**POWER SYSTEM**

**1. An industrial consumer hall a daily load pattern of 2000 KW, 0.8 lag for 12 Hra and 1000 kW UPF for 1J Hr. The load factor i= \_\_\_\_\_.** (a) 0.5      (b) 0.75

(c) 0.6      (d) 2.0

**Ans**: **C**

**2. What is the maximum value of a load which consume 500 KWh per day at a load factor of 0.40, if the consumer increases the load factor of 0.50 without increasing the maximum demand?**

(a) 52.08 kW      (b) 50.8 kW

(c) 4.5 kW      (d) 60 kW

**Ans**: **A**

**3. A consumer consumes. 600 kWh per day at a load factor of 0.40. If the coneumer increases the load factor of 0.70 without increasing the maximum demand, what is the consumption of energy in kWh?**

(a) 950 kWh     (b) 1000 kWh

(c) 1050 kWh     (d) 1100 kWh

**Ans**: **C**

**4. The yearly load duration curve of a power plant is a straight line. The maximum load is 750 MW and the minimum load is 600 Mw. The capacity of the plant is 900 MW. What is the capacity factor and utilization factor?**   
 (a) 0.56, 0.80      (b) 0.83, 0.75

(c) 0.78, 0.9      (d) 0.75, 0.83

**Ans**: **D**

**5. What is the utilization factor of a power station which supplies the following loads?  
 Load A:  Motor load of200 kW between 10 AM to7PM  
 Load B: Lighting load of 100 kW between 7 PM to 11 PM  
 Load C: Pumping load of 110 kW between 3 PM to 10 AM** (a) 1.60  (b) 1.00

(c) 1.32  (d) 2.56

**Ans**: **B**

**6. A power station supplies the peak load of 60 Mw, 40 MW and 70 MW to three localities. The annual load factor is 0.50 p.u. and the diversity factor of the load at the station is 1.55. The maximum demand on the station and average load respectively will be**   
 (a) 120 MW, 60.8       (b) 90 MW, 50.6   
 (c) 103.2 MW, 51.61   (d) 100 MW, 0.51

**Ans**: **C**

**7. The type of suspension insulators are**

a.Hewlett type b.Inter linking type

c.Cemented cap type d. all of the above

**Ans**: **D**

**8. A generating station has a maximum demand of 50 Mw, a load factor of 60%, a plant capacity factor of 45% and if the plant while running as per schedule, was fully loaded. The daily energy produced will be** (a) 400 MW      (b) 720 MW

(c) 500 MW      (d) 600 MW  
 **Ans**: **B**  
**9. A generating st ation has a maximum, demand of 20 mW, load factor of 60%, a plant capacity factor of 50% and a plant.Use factor of 72%. What is the reserve capacity of the plant, if the plant, while running as per schedule, were fully loaded?** (a) 10 MW      (b) 15 MW

(c) 2 MW      (d) 5 MW  
 **Ans**: **D**  
**10. In the above question, the maximum energy that could be produced daily is** (a) 500 MWh/day     (b) 360 MWh/day  
 (c) 600 MWh/day      (d) 720 MWh/day  
 **Ans**: **A**  
**11. In a DC transmission line**  
 (a) it is necessary for the sending end and receiving end to be operated in synchronism.  
 (b) the effects of inductive and capacitive reactances are greater than in an AC transmission line of the same rating.  
 (c) there are no effects due to inductive and capacitive reactances.  
 (d) power transfer capability is limited by stability considerations.  
 **Ans**: **C**  
**12. The impedance of a circuit is given by z=3+j4. Its conductance will be**  
 (a) 1/3      (b) 3/5

(c) 3/25 (d) 4/5  
 **Ans**: **C**  
**13. A 100 km transmission line is designed for a nominal voltage of 132 kV and conaiala of one conductor per phase. The line reactance is 0.726 ohm/km. The static transmission capacity of the line, in Megawatts, would be** (a) 132     (b) 240

(c) 416     (d) 720  
 **Ans**: **C**  
**14.The per unit impedance of a circuit element is 0.15. If the base kV and base MVA are halved, then the new value of the per unit impedance of the circuit element will be** (a) 0.075      (b) 0.15

