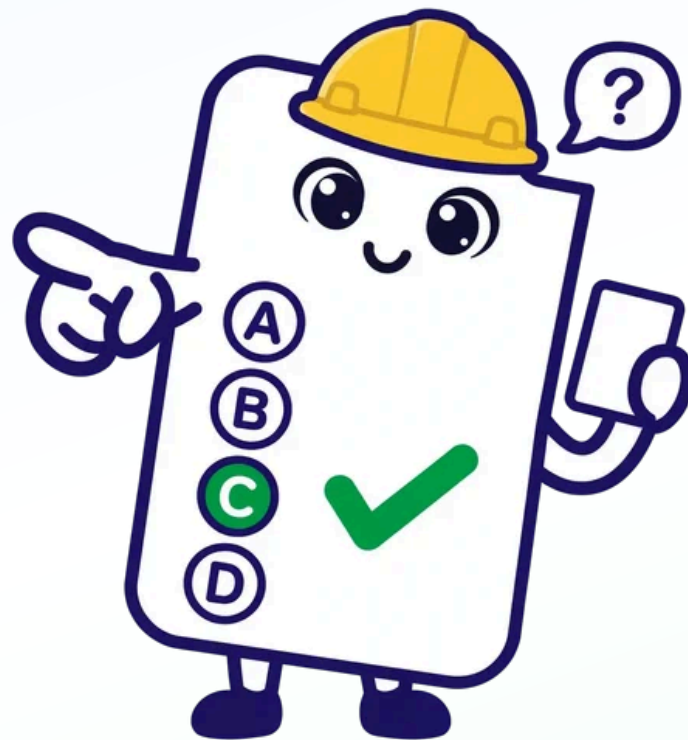




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A full model paper in the real Sub Engineer Electrical Test pattern, with answer key



100 MCQs

Real Sub Engineer Electrical Test subject split

Answer key + online explanations

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100 MCQs across one paper, each drawn in the same subject split as the real Sub Engineer Electrical Test paper:

- Electrical Engineering: 70 MCQs per paper
- English: 5 MCQs per paper
- General Knowledge: 5 MCQs per paper
- Pakistan Studies: 4 MCQs per paper
- Pakistan Current Affairs: 3 MCQs per paper
- Islamic Studies: 2 MCQs per paper
- Computer Science and IT: 1 MCQs per paper
- Mathematics: 10 MCQs per paper



MODEL PAPER 1 OF 1

Sub Engineer Electrical Test

100 MCQs · 120 minutes · answer key at the back



Electrical Engineering

70 MCQs

1. If the length of a cable is doubled, its capacitance _____?
 - (A) becomes one-fourth
 - (B) becomes one-half
 - (C) becomes double
 - (D) remains unchanged
2. A capacitor consists of two _____?
 - (A) ceramic plates and one mica disc
 - (B) insulators separated by a dielectric
 - (C) silver-coated insulators
 - (D) conductors separated by an insulator
3. The gravity controlled instrument has crowded scale because current is proportional to _____?
 - (A) balancing weight
 - (B) deflection angle
 - (C) sine of deflection angle
4. Double edge modulation eliminates certain harmonics when the reference is a _____?
 - (A) Sine wave
 - (B) Square wave
 - (C) Triangular wave
 - (D) Trapezoidal wave
5. In hydro power plant, the graph between discharge and time is known as _____?
 - (A) monograph.
 - (B) load graph.
 - (C) discharge graph.
 - (D) hydro graph
6. A resistance having rating 10 ohms, 10 W is likely to be a _____?
 - (A) metallic resistor
 - (B) carbon resistor
 - (C) wire wound resistor
 - (D) variable resistor
7. Due to which of the following reasons it is desirable to have short arc length ?
 - (A) To achieve better heating
 - (B) To increase the life of roof refractory
 - (C) To have better stirring action
 - (D) To reduce problem of oxidation
 - (E) All of the above

8. In an automatic control system which of the following elements is not used ?

- (A) Error detector
- (B) Final control element
- (C) Sensor
- (D) Oscillator

9. _____ offers the highest electric load.

