APSPDCL-2012

Booklet Code **C**

GET-2012

Time : 2 hours

Sr. No. of Booklet **206675**

Hall Ticket Number

5	0	8	0	8	4	3

Name of the Candidate : M. RAGHAVA REDDY

M. Raghava Reddy
Signature of Candidate

APSPDCL-12

J. CWB
Signature of Invigilator

INSTRUCTIONS TO CANDIDATES

(Read the Instructions carefully before answering)

1. Separate Optical Mark Reader (OMR) Answer Sheet is supplied to you along with Question Paper Booklet to record your responses. Please read and follow the instructions on the OMR Sheet to mark the responses and the required data.
2. Candidate should write the Hall Ticket Number and / or name only in the space provided on this page and OMR Answer Sheet. **DO NOT WRITE HALL TICKET NUMBER OR ANY OTHER IDENTIFICATION MARK ANY WHERE ELSE.**
3. Immediately on opening this Question Paper Booklet, please check for (i) The same booklet code (A/B/C/D) on each page (ii) Serial number of the questions (1 – 100) (iii) The number of pages and (iv) Correct printing.

   IN CASE OF ANY DEFECT, PLEASE REPORT TO THE INVIGILATOR AND ASK FOR REPLACEMENT WITHIN FIVE MINUTES FROM THE COMMENCEMENT OF THE TEST.
4. Adoption of any kind of unfair means at the time of the test or any act of impersonation will result in invalidation of his/her test.
5. Use of Calculators, Mathematical/Log Tables, pagers, mobile phones any other Electronic gadgets and loose sheets of paper is strictly prohibited.
6. Darken the appropriate circles of A, B, C or D in the OMR sheet corresponding to correct answer to the concerned question number in the sheet. **DARKENING OF MORE THAN ONE CIRCLE AGAINST ANY QUESTION AUTOMATICALLY GETS INVALIDATED.** Each question carries 1 mark. **Use of white correcting fluid is prohibited.**
7. Rough work should be done only in the space provided for this purpose in Question Paper Booklet.
8. Once the candidate enters the Examination Hall, he/she shall not be permitted to leave the Hall till the END of the Examination.
9. Ensure that Invigilator puts his/her signature in the space provided on Question Paper Booklet and the OMR Answer Sheet. Candidate should sign in the space provided on the OMR Answer Sheet and Question Paper booklet.
10. **The candidate should write the Question Paper Booklet code and OMR Answer Sheet number and sign in the space provided in the Nominal Rolls.**
11. Return the OMR Answer Sheet and Question Paper Booklet to the Invigilator before leaving the Examination Hall. The candidate can take away the question paper booklet and duplicate copy of OMR sheet at the end of examination.

This booklet consists of **24** printed pages (for 100 Questions) including pages for Rough Work.

Candidate should check this before beginning to answer and bring any discrepancy in this regard to the notice of the Invigilator.

1. In a two port network, open circuit impedance parameters express

(A) V_1, V_2 in terms of I_1, I_2 (B) I_1, I_2 in terms of V_1, V_2

(C) V_1, I_1 in terms of V_2, I_2 (D) V_1, I_2 in terms of V_2, I_1

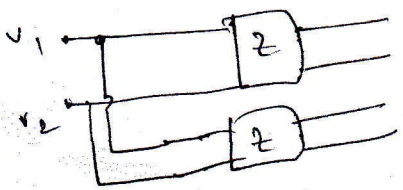
2. When two 2-port networks are connected in parallel, it is convenient to use

(A) open circuit impedance parameters

(B) short circuit admittance parameters

(C) transmission parameters

(D) inverse hybrid parameters



3. On increasing the Q-factor of a coil

(A) its power factor increases

(B) its power factor decreases

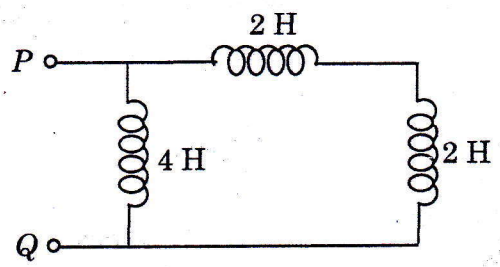
(C) its power factor remains unaltered

(D) its power may increase or decrease

4. The value of current at resonance in a series RLC circuit is affected by the value of

(A) R (B) L (C) C (D) R, L and C

5. The equivalent inductance of the below given circuit at the terminals $P - Q$ is

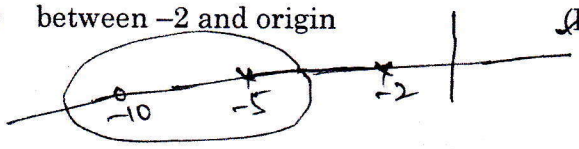


(A) 4 H (B) 2 H (C) 6 H (D) 8 H

D **6.** The breakaway point of the root from the real axis for a closed loop system with loop gain $G(s)H(s)=\frac{K(s+10)}{(s+2)(s+5)}$ lies

