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संच क्र. **A**

प्रश्नपुस्तिका – II
विद्युत अभियांत्रिकी पेपर – 2

प्रश्नपुस्तिका क्रमांक BOOKLET NO. 101229

वेळ : 2 (दोन) तास

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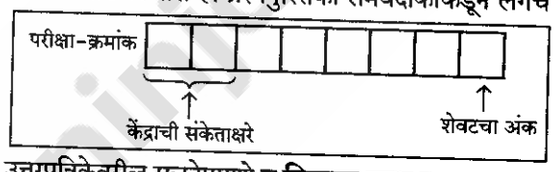
सूचना

(1) सदर प्रश्नपुस्तिकेत 100 अनिवार्य प्रश्न आहेत. उमेदवारांनी प्रश्नांची उत्तरे लिहिण्यास सुरुवात करण्यापूर्वी या प्रश्नपुस्तिकेत सर्व प्रश्न आहेत किंवा नाहीत याची खात्री करून घ्यावी. तसेच अन्य काही दोष आढळल्यास ही प्रश्नपुस्तिका समवेक्षकांकडून लगेच बदलून घ्यावी.

(2) आपला परीक्षा-क्रमांक ह्या चौकोनांत **न विसरता बॉलपेनने** लिहावा.



(3) वर छापलेला प्रश्नपुस्तिका क्रमांक तुमच्या उत्तरपत्रिकेवर विशिष्ट जागी उत्तरपत्रिकेवरील सूचनेप्रमाणे **न विसरता नमूद करावा.**

(4) या प्रश्नपुस्तिकेतील प्रत्येक प्रश्नाला 4 पर्यायी उत्तरे सुचविली असून त्यांना 1, 2, 3 आणि 4 असे क्रमांक दिलेले आहेत. त्या चार उत्तरांपैकी सर्वात योग्य उत्तराचा क्रमांक उत्तरपत्रिकेवरील सूचनेप्रमाणे तुमच्या उत्तरपत्रिकेवर नमूद करावा. अशा प्रकारे उत्तरपत्रिकेवर उत्तर-क्रमांक नमूद करताना तो संबंधित प्रश्न-क्रमांकासमोर छायांकित करून दर्शविला जाईल याची काळजी घ्यावी. **ह्याकरिता फक्त काळ्या शाईचे बॉलपेन वापरावे, पेन्सिल वा शाईचे पेन वापरू नये.**

(5) सर्व प्रश्नांना समान गुण आहेत. यास्तव सर्व प्रश्नांची उत्तरे द्यावीत. घाईमुळे चुका होणार नाहीत याची दक्षता घेऊनच शक्य तितक्या वेगाने प्रश्न सोडवावेत. क्रमाने प्रश्न सोडविणे श्रेयस्कर आहे पण **एखादा प्रश्न कठीण वाटल्यास त्यावर वेळ न घालविता पुढील प्रश्नांकडे वळावे.** अशा प्रकारे शेवटच्या प्रश्नापर्यंत पोहोचल्यानंतर वेळ शिल्लक राहिल्यास कठीण म्हणून वगळलेल्या प्रश्नांकडे परतणे सोईस्कर ठरेल.

(6) उत्तरपत्रिकेत एकदा नमूद केलेले उत्तर खोडता येणार नाही. नमूद केलेले उत्तर खोडून नव्याने उत्तर दिल्यास ते तपासले जाणार नाही. एकापेक्षा जास्त उत्तरे नमूद केल्यास ते उत्तर चुकीचे धरले जाईल व त्या चुकीच्या उत्तराचे गुण वजा केले जातील.

(7) प्रस्तुत परीक्षेच्या उत्तरपत्रिकांचे मूल्यांकन करताना उमेदवाराच्या उत्तरपत्रिकेतील योग्य उत्तरांनाच गुण दिले जातील. तसेच "उमेदवाराने वस्तुनिष्ठ बहुपर्यायी स्वरूपाच्या प्रश्नांची दिलेल्या चार उत्तरांपैकी सर्वात योग्य उत्तरेच उत्तरपत्रिकेत नमूद करावीत. अन्यथा त्यांच्या उत्तरपत्रिकेत सोडविलेल्या प्रत्येक चुकीच्या उत्तरांसाठी 25% किंवा 1/4 गुण वजा/कमी करण्यात येतील".