- (A) Television set
- (B) Toaster
- (C) Vacuum cleaner
- (D) Washing machine

10. The resistance of a few meters of wire conductor in closed electrical circuit is _____?

- (A) practically zero
- (B) low
- (C) high
- (D) very high

11. Alternating current is measured by _____?

- (A) induction ammeter
- (B) permanent magnet type ammeter
- (C) electrostatic ammeter
- (D) moving iron repulsion type voltmeter

12. When SCR is OFF, the current in the circuit is _____?

- (A) Exactly zero
- (B) Small leakage current
- (C) Large leakage current
- (D) None of the above

13. For cost and safety, the outdoor substations are installed for voltages above _____?

- (A) 11 kV
- (B) 33 kV
- (C) 60kV
- (D) 110kV

14. In class A operation, the input circuit of a JFET is _____ biased?

- (A) forward
- (B) reverse
- (C) not
- (D) none of the above

15. In D.C. generators the pole shoes are fastened to the pole core by _____?

- (A) rivets
- (B) counter sunk screws
- (C) brazing
- (D) welding

16. A car is raining at a constant speed of 50 km/h, which of the following is the feedback element for the driver ?

- (A) Clutch
- (B) Eyes
- (C) Needle of the speedometer
- (D) Steering wheel
- (E) None of the above

17. A fuse is connected _____?

- ☐ A in series with circuit
- ☐ B in parallel with circuit
- ☐ C either in series or in parallel with circuit
- ☐ D none of the above

18. A capacitor stores 0.24 coulombs at 10 volts. Its capacitance is _____?

- ☐ A 0.024 F
- ☐ B 0.12 F
- ☐ C 0.6 F
- ☐ D 0.8 F

19. If the current in a capacitor leads the voltage by 80° , the loss angle of the capacitor is _____?

- ☐ A 10°
- ☐ B 80°
- ☐ C 120°
- ☐ D 170°

20. The control element of an SCR is _____?

- ☐ A Cathode
- ☐ B Anode
- ☐ C Anode supply
- ☐ D Gate

21. Satellite power requirement is provided through _____?

- ☐ A solar cells
- ☐ B dry cells
- ☐ C nickel-cadmium cells
- ☐ D lead-acid batteries

22. The dielectric constant (relative permittivity) of glass is given by _____?

- ☐ A 0.1 to 0.4
- ☐ B 0.5 to 1.0
- ☐ C 2.0 to 4.0
- ☐ D 5 to 100

23. To reverse the direction of rotation of a capacitor start motor while it is running we should _____?

- ☐ A disconnect motor from the supply till it stops then reconnect it to supply with reversed connection of main or auxiliary winding
- ☐ B disconnect motor from supply and immediately reconnect it to supply with reversed connections of the main winding
- ☐ C reverse the direction of connection of the auxiliary winding and after motor comes to rest then connect auxiliary winding to the supply
- ☐ D reverse the direction of connections of the auxiliary winding and immediately connect it to supply

24. Which of the following is the best method for determining the stability and transient response?

- ☐ A Root locus
- ☐ B Bode plot
- ☐ C Nyquist plot
- ☐ D None of the above

25. In a cable, the maximum stress under operating conditions is at _____?

- (A) insulation layer
- (B) sheath
- (C) armour
- (D) conductor surface

26. You have to replace 1500 Ω resistor in radio. You have no 1500 Ω resistor but have several 1000 Ω ones which you would connect _____?

- (A) two in parallel
- (B) two in parallel and one in series
- (C) three in parallel
- (D) three in series

27. If a multimeter has a sensitivity of 1000 Ω per volt and reads 50 V full scale, its internal resistance is _____?

- (A) 20 k Ω
- (B) 50 k Ω
- (C) 10 k Ω
- (D) None of the above

28. Let of a thyristor V_{c1} , V_{c2} , V_{c3} are forward break over voltage for gate current I_{g1} , I_{g2} , I_{g3} respectively. Then _____?

