

Online Examinations (Even Sem/Part-I/Part-II Examinations 2020 - 2021)

Course Name - –Electrical Installation, Maintenance, Testing

Course Code - DEE602

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Answer all the questions. Each question carry one mark.

9. 1. The back emf of a DC motor depends on

Mark only one oval.

- Field flux
- Shape of conductors
- Type of slip rings
- Brush material

10. 2. Dielectric mineral oil is used in

Mark only one oval.

- Small transformers
- Medium transformers
- Large transformers
- In all transformers

11. 3. Purpose of no-load test on a transformer is

Mark only one oval.

- Copper loss
- Magnetising current
- Magnetising current and loss
- Efficiency of the transformer

12. 4. How many classifications of overhead line insulators are there?

Mark only one oval.

- 3
- 4
- 5
- 6

13. 5. What is the relation between surface of rotor and the operation?

Mark only one oval.

- smooth surface leads to the quiet operation
- rough surface leads to the quiet operation
- smooth surface leads to the noisy operation
- rough surface leads to the noisy operation

14. 6. Which among these tests are included in high voltage tests

Mark only one oval.

- Power wet test
- Impulse voltage withstand test
- Power frequency withstand test 1 minute dry
- All of these

15. 7. The hunting in synchronous machines can be guarded against by

Mark only one oval.

- Using a flywheel
- Designing the synchronous machine with suitable synchronizing power
- Damped bars
- All of these

16. 8. On which of the following transformer, Buchholz's relay can be fixed on?

Mark only one oval.

- Auto-transformers
- Air-cooled transformers
- Welding transformers
- Oil cooled transformers

17. 9. How should the properties of strength and dielectric strength in insulating materials?

Mark only one oval.

- High strength, low Dielectric strength
- Low strength, low Dielectric strength
- High strength, high Dielectric strength
- Low strength, high Dielectric strength

18. 10. What is the relationship between current density, conductor area and resistance?

Mark only one oval.

- higher the current density, higher the conductor area, higher the resistance
- higher the current density, higher the conductor area, lower the resistance
- higher the current density, lower the conductor area, higher the resistance
- lower the current density, lower the conductor area, lower the resistance

19. 11. Electrical hazards include shock, electrical arcs and blasts, and _or faulty equipment

Mark only one oval.

- Broken
- Double-insulated
- Polished
- Secure

20. 12. Unbalanced -phase stator currents in an alternator cause

Mark only one oval.

- Heating of rotor
- Vibrations
- Double frequency currents in the rotor
- All of these

21. 13. Function of conservator in an electrical transformer is

Mark only one oval.

- Supply cooling oil to transformer in time of need
- Provide fresh air for cooling the transformer
- Protect the transformer from damage when oil expands due to heating
- Cannot be determined

22. 14. In the Transmission and Distribution sector, where should the insulators be placed?

Mark only one oval.

- Between towers and poles
- Between towers and ground
- Between towers and conductors
- Between conductors and ground

23. 15. For a three phase induction motor, maximum torque is double the full load torque and starting torque is times the full load torque To get a full load slip of %, percentage reduction in the rotor resistance should be?

Mark only one oval.

- 0.627
- 0.75
- 0.6
- 0.35

24. 16. Which wire is exposed to electric shock?

Mark only one oval.

- Live
- Neutral
- Earth
- None of above

25. 17. For same power rating, the higher voltage alternator is

Mark only one oval.

- larger in size
- smaller in size
- cheaper
- costlier

26. 18. If a transformer is having equal number of turns at primary and secondary then transformer is called as

Mark only one oval.

- Step-down
- Step-up
- One-one
- Autotransformer

27. 19. Identify the correct statement relating to the ideal transformer

Mark only one oval.

- no losses and magnetic leakage
- interleaved primary and secondary windings
- a common core for its primary and secondary windings
- core of stainless steel and winding of pure copper metal

28. 20. The neutral of the three phase MVA, kV alternator is earthed through a resistance of ohms, the relay is set to operate when there is an out of balance current of A The CTs have a ratio of / What should be the minimum value of the earthing resistance to protect % of winding?

Mark only one oval.

2.12 Ω

1.12 Ω

4.24 Ω

3.24 Ω

29. 21. In a synchronous alternator, the frequency f in Hz is given by

Mark only one oval.

$f = PN/120$

$f = PN/60$

$f = P/60N$

$f = N/60P$

30. 22. Function of transformer is to _____

Mark only one oval.

Convert AC to DC

Convert DC to AC

Step down or up the DC voltages and currents

Step down or up the AC voltages and currents

31. 23. Third harmonic current in transformer at no-load is

Mark only one oval.

- 3% of exciting current
- 10% of exciting current
- 25% of exciting current
- 35% of exciting current

32. 24. How should the permeability and number of ampere turns for good magnetic materials be?

Mark only one oval.