पर्यवेक्षकांच्या सूचनेविना हे सील उघडू नये

ताकीद

ह्या प्रश्नपत्रिकेसाठी आयोगाने विहित केलेली वेळ संपेपर्यंत ही प्रश्नपुस्तिका आयोगाची मालमत्ता असून ती परीक्षाकक्षात उमेदवाराला परीक्षेसाठी वापरण्यास देण्यात येत आहे. ही वेळ संपेपर्यंत सदर प्रश्नपुस्तिकेची प्रत/प्रती, किंवा सदर प्रश्नपुस्तिकेतील काही आशय कोणत्याही स्वरूपात प्रत्यक्ष वा अप्रत्यक्षपणे कोणत्याही व्यक्तीस पुरविणे, तसेच प्रसिद्ध करणे हा गुन्हा असून अशी कृती करणाऱ्या व्यक्तीवर शासनाने जारी केलेल्या "परीक्षांमध्ये होणाऱ्या गैरप्रकारांना प्रतिबंध करण्याबाबतचा अधिनियम–82" यातील तरतुदीनुसार तसेच प्रचलित कायद्याच्या तरतुदीनुसार कारवाई करण्यात येईल व दोषी व्यक्ती कमाल एक वर्षाच्या कारावासाच्या आणि/किंवा रुपये एक हजार रकमेच्या दंडाच्या शिक्षेस पात्र होईल.

तसेच ह्या प्रश्नपत्रिकेसाठी विहित केलेली वेळ संपण्याआधी ही प्रश्नपुस्तिका अनधिकृतपणे बाळगणे हा सुद्धा गुन्हा असून तसे करणारी व्यक्ती आयोगाच्या कर्मचारीवृंदापैकी, तसेच परीक्षेच्या पर्यवेक्षकीयवृंदापैकी असली तरीही अशा व्यक्तीविरुद्ध उक्त अधिनियमानुसार कारवाई करण्यात येईल व दोषी व्यक्ती शिक्षेस पात्र होईल.

पुढील सूचना प्रश्नपुस्तिकेच्या अंतिम पृष्ठावर पहा

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

1. Which protection would you recommend for a small 100 KVA, 11 KV/440 V distribution transformer ?

   (1) Over-current protection by fuses

   (2) Simple differential protection

   (3) Percentage biased differential with harmonic restraint

   (4) Distance protection

2. An over current relay having current setting of 125% and TSM of 0.6 is connected to supply circuit through CT of 400/5. If the fault current in the system is 4000 Amp, the PSM of relay is

   (1) 6.25 (2) 8 (3) 50 (4) 1.25

3. In a three step distance protection of transmission line, the reach of the three zones of the relay at the beginning of the first line typically extends into