- (A) $V_{c1} > V_{c2} > V_{c3}$ when $I_{g1} > I_{g2} > I_{g3}$.
- (B) $V_{c1} > V_{c2} > V_{c3}$ when $I_{g1} < I_{g2} < I_{g3}$.
- (C) $V_{c1} = V_{c2} = V_{c3}$ any value of I_g .
- (D) $V_{c1} > V_{c2} > V_{c3}$ when $I_{g1} \propto I_{g2} \& A_{til}$

29. Secondary air is the air used to _____?

- (A) reduce the flame length
- (B) increase the flame length
- (C) transport and dry the coal
- (D) provide air round the burners for getting optimum combustion

30. In an op-amp differentiator: _____?

- (A) the amplitude of output is proportional to rate of change of input
- (B) the amplitude of output is proportional to input
- (C) output occurs when input is finite and constant
- (D) polarity of input and output is the same

31. _____ has the best damping properties?

- (A) Diamond
- (B) High speed steel
- (C) Mild steel
- (D) Cast iron

32. An increase in gain, in most systems, leads to _____?

- (A) smaller damping ratio
- (B) larger damping ratio
- (C) constant damping ratio
- (D) none of the above

33. To prevent the generation of static charges on rubber or flat leather _____?

- (A) surface is moistened
- (B) conductive dressing is done
- (C) oil compound dressing is done
- (D) talcum powder is sprayed on the surface

34. The four bulbs of 40 W each are connected in series with a battery across them, which of the following statement is true _____?

- (A) The current through each bulb is same
- (B) The voltage across each bulb is not same
- (C) The power dissipation in each bulb is not same
- (D) None of the above

35. In a low power factor wattmeter the compensating coil is connected _____?

- (A) in series with current coil
- (B) in parallel with current coil
- (C) in series with pressure coil
- (D) in parallel with pressure coil

36. Copper oxide rectifier is usually designed not to operate above _____?

- (A) 10°C
- (B) 20°C
- (C) 30°C
- (D) 45°C

37. Burden of a protective relay is the power _____?

- (A) required to operate the circuit breaker
- (B) absorbed by the circuit of relay
- (C) developed by the relay circuit
- (D) none of the above

38. Which of the following capacitors can be used for temperature compensation ?

- (A) Air capacitor
- (B) Ceramic capacitor
- (C) Paper capacitor
- (D) None of the above

39. The noise resulting from vibrations of laminations set by magnetic forces, is termed as _____?

- (A) magnetostriction
- (B) boo
- (C) hum
- (D) zoom

40. Static error coefficients are used as a measure of the effectiveness of closed loop systems for specified _____ input signal?

- (A) acceleration
- (B) velocity
- (C) position
- (D) all of the above

41. The disadvantage with paper as insulating material is _____?

- ☐ A it is hygroscopic
- ☐ B it has high capacitance
- ☐ C it is an organic material
- ☐ D none of the above

42. Whether circuit may be AC. or D. C. one, following is most effective in reducing the magnitude of the current?

- ☐ A Reactor
- ☐ B Capacitor
- ☐ C Inductor
- ☐ D Resistor

43. An ohmmeter is a _____?

- ☐ A moving iron instrument
- ☐ B moving coil instrument
- ☐ C dynamometer instrument
- ☐ D none of the above

44. In a flyback converter, the inductor of the buck-boost converter has been replaced by a _____?

- ☐ A Flyback capacitor
- ☐ B Flyback resistor
- ☐ C Flyback transformer
- ☐ D Flyback transistor

45. Series capacitors on transmission lines are of little use when the load VAR requirement is _____?

- ☐ A large
- ☐ B small
- ☐ C fluctuating
- ☐ D any of the above

46. An oscillator employs _____ feedback?

- ☐ A Positive
- ☐ B Negative
- ☐ C Neither positive nor negative
- ☐ D Data insufficient

47. An over excited synchronous motor is used for _____?

- ☐ A fluctuating loads
- ☐ B variable speed loads
- ☐ C low torque loads
- ☐ D power factor corrections

48. In a control system integral error compensation _____ steady state error?

- ☐ A increases
- ☐ B minimizes
- ☐ C does not have any effect on
- ☐ D any of the above

49. H.R.C. fuse, as compared to a rewirable fuse, has _____?

- ☐ A no ageing effect
- ☐ B high speed of operation
- ☐ C high rupturing capacity
- ☐ D all of the above

50. The r.m.s. value of a sinusoidal A.C. current is equal to its value at an angle of _____ degrees?

- ☐ A 90
- ☐ B 60
- ☐ C 45
- ☐ D 30

51. What is the total resistance of a voltmeter on the 10 V range when the meter movement is rated for 50 μ A of full-scale current ?