(c) 0.30      (d) 0.600  
 **Ans**: **C**  
**15. The conductor of a 10 km long, single phase, two wire line is separated by a distance of 1.5 m. The diameter of each conductor is 1 cm, If the conductors are of copper; the inductance of the circuit is** (a) 50.0 mH      (b) 45.3 mH

(c) 23.8 mH      (d) 19.6 mH  
 **Ans**: **C**  
**16. For a single phase overhead line having solid copper conductors of diameter 1 cm, spaced 60 cm between centers, the inductance in mH/km is** (a) 0.05 + 0.2 ln 60 (b) 0.2 ln 60  
 (c) 0.05 + 0.2 ln (6010.5) (d) 0.2 ln (60/0.5)  
 **Ans**: **C**  
**17. A 100 km long transmission line is loaded at 110 kV.if the loss of line is 5 MW and the load is 150 MVA, the resistance of the line is** (a) 8.06 ohms per phase (b) 0.806 ohms per phase  
 (c) 0.0806 ohms per phase (d) 80.6 ohms per phase  
 **Ans**: **A**  
**18. A 3-phase, 11 kv, 50 Hz, 200 kW load has a power factor of 0.8 lag. A delta connected 3-phase capacitor is used to improve the power factor to unity. The capacitance perphase of the capacitor in micro-farads is** (a) 3.948      (b) 1.316

(c) 0.439      (d) 11.844  
 **Ans**: **B**  
**19. For equilateral spacing of conductors of an untrasposed 3-phase line, we have** (a) balanced receiving end voltage and no communication interference  
 (b) unbalanced receiving end voltage and no communication interference  
 (c) balanced receiving end voltage and communication interference  
 (d) unbalanced receiving end voltage and communication interference.  
 **Ans**: **C**  
**20. For a 500 Hz frequency excitation, a 50 emu long power line will be modelled as** (a) short line (b) medium line  
 (c) long line (d) data insufficient for decision  
 **Ans**: **C**  
**21. Which one of the following statement. is not correct for the use of bundled conductors in transmission lines?** (a) Control of voltage gradient (b) Reduction in corona 1088  
 (c) Reduction in radio interference (d) Increase in interference with communication lines  
 **Ans**: **D**  
**22. The main consideration for higher and higher operating voltage of transmission is to** (a) increase the efficiency of transmission (b) reduce power losses  
 (c) increase power transmission capability (d) both (a) and (b) above  
 **Ans**: **C**  
**23. A single phase transmission line of impedance j 0.8 ohm supplies a resistive load of 500 A at 300 V. The sending end power factor is** (a) unity (b) 0.8 lagging

(c) 0.8 leading (d) 0.6 lagging  
 **Ans**: **D**  
**24. A medium line with parameters A, B, C, D is extended by connecting a short line of impedance Z in series The overall ABCD parameters of the series combination will be** (a) A, AZ, C + D/Z, D (b) A, AZ + B, C, CZ + D  
 (c) A + BZ, B, C + DZ, D (d) AZ, B, C/Z, D  
 **Ans**: **B**  
**25. When bundle conductors are used in place of single conductors, the effective inductance and capacitance will respectively** (a) increase and decrease (b) decrease and increase  
 (c) decrease and remain unaffected (d) remain unaffected and increase  
 **Ans**: **C**  
**26. To increase the visual critical voltage of corona for an overhead line, one solid phase-conductor is replaced by a "bundle" of four smaller conductors per phase, having an aggregate cross-sectional area equal to that of the solid conductor. If the radius of the solid conductor is 40 mm, then the radius of each of the bundle conductors would be**  
 (a) 10 mm      (b) 20 mm

(c) 28.2 mm      (d) 30 mm  
 **Ans**: **D**  
  
**27. For an existing ac transmission line, the string efficiency is 80%, if dc voltage is supplied for the same set up, the string efficiency will be** (a) < 80%     (b) 80%