   (1) 100% of the first line, 50% of the second line and 20% of the third line

   (2) 80% of the first line, 50% of the second line and 20% of the third line

   (3) 80% of the first line, 50% of the second line and 10% of the third line

   (4) 50% of the first line, 50% of the second line and 20% of the third line

4. The transmission line distance protection relay having the property of being inherently directional is

   (1) Reactance relay (2) Impedance relay

   (3) Ohm relay (4) Mho relay

5. A differential relay responds to

   (1) algebraic difference between two currents

   (2) algebraic difference between two voltages

   (3) algebraic difference between two or more similar electrical quantities

   (4) phasor difference between two or more similar electrical quantities

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

6. Incipient faults in transformer can be detected by

(1) Differential relay

(2) IDMT relay

(3) Buchholz relay

(4) Distance relay

7. Which expression correctly represents the IDMT relay characteristics ?

(1) $\frac{(TMS)(0.14)}{(PSM^{1.02}-1)}$

(2) $\frac{(TMS)(1.4)}{(PSM^{0.02}-1)}$

(3) $\frac{(TMS)(0.14)}{(PSM^{0.02}-1)}$

(4) $\frac{(TMS)(14)}{(PSM^{2.0}-1)}$

8. In a Merz price differential protection of $\Delta - \lambda$ transformer, the CT secondaries should be in form of

(1) $\Delta - \lambda$

(2) $\lambda - \Delta$

(3) $\Delta - \Delta$

(4) $\lambda - \lambda$

9. To protect alternator against unbalanced loading _____ relay is used.

(1) Over voltage

(2) Negative sequence current filter with over current relay

(3) Differential relay

(4) Earth fault relay

10. In a R – X plane, the characteristics of impedance relay is represented by a

(1) hyperbola

(2) parabola

(3) circle with centre at the origin

(4) straight line passing through origin

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

11. The illumination at a surface due to a source of light placed at a distance 'd' from the surface varies as

(1) $1/d^2$ (2) $1/d$

(3) d (4) d^2

12. Illumination level required for high precision work like machining, grinding, polishing etc. is around _____ lux.

(1) 50 – 100

(2) 100 – 200

(3) 200 – 400

(4) 1000 – 2000

13. _____ are particularly suitable in fog as their light can penetrate the fog better.

(1) Mercury vapour lamps

(2) Sodium vapour lamps

(3) Metal halid lamps

(4) Glow lamps

14. _____ is the unit of solid angle.

(1) Radian

(2) Steradian

(3) Degrees

(4) None of the above

15. 1 lux is equal to

(1) 0.1 lumen/sq. meter

(2) 1 lumen/sq. meter

(3) 1 lumen/sq. cm.

(4) 1 lumen/sq. mm.

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

16. The Unit of luminous flux is

(1) Weber (2) Ampere

(3) Coulomb (4) Lumens

17. The function of capacitor across the supply to the fluorescent tube is primarily to

(1) Stabilize the arc

(2) Reduce the starting current

(3) Improve the supply power factor

(4) Reduce the noise

18. Ignitor is used in which of the following lamps ?

(1) Filament lamps

(2) Fluorescent lamps

(3) Sodium vapour lamps

(4) None of the above

19. The flicker effect of fluorescent lamps is more pronounced at

(1) Lower frequencies

(2) Higher frequencies

(3) Lower voltages

(4) Higher voltages

20. The vacuum inside an incandescent lamp is of the order of

(1) 10^{-2} mm Hg. (2) 10^{-4}mm Hg.

(3) 10^{-6} mm Hg. (4) 10^{-8}mm Hg.

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

21. In capacitor start capacitor run motors the function of the running capacitor in series with the auxiliary winding is to
    (1) Improve power factor
    (2) Increase over load capacity
    (3) Reduce fluctuations in torque
    (4) Improve starting torque

22. In a split phase induction motor
    (1) Starting winding is connected through centrifugal switch
    (2) Running winding is connected through centrifugal switch
    (3) Both windings are connected through centrifugal switch
    (4) Centrifugal switch is used to control supply voltage

23. In centrifugal pumps maximum efficiency is obtained when plates are
    (1) Straight
    (2) Bent forward
    (3) Bent backward
    (4) Radial

24. Net Positive Suction Head Required (NPSHR) by pump is proportional to
    (1) Speed
    (2) Square of speed
    (3) Cube of speed
    (4) Inversely proportional to speed

25. To operate an oversized compressor at unloading mode for long period, the derating of compressor at lower capacity is obtained by
    (1) Reducing RPM
    (2) Suitable changing pulley size
    (3) (1) and (2) both
    (4) None of the above

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

26. In a pump, total head is 47 meter, volume flow rate is 0.019 m^3/sec, density of fluid is 1000 kg/m^3, acceleration due to gravity is 9.8 m/s^2. The pump efficiency is 60% then shaft power will be

