

SCIENCE STOPPERS

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PATNA**

PRACTICS SET :- 3

50 QUESTION 30 MIN

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1. Why do the SF₆ gases have an excellent heat transfer property?

- a. Low gaseous viscosity.
- b. High dielectric strength.
- c. Higher molecular weight.
- d. Both (a) and (c)
- e. None of these

ANSWER: Both (a) and (c)

2. To limit current chopping in vacuum circuit breakers, the contact material employed should have the properties of

- a. Low conductivity and high vapour pressure.
- b. Low conductivity and low vapour pressure.
- c. High conductivity and high vapour pressure.
- d. High conductivity and low vapour pressure.

ANSWER: Low conductivity and high vapour pressure.

3. If C₄ is the capacitance and R₄ is the resistance of Hay's bridge, then the Q factor of Hay's bridge is given by

- a. $1 / \omega C_4 R_4$
- b. $\omega C_4 R_4$
- c. $\omega C_4 / R_4$
- d. $\omega R_4 / C_4$

ANSWER: $1 / \omega C_4 R_4$

4. Anderson bridge is suitable for the measurement of

- a. Resistance
- b. Inductance
- c. Capacitance
- d. All of these

ANSWER: Inductance

5. The scale of dynamometer wattmeter is

- a. Approximately uniform
- b. Cramped at the middle
- c. Cramped at the end points
- d. Crowded in the first half

ANSWER: Approximately uniform

6. When does the arc interruption in oil circuit breaker take place?

- a. Contacts apart.
- b. Voltages becomes zero
- c. Current goes through zero
- d. All of the above

ANSWER: Current goes through zero

7. Which among these is the advantage of synchronous condensers?

- a. Helps in achieving the stepless control of power factor.
- b. The motor windings have a lower thermal stability.
- c. The maintenance cost is low.
- d. All of the above.

ANSWER: Helps in achieving the stepless control of power factor.

8. For which among the following consumers is penalty imposed for low power factor?

- a. Residential and commercial consumers.
- b. Industrial consumers.
- c. Agricultural consumers.

d. All of the above.

ANSWER: Industrial consumers.

9. What is an electrical schedule?

- a. A list or a plan of a building providing information of number of points in each room.
- b. The list of all the electrical components required for a particular room
- c. The list of electrical components along with their prices'
- d. Both (B) and (C)
- e. None of these

ANSWER: A list or a plan of a building providing information of number of points in each room.

10. What is the maximum load that can be connected in a circuit connecting only lighting points?

- a. 500 watts
- b. 750 watts
- c. 800 watts
- d. 1000 watts

ANSWER: 800 watts

11. What is the dimension of the copper strips used for the strip earthing?

- a. 25 mm * 4 mm
- b. 25 mm * 3 mm
- c. 30 mm * 4 mm
- d. 30 mm * 3 mm

ANSWER: 25 mm * 4 mm

12. Which set of rules are to be verified on completion of wiring on any new installation?

- a. IE rules, 1950
- b. IE rules, 1956
- c. IE rules, 1960
- d. None of these

ANSWER: IE rules, 1956

13. Can an instrument suffer both zero drift and sensitivity drift at the same time?

- a. Yes
- b. No
- c. It depends on the supply voltage
- d. None of these

ANSWER: Yes

14. Electrodynamic instruments can be used as

- a. Ammeter
- b. Voltmeter
- c. Wattmeter
- d. All of these

ANSWER: All of these

15. Filters are used to convert

- a. Pulsating dc signal into a pure dc signal
- b. Pure dc signal into a pulsating dc signal
- c. Pulsating dc signal into a pure ac signal
- d. Pulsating ac signal into a pure dc signal

ANSWER: Pulsating dc signal into a pure dc signal

16. If a number of resistors are connected in parallel, then the reciprocal of total resistance is equal to

- a. Sum of individual resistances
- b. Sum of the reciprocal of individual resistances
- c. Reciprocal of the sum of individual resistances
- d. All of these