(c) 90%     (d) 100%  
 **Ans**: **B**  
**28. In a string of suspension insulators, the voltage distribution across the different units of a string could be made uniform by the use of a grading ring, because it** (a) forms capacitances with link-pins to carry the charging current from link pins  
 (b) forms capacitances which help to cancel the charging current from link pins  
 (c) increases the capacitances of lower insulator units of cause equal voltage drop  
 (d) decreases the capacitances of upper insulators units to cause equal voltage drop  
 **Ans**: **B**  
**29.A three phase over head transmission line has its conductors horirzontally spaced with spacing between adjacent conductors equal to 'd'. if now the conductors of the line are rearranged to form and equilateral triangle of sides equal to 'd' then** (a) average capacitance and inductance will increase  
 (b) average capacitance will decrease and inductance will increase  
 (c) average capacitance will increase and inductance will decrease  
 (d) surge impedance loading of the line Increases **Ans**: **A**  
**30. For a 500 Hz frequency excitation, a 50 km, long power line will be modeled as** (a) short line (b) medium line  
 (c) long line (d) data insufficiency for decision  
 **Ans**: **C**  
**31.If in a short transmission line, resistance and inductance are found to be equal and regulation appear to be zero, then the load will**  
 (a) have unity power factor (b) have zero power factor  
 (c) be 0.707 lagging (d) be 0.707 lagging  
 **Ans**: **C**  
**32."Expanded ACSR" are conductors composed of**      
 (a) larger diameter individual strands for a given cross-section of the aluminum strands  
 (b) larger diameter of a central steel strands for a given overall diameter of the conductor  
 (c) larger diameter of the aluminum strands only for a given overall diameter of the conductor  
 (d) a filter between the inner steel and the outer aluminum strands to increase the overall diameter of the conductor  
 **Ans**: **D**  
**33. What is the sag for a span of 400m, if the ultimate tensile strength of conductor is 6000 kgf, and the weight of conductor is 550 kgf/km? Factor of safety is 2.** (a) 1.016 m     (b) 2.40 m

(c) 3.6 m      (d) 4.2 m **Ans**: **C**  
**34. A transmission line has a span of 275 m between level support. The conductor has a diameter of 19.58 mm, weight 0.844 kg/m and has an ultimate breaking strength of 7950 kgf. Each conductor has a radial covering of ice 9.58 mm thick and is subjected to a horizontal wind pressure of 40 k617m2 of ice covering projected area. If the factor of safety is 2, what is the deflected sag? Ice weight is 913.5 kg/m3** (a) 5.36     (b) 4.1 m

(c) 3.9 m      (d) 3.01 m  
 **Ans**: **A**  
**35. A transmission line conductor having a diameter of 19.5 mm, weight 850 kglkm. The span is 275 m. The wind pressure is 39 kg/m of projected area with ice coating of 13 mm. The ultimate strength of the conductor is'8000 kg. What is the maximum sag, if the factor of safety is 2 and ice weight 910 kg/m3?** (a) 4.5 m      (b) 6.4 m

(c) 7.0 m      (d) 5 m  
 **Ans**: **B**  
**36. A transmission line conductor at a river crossing is supported from two towers at height of 30 m and 90m, above water level. The horizontal distance between the towers is 270m, if the tension in the conductor is 1800 kg and the conductor weight 1 kg/m. What is the clearance between the conductor and the water at a point midway between the towers?** (a) 79.50 m     (b) 54.94 m

(c) 60 m     (d) 51.4 m  
 **Ans**: **B**  
**37. An overhead transmission line has a span of 240m between level supports. What is the maximum sag if the conductor weight 727 kg/km and has a breaking strength of 6880 kg? Allow the factor of safety of 2. Neglecting wind and ice loading.** (a) 1.52 m      (b) 1.6 m

(c) 0.75 m     (d) 1.25 m  
 **Ans**: **A**  
**38. The line conductor of a transmission line has an overall diameter of 19.53 mm, weight 0.844 kg/m and an ultimate breaking strength of 7950 kg. If the factor of safety is to be 2, when conductor has an ice of 1 kg/m and a horizontal wind pressure of 1.5 kg/m. What is the vertical sag, corresponding to this loading for a 300 m span level supports?** (a) 1.08 m    (b) 5.0 m