(1) 15 kW (2) 20 kW

(3) 14.5 kW (4) 15.5 kW

27. Head of centrifugal pump is _____, where N is speed.

(1) Directly proportional to N

(2) Inversely proportional to N

(3) Directly proportional to N^2

(4) Inversely proportional to N^2

28. Anemometer is used to measure

(1) Fan flow

(2) Discharge in pumps

(3) Pump head

(4) None of the above

29. Specific power requirement in compressor is defined as

(1) The ratio of power consumption in kW to the volume delivered

(2) Ratio of output power to volume delivered

(3) Ratio of volume delivered to power consumption

(4) None of the above

30. Diesel engine as prime mover has

(1) High initial cost (2) Low operating cost

(3) Good torque (4) All of the above

31. Which of the following properties of a refrigerant is undesirable ?

(1) High critical temperature

(2) Low specific heat of liquid

(3) High boiling point

(4) Low specific volume of vapour

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

32. Which is undesirable property in the selection of proper thermal insulating material of a refrigeration system ?

(1) Low thermal conductivity

(2) High moisture absorption capacity

(3) Impervious to water vapour

(4) Resistance to fire

33. Attic fan capacity should be such that, it should provide _____ air changes per hour.

(1) 30

(2) 100

(3) 10

(4) 50 to 60

34. In a refrigeration cycle, the flow of refrigerant is controlled by

(1) Compressor

(2) Expansion valve

(3) Condenser

(4) Evaporator

35. Following class of refrigerant is used to cool by absorption or extraction of heat from substance to be refrigerated

(1) Class 2

(2) Class 3

(3) Class 1

(4) Class 4

36. Which of the following property is not desirable for Ideal Refrigerant ?

(1) Critical pressure should be as high as possible

(2) Specific heat of liquid should be as small as possible

(3) Lower enthalpy of evaporation

(4) Lower freezing point

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

37. Which of the following can be tubing metal/s for water cooled condensers ?

(1) Copper
(2) Stainless steel
(3) Cupronickel
(4) All of the above

38. A one tonne refrigerating machine means that

(1) The total weight of the machine is one tonne
(2) The quantity of the refrigerant used is one tonne
(3) One tonne of water can be converted into ice
(4) One tonne of ice when melts at 0°C in 24 hours, the refrigerating effect is equivalent to 14,000 kJ per hour

39. Which of the following refrigerant is highly toxic and flammable ?

(1) Carbon dioxide
(2) Sulphur dioxide
(3) Ammonia
(4) R-12

40. The C.O.P. of practical vapour compression system is _____ as compared to that for vapour absorption system.

(1) More
(2) Less
(3) Equal
(4) None of the above

41. Location of distribution substation depends on several technical factors such as

(1) Voltage levels
(2) Voltage regulation consideration
(3) Both (1) and (2)
(4) None of these

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

42. Principal technical parameters of elevators are
(1) Rated load and rated speed
(2) Rated speed and control system
(3) Rated load and control system
(4) Dimensions of car and rated load

43. To limit the line charging current, long distance EHV lines are connected with _____ at both ends.
(1) Line reactors
(2) Line capacitors
(3) Line resistors
(4) None of these

44. _____ are used only for connecting and disconnecting parts of electrical installations after de-energizing them.
(1) Circuit breakers
(2) Isolators
(3) Both (1) and (2)
(4) None of these

45. _____ is a natural extension of substation control system.
(1) Cyber security
(2) Data security
(3) Human safety
(4) None of these

46. _____ are located in the intermediate points between the generating stations and load centres.
(1) Generating substations
(2) Grid substations
(3) Secondary substations
(4) Distribution substations

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

47. Which equipment is used for EHV lines to improve power transferability significantly ?

(1) Shunt capacitor
(2) Shunt reactor
(3) Series capacitor
(4) All of these

48. With the help of _____, the incoming and/or outgoing lines are connected to any busbar through isolator and circuit breaker.

(1) Busbar
(2) Bus coupler
(3) Both (1) and (2)
(4) None of these

49. The equipment cost of gas insulated substation is naturally _____ that of air insulated substation.

(1) Higher than
(2) Lower than
(3) Same as
(4) Can't say

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

(1) IE rules, 1950
(2) IE rules, 1956
(3) IE rules, 1960
(4) None of these

51. Insulation coordination for UHV lines (above 500 kV) is done based on

(1) Lightning surges
(2) Lightning surges and switching surges
(3) Switching surges
(4) None of the above

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

52. The selection of surge arrester voltage rating for EHV system depends on

(1) The rate of rise of voltage

(2) The type of system to be handled

(3) Operating characteristic of the arrester

(4) All of the above

53. The switching over voltages in power system networks are of the order of

(1) 1.5 p.u.

(2) 2.5 to 3.3 p.u.

(3) 10 p.u.

(4) 20 p.u.

