

## KPCL Electrical Question Paper for Assistant and Junior Engineer

1. Mho relay is usually employed for the protection of

- a) Short lines only
- b) Medium lines only
- c) Long lines only
- d) Any line

Ans: Long lines only

2. A modern power semiconductor device IGBT is combines the characteristics of

- a) BJT and MOSFET
- b) FCT and GTO
- c) SCR and MOSFET
- d) SCR and BJT

Ans: BJT and MOSFET

3. For a single-phase a.c. to d.c. controlled rectifier to operate in regenerative mode, which of the following conditions should be satisfied?

- a) Half -controlled bridge,  $\alpha < 90^\circ$ , source of e.m.f. in load
  - b) Half-controlled bridge,  $\alpha > 90^\circ$ , source of e.m.f. in load
  - c) Full-controlled bridge,  $\alpha > 90^\circ$ , source of e.m.f. in load
  - d) Full-controlled bridge,  $\alpha < 90^\circ$ , source of e.m.f. in load
- Ans: Full-controlled bridge,  $\alpha > 90^\circ$ , source of e.m.f. in load

4. Which is the most suitable power device for high frequency ( more 100 kHz) switching application?

- a) Power MOSFET
- b) BJT
- c) SCR
- d) UJT

Ans: Power MOSFET

5. In a thyristor Latching current is \_\_\_\_\_ than Holding current

- a) Equal
- b) Less
- c) Greater
- d) None

Ans: Greater

6. The transfer function of a system is  $10/(1+s)$  when operating as a unity feedback system, the steady state error to a step input will be

- a) 0
- b)  $1/11$
- c) 10
- d) Infinity

Ans:  $1/11$

7. Which one of the following statements for a dc machine which is provided with inter pole winding (IW) as well as compensating winding (CW) is correct

- a) Both IW and CW are connected in series with Armature winding
- b) Both IW and CW are connected in parallel with Armature winding
- c) IW connected in series but CW is connected in parallel with Armature winding
- d) CW connected in series but IW is connected in parallel with Armature winding

Ans: Both IW and CW are connected in series with Armature winding

8. A 0-10 mA PMMC ammeter reads 5mA in a circuit; its bottom control spring snaps out suddenly the meter will now read.

- a) 5mA

- b) 10mA
- c) 2.5mA
- d) 0

Ans: 0

9. A dc cumulatively compounded motor delivers rated load torque at rated speed. If series field is short circuited, then the armature current and speed will

- a) Both increases
- b) Both decreases
- c) Increases and decreases
- d) Decreases and increases

Ans: Both increases

10. Moving coil in dynamometer wattmeter connected

- a) In series with fixed coil
- b) Across supply
- c) In series with load
- d) Across load

Ans: Across supply

11. In an induction machine, if the air gap increased

- a) Speed will be reduced
- b) Efficiency will be improved
- c) Power factor will be lowered
- d) Breakdown torque will be reduced

Ans: Power factor will be lowered

12. A CRO screen has ten divisions on the horizontal scale. If a voltage signal  $5 \sin 314t + 45^\circ$  is examined with a line base settings of 5 msec/div, the number of cycles of signal displayed on the screen will be

- a) 0.5 cycles
- b) 2.5 cycles
- c) 5 cycles
- d) 10 cycles

Ans: 2.5 cycles

13. A 3-phase 50HZ SCIM takes a power input of 30 KW at its full load speed of 1440 rpm. Total stator losses are 1 KW. The slip and rotor ohmic losses at full load are

- a) 0.02, 600 W
- b) 0.04, 580 W
- c) 0.04, 1160 W
- d) 0.04, 1200 W

Ans: 0.04, 1160 W

14. Thermocouple is used to measure

- a) AC
- b) DC
- c) Both
- d) None

Ans: Both

15. The two watt meters measurement the ratio of two meter readings is  $-(1-\sqrt{3})/(1+\sqrt{3})$  then the power factor is

- a) 1
- b) 0.866
- c) 0.707
- d) 0

Ans: 0.707

16. Hays bridge is used to measure \_\_\_\_\_ and Schering bridge is used to

measure

- a) Inductance, Inductance
  - b) Inductance, Capacitance
  - c) Capacitance, Inductance
  - d) Resistance, Capacitance
- Ans: Inductance, Capacitance

17. When sine wave is given as input to Schmitt trigger then its generates

- a) Sine wave
  - b) Saw tooth wave
  - c) Triangle wave
  - d) Square wave
- Ans: Square wave

18. In Gauss Seidel method the following factors are influenced for operation

- a) Acceleration factor
  - b) Selection of slack buss
  - c) Both
  - d) None
- Ans: Selection of slack buss\*

19.