ANSWER: Sum of the reciprocal of individual resistances

17. What is the safe working temperature for a conductor in case of armoured cables?

- a. 50° C
- b. 75° C
- c. 65° C
- d. 40° C

ANSWER: 65° C

18. What does capacitance grading of cables mean?

- a. Use of dielectrics in different concentrations
- b. Introduction of capacitance at various lengths of cable to counter the effect of inductance
- c. Use of dielectrics of different permittivities
- d. Grading according to capacitance per km length of the cable

ANSWER: Use of dielectrics of different permittivities

19. What happens in a long transmission lines under no load?

- a. The receiving end voltage is less than the sending end voltage.
- b. The sending end voltage is less then receiving end voltage.
- c. The sending end voltage is equal to receiving end voltage.
- d. None of these

ANSWER: The sending end voltage is less then receiving end voltage.

20. What are the A and D parameters in case of medium transmission line (nominal T method)?

- a. $A = D = 1 + (YZ / 2)$
- b. $A = D = 1 + (YZ / 2) * Z$
- c. $A = D = (YZ / 2)$

d. $A = D = (YZ / 2) * Y$

ANSWER: $A = D = 1 + (YZ / 2)$

21. The ABCD constants of a 3 phase transposed transmission line with linear and passive elements _____.

- a. are always equal
- b. never equal
- c. only A and D are equal
- d. only B and C are equal

ANSWER: only A and D are equal

22. For a short line if the receiving end voltage is equal to sending end voltage under loaded conditions

- a. The sending end power factor is unity.
- b. The receiving end power factor is unity.
- c. The sending end power factor is leading.
- d. The receiving end power factor is leading.

ANSWER: The receiving end power factor is leading.

23. In a short transmission line, voltage regulation is zero when the power factor angle of the load at the receiving end side is equal to _____.

a. $\tan^{-1} (X/R)$

b. $\tan^{-1} (R/X)$

c. $\tan^{-1} (X/Z)$

d. $\tan^{-1} (R/Z)$

ANSWER: $\tan^{-1} (R/X)$

24. How many outlets are permitted in a power circuit?

a. 10 points

b. 5 points

c. 2 points

d. 1 point

ANSWER: 2 points

25. What is the factor of safety used for current ratings in a power installation?

a. 1

b. 1.5

c. 1.75

d. 2

ANSWER: 2

26. To prevent the decaying owing to snow and rain, the wooden poles are protected by _____ cap at the top.

- a. Aluminium
- b. Zinc
- c. Cement
- d. All of these
- e. None of these

ANSWER: All of these

27. Which among these is the main requirement of the insulating materials?

- i. Non inflammable
 - ii. High permittivity
 - iii. High dielectric strength
- a. i and ii
 - b. i and iii
 - c. ii and iii
 - d. i, ii and iii

ANSWER: i and iii

28. What is the dielectric constant of impregnated paper insulation?

- a. 3.5
- b. 2.5
- c. 4.3
- d. 3.8

ANSWER: 3.5

29. The deflection angle in hot wire instruments is

- a. Directly proportional to the current
- b. Directly proportional to the square of current
- c. Inversely proportional to the current
- d. Inversely proportional to the square of current

ANSWER: Directly proportional to the square of current

30. Wheatstone bridge is suitable for the measurement of

- a. Low resistance
- b. Medium resistance
- c. High resistance
- d. Very high resistance

ANSWER: Medium resistance

31. The dielectric loss of pure capacitor is equal to

- a. 1
- b. 0
- c. Maximum
- d. None of these

ANSWER: 0

32 An over excited synchronous motor operating on no load condition is called as

- a. Synchronous capacitor
- b. Synchronous condenser
- c. Both (a) and (b)
- d. None of these

ANSWER: Both (a) and (b)

33. During starting, the magnetic field produced in a transformer is

- a. 1.5 times the maximum
- b. Equal to the maximum
- c. 0.5 times of the maximum
- d. Equal to zero