54. The ground wire shields the transmission line conductor from induced charges, from clouds as well as from

(1) Lightning discharge

(2) Switching discharge

(3) Both of the above

(4) None of the above

55. The main objective of compensation of the transmission system are

(1) To provide flat voltage profile at all level of power transmission

(2) To improve the stability of the system

(3) To meet the economical way for reactive power requirement of the system

(4) All of the above

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

56. In 12 pulse valve group operation the most troublesome harmonics on AC side are

(1) 24^{th} and 25^{th} (2) 3^{rd} and 5^{th}

(3) 11^{th} and 13^{th} (4) None of the above

57. In HVDC converter station equipment using thyristors, it is necessary to use a large number of thyristors in series because

(1) Voltage ratings of thyristors are low

(2) Current ratings of thyristors are low

(3) Thyristors always fail to an internal open circuit

(4) None of the above

58. Match List – I (Insulator type) with List – II (Purpose or configuration) and select the correct answer using the codes given below this list.

List – I (Insulator type)	List – II (Purpose or configuration)
A. Pin type	1. Low voltage distribution lines
B. Suspension type	2. String of insulator in horizontal position
C. Strain type	3. String of insulator in vertical position
D. Shackle type	4. For voltage upto 33 kV

	A	B	C	D
(1)	4	2	3	1
(2)	1	3	2	4
(3)	4	3	2	1
(4)	1	2	3	4

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

59. Match List – I (Equipment) with List – II (Applications) and select the correct answer using codes given below the list.

List – I (Equipment)	List – II (Applications)
A. Metal oxide arrester	1. Protects generator against SC fault
B. Isolator	2. Improves transient stability
C. Auto-reclosing CB	3. Allow CB maintenance
D. Differential Relay	4. Protection against surges

	A	B	C	D
(1)	4	3	2	1
(2)	3	4	1	2
(3)	4	3	1	2
(4)	2	3	4	1

60. In case of HVDC system there is

(1) Charging current but no skin effect

(2) No charging current but skin effect

(3) Neither charging current nor skin effect

(4) Both charging current and skin effect

61. Making current of a CB is equal to

(1) 1.55 times symmetrical breaking current

(2) 2.55 times symmetrical breaking current

(3) 3.55 times symmetrical breaking current

(4) 5 times symmetrical breaking current

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

62. The maximum Rate of Rise of Restriking Voltage (RRRV) is given by

$RRRV_{max}$ =

(1) $E_m \sqrt{LC}$ (2) $E_m \sqrt{L/C}$

(3) $\frac{E_m}{\sqrt{LC}}$ (4) E_m

63. Air break circuit breaker is suitable for

(1) High current interruption at low voltage

(2) Low current interruption at low voltage

(3) High current interruption at high voltage

(4) Low current interruption at high voltage

64. The least expensive protection for low voltage system is

(1) isolator (2) oil circuit breaker

(3) fuse (4) air circuit breaker

65. In HVDC switching system the artificial current zero is produced by switching in a

(1) LC circuit in parallel with main circuit breaker

(2) RC circuit in parallel with main circuit breaker

(3) LC circuit in series with main circuit breaker

(4) R-L circuit in parallel with main circuit breaker

66. High resistance interruption principle is used in case of _____ circuit breaker.

(1) High voltage A.C.

(2) Low voltage A.C. and medium voltage A.C.

(3) D.C.

(4) Both (2) and (3)

कच्च्या कामासाठी जागा / SPACE FOR ROUGH WORK

67. Which of the following sequence of operation is correct for operation of CB, isolator and earthing switch while opening a circuit ?

(1) Open CB – Open isolator – Close earthing switch

(2) Open isolator – Open CB – Close earthing switch

(3) Open CB – Close earthing switch – Open isolator

(4) Open isolator – Open CB – Open earthing switch

68. In energy balance theory, Cassie's energy equation is

(1) $\frac{dQ}{dt} = \frac{E}{I} - N$

(2) $\frac{dQ}{dt} = EI - N$

(3) $\frac{dQ}{dt} = EI + N$

(4) $\frac{dQ}{dt} = EIN$

69. If the inductance and capacitance of a power system are respectively 1 H and 0.01 μF and the instantaneous value of interrupted current is 10 A, then the voltage across the breaker contact will be

(1) 50 kV

(2) 57 kV

(3) 60 kV

(4) 100 kV

70. The protection against direct lightning strokes and high voltage steep waves is provided by

(1) ground wires

(2) lightning arrester

(3) both (1) and (2)