(c) 5.22 m      (d) 4.62 m **Ans: C  
39. A two conductor 1 - pi line operates at 50 Hz. The diameter of each conductor is 20 mm and the spacing between conductors is 3m. What is the inductance of each conductor per km?**  
 (a) 1.19 kH/km      (b) 1.24 mH/km  
 (c) 2.38 mH/km     (d) 0.59 mH/km  
 **Ans**: **A**  
**40. A two conductor 1 - pi line operates at 50 Hz. The diameter of each conductor is 20mm and the spacing between conductor is 3m. When the conductor material is steel of relative permeability 50, the loop inductance per km of the line will be** (a) 8.2 mH/km      (b) 7.281 mH/km

(c) 5.0 mH/km     (d) 2 mH/km  
 **Ans**: **B**  
**41. A 1-pi line two conductors operate at 50Hz. The diameter of each conductor is 15 mm, and the spacing between the conductor is 3.5 m. The inductive reactance per km will be** (a) 0.43 Cl/km      (b) 0.65 0Jkm

(c) 0.70 O/km      (d) 0.79 n/km  
 **Ans**: **D**  
**42. A conductor is composed of seven identical copper .Iranu, each having a radius r. The self GMD of the conductors will be** (a) 2.177 r      (b) 2.645 r

(c) 2.141 r     (d) 1.21 r  
 **Ans**: **A**  
**43. The charging current per kill of the line is** (a) 0.497 Amp     (b) 0.61 Amp

(c) 0.68 Amp     (d) 0.21 Amp  
 **Ans**: **A**  
**44.What is the time of operation of a relay of rating 5 amp 2.2 sec, IDMT and having a relay of setting of 125% Tms = 0.6 It is connected to a supply circuit through a CT, 400 ratio. The fault current is 400 amp.**  
 (a) 10.Osec     (b) 1.92sec

(c) 4.5 sec      (d) 2.4 sec **Ans**: **B**  
**45.A two conductor 1 - pi line operates at 50 Hz. The diameter of each conductor is 2 cm and are spaced 3m apart. What is the line to line capacitance** (a) 9.74 x 10-9 F/km (b) 4.87 x 10-9 F/km  
 (c) 3.05 x 10-9 F/km (d) None of these **Ans**: **B**  
**46. A two conductor 1 - pi line operates at 50 Hz. The diameter of each conductor is 4 cm and are spaced 6 m apart. What is the capacitive susceptance to neutral per km?** (a) 1.42 x 10-9 s/kms (b) 3.25 x 10-8 s/km  
 (c) 4.8 x 10-9 s/krn (d) 3.06 x 10-9 s/km  
 **Ans**: **D**  
**47. A three phase 50 Hz line consists of three conductors each of diameter 21 mm, The spacing between the conductors all follows: A - B = 3m, B - C = 5m, C - A = 3.6m .If the line operates at 132 k V, the reactive volt ampere generated by the line per km is**  
 (a) 51.07 kVAr      (b) 51.70 kVAr

(c) 40.0 kVAr     (d) 60.5 kVAr  
 **Ans**: **B**  
**48. A two conductor 1 - pi line operates at 50 Hz. The diameter of each conductor is 20 mm and the spacing between the conductors is 3m, The height of conductor above the ground is 6 m. The capacitance of the line to neutral will be** (a) 9.7 pF/m     (b) 10.2 pF/m

(c) 8.7 uF/km      (d) 2.4 uF/m  
 **Ans**: **A**  
**49.For a 500 Hz frequency excitation, a 50 km long power line will be modelled as** (a) short line (b) medium line  
 (c) long line (d) data is sufficient decision  
 **Ans**: **C**  
**50.Bundled conductors are employed to**  
 (a) reduce the short circuit current (b) improve system stability  
 (c) decreases system stability (d) increase the short circuit current  
 **Ans**: **C**  
**51.Series capacitive compensation in EHV transmission lines is used to** (a) reduce the line load (b) improve the stability of the system  
 (c) reduce the voltage profile (d) improve the protection of the line  
 **Ans**: **B**  
**52. A lossless radial tranemission line with surge impedance loading** (a) takes negative VAr at sending end and zero VAr at receiving end  
 (b) takes positive VAr at sending end and zero VAr at receiving end  
 (c) has flat voltage profile and unity power factor at all points along it  
 (d) has sending end voltage higher than receiving end voltage and unity power factor at sending end  **Ans**: **A**  
  