- (A) 10 k Ω
- (B) 20 k Ω
- (C) 200 k Ω
- (D) None of the above

52. When SCR starts conducting, then _____ loses all control?

- (A) Gate
- (B) Cathode
- (C) Anode
- (D) None of the above

53. When an alternator connected to the bus-bar is shut down the bus-bar voltage will _____?

- (A) fall
- (B) rise
- (C) remain unchanged
- (D) none of the above

54. The slope of a.c. load line is _____ that of d.c. load line?

- (A) The same as
- (B) More than
- (C) Less than
- (D) None of the above

55. Efficiency of a power transformer is of the order of _____?

- (A) 100 per cent
- (B) 98 per cent
- (C) 50 per cent
- (D) 25 per cent

56. The viscous friction co-efficient, in force-voltage analogy, is analogous to _____?

- (A) charge
- (B) resistance
- (C) reciprocal of inductance
- (D) reciprocal of conductance
- (E) none of the above

57. In order to remove static electricity from machinery _____?

- (A) construct insulated cabins
- (B) insulate the machinery
- (C) ground the framework
- (D) humidify the surroundings

58. A coil induces 350 mV when the current changes at the rate of 1 A/s. The value of inductance is _____?

- (A) 3500 mH
- (B) 350 mH
- (C) 250 mH
- (D) 150 mH

59. Wagner earthing device is used to eliminate errors due to _____?

- (A) electrostatic coupling
- (B) electromagnetic coupling
- (C) both A. and B.
- (D) none of the above

60. For the same secondary voltage, the output voltage from a centre-tap rectifier is _____ than that of bridge rectifier?

- (A) twice
- (B) thrice
- (C) four time
- (D) one-half

61. Which of the following bus-bar schemes has the lowest cost?

- (A) Ring bus-bar scheme
- (B) Single bus-bar scheme
- (C) Breaker and a half scheme
- (D) Main and transfer scheme

62. Two oppositely charged balls A and B attract third conducting ball C when placed near them turn by turn. Then ball C must be _____?

- (A) positively charged
- (B) electrically neutral
- (C) negatively charged
- (D) positively and negatively charged

63. In three-phase squirrel-cage induction motors _____?

- (A) rotor conductor ends are short-circuited through slip rings
- (B) rotor conductors are short-circuited through end rings
- (C) rotor conductors are kept open
- (D) rotor conductors are connected to insulation

64. Which of the following is an open loop control system?

- (A) Field controlled D.C. motor
- (B) Ward leonard control
- (C) Metadyne
- (D) Stroboscope

65. The advantage of oil filled cables is _____?

- (A) more perfect impregnation
- (B) smaller overall size
- (C) no ionisation, oxidation and formation of voids
- (D) all of the above

66. The power factor of a D.C. circuit is always _____?

- (A) less than unity
- (B) unity
- (C) greater than unity
- (D) zero

67. The household energy meter is _____?

- (A) an indicating instrument
- (B) a recording instrument
- (C) an integrating instrument
- (D) none of the above

68. BCT is used for _____?

- (A) High power phase control
- (B) High power current control
- (C) Low power current control
- (D) Low power phase control

69. The main source of production of biogas is _____?

- (A) human waste
- (B) wet cow dung
- (C) wet livestock waste
- (D) all above

70. A Zener regulator _____ in the power supply?

- (A) Increases the ripple
- (B) Decreases the ripple
- (C) Neither increases nor decreases the ripple
- (D) Data insufficient



English

5 MCQs

71. In the following question four alternative sentences are given. Choose the CORRECT option:

- (A) Christopher could not taste the drink until he had boiled it.
- (B) Until he had boiled It, Christopher could not taste the drink
- (C) Christopher could not taste the drink until he had not boiled it.
- (D) Christopher could not taste the drink till he had not boil it.