(4) earthing neutral

71. The insulation resistance of the cable decreases with

(1) Electric stress

(2) The increase in length of the insulation of the cable

(3) The decrease in length of the insulation of the cable

(4) None of these

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72. If a power cable and communication cable are to run parallel the minimum distance between them to avoid interference should be

(1) 2 – 5 cm
(2) 10 – 12 cm
(3) 40 – 60 cm
(4) 100 – 120 cm

73. During the maintenance of EHV equipment, it should be first isolated and connected to ground in order to

(1) Provide low impedance
(2) Protect the operating personnel
(3) Discharge the charging capacitance to ground
(4) Both (2) and (3)

74. In underground cables the electrostatic stress is

(1) Zero at the conductor as well as on the sheath
(2) Minimum at the conductor surface and minimum at the sheath
(3) Maximum at the conductor surface and minimum at the sheath
(4) Same at the conductor surface and sheath

75. The surge impedance of 50 miles long underground cable is 50 Ω. For a 25 miles length cable, the surge impedance will be

(1) 25 Ω
(2) 100 Ω
(3) 50 Ω
(4) 12.5 Ω

76. Which of the following neutral system will require the lighting arrester of least voltage rating ?

(1) Insulated
(2) Solidly earthed
(3) Resistance earthed
(4) Reactance earthed

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77. Resistance grounded system will have ground fault current _____ that in effectively grounded system.

(1) Lower than (2) More than (3) Same as (4) Twice

78. Capacitance of the cable is much more than the overhead transmission line due to following reason.

a. High value of permittivity of insulating material

b. Distance between the core and earthed sheath is small

c. Small distance between cores itself

Answer options :

(1) Only a and b are true (2) Only b and c are true

(3) Only a and c are true (4) a, b and c are true

79. Advantage of neutral earthing is

(1) Safety of personal (2) Reduction of earth fault current

(3) Elimination of arcing ground (4) None of the above

80. Match List – I with List – II and select the correct answer using the codes given below :

List – I	List – II
A. Thyrite arrester	1. Tower location
B. Sag template	2. Cross bonding
C. Cable sheaths	3. Restriking voltage
D. Circuit breaker	4. Non-linear resistor

	A	B	C	D
(1)	4	1	3	2
(2)	4	1	2	3
(3)	1	4	3	2
(4)	4	3	1	2

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81. Energy consumption per unit of gross domestic product is called as

(1) Energy ratio

(2) Energy intensity

(3) Per capita consumption

(4) None of the above

82. Open access allows the bulk power consumers to buy

(1) Cheaper power from open market

(2) Power from the state electricity board

(3) Power from DISCOM

(4) Power from transmission company

83. As per the Energy Act 2003, an energy audit should be carried out in all commercial, industrial and institutional buildings having connected load more than

(1) 100 kW (2) 50 kW

(3) 500 kW (4) 1000 kW

84. Marginal outage cost is related to

(1) Power

(2) Energy

(3) Economic loss

(4) Running cost

85. For a particular power, the current drawn by the circuit is minimum when the value of P.F. is

(1) 0.8 lagging (2) 0.8 leading

(3) Unity (4) 0.9 leading

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86. Installed Capacity markets (ICAP) requirement is _____ % of the peak load.

(1) 90 (2) 100

(3) 110 (4) 150

87. The consumers are encouraged to use electricity at _____ load factor.

(1) high (2) low

(3) 1 (4) zero

88. Load factor =

(1) $\frac{\text{Average load}}{\text{Maximum Demand}}$

(2) Average load × Maximum Demand

(3) $\frac{\text{Maximum Demand}}{\text{Average load}}$

(4) $\frac{\text{Maximum Demand}}{\text{Contract Demand}}$

89. The Max. Demand meter records

(1) KVA (2) KW

(3) KWh (4) KVAR

90. _____ establishes harmonic current distortion limits at the PCC.

(1) IEEE standard 519-2014

(2) IEEE standard 1453-2003

(3) IEEE standard 141-1992

(4) None of the above

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P.T.O.