**53.The X:R ratio of 220 kV line as compared to 400 kV line is** (a) greater (b) smaller

(c) equal (d) it could be anything  
 **Ans**: **B**  
**54. If a line is 100 % series compensated it may result into series resonance at power frequency of**  
 (a) 50 Hz (b) 150 Hz

(c) 100 Hz (d) none of the above  
 **Ans**: **A**  
**55. A 60 Hz, 320 km loesless line has Bending end voltage 1.0 p.u, The receiving end voltage on no load is**  
 (a) 1.1 p.u.    (b) 1.088 p.u.

(c) 1.116 p.u.     (d) none of the above  
 **Ans**: **B**  
**56. With 100 % series compensation of line.** (a) The circuit is series resonant at power frequency (b) high transient current  
 (c) low transient voltage (d) both (a) and (c)  
 **Ans**: **D**  
**57. For certain geometry and operating voltage of the uncompensated transmission line, the ratio of power transfer capability to the surge impedance loading with increase in length** (a) increases      (b) remains unchanged  
 (c) decreases      (d) uncertain  
 **Ans**: **C**  
**58.The effect of series capacitance compensation is** (a) to decrease the virtual surge impedance (b) to decrease the effective length of the line  
 (c) to increase virtual surge impedance loading (d) all of the above  
 **Ans**: **D**  
**59. For a long uncompensated line the limit to the line loading ill governed by** (a) thermal limit     (b) voltage drop  
 (c) stability limit     (d) corona loss  
 **Ans**: **C**  
**60. For any fixed degree of inductive shunt compensation, additional series capacitive compensation**  
 (a) increase the effective length of line (b) increase virtual surge impedance line  
 (c) decrease virtual surge impedance loading of the line

(d) none of the above **Ans**: **D**  
**61.With 100 % inductive shunt compensation, the voltage profile is flat for** (a) 100 % loading of line (b) 50 % loading of line  
 (c) zero loading of line (d) none of the above  
 **Ans**: **C**  
**62. A loss less line terminated with its surge impedance has**  
 (a) flat voltage profile (b) transmission line angle is greater than actual length of line  
 (c) both (a) and (b) above (d) transmission line angle is less than the actual length  
 **Ans**: **A**

**63. For reducing tower footing resistance it is better to Use** (a) chemical and ground rods only (b) chemical and counterpoise only  
 (c) ground rod and counterpoise only (d) chemical, ground rods and counterpoise  
 **Ans**: **C**  
**64. An RLC series. Circuit remains predominantly inductive**  
 (a) at resonance frequency (b) below resonance frequency  
 (c) above resonance frequency (d) at the lower half power frequency  
 **Ans**: **C**  
**65.The corona loss on a particular system at 50 Hz is 1 kH/phase per km. The corona loss on the same system with supply frequency 25 Hz will be**  
 (a) 1 kW/phase/km (b) 0.5 kW/phase/km  
 (c) 0.667 kW/phase/km (d) none of the above  
 **Ans**: **C**  
**66. A voltage of 1000 kV is applied to an overhead line with its receiving end open. If the surge impedance of the line is 500 ohm, then the total surge power in the line will be** (a) 2000 MW    (b) 500 MW

(c) 2 MW     (d) 0.5 MW  
 **Ans**: **A**  
**67.  The main criterion for selection of the size of a distribution for a radial distribution system is** (a) voltage drop    (b) corona loss  
 (c) temperature rise (d) capital cost  
 **Ans**: **A**  
**68. If an induction machine is run at above synchromous speed, it acts as** (a) a synchronous motor (b) an induction generator  
 (c) an inductor motor (d) none of the above  
 **Ans**: **B**  
**69. The low voltage winding of a 400/230 V, 1-phase, 50 Hz transformer is to be connected to a 25 Hz, the supply voltage should be**  
 (a) 230 V (b) 460 V