72. Choose the word opposite in meaning to the capitalized word "TANGIBLE":

- (A) Embodied
- (B) Conceptual
- (C) Phenomenal
- (D) Verifiable

73. Identify the incorrect segment: The police report excused Anwar of all charges of corruption and job was also restored.

- (A) excused
- (B) of
- (C) also
- (D) restored

74. _ my mind, what we need in this company is a better marketing plan

- (A) For
- (B) In
- (C) To
- (D) At

75. In each of the following questions, four alternative sentences are given. Choose the CORRECT one and fill in the Circle corresponding to that letter in the MCQ Response Form.

- (A) They felt bad while leaving their friends.
- (B) They felt very badly about leaving their friends.
- (C) They felt badly about leaving their friends.
- (D) They felt badly while teaving their friends.



General Knowledge

5 MCQs

76. Full form of NICL is?

- ☐ A National insurance cost limited
- ☐ B National insurance company limited
- ☐ C National independent company limited
- ☐ D National independent cost limited

77. Worlds fastest shorthand writer is _____?

- ☐ A Jm Tagore
- ☐ B JS Birla
- ☐ C GD Bist
- ☐ D JS Mill

78. IMF & World Bank are created through ?

- ☐ A Yalta Conference
- ☐ B New Deal
- ☐ C Treaty of Versailles
- ☐ D Bretton Woods Agreement

79. Lisbon is the seaport of _____?

- ☐ A Chile
- ☐ B Portugal
- ☐ C UK
- ☐ D Belgium

80. Book 'Palestine: Peace Not Apartheid' is written by _____?

- ☐ A Nelson Mandela
- ☐ B K. K. Aziz
- ☐ C Jimmy Carter
- ☐ D John J. Mearsheimer



Pakistan Studies

4 MCQs

81. Who wrote "Muslims Suffering Under Congress Rule"?

- ☐ A Moulvi Fazul-ul-Haq
- ☐ B G.W Chaudhary
- ☐ C Ayesha Jalal
- ☐ D Benazir Bhutto

82. According to a few historians the city of Shikarpur was revived during the _____ rule.

- ☐ A Mughal
- ☐ B Kalhora
- ☐ C Changezi
- ☐ D None of these

83. When did Pakistan become a Republic?

- ☐ A 14/8/1947
- ☐ B 23/3/1956
- ☐ C 16/12/1971
- ☐ D 12/10/1999

84. When Pakistan got first loan from USA?

- ☐ A 1949
- ☐ B 1950
- ☐ C 1951
- ☐ D 1952

**Pakistan Current Affairs**

3 MCQs

85. The Pakistan Postage has issued a commemorative postage of Rs _____ denomination to pay tribute to Dr Ruth Pfau.

- ☐ A Rs 2
- ☐ B Rs 5
- ☐ C Rs 8
- ☐ D Rs 10

86. November 1, 2024, marked which anniversary of the freedom of Gilgit-Baltistan from Dogra?

- ☐ A 77th
- ☐ B 75th
- ☐ C 70th
- ☐ D 65th

87. In PSDP, Rs _____ billion has been allocated to the federal government in the Federal Budget 2018-19.

- ☐ A 600
- ☐ B 700
- ☐ C 800
- ☐ D 900

**Islamic Studies**

2 MCQs

88. The literal meaning of Soam is _____.

- ☐ A To Leave Something
- ☐ B To Avoid Something
- ☐ C Both (a) & (b)
- ☐ D None of these

89. Ibn-e-Maja (Abu Abdullah Muhammad bin Yazeed Al-Maja) wrote _____ book?

- ☐ A Kitab al Tafsir
- ☐ B Quran fil Asr il Hazir
- ☐ C Kitab al Athaar
- ☐ D Sunnan wal Ahadith