- i.  $(X' + Y')$  A. Low-pass filter function
  - ii.  $(X'Y')$  B. Sum
  - iii.  $(XY)$  C. NAND
  - D. Carry
  - E. NOR
  - a) i-C, ii-E, iii-D
  - b) i-C, ii-E, iii-B
  - c) i-C, ii-B, iii-D
  - d) i-C, ii-E, iii-A
- Ans: i-C, ii-E, iii-D

20. The phase lead compensation is used to

- a) Increase rise time and decrease overshoot
  - b) Decrease both rise time and overshoot
  - c) Increase both rise time and overshoot
  - d) Decrease rise time and increase overshoot
- Ans: Decrease rise time and increase overshoot

21. Voltage feed back amplifier is a

- a) Shunt-Shunt
  - b) Shunt-Series
  - c) Series-Shunt
  - d) Series- Series
- Ans: Shunt-Shunt

22. In microprocessor the next instruction to be executed is stored in

- a) Program Counter
  - b) Stack Pointer
  - c) Memory Pointer
  - d) Accumulator
- Ans: Program Counter

23. The following element retains it energy after source is disconnected

- a) Resister
  - b) Inductor
  - c) Capacitor
  - d) Thermistor
- Ans:

24. In series RLC circuit at resonant

- a) Voltage is in phase with current
- b) Current is maximum
- c) Inductive reactance = Capacitive reactance
- d) All of the above

Ans: All of the above

25. For RC low pass filter  $R=100\text{ K ohms}$ ,  $C=5\text{ micro farads}$  then lower cutt of frequency is

- a)  $1\text{ K HZ}$
- b)  $0\text{ HZ}$
- c)  $381.3\text{ HZ}$
- d) Infinity

Ans:

26.  $V=100\sin(1000t+46^\circ)$ ,  $I=2\sin(1000t+80^\circ)$  what are the elements in the circuit

- a)  $R=30\text{ ohm}$ ,  $L=30\text{ mH}$
- b)  $R=30\text{ ohm}$ ,  $C=33.3\text{ micro farads}$
- c)  $R=40\text{ ohm}$ ,  $L=30\text{ mH}$
- d)  $R=40\text{ ohm}$ ,  $L=33.3\text{ micro farads}$

Ans:  $R=40\text{ ohm}$ ,  $L=33.3\text{ micro farads}$

27.  $L=10\text{ mH}$ ,  $I=100\sin 50t$

- a)
- b)
- c)
- d)

Ans:

28. In dielectric measurement, the dielectric loss is proportional to

- a)  $F$
- b)  $V$
- c)  $I$
- d)  $V_{\text{sqr}}$

Ans:  $V_{\text{sqr}}$

29.  $G(s) = (1-s)/s(s+2)$  then closed loop transfer function is

- a) Unstable
- b) Stable
- c) Marginally stable
- d) All

Ans: Stable

30.  $G(s) = (1+0.5s)/(1+s)$  find which type of net work it is

- a) Lead net work
- b) Lag net work
- c) Lag - Lead net work
- d) Lead - Lag net work

Ans: Lag net work

31. Temperature of electrode in Arc furnace is

- a)  $1000\text{ deg}$
- b)  $1500\text{ deg}$
- c)  $1500\text{ deg to }3500\text{ deg}$
- d)  $4500\text{ deg}$

Ans:

32. In bode plot the point which separates the lower and upper frequencies is called

- a) Critical point
- b) Cut-off point

- c)
- d)

Ans:

33. Nyquest stability is used to determine

- a) Absolute Stability
- b) Relative Stability
- c) Both
- d) None

Ans: Both\*

34. When 220V dc shunt alternator generating the voltage at rated value. If direction of rotation is reversed, then alternator will

- a) Build up its voltage with same polarity
- b) Build up its voltage with opposite polarity
- c) No build up of voltage
- d) None

Ans: No build up of voltage

35. Over lap Angle depends on\_\_\_\_\_

- a) Load inductance
- b) Loa capacitance
- c) Source inductance
- d) Source capacitance

Ans: Source inductance

36. Area under speed time curve gives

- a) Time
- b) Speed
- c) Distance
- d) None

Ans: Distance

37. The regulation of Short Transmission lines depends up on

- a) Distance of line
- b) Frequency
- c) Power factor
- d) All

Ans: Power factor

38. Which of the following plant is having lowest load factor?

- a) Diesel Plant
- b) Pumped storage Plant
- c) Thermal Plant
- d) Nuclear Plant