(c) 115 V (d) 65 V  
 **Ans**: **C**  
**70. Corona losses are minimized when** (a) conductors size is reduced (b) smooth conductor is reduced  
 (c) sharp points are provided in the line hardware (d) current density in conductors is reduced  
 **Ans**: **B**  
**71. The order of the sub-harmonic during SSR for 50 Hz normal frequency is**  
 (a) 25 Hz (b) 16 2/3 Hz

(c) 10 Hz (d) none of the above  
 **Ans**: **D**  
**72. The non-uniform distribution of voltage across the units in a string of suspension type insulators is due to** (a) unequal self-capacitance of the units  
 (b) non-uniform distance of separation of the units from the tower body  
 (c) the existence of stray capacitance between the metallic junctions of the units and the tower body  
 (d) non-uniform distance between the cross-arm and the units  
 **Ans**: **C**  
**73. Whenever the conductors are dead-ended off there is a change in the direction of transmission line, the insulator. Used are of the** (a) pin type (b) suspension type  
 (c) strain type (d) shackle type  
 **Ans**: **C**  
**74. The time taken for a surge to travel a 600 km long overhead transmission line is** (a) 6s      (b) 1s

(c) 0.02s     (d) 0.002s  
 **Ans**: **D**  
**75.The function of the earth wire in an extra high voltage line is to** (a) prevent earth fault  
 (b) provide a safety measure for any high-flying object  
 (c) provide a shield to the phase con-doctors from direct lightning stroke  
 (d) provide mechanical strength to the towers  
 **Ans**: **C**  
**76. A long overhead transmission line is terminated by its characteristic impedance. Under this operating condition, the ratio of the voltage to the current at different points along the line will** (a) progressively increase from the sending-end to the receiving end  
 (b) progressively increase from the receiving end to the sending-end  
 (c) remain the same at the two ends, but be higher between the two ends being maximum at the centre of the line (d) remain the same at all points  
 **Ans**: **B**  
**77. For a transmission line with negligible losses, the lagging reactive power VAR delivered at the receiving end, for a given receiving end voltage, is directly proportional to the**  
 (a) square of the line voltage drop (b) line voltage drop  
 (c) line inductive reactance (d) line capacitive reactance  
 **Ans**: **B**  
**78. Corona loss can be reduced by the use of hollow conductors because** (a) the current density is reduced  
 (b) the eddy current in the conductor is eliminated  
 (c) for a given cross-section, the radius of the conductor is increased  
 (d) of better ventilation in the conductor  
 **Ans**: **D**  
**79.The insulation of modern EHV lines is designed based on**  
 (a) the lightning voltage (b) corona  
 (c) radio interface (d) switching voltage  
 **Ans**: **D**  
**80. Shunt compensation in an EHV line is "Bed**  
 (a) improve stability (b) reduce fault level  
 (c) improve the voltage profile (d) substitute for synchronous phase modifier  
 **Ans**: **D**  
**81. In a 3-core extra-high voltage cable, a metallic screen around each core insulation provided to**  
 (a) facilitate heat dissipation (b) give mechanical strength  
 (c) obtain radial electric stress (d) obtain longitudinal electric stress  
 **Ans**: **C**

**82. The angle phase line of 280 V and 3 phase line of 400 V which feed different domestic circuit and industrial load represent** (a) primary distribution (b) secondary distribution  
 (c) secondary transmission (d) none of the above  
 **Ans**: **B**  
**83. The transmission line feeding power on either side of the main transmission line is called**  
 (a) Secondary distribution (b) Secondary transmission  
 (c) Primary transmission (d) Primary distribution  
 **Ans**: **B**  
**84.Series capacitive compensation on EHV transmission lines is used to** (a) reduce the line loading (b) improve the stability of the system  
 (c) reduce the voltage profile (d) improve the protection of the line  
 **Ans**: **D**  
**85. At a particular unbalanced node, the real powers specified are Leaving the node: 20 Mw, 25 Mw, Entering the node: 60 Mw, 30 MW. The balance power will be** (a) 30 MW leaving the node (b) 45 MW leaving the node  
 (c) 45 MW entering the node (d) 22.5MW entering the node **Ans**: **B**  
**86. When a d.c source is switched is purely inductive, the current response is** (a) an exponentially rising curve (b) an exponentially decaying curve  
 (c) a straight line passing through the origin (d) a straight line off-set from the origin  
 **Ans**: **C**