- high permeability, high ampere turns
- high permeability, low ampere turns
- low permeability, low ampere turns
- low permeability, high ampere turns

33. 25. What is the value of the ratio of the core length to pole pitch for good efficiency?

Mark only one oval.

- 1
- 1.5
- 2
- 3

34. 26. Two identical alternators having impedances Z and Z are connected in parallel produces E and E as their induced emf's if no load is connected to the alternators then a circulating current will flow in the circuit This current is given by

Mark only one oval.

- $E_1 + E_2 / Z_1 - Z_2$
- $E_1 - E_2 / Z_1 + Z_2$
- $E_2 - E_1 / Z_1 + Z_2$
- $E_1 + E_2 / Z_1 + Z_2$

35. 27. Transformer core is designed to reduce

Mark only one oval.

- Hysteresis loss
- Eddy current loss
- Hysteresis loss and Eddy current loss
- Cannot be determined

36. 28. No-load current in a transformer

Mark only one oval.

- Lags behind the voltage by about 75°
- Leads the voltage by about 75°
- Lags behind the voltage by about 15°
- Leads the voltage by about 15°

37. 29. How many types of electrical insulators are present on the basis of voltage application?

Mark only one oval.

- 2
- 3
- 4
- 5

38. 30. What is the relation between clearances and slots?

Mark only one oval.

- high clearances are provided for salient slots
- low clearances are provided for skewed slots
- low clearances are provided for salient slots
- high clearances are provided for skewed slots

39. 31. A DC series motor

Mark only one oval.

- Should always be started on load
- Always runs at constant speed
- Is not suitable for high starting torque
- May 'run away' if the field gets opened

40. 32. One turn consists of

Mark only one oval.

- Three coil sides
- Two conductors
- Four conductors
- Four coil sides

41. 33. Buchholz's relay will give warning and protection against

Mark only one oval.

- Electrical fault inside the transformer itself
- Electrical fault outside the transformer in outgoing feeder
- For both outside and inside faults
- Cannot be determined

42. 34. What is the dielectric strength of porcelain insulators?

Mark only one oval.

- 60 kV/cm
- 140 kV/cm
- 50 kV/cm
- 40 kV/cm

43. 35. What is the range of current density in rotor bars?

Mark only one oval.

- 4-9 A per mm²
- 4-6 A per mm²
- 4-7 A per mm²
- 5-6 A per mm²

44. 36. One of the three generally recognized hazards of electrical work is

Mark only one oval.

- Arc Flash
- Cuts
- Falls
- Concussion

45. 37. Permissible variation in supply frequency of alternators is

Mark only one oval.

- $\pm 1\%$
- $\pm 2\%$
- $\pm 4\%$
- $\pm 6\%$

46. 38. What is the main cause for the failure of overhead line insulators?

Mark only one oval.

- Surges
- Flashover
- Arching
- Grounding

47. 39. What is the function of spacers?

Mark only one oval.

- To insulate the coils from each other
- To provide free passage to the cooling oil
- To insulate coils and provide free passage
- Cannot be determined

48. 40. A ϕ -phase, Hz, ϕ -pole induction motor has a shaft output of kW at rpm Friction and windage losses is % of the output Total stator losses is W What is the rotor input?

Mark only one oval.

- 10860 W
- 10100 W
- 11460 W
- 11000 W

49. 41. What is the resistance of human body?

Mark only one oval.

- 10 to 50 Kohm
- 100 to 500 Kohm
- 10 to 50 Mohm
- 100 to 500 Mohm

50. 42. The maximum current that can be supplied by an alternator depends on

Mark only one oval.

- Number of poles
- Speed of the exciter
- Exciter current
- Strength of the magnetic field

51. 43. One to one transformers are used because

Mark only one oval.

- To isolate any part of circuit electrically
- To get more voltage at secondary
- To get less voltage at secondary
- To reduce losses, present in circuit

52. 44. An ideal transformer will have maximum efficiency at a load such that

Mark only one oval.

- copper loss = iron loss
- copper loss < iron loss
- copper loss > iron loss
- cannot be determined

53. 45. If a transformer is provided with differentially connected relay To prevent the mal operation of the relay, the relay relay operating coil is biased with

Mark only one oval.

- 3rd harmonic
- 2nd harmonic
- 7th harmonic
- 5th harmonic

54. 46. If an alternator is operating at a leading power factor, its voltage regulation is

Mark only one oval.

- more than one
- equal to zero
- negative
- none of these

55. 47. Which winding has more number of turns?

Mark only one oval.

- Low voltage winding
- High voltage winding
- Primary winding
- Secondary winding

56. 48. A transformer cannot work on the DC supply because

Mark only one oval.