Ans: Diesel Plan

39. For SR latch whent the out put is undesirable

- a) 0, 0
- b) 1, 0
- c) 0, 1
- d) 1, 1

Ans: 1, 1

40. For interrupting capacitive currents which Circuit Breaker (CB) is used

- a) SF6 CB
- b) Oil CB
- c) Vacuum CB
- d) Air blast CB

Ans: Vacuum CB

41. For V/F control, when frequency is increased in transformer

- a) Core loss component current increases, Magnetizing component current decreases
- b) Core loss component current increases, Magnetizing component current increases
- c) Core loss component current decreases, Magnetizing component current decreases
- d) Core loss component current decreases, Magnetizing component current increases

Ans: Core loss component current decreases, Magnetizing component current decreases

42. In ceiling fan the angle between auxiliary winding a main winding is

- a) 0 deg
- b) 90 deg
- c) 180 deg
- d) 360 deg

Ans: 90 deg

43. In a shaded pole motor, shaded rings are used to

- a) Field flux production
- b)
- c)
- d)

Ans: Field flux production

44. Practical method of improving string efficiency

- a) Increasing cross arms length
- b) Using different size of insulators
- c) Using different insulator materials
- d) Using of guard rings

Ans: Increasing cross arms length\*

45. In which type of fault all 3-phase components are equal

- a) L-G
- b) L-L
- c) L-L-G
- d) 3-Phase fault

Ans: 3-Phase fault

46. 11/220 KV 100 MVA transformers, the primary base voltage rating is 10 KV then secondary base KV is

- a) 10 KV
- b) 220 KV
- c)  $220/\sqrt{3}$
- d)

Ans:  $220/\sqrt{3}$ \*

47. Water hammering effect is occurs in

- a) Surge tank
- b) Penstock
- c) Turbine
- d) Reservoir

Ans: Penstock

48. Transient stability can be improved by

- a) By putting series capacitor
- b) By using dynamic resistor
- c) Auto re-closers
- d) All of the above

Ans: All of the above

49. If sending end voltage is  $V_s$  at no-load in a transmission line then receiving end voltage is if ABCD parameters of line is given

- a)  $V_s$
  - b)  $V_s/A$
  - c) 0
  - d) Infinity
- Ans:  $V_s/A$

50. Harmonics are eliminated by using

- a) Skewing of rotor
  - b) Distribution winding
  - c) Short pitch winding
  - d) All of the above
- Ans: All of the above

51. For parallel operation of transformer at no load, then load shared are equal when

- a) Impedance is proportional with respect to own KVA rating
- b)
- c)
- d)

Ans: Impedance is proportional with respect to own KVA rating

52. In Induction motor Slip frequency of rotor current, when rotor speed is  $N_r$ . Then rotor producing slip field rotates with respect to stator is

- a) Slip frequency
  - b)  $N_r$
  - c)  $N_s$
  - d) None
- Ans:  $N_s$

53. Good regulation means

- a) Less fluctuations from no-load to full-load
- b)
- c)
- d)

Ans: Less fluctuation from no-load to full-load

54. At dead short circuit at terminals of Alternator then the current  $I$  is

- a) ZPF Lag
- b) ZPF lead
- c) Unity power factor
- d) 0.8 Power factor lag

Ans: ZPF Lag

55. Full scale Ammeter reading is 10 mA, Voltage across Ammeter is 100 mV. Then for 100 A measurements the power loss in the circuit is

- a) 1 W
- b) 10 W
- c) 100 W
- d) 1000 W

Ans: 10 W\*

56. When Alternator excitation increases and machine is operating at lagging power factor then

- a)  $I$  increase
- b)  $I$  decreases
- c) No effect on current
- d) None

Ans:  $I$  increase

57. Flue gases coming out from furnace is first going through

- a) Turbine
- b) Economizer

c) Air pre-heater  
d) Chimney  
Ans: Economizer

58. Two alternators rated are 200 KW at 4% regulation, 400 KW 5% regulation operating in parallel at 50HZ , when supply 600 KW the new frequency is  
a) 50  
b) 49  
c) 51.3  
d) 47.7  
Ans: 47.7

59.  $V_a$  and  $V_b$  are negative sequence component voltages the difference angle between  $V_a$  and  $V_b$  with respect to  $V_a$  is  
a) 240  
b) 120  
c) 180  
d) 360  
Ans: 120

60. 4-Quadrant operation of chopper I is positive but V is may be positive are negative operates in which quadrant  
a) 1 and 2  
b) 2 and 3  
c) 1 and 3  
d) 1 and 4  
Ans: 1 and 4

61. Heat convection, radiation, and conduction all are takes place in  
a) Ice  
b) Boiler  
c) Refrigerator  
d) Flue gases in pipe  
Ans:

62. When moving iron meter is used to measure d.c current what is the disadvantage  
a) It calibration in rms value  
b)  
c)  
d)  
Ans:

63. When maximum power transfer to load is  
a) 20 W  
b) 50 W  
c) 100W  
d) 0W  
Ans: 0W

64. Find Zbus Parameters  
a)  $Z_{11}=Z_{12}=Z_{21}= j0.1 \text{ ohm}$ ,  $Z_{22}=j0.3 \text{ ohm}$   
b)  
c)  
d)  
Ans:  $Z_{11}=Z_{12}=Z_{21}= j0.1 \text{ ohm}$ ,  $Z_{22}=j0.3 \text{ ohm}$

65. Find  $Z_{11}$  and  $Z_{12}$   
a)  $Z_{11}=4 \text{ ohm}$ ,  $Z_{12}= 2 \text{ ohm}$   
b)  $Z_{11}=4 \text{ ohm}$ ,  $Z_{12}= 5 \text{ ohm}$   
c)  $Z_{11}=5 \text{ ohm}$ ,  $Z_{12}= 2 \text{ ohm}$

d)  $Z_{11}=4\ \Omega$ ,  $Z_{12}=3\ \Omega$

Ans:

66. Current in 5 ohm resistor is

a) 10 A

b) -10 A

c) 5 A

d) -5 A

Ans: -10 A

67. Find I in the circuit at  $t=0+$

a) 2 A

b) 5 A

c) 7 A

d) 10 A

Ans:

8. Find voltage across inductor at  $t=0+$

a) 0 V

b) 2.5 V

c) 5 V

d) 10 V

Ans: 5 V

69. This wave is applied to the PMMC meter, meter reads

a) 0 V

b) 3 V

c) 2 V

d) 1 V

Ans: 1 V

70. Find  $V_{ab}$

a) Zero

b) 50 at an angle of 90 deg

c) 50 at an angle of 90 deg

d) None

Ans:

71. Find E in the circuit

a) 5 V

b) 10 V

c) 20 V

d) None

Ans: None

72.  $V_{ab}$  is reference then angle between  $V_{ab}$  and  $I_b$  is

a) -15 deg

b) 240 deg

c) 180 deg

d) -45 deg

Ans: -15 deg\*

63. When maximum power transfer to load is

[Click Here to Show Diagram](#)

a) 20 W

b) 50 W

c) 100W

d) 0W

Ans: 0W

64. Find Zbus Parameters

[Click Here to Show Diagram](#)

a)  $Z_{11}=Z_{12}=Z_{21}= j0.1 \text{ ohm}$ ,  $Z_{22}=j0.3 \text{ ohm}$

b)

c)

d)

Ans:  $Z_{11}=Z_{12}=Z_{21}= j0.1 \text{ ohm}$ ,  $Z_{22}=j0.3 \text{ ohm}$

65. Find  $Z_{11}$  and  $Z_{12}$

[Click Here to Show Diagram](#)

a)  $Z_{11}=4 \text{ ohm}$ ,  $Z_{12}= 2 \text{ ohm}$

b)  $Z_{11}=4 \text{ ohm}$ ,  $Z_{12}= 5 \text{ ohm}$

c)  $Z_{11}=5 \text{ ohm}$ ,  $Z_{12}= 2 \text{ ohm}$

d)  $Z_{11}=4 \text{ ohm}$ ,  $Z_{12}= 3 \text{ ohm}$

Ans:

66. Current in 5 ohm resistor is

[Click Here to Show Diagram](#)

a) 10 A

b) -10 A

c) 5 A

d) -5 A

Ans: -10 A

67. Find I in the circuit at  $t=0+$

[Click Here to Show Diagram](#)

a) 2 A

b) 5 A

c) 7 A

d) 10 A

Ans: 2 A

68. Find voltage across inductor at  $t=0+$

[Click Here to Show Diagram](#)

a) 0 V

b) 2.5 V

c) 5 V

d) 10 V

Ans: 5 V

69. This wave is applied to the PMMC meter, meter reads

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b) 3 V

c) 2 V

d) 1 V

Ans: 1 V

70. Find  $V_{ab}$

[Click Here to Show Diagram](#)

a) Zero

b) 50 at an angle of  $90^\circ$

c) 50 at an angle of  $90^\circ$

d) None

Ans:

71. Find E in the circuit

[Click Here to Show Diagram](#)

a) 5 V

b) 10 V

c) 20 V

d) None

Ans: None

72.  $V_{ab}$  is reference then angle between  $V_{ab}$  and  $I_b$  is

[Click Here to Show Diagram](#)

a) -15 deg

b) 240 deg

c) 180 deg

d) -45 deg

Ans: -15 deg\*