**87. If transformer frequency is changed from 60 Hz, to 60 Hz the ratio of eddy current loss**

**60 Hz to 50 Hz, at constant voltage will be** (a) 5/6     (b) 25/36

(c) 6/5 (d) 1.0  
 **Ans**: **D**  
**88.In load flow analysis, the load connected at a bus is represented as** (a) constant current drawn from the bus  
 (b) constant impedance connected at the bus  
 (c) voltage and frequency dependent source at the bus  
 (d) constant real and reactive drawn from the bus  
 **Ans**: **D**  
**89. If the reference bob is changed in two load flow runs with same Bastian data and power obtained for reference bur taken a. specified P and Q in the latter run** (a) the system losses will be unchanged but complex bus voltage will change  
 (b) the system losses will be changed but complex bus voltages remain unchanged  
 (c) the system losses as well be as complex bus voltage will change  
 (d) the system losses as well be as complex bus voltage will unchanged  
 **Ans**: **A**  
**90. A square matrix is called singular if its** (a) determinant is unity (b) determinant is zero  
 (c) determinant is infinity (d) rank is unity  
 **Ans**: **B**

**91. Gauss-Seidel iterative method can be used for solving a set of** (a) linear differential equations only  
 (b) linear algebraic equation only  
 (c) both linear and nonlinear algebraic equations  
 (d) both linear and nonlinear differential equations  
 **Ans**: **B**  
**92. Pure inductive circuit takes power (reactive) from the a.c. line when** (a) both applied voltage and current rise  
 (b) both applied voltage anti current decrease  
 (c) applied voltage decreases but current Increases  
 (d) none of these **Ans**: **B**  
**93. An alternator has a phase sequence of RYB for it phases voltage. In case of field current is reversed, the phase sequence will become**  
 (a) RBY     (b) RYB

(c) YRB     (d) none of these  
 **Ans**: **B**  
**94. An alternator has a phase sequence of RYB for its phase voltage. In case the direction of rotation of alternator is reversed, the phase sequence will become**  
 (a) RBY      (b) RYB

(c) YRB      (d) none of these  
  **Ans**: **A**  
**95. A synchronous generator connected to an infinite bob delivers power at a lag per. If its excitation is increased**  
 (a) the terminal voltage increases (b) voltage angle 8 increases  
 (c) current delivered increases (d) all of the above  
 **Ans**: **C**  
**96. A synchronous motor connected to an infinite bob takes power at a lag p.u. If its excitation is increased**  
 (a) the terminal voltage increases (b) the load angle increases  
 (c) the p.u. of motor increases (d) all of the above  
 **Ans**: **C**  
**97.A star-connected 440 V, 50 Hz alternator has per phase synchronous reactance of 10 n. It supplies a balanced capacitive load current of 20 A, as shown in per phase equivalent circuit of the given figure. It is desirable to have zero voltage regulation. The load power factor should be**  
 (a) 0.82     (b) 0.47

(c) 0.39      (d) 0.92  
**Ans**: **A**  
**98. A 10k VA, 400 V/200 V single phase transformer with 10 % impedance draws a steady short circuit line current of**  
 (a) 50 A     (b) 150 A

(c) 250 A     (d) 350 A  **Ans**: **B**  
**99. The percentage resistance and percentage reactance of a 10 kVA, 400 V/200 V, 3-phase transformer are 2% and 10% respectively. If the constant losses in the machine are 1 %, the maximum possible percentage efficiency of the transformer is** (a) 98.32      (b) 97.25

(c) 96.85      (d) 96.12  
 **Ans:** **C**  
**100.The voltage of CI generator and an infinite bus are given as O.92LIO 0 and 1.0L'O 0 respectively. The active power will flow from** (a) generator to infinite bus (b) infinite bus to generator  
 (c) the data is insufficient to judge (d) none of the above  
**Ans**: **A**

**101. The Critical Clearance time of a fault in the power system is related to**  
 a) Reactive power limit b) Short Circuit limit  
 c) Steady state stability limit d) Transient stability

**Ans: D**