272.2 volt

Ans.(d)

140. As the load is increased, the speed of a dc shunt motor

- (a) increases proportionately
 (b) remain constant
 (c) increases slightly
 (d) reduces slightly

Ans.(d)

141. The $T_a V_s I_a$ graph of a dc series motor is a

- (a) parabola from no load to ver load
 (b) straight line throughout
 (c) parabola throughout
 (d) parabola up to full load and a straight line at over load

Ans.(d)

142. The purpose of starting winding in a single-phase induction motor is to

- (a) Reduce losses
 (b) Limit temperature rise of the machine
 (c) Produce rotating flux in conjunction with main winding
 (d) Increase losses

Ans.(c)

143. Which of the following motors is used in mixies ?

- (a) Repulsion motor (b) Reluctance motor
 (c) Hysteresis motor (d) Universal motor

Ans.(d)

144. The motor used on small lathes is usually

- (a) universal motor
 (b) D.C. shunt motor
 (c) single phase capacitor run motor
 (d) 3-phase synchronous motor

Ans.(c)

145. Which of the following motors is preferred for tape-recorders?

- (a) Shaded pole motor
 (b) Hysteresis motor
 (c) Two valve capacitor motor
 (d) Universal motor

Ans.(b)

146. Locked rotor current of a shaded pole motor is

- (a) equal to full load current
 (b) less than full load current
 (c) slightly more than full load current
 (d) several times the full load current

Ans.(c)

147. Each of the following statements regarding a shaded pole motor is true except

- (a) its direction of rotation is from unshaded to shaded portion of poles
 (b) it has very poor efficiency
 (c) it has very poor power factor
 (d) it has high starting torque

Ans.(d)

148. Synchronous impedance method of finding voltage regulation of an alternator is called pessimistic method because

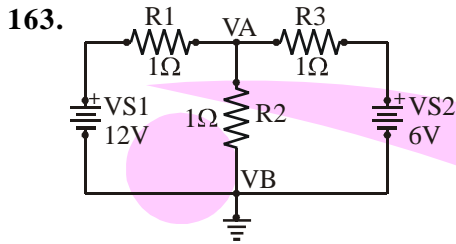
- (a) it is simplest to perform and compute
 (b) it gives regulation value higher than is actually found by direct loading
 (c) armature reaction is wholly magnetising
 (d) it gives regulation value lower than is actually found by direct loading

Ans.(b)

162. If 750 μA is flowing through 11 $\text{k}\Omega$ of resistance, what is the voltage drop across the resistor ?

- (a) 8.25 V (b) 82.5 V
(c) 14.6 V (d) 146 V

Ans.(a)



Find the node voltage V_A .

- (a) 6 V (b) 5 V
(c) 5.66 V (d) 6.66 V

Ans.(a)

164. The minimum area of cross-section of a three and half core cable should be

- (a) 30 cm^2 (b) 40 cm^2
(c) 50 cm^2 (d) 60 cm^2

Ans.(a)

165. The acceptable value of grounding resistance for domestic applications is

- (a) 0.5 Ω (b) 1 Ω
(c) 1.5 Ω (d) 2 Ω

Ans.(a)

166. Humans are more vulnerable to electric shock current at

- (a) 40 Hz (b) 45 Hz
(c) 48 Hz (d) 50 Hz

Ans.(a)

167. A 200 V lamp takes a current of 1 A, it produces a total flux of 2,860 lumens. The efficiency of the lamp is

- (a) 9.9 lumens/W (b) 8.9 lumens/W
(c) 10.9 lumens/W (d) 14.3 lumens/W

Ans.(d)

168. The unit of luminous flux is

- (a) steradian (b) candela
(c) lumen (d) lux

Ans.(c)

169. An electric heater draws 3.5 A from a 110 V source. The resistance of the heating element is approximately

- (a) 385 Ω (b) 38.5 Ω
(c) 3.1 Ω (d) 31 Ω

Ans.(d)

170. During the resistance welding, the heat produced at the joint is proportional to

- (a) I^2R (b) Voltage
(c) Current (d) Volt-Ampere

Ans.(a)

171. An arc blow is a welding defect that is countered with the help of carrying

- (a) the arc welding using AC supply
(b) the thermit welding
(c) the arc welding using DC supply
(d) the resistance welding

Ans.(a)

172. The electric drives possess the following drawback

- (a) not available with various ratings
(b) requires a continuous power supply
(c) requires hazardous fuel requirement
(d) not adaptable to various environments

Ans.(c)

173. An amplifier has a gain of 10,000 expressed in decibels the gain is

- (a) 10 (b) 40
(c) 80 (d) 100

Ans.(c)

174. Silicon has a preference in IC technology because

- (a) it is an indirect semiconductor
(b) it is a covalent semiconductor
(c) it is an elemental semiconductor
(d) of the availability of nature oxide SiO_2

Ans.(d)

175. To operate properly, a transistor's base-emitter junction must be forward biased with reverse bias applied to which junction?