ANSWER: Equal to zero

34. Laminations and varnish are used to reduce the eddy current losses. The laminations and varnish tends to present a

- a. High resistance path to eddy current
- b. Low resistance path to eddy current
- c. Low reluctance magnetic path
- d. High reluctance magnetic path

ANSWER: High resistance path to eddy current

35. A 10 kVA, 2000 / 100v transformer has $R_1=1.5$ ohm, $R_2=0.005$ ohm, $X_1=2.5$ ohm and $X_2=0.08$ ohm. The equivalent resistance referred to primary is

- a. 3 ohm
- b. 3.25 ohm
- c. 3.5 ohm

d. 3.8 ohm

ANSWER: 3.5 ohm

36. Use of an autotransformer is economical when its transformation ratio is

- a. Near unity
- b. Much greater than unity
- c. Much lesser than unity
- d. None of these

ANSWER: Near unity

37. In an autotransformer if the power transferred inductively is equal to the power conducted through, then transformation ratio is given by

- a. 1
- b. 0.5
- c. 2
- d. 0

ANSWER: 0.5

38. Compared to the two winding transformer, in an autotransformer the leakage reactance and copper losses is

- a. less, more
- b. less, less
- c. more, more

d. more, less

ANSWER: less, less

39. Due to presence of third harmonic component in the star-star connection of three phase transformer, the frequency of the circuit component becomes

- a. Three times of the circuit frequency
- b. One third of the circuit frequency
- c. Remains same
- d. None of these

ANSWER: Three times of the circuit frequency

40. In star-star connection of three phase transformer, if V_L is the line voltage and I_L is the line current then phase voltage and phase current is given by

- a. $V_L / \sqrt{3}, I_L$
- b. V_L, I_L
- c. $\sqrt{3}V_L, I_L / \sqrt{3}$
- d. $V_L, I_L / \sqrt{3}$

ANSWER: $V_L / \sqrt{3}, I_L$

41. The emf of the dry cell is about

- a. 0 V
- b. 0.5 V
- c. 1 V

d. 1.5 V

42. The positive plates of nickel iron cell is made up of

- a. Nickel hydroxide
- b. Lead peroxide
- c. Ferrous hydroxide
- d. Potassium hydroxide

ANSWER: Nickel hydroxide

43. In DOL fuses are provided to protect against

- a. Short circuit protection
- b. Over voltage
- c. Over current
- d. Over load

ANSWER: Short circuit protection

44. The P - type semiconductor impurities are also called as

- a. Acceptor impurities
- b. Donor impurities
- c. Either (a) or (b)
- d. None of these

ANSWER: Acceptor impurities

45. Silicon controlled rectifier can be turned on

- a. By applying a gate pulse and turned off only when current becomes zero
- b. And turned off by applying gate pulse
- c. By applying a gate pulse and turned off by removing the gate pulse
- d. By making current non zero and turned off by making current zero

ANSWER: By applying a gate pulse and turned off only when current becomes zero

46. TRIAC is a semiconductor power electronic device which contains

- a. Two SCR's connected in reverse parallel
- b. Two SCR's connected in parallel
- c. Two SCR's connected in series
- d. Two BJT's connected in series

ANSWER: Two SCR's connected in reverse parallel

47. An SCR can be used

- a. as static conductor
- b. for power control
- c. for speed control of dc shunt motor
- d. all of these

ANSWER: all of these

48. A full wave rectifier with resistive load produces

- a. Second harmonic
- b. Third harmonic
- c. Fifth harmonic
- d. Do not produce harmonics

ANSWER: Do not produce harmonics

49. The input current waveform of a bridge controlled rectifier when the load is perfectly filtered is

- a. Sine wave
- b. Square wave
- c. Saw - tooth wave
- d. Trapezoidal wave

ANSWER: Square wave

50. Harmonics in 3 phase inverters can be reduced by using

- a. Passive filter
- b. Active filter
- c. Both passive and active filters
- d. None of these

ANSWER: Both passive and active filters