91. At which of the following power factors, DG set is likely to give higher efficiency ?

(1) 0.8 lag (2) 0.8 lead

(3) 1 (4) 0.7

92. The synchronous machine delivers maximum power at power angle of

(1) 90° (2) 30°

(3) 45° (4) 60°

93. In case of hydro generators the driving torque can be changed by controlling the

(1) Gate opening

(2) Throttle opening

(3) Both (1) and (2)

(4) None of the above

94. Change in mechanical input of the two alternator operating in synchronous mode causes

(1) Only KW sharing of two alternators without disturbing KVAR sharing

(2) Change in voltages of two alternator

(3) Only KVAR sharing of two alternator without disturbing KW sharing

(4) None of the above

95. For manually operated DG set, the change over switch must be of

(1) 3 pole

(2) 4 pole

(3) 2 pole

(4) None of the above

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96. Main function of inverter in UPS system is

(1) ac to ac convertion (2) ac to dc convertion

(3) dc to dc convertion (4) dc to ac convertion

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97. An alternator is said to be over excited when it is operating at

(1) Unity power factor

(2) Leading power factor

(3) Lagging power factor

(4) Lagging to leading power factor

---

98. Which of the following is advantage of DG set ?

(1) Quick start and quick stop is possible

(2) Noise and pollution level is less

(3) Operating cost is lowest

(4) Maintenance cost is lowest

---

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

(1) Only KVAR sharing of two alternators without disturbing KW sharing of two machines

(2) Only KW sharing of two alternators without disturbing KVAR sharing of two machines

(3) Both KVAR sharing and KW sharing of two machines

(4) None of the above

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100. An alternator is said to be under excited when it is operating at

(1) Unity power factor

(2) Lagging power factor

(3) Leading power factor

(4) None of the above

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सूचना – (पृष्ठ 1 वरून पुढे.....)

(8) प्रश्नपुस्तिकेमध्ये विहित केलेल्या विशिष्ट जागीच कच्चे काम (रफ वर्क) करावे. प्रश्नपुस्तिकेव्यतिरिक्त उत्तरपत्रिकेवर वा इतर कागदावर कच्चे काम केल्यास ते कॉपी करण्याच्या उद्देशाने केले आहे, असे मानले जाईल व त्यानुसार उमेदवारावर शासनाने जारी केलेल्या ''परीक्षांमध्ये होणाऱ्या गैरप्रकारांना प्रतिबंध करण्याबाबतचे अधिनियम-82'' यातील तरतुदीनुसार कारवाई करण्यात येईल व दोषी व्यक्ती कमाल एक वर्षाच्या कारावासाच्या आणि/किंवा रुपये एक हजार रकमेच्या दंडाच्या शिक्षेस पात्र होईल.

(9) सदर प्रश्नपत्रिकेसाठी आयोगाने विहित केलेली वेळ संपल्यानंतर उमेदवाराला ही प्रश्नपुस्तिका स्वत:बरोबर परीक्षाकक्षाबाहेर घेऊन जाण्यास परवानगी आहे. **मात्र परीक्षाकक्षाबाहेर जाण्यापूर्वी उमेदवाराने आपल्या उत्तरपत्रिकेचा भाग-1 समवेक्षकाकडे न विसरता परत करणे आवश्यक आहे.**

नमुना प्रश्न

Pick out the correct word to fill in the blank :

Q. No. 201. I congratulate you _____ your grand success.

(1) for (2) at

(3) on (4) about

ह्या प्रश्नाचे योग्य उत्तर ''(3) on'' असे आहे. त्यामुळे या प्रश्नाचे उत्तर ''(3)'' होईल. यास्तव खालीलप्रमाणे प्रश्न क्र. **201** समोरील उत्तर-क्रमांक ''③'' हे वर्तुळ पूर्णपणे छायांकित करून दाखविणे आवश्यक आहे.

प्र. क्र. **201.** ① ② ● ④

अशा पद्धतीने प्रस्तुत प्रश्नपुस्तिकेतील प्रत्येक प्रश्नाचा तुमचा उत्तर-क्रमांक हा तुम्हाला स्वतंत्ररीत्या पुरविलेल्या उत्तरपत्रिकेवरील त्या त्या प्रश्न-क्रमांकासमोरील संबंधित वर्तुळ पूर्णपणे छायांकित करून दाखवावा. **ह्याकरिता फक्त काळ्या शाईचे बॉलपेन वापरावे, पेन्सिल वा शाईचे पेन वापरू नये.**

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