- There is no need to change the DC voltage
- A DC circuit has more losses
- Faraday's laws of electromagnetic induction are not valid since the rate of change of flux is zero
- Cannot be determined

57. 49. A three phase transformer having a line voltage ratio of V_1/V_2 is connected in the star-delta. The CTs on the V_1 side have a CT ratio of I_1/I_2 . What must be the ratio of CTs on the V_2 side?

Mark only one oval.

- $7/5$
- $5/7$
- $3/5$
- $5/2$

58. 50. What is the relation between motors and ratio of core length to pole pitch?

Mark only one oval.

- for small motors high ratio is preferred
- for big motors high ratio is preferred
- for small motors small ratio is preferred
- for big motors small ratio is preferred

59. 51. The change in excitation of the two alternators operating in parallel causes

Mark only one oval.

- Only the kVAR sharing of two alternators without disturbing kW sharing of the two machines
- Only the kW sharing of two alternators without disturbing kVAR sharing of the two machines
- Both the kVAR sharing and kW sharing of two alternators
- None of the above

60. 52. Which transformer insulation material is best compare to Kraft paper?

Mark only one oval.

- Oil
- Asbestos
- Low grade pressboard
- Cotton

61. 53. Maximum value of flux established in a transformer on load is equal to

Mark only one oval.

- $E_1 / (4.44 \cdot f \cdot N_1)$
- $E_1 / (4.44 \cdot f \cdot N_2)$
- $E_2 / (4.44 \cdot f \cdot N_1)$
- Cannot define

62. 54. Which class has the lowest and the highest temperature?

Mark only one oval.

- Class Y, Class C
- Class Y, Class H
- Class H, Class C
- Class B, Class H

63. 55. What is the range of clearance that can be left between rotor bars and the core?

Mark only one oval.

- 0.1-0.4 mm
- 0.2-0.4 mm
- 0.15-0.4 mm
- 0.4-0.6 mm

64. 56. What data is provided from the no load test on induction motors?

Mark only one oval.

- Core loss only
- Magnetising current
- No load power factor
- All of these

65. 57. The regulating of an alternator is

Mark only one oval.

- The reduction in terminal voltage when alternator is loaded
- The variation of terminal voltage under the conditions of maximum and minimum excitation
- The increase in terminal voltage when load is thrown off
- The change in terminal voltage from lagging power factor to leading power factor.

66. 58. What is the function of breather in a transformer?

Mark only one oval.

- To provide oxygen inside the tank
- To cool the coils during reduced load
- To cool the transformer oil
- To arrest flow of moisture when outside air enters the transformer

67. 59. What is the dielectric strength, coefficient of thermal expansion of glass with respect to porcelain insulators?

Mark only one oval.

- High, high
- High, low
- Low, low
- Low, high

68. 60. What is the relation of closed slots with leakage reactance

Mark only one oval.

- closed slots give no leakage reactance
- closed slots give high leakage reactance
- closed slots give low leakage reactance
- closed slots give negative leakage reactance

69. 61. Swinburne's test and brake tests

Mark only one oval.

- Both are direct method of testing
- Direct method of testing, indirect method of testing
- Indirect method of testing, direct method of testing
- Both are indirect method of testing

70. 62. For zero factor leading, the effect of armature reaction in an alternator on the main flux is

Mark only one oval.

- Magnetizing
- Demagnetizing
- Cross-magnetizing
- None of these

71. 63. Which chemical is used in breather?

Mark only one oval.

- Asbestos fibre
- Demagnetizing
- Cross-magnetizing
- None of these

72. 64. What happens when some serious phenomenon occurs in the insulators?

Mark only one oval.

- Puncher is produced in the insulator body
- Insulator body bulges
- Insulator body bursts
- Insulator body tears apart

73. 65. A ϕ -phase, Hz, p -pole induction motor has a shaft output of kW at rpm Friction and windage losses is % of the output Total stator losses is W What is the stator input?

Mark only one oval.

- 10860 W
- 10100 W
- 11460 W
- 11000 W

74. 66. How much electricity shock cause death passing through body?

Mark only one oval.

- 10 mA
- 20 mA
- 50 mA
- 100 mA

75. 67. In alternators, the distribution factor is defined as the ratio of emfs of

Mark only one oval.

- Concentrated winding to distributed winding
- Distributed winding to full pitch winding
- Full pitch winding to distributed winding
- Distributed winding to concentrated winding

76. 68. Sandwiched type of winding is used in

Mark only one oval.

- In all transformers
- In core type transformers
- In shell type transformers
- In all transformers except shell and core type transformers

77. 69. What is the property of insulating materials?

Mark only one oval.

- Prevents the unwanted flow of current
- Allows the unwanted flow of current
- Increases the unwanted flow of current
- Decreases the unwanted flow of current

78. 70. The frequency of the carrier in the case of carrier-current-pilot scheme is in the range of

Mark only one oval.

- 50 kHz-500 kHz
- 1 kHz-10 kHz
- 25 kHz-50 kHz
- 15 kHz-25kHz

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