- (a) Collector-emitter (b) Base-collector
(c) Base-emitter (d) Collector-base

Ans.(b)

176. With the positive probe on an NPN base, an ohmmeter reading between the other transistor terminals should be
- (a) Open (b) Infinite
(c) Low resistance (d) High resistance

Ans.(c)

177. In Bipolar Junction transistors, the type of configuration which will give both voltage gain and current gain is
- (a) CC (b) CB
(c) CE (d) None

Ans.(c)

178. To prepare a P type semiconducting materials the impurities to be added to silicon are
- (a) Boron, Gallium (b) Arsenic, Antimony
(c) Gallium, Phosphorous (d) Gallium, Arsenic

Ans.(a)

179. The unit for permeability is:
- (a) Wb/At x m (b) At/m
(c) At/Wb (d) Wb

Ans.(a)

180. If the coefficient of coupling between two coils is increased, mutual inductance between the coils:
- (a) is decrease
(b) is increase
(c) remains unchanged
(d) changes depends on current only

Ans.(b)

181. The magnitude of AT required to establish a given value of flux in the air gap will be much greater than that required for iron part of a magnetic circuit, because:
- (a) air is a gas
(b) air is a conductor of magnetic flux
(c) air has the lowest relative permeability
(d) iron has the lowest permeability

Ans.(c)

182. The area of the hysteresis loop will be least for one of the following materials. It is:
- (a) wrought iron (b) hard
(c) silicon steel (d) soft iron

Ans.(c)

183. A current of 2A passes through a coil of 350 turn wound on a ring of mean diameter 12cm. The flux, density established in the ring is 1.4 Wb/m². Find the value of relative permeability of iron:

- (a) 191 (b) 600
(c) 1200 (d) 210 x 10³

Ans.(b)

184. A bar of iron 1 cm² in cross-section has 10⁻⁴ Wb of magnetic flux in it. If $\mu_r = 2000$ what is the magnetic field intensity in the bar?

- (a) 398 x 10⁻⁴ AT/m (b) 398 AT/m
(c) 796 x 10⁻³ AT/m (d) 398 x 10⁴ AT/m

Ans.(b)

185. One sine wave has a period of 2 ms, another has a period of 5 ms, and other has a period of 10 ms. Which sine wave is changing at a faster rate?

- (a) sine wave with period of 2 ms
(b) sine wave with period of 5 ms
(c) All are at the same rate
(d) sine wave with period of 10 ms

Ans.(a)

186. In a pure inductive circuit if the supply frequency is reduced to 1/2, the current will:

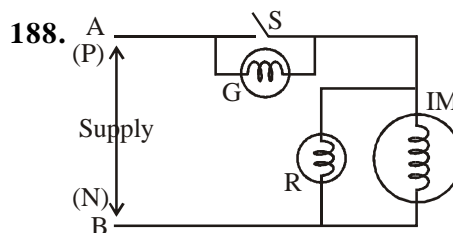
- (a) be reduced by half (b) be doubled
(c) be four times as high (d) be reduced to one fourth

Ans.(b)

187. There are 3 lamps 40W, 100W and 60W. To realise the full rated power of the lamps they are to be connected in:

- (a) series only (b) parallel only
(c) series-parallel (d) series or parallel

Ans.(b)



Two lamps, Green (G) and Red (R) are connected in a motor circuit as shown in the figure. The conditions under which the lamps will burn are, (supply is available at terminals A & B):

- (a) Green lamp burns always, red lamp burns only when switch S is closed
 (b) Green and red lamp burns when switch S is closed
 (c) Green lamp will not burn always, red lamp burns only when switch S is closed
 (d) Green lamp burns only when S is open and red lamp burns only when S is closed.

Ans.(d)

189. Modern electronic multimeters measure resistance by

- (a) using a bridge circuit
 (b) using an electronic bridge compensator for nulling
 (c) forcing a constant current and measuring the voltage across the unknown resistance
 (d) using an electrical bridge circuit

Ans.(c)

190. If a dynamometer type wattmeter is connected in an ac circuit, the power indicated by the wattmeter will be

- (a) Volt ampere product (b) Average power
 (c) Peak power (d) Instantaneous power

Ans.(c)

191. A 150 V moving iron voltmeter of accuracy class 1.0 reads 75 V when used in a circuit under standard conditions.

The maximum possible percentage error in the reading is

- (a) 0.5 (b) 1.0
 (c) 2.0 (d) 4.0

Ans.(c)

192. A dc voltmeter has a sensitivity of 1000 Ω /volts. When it measures half full scale in 100 V range, the current through the voltmeter will be

- (a) 100 mA (b) 50 mA
 (c) 1 mA (d) 0.5 mA

Ans.(b)

193. A Lissajous pattern on an oscilloscope has 5 horizontal tangencies and 2 vertical tangencies. The frequency of the horizontal input is 100 Hz. The frequency of the vertical input will be

- (a) 400 Hz (b) 2500 Hz
 (c) 4000 Hz (d) 5000 Hz

Ans.(b)

194. The no load input power to a transformer is practically equal to _____ loss in the transformer

- (a) Iron (b) Copper
 (c) Eddy current (d) Windage

Ans.(a)

195. The primary and secondary windings of a transformer are wound on the top of each other in order to reduce.

- (a) iron losses (b) copper losses
 (c) leakage reactance (d) winding resistance

Ans.(c)

196. Leakage flux in a transformer occurs because

- (a) iron core has high permeability
 (b) air is not a good magnetic insulator
 (c) applied voltage is sinusoidal
 (d) transformer is not an efficient device

Ans.(c)

197. The no load primary current I_0 , is about _____ of full load primary current of a transformer.

- (a) 3 – 5% (b) 15 – 30%
 (c) 30 – 40% (d) Above 40%

Ans.(a)

198. Which of the following Braking is not suitable for motors?

- (a) Dynamic braking (b) Plugging
 (c) Regenerative braking (d) Friction braking

Ans.(d)

199. An eight pole wound rotor induction motor operating on 60 Hz supply is driven at 1800 rpm by a prime mover in the opposite direction of revolving magnetic field. The frequency of rotor current is

- (a) 60 Hz (b) 120 Hz
 (c) 180 Hz (d) 200 Hz

Ans.(c)

200. If stator voltage of a squirrel cage induction motor is reduced to 50 percent of its rated value, torque developed is reduced by how many percentage of its full load value?

- (a) 50% (b) 25%
 (c) 75% (d) 57.7%

Ans.(c)