(A) between –10 and $-\infty$ (B) at $-\infty$

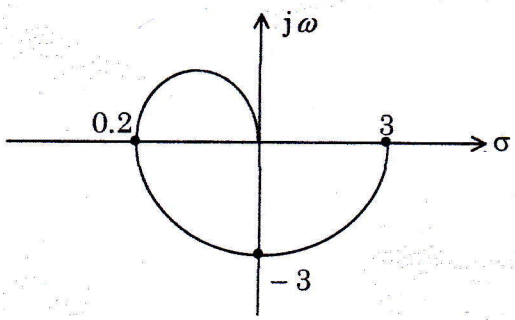
(C) between –2 and origin (D) between –2 and –5



C **7.** A system has 12 poles and 2 zeros. Its high frequency asymptote in its magnitude plot will have a slope of

(A) –60 db/dec (B) –120 db/dec (C) –200 db/dec (D) –240 db/dec

A **8.** The Nyquist plot of a transfer function is shown in the figure. The gain margin is



(A) 5 (B) 8 (C) 10 (D) 15

B **9.** If the Gain of the open loop system is doubled, the gain margin

(A) gets one fourth (B) gets halved

(C) gets doubled (D) is not affected

B **10.** The maximum phase shift that can be obtained by using a lead compensator with transfer function $G(s)=\frac{4(1+0.15s)}{(1+0.05s)}$ is equal to

(A) 15° (B) 30° (C) 45° (D) 60°

11. The following is the apparent disadvantage of auto transformer as compared to two-winding transformer

(A) power rating is greater (B) efficiency is low

(C) conductive isolation is not present (D) voltage regulation is low

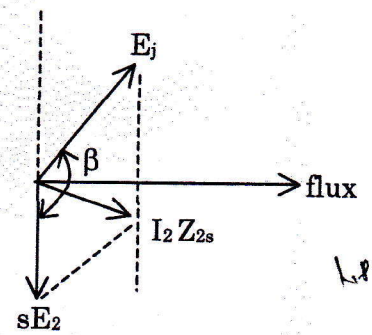
12. A 230/2300 V, Y/Δ 3-phase transformer is rated at 230 KVA. Its rated secondary current/phase is

(A) 33.33 A (B) 133.33 A (C) 66.66 A (D) 30.33 A

13. A 3-phase induction motor is run in counter-clockwise direction as motor with reverse phase sequence of supply. The range of slip variation for this mode is

(A) $0 < s < 1$ (B) $2 < s < 1$ (C) $0 < s < -1$ (D) $3 < s < 2$

14. The following is phasor diagram of rotor variables of 3-phase induction motor with E_j as injected emf. This provides



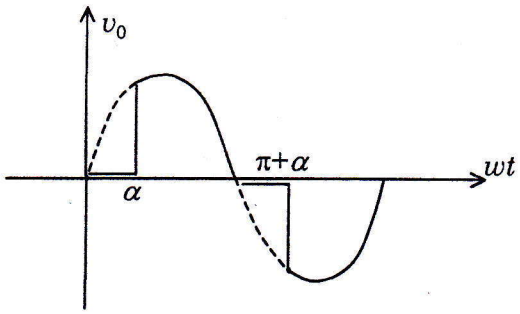
(A) sub synchronous speed without pf improvement

(B) super synchronous speed without pf improvement

(C) sub synchronous speed with pf improvement

(D) super synchronous speed with pf improvement

D **15.** The output waveform given below can be obtained from



(A) Controlled rectifier
(B) AC chopper
(C) DC chopper
(D) DIAC-TRIAC phase control circuit

C **16.** The candle power of a lamp placed normal to a working plane is 30 C.P. Find the distance if the illumination is 15 lux;

(A) 2 m (B) 0.5 m (C) 1.414 m (D) $\frac{1}{\sqrt{2}}$ m

D **17.** The luminous intensity of a lamp is 750 C.P. Then the flux given out is

(A) $\frac{750}{\pi}$ lumen (B) 750π lumen (C) $\frac{750}{2\pi}$ lumen (D) 1500π lumen

A **18.** Furnaces used for electric crematorium are of type

(A) Resistance heating (B) Induction heating
(C) Dielectric heating (D) Arc heating