**Computer Science and IT**

1 MCQs

90. Objects on the slide that hold text are called _____?

- ☐ A Place Holder
- ☐ B Object Holder
- ☐ C Auto layout
- ☐ D Text Holder

**Mathematics**

10 MCQs

91. Find the ratio of the curved surfaces of two cylinders of same heights if their radii are in the ratio 1:2.

- ☐ A 1:2
- ☐ B 2:1
- ☐ C 1:4
- ☐ D 4:1

92. An item bought for Rs. 800 is sold for Rs. 920. What is the profit percentage?

- (A) 12% (B) 15%
(C) 18% (D) 20%

93. How many four digit even numbers can be formed using the digits {2, 3, 5, 1, 7, 9}

- (A) 60 (B) 360
(C) 120 (D) 240

94. If the diagonal of a square is doubled. How does the area of the square change?

- (A) Becomes fourfold (B) Becomes threefold
(C) Becomes twofold (D) none of the above

95. The temperature at noon in LHR ,Pakistan was 6 deg on Monday ,4deg on Tuesday,2deg below zero on Wednesday,3deg below zero on Thursday, 0 deg on Friday ,3 deg on Saturday ,and 6 deg on Sunday. What was the average temperature at noon for the week ?

- (A) 14 deg (B) -2 deg
(C) 2 deg (D) 7 deg

96. The feasible solution which maximized or minimized the objective function is called

- (A) simple solution (B) feasible solution
(C) optimal solution (D) None

97. The number of rounds that a wheel of diameter $7/11$ m will make in going 4 km is:_____?

- (A) 1000 (B) 1500
(C) 1700 (D) 2000

98. On an order of 5 dozen boxes of a consumer product, a retailer receives an extra dozen free. This is equivalent to allowing him a discount of:_____?

- (A) 15% (B) $16 \frac{1}{6}\%$
(C) $16 \frac{2}{3}\%$ (D) 20%Fun & Trivia

99. The expansion $(1 - 4x)^2$ is valid if:

- (A) $|x| < 1/4$ (B) $|x| > 1/4$
(C) $-1 \leq x < 1$ (D) $|x| \leq -1$

100. The edge of three cubes of metal is 3 dm, 4 dm and 5 dm. They are melted and formed into a single cube. Find the edge of the new cube?

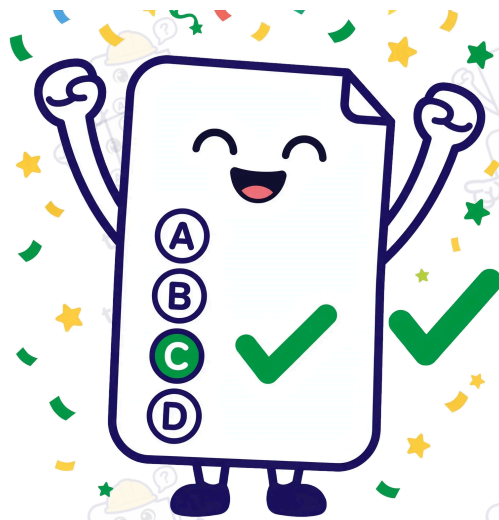
- (A) 3 dm (B) 4 dm
(C) 5 dm (D) 6 dm

Answer key

Tap any answer to open its full explanation on TestUstad.

Model Paper 1

1	C	2	D	3	C	4	A	5	D	6	C	7	E	8	D	9	B	10	A
11	A	12	B	13	B	14	B	15	B	16	C	17	A	18	A	19	A	20	D
21	A	22	D	23	A	24	A	25	D	26	B	27	B	28	B	29	D	30	A
31	D	32	A	33	B	34	A	35	C	36	D	37	B	38	B	39	C	40	D
41	A	42	D	43	B	44	C	45	B	46	A	47	D	48	B	49	D	50	C
51	C	52	A	53	C	54	B	55	B	56	B	57	C	58	B	59	A	60	D
61	B	62	B	63	B	64	A	65	D	66	B	67	C	68	A	69	D	70	B
71	A	72	B	73	A	74	B	75	A	76	B	77	C	78	D	79	B	80	C
81	A	82	B	83	B	84	D	85	C	86	A	87	C	88	C	89	A	90	A
91	A	92	B	93	A	94	A	95	C	96	C	97	D	98	C	99	A	100	D



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