A **19.** For the same rating the amount of radiant heat produced is least in

(A) fluorescent lamp (B) filament lamp
(C) sodium vapour lamp (D) mercury vapour lamp

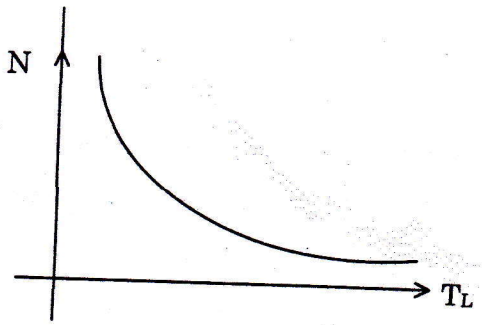
C **20.** In electric traction, the friction at the track is proportional to

(A) $\frac{1}{\text{speed}}$ (B) $\frac{1}{(\text{speed})^2}$ (C) speed (D) $(\text{speed})^2$

* B 21. Merz-price protection is more suitable for

(A) transformers
(B) generators
(C) transmission lines
(D) loads

C 22. The load torque vs speed characteristic of an industrial load is given below



The motor suitable for the above load is

(A) dc shunt motor
(B) 3 phase induction motor
(C) dc series motor
(D) capacitor motor

C 23. Between 2 supports, due to sag, the conductor takes the shape of

(A) parabola (B) hyperbola (C) catenary (D) semi circle

C 24. In suspension type insulator, the potential drop is maximum across

(A) top disc
(B) centre disc
(C) lowest disc
(D) depends on number of discs of the string

** B 25. The chances of occurrence of corona is maximum during

(A) dry weather
(B) humid weather
(C) winter
(D) hot summer

C 26. Equal area criterion can be applied to

(A) multi machine systems
(B) to any system with any number of loads and generators
(C) single machine connected to infinite bus system
(D) system with induction machines

B **27.** At half power frequencies, the current in the RLC series circuit is

(A) $\frac{1}{2}$ × current at resonance

(B) $\frac{1}{\sqrt{2}}$ × current at resonance

(C) $\frac{1}{4}$ × current at resonance

(D) $\frac{1}{\sqrt{3}}$ × current at resonance

B **28.** In RLC circuits, the current at resonance is

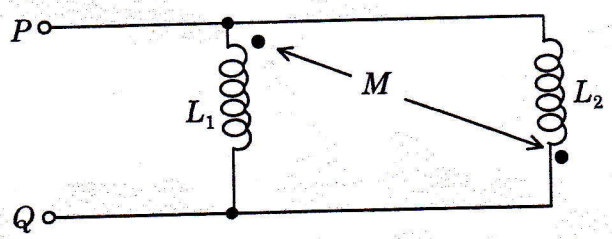
(A) maximum in parallel resonance and minimum in series resonance

(B) maximum in series resonance and minimum in parallel resonance

(C) maximum in both series and parallel resonances

(D) minimum in both series and parallel resonances

C **29.** The equivalent inductance of the circuit between terminals P and Q is equal to



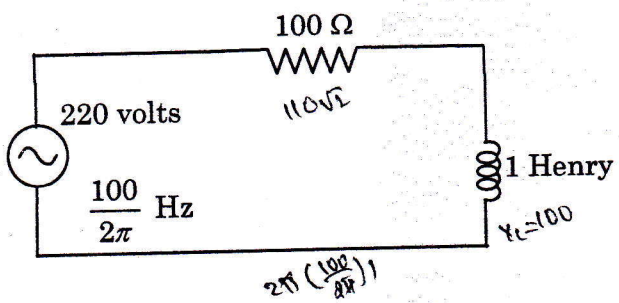
(A) $\frac{(L_1 + L_2 + 2M)}{(L_1L_2 - M^2)}$

(B) $\frac{(L_1 + L_2 - 2M)}{(L_1L_2 - M^2)}$

(C) $\frac{(L_1L_2 - M^2)}{(L_1 + L_2 + 2M)}$

(D) $\frac{(L_1L_2 - M^2)}{(L_1 + L_2 - 2M)}$

A **30.** In the given circuit below, the voltage across the inductor is



(A) $\frac{220}{\sqrt{2}}$ volts (B) $220\sqrt{2}$ volts (C) 220 volts (D) 110 volts

C **31.** The open loop transfer function of a unity feedback control system is given by

$$G(s)=\frac{K}{s(s+1)}$$

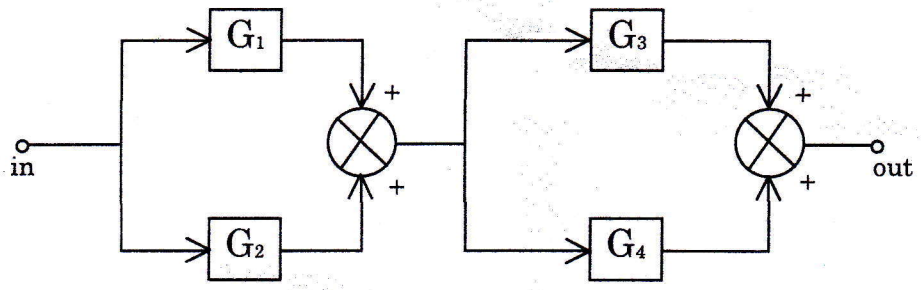
If the gain K is increased to infinity then the damping ratio will tend to become

(A) $\frac{1}{\sqrt{2}}$ (B) 1 (C) 0 (D) ∞

s^2+s+K $\omega_n=\sqrt{K}$

$2\zeta\omega_n=1$ $\zeta=\frac{1}{2\sqrt{K}}$

D **32.** The overall gain for the block diagram shown below is given by



(A) $G_1G_2G_3G_4$ (B) $G_1+G_2+G_3+G_4$

(C) $G_1G_2+G_3G_4$ $(G_1+G_2)(G_3+G_4)$ (D) $(G_1+G_2)\times(G_3+G_4)$

Q.

B **33.** Which of the following systems does have the tendency to oscillate?

(A) closed loop system (B) open loop system

(C) either (A) or (B) (D) both (A) and (B)

$\frac{10K-25-20K^2}{2K-5}$ $\frac{S(\frac{2K-5}{2K})-S(2K)}{\frac{2K-5}{2K}}$

— **34.** The feedback system with characteristic equation $s^4+2Ks^3+s^2+5s+5=0$ is

(A) unstable for all values of K (B) stable for all values of K

(C) stable for positive values of K (D) stable for zero value of K

s^4	1	1	5
s^3	2K	5	
s^2	$\frac{2K-5}{2K}$	5	
s^1	$\frac{10K-25-20K^2}{2K-5}$		
s^0			

A **35.** For making an unstable system as stable system

(A) gain of the system should be decreased

(B) gain of the system should be increased

(C) the number of zeros of the loop transfer function should be increased 5

(D) the number of poles of the loop transfer function should be increased

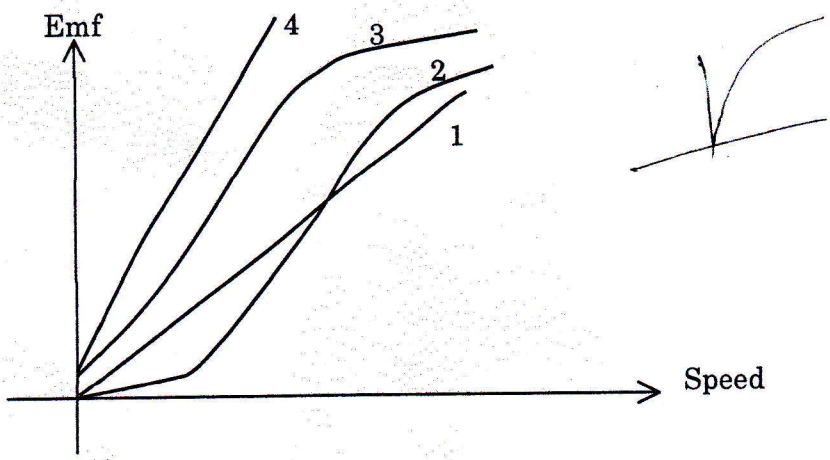
A **36.** A dc motor is driving a load that requires constant output power. The pu value of torque with its field current reduced to half would be (consider rated quantities as 1.0 pu)

(A) 0.5 pu (B) 1.0 pu (C) 2.0 pu (D) 1.5 pu

B **37.** A 2-pole wave wound dc generator has 120 conductors in each parallel path of its armature. If it is driven at 1200 rpm and excited to have 0.02 wb/pole, the induced emf would be

(A) 48 V (B) 96 V (C) 24 V (D) 124 V

B **38.** The variation of open circuit emf of a separates excited generator when I_f = constant and variable speed would be



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

D **39.** A 220V/12-0-12 V transformer has an emf/turn of 1 V. The number of turns on secondary would be

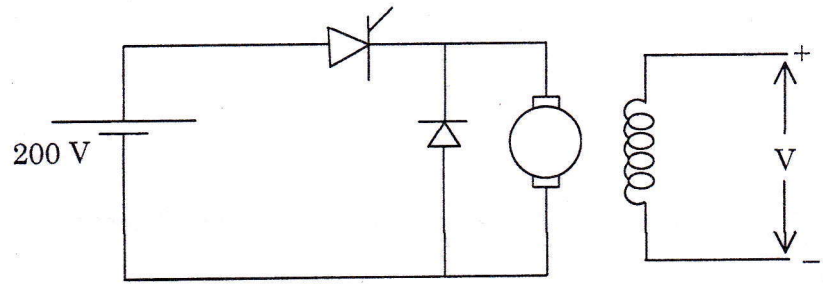
(A) 12 with centre tap (B) 220 with centre tap

(C) 24 with no centre tap (D) 24 with centre tap

D **40.** An ideal transformer has $N_1 = 100$ turns $N_2 = 200$ turns with a mutual flux of $\phi_m(t) = -0.05(t^2 - 2t)$. The induced emf of secondary in volts is

(A) $-5(t-1)$ (B) $-10(t-1)$ (C) $-5(t^2-1)$ (D) $-20(t-1)$

B **41.** For the power circuit given below, SCR is operated at 1 KHz with T_{ON} of 0.5 m sec.

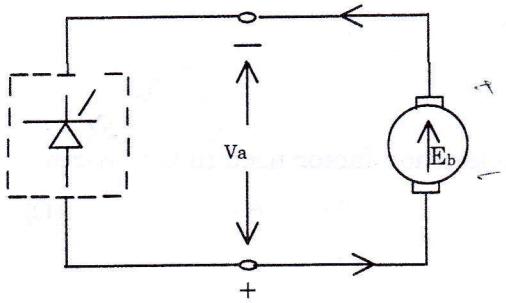


Motor ratings : 200 V (dc), 1000 rpm, 10 A.

Neglecting armature resistance the speed of motor at given duty cycle (T_m = constant)

(A) 1000 rpm (B) 500 rpm (C) 1500 rpm (D) 750 rpm

C **42.** A converter is feeding a dc machine as shown below :

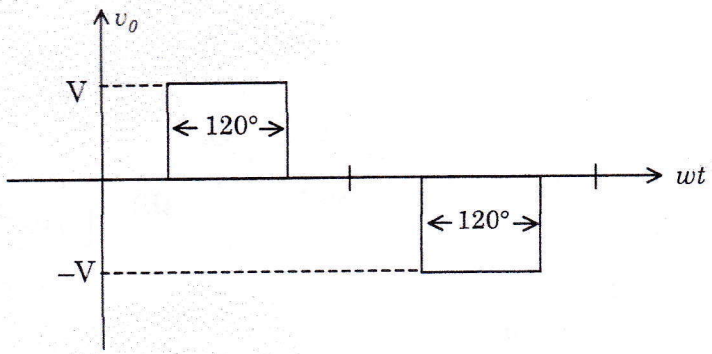


The mode of operation of machine is

(A) Motoring (B) Regenerating

(C) Plugging (D) Rheostatic braking

C **43.** The output of a single phase inverted bridge is as given below :



In the above output voltage

(A) 5^{th} and 7^{th} harmonics will be absent

(B) 3^{rd}, 5^{th}, 7^{th} harmonics will be absent

(C) 3^{rd}, 9^{th}, 15^{th} harmonics will be absent

(D) 3^{rd}, 7^{th} harmonics will be absent

44. A transformer of 10 MVA, 33 KV has reactance 0.1 pu. On 20 MVA, 11 kV the new p.u value is

(A) 0.45 (B) 1.8 (C) 1.2 (D) 0.6

45. In which type of fault, zero sequence currents are absent?

(A) L-L (B) L-G

(C) L-L-G (D) L-L-L-G

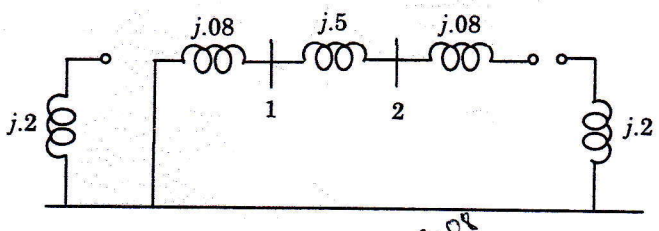
46. In a single machine connected to infinite bus bar system, alternator voltage is 1.5 pu and its reactance is 1.0 pu are connected through a line reactance of 0.3 pu. The maximum steady state power transfer is

(A) 1.154 pu (B) 5.0 pu (C) 1.5 pu (D) 0.76 pu

47. Value of acceleration factor used in Gauss-Seidal method in load flow studies is

(A) 1.59 (B) 1.66 (C) 1.0 (D) 1.6

48. The Z-Bus of the following system of impedances



(A) $\begin{bmatrix} j0.08 & j0.5 \\ j0.5 & j0.58 \end{bmatrix}$ (B) $\begin{bmatrix} j0.08 & j0.08 \\ j.08 & j0.58 \end{bmatrix}$

(C) $\begin{bmatrix} j0.08 & -j0.5 \\ -j0.5 & j0.58 \end{bmatrix}$ (D) $\begin{bmatrix} j0.08 & -j0.08 \\ -j0.08 & j0.58 \end{bmatrix}$

49. An over current relay having a current setting of 125% is connected to a supply circuit through a current transformer of ratio 400/5. The pick-up value will be

(A) 6.25 A (B) 500 A (C) 100 A (D) 80 A

C 50. In two wattmeter method of 3-phase power measurements, when the power factor is 0.5

(A) the readings of the two wattmeters are equal and positive

(B) the readings of the two wattmeters are equal and opposite

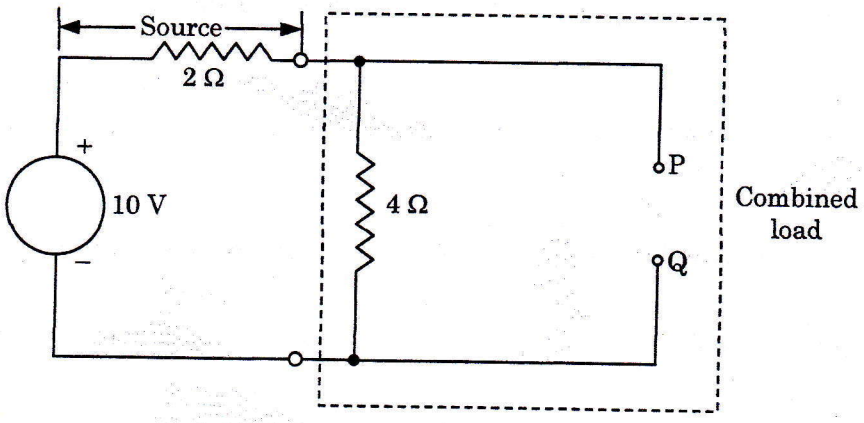
(C) the total power is measured by only one wattmeter

(D) the readings of the two wattmeters are not equal and positive

D 51. The reading of the wattmeter connected to measure the reactive power in a 3-phase circuit is given by zero when the line voltage is 400 volts and the line current is 15 Amps. Then the power factor of the circuit is

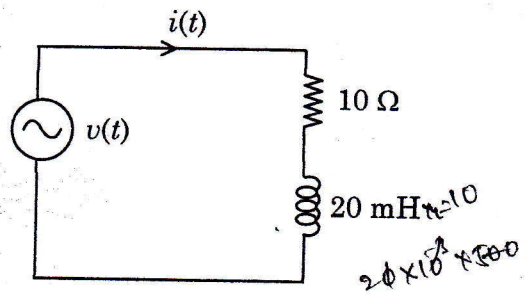
(A) zero (B) 0.6 (C) 0.8 (D) unity

C 52. The resistance which should be connected between terminals P and Q for maximum transfer of power from source to the combined load is



(A) zero Ω (B) 2 Ω (C) 4 Ω (D) infinity ohms

B 53. In the given circuit below, the current is $i(t) = 4\sin(500t)$ Amps. The applied voltage $v(t)$ in volts is



(A) $40\sin(500t)$

(B) $56.56\sin(500t + 45^\circ)$

(C) $40\cos(500t)$

(D) $56.56\cos(500t + 45^\circ)$

D **54.** A capacitor C at time $t = 0^+$ with initial charge Q_0 acts as

(A) short circuit (B) open circuit (C) current source (D) voltage source

C **55.** An electrical network with 8 independent nodes will have

(A) 4 nodal equations (B) 8 nodal equations

(C) 7 nodal equations (D) 9 nodal equations

2∠20

D **56.** Impedance $Z_1 = 20\angle 50^\circ\,\Omega$ and $Z_2 = 10\angle 30^\circ\,\Omega$. Then $\frac{Z_1}{Z_2}$ is

(A) $2\angle 80^\circ\,\Omega$ (B) $2\angle 50^\circ\,\Omega$ (C) $2\angle 30^\circ\,\Omega$ (D) $2\angle 20^\circ\,\Omega$

D **57.** Transformers used in conjunction with measuring instruments for measurement of high voltage and high currents are called

(A) transformer meters (B) power transformers

(C) pulse transformers (D) instrument transformers

B **58.** Swamping resistance is used in moving coil instruments to reduce error due to

(A) thermal EMF (B) temperature

(C) power taken by instrument (D) galvanometer sensitivity

C **59.** It is required to measure pf of an electrical load. No power factor meter is available. The following combination is used to determine pf

(A) a wattmeter

(B) a voltmeter and ammeter

(C) a voltmeter, ammeter and wattmeter

(D) a kwh meter

C **60.** The dielectric loss of a capacitor can be measured by

(A) Wein bridge (B) Owen bridge

(C) Schering bridge (D) Maxwell bridge

* C **61.** One of the following is an active transducer

(A) Strain gauge (B) Selsyn

(C) Photo voltaic cell (D) Photo emissive cell

62. In a monostable multivibrator using 555 timer, the time delay is 100m sec, timing resistor is 100 kΩ, the value of timing capacitor is

(A) 9 mF (B) 0.9 μF (C) 9 F (D) 1.8 μF

63. The ideal operational amplifier has

(A) $R_i = \infty$, $R_o = \infty$ (B) $R_i = 0$, $R_o = \infty$

(C) $R_i = \infty$, $R_o = 0$ (D) $R_i = 0$, $R_o = 0$

64. In the LM741, LM stands for

(A) Motorola (B) RCA

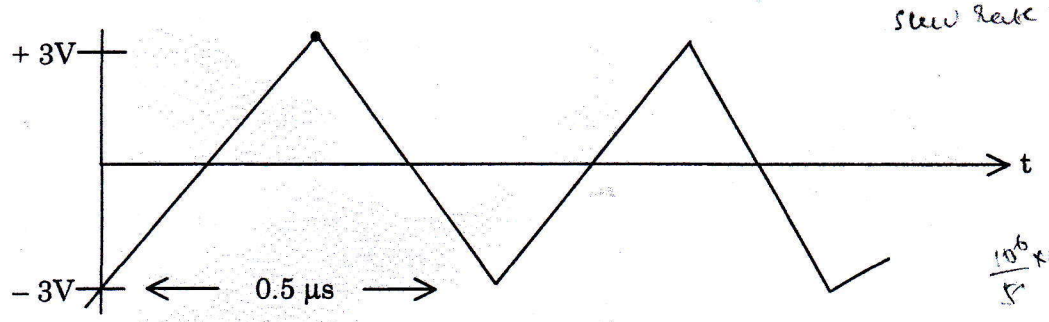
(C) Texas instruments (D) National semiconductor

65. ADC preferred for digital panel meters and multimeters

(A) Flash ADC (B) Servo ADC

(C) Successive approximation ADC (D) Dual-slope ADC

66. The output of an op-amp voltage follower is a triangular wave as shown in fig. for a square wave input of frequency 2 MHz and 8 V peak to peak amplitude. The slew rate of the op amp is



(A) 6 μs (B) 8 $V/\mu s$ (C) 14 $V/\mu s$ (D) 14 μs

67. Match the following with parts in List-I with machines in List-II

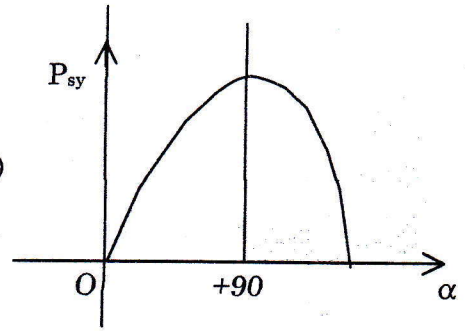
List-I		List-II
p.	damper bars	1. dc machine
q.	rotor bars	2. synchronous machine
r.	commutator	3. induction machine

(A) p–1 q–2 r–3 (B) p–3 q–1 r–2

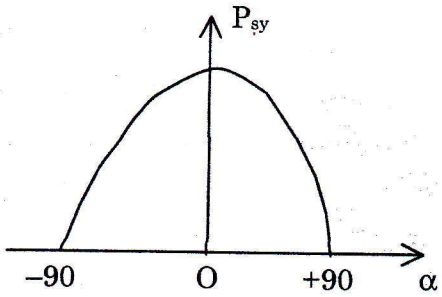
(C) p–2 q–3 r–1 (D) p–3 q–2 r–1

C **68.** The variation of synchronising power for variation of power angle for a salient pole machine will be

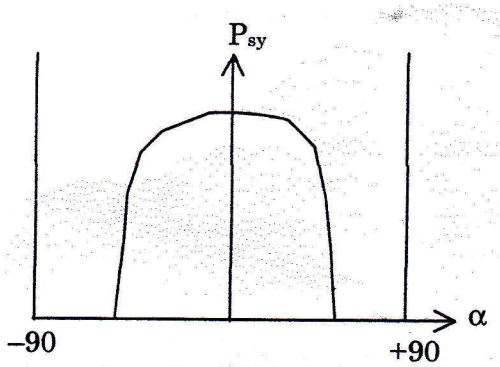
(A)



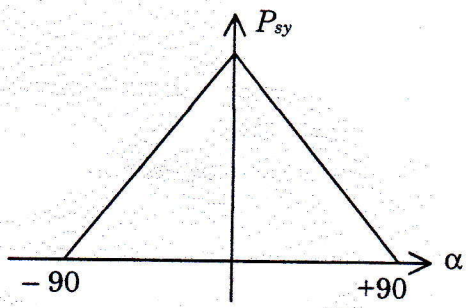
(B)



(C)



(D)



A **69.** If the supply frequency and voltage applied to a synchronous motor are both reduced to fractions Kf , KV the maximum power of the motor becomes

(A) K times of P_{max} at 'f'

(B) $\frac{1}{K}$ times of P_{max} at f

(C) K^2 times of P_{max} at f

(D) $\frac{1}{K^2}$ times of P_{max} at f

D **70.** For a salient pole synchronous machine, when the speed becomes super synchronous, during hunting, the damper bars develop

(A) synchronous motor torque

(B) dc motor torque

(C) induction motor torque

(D) induction generator torque

D **71.** Polar form of $(1 - a^2 + a)$ is

(A) $1.732\angle 150$ (B) $2\angle -60$ (C) $1.732\angle -150$ (D) $2\angle 60$

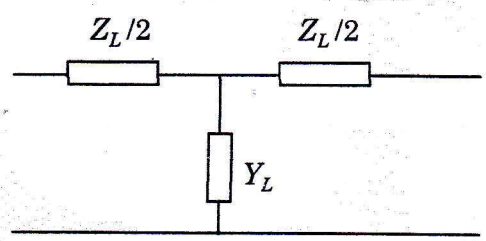
D **72.** The number of strands on a 3-layer cable is

(A) 24 (B) 7 (C) 37 (D) 19

A **73.** Given maximum power transmitted through a line P_{max}, then with 60% of series capacitor compensation the maximum power transfer becomes

(A) $\frac{P_{max}}{0.4}$ (B) $0.4P_{max}$ (C) $\frac{P_{max}}{0.6}$ (D) $0.6P_{max}$

C **74.** In A,B,C,D parameters, $Z_L/2$ in the T-equivalent shown can be represented as



(A) $(A-1)C$ (B) $(A-1)B$ (C) $(A-1)/C$ (D) $B/(A-1)$

B **75.** An industrial consumer has a load of 1500 kw at 0.8 pf lag. for 12 hrs and 1000 kw at Upf for 12 hrs during a day. The daily load factor of the consumer is

(A) 0.666 (B) 0.833 (C) 0.8 (D) 1.25

C **76.** In a power system with negligible resistance, the fault current at a point is 8.0 pu; The series reactance to be connected at the fault point to reduce the short circuit current to 5.0 pu is

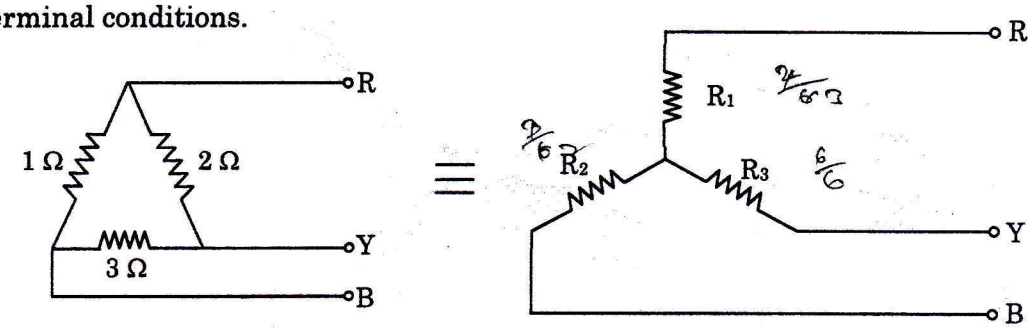
(A) 3.0 pu (B) 0.25 pu (C) 0.075 pu (D) 0.125 pu

A **77.** An ideal current source has zero

(A) internal conductance (B) internal resistance

(C) voltage on no load (D) ripple

D **78.** Three resistances of 1 ohm, 2 ohms and 3 ohms are connected in delta. These resistances are to be replaced by star connection as shown in the figure below, maintaining the same terminal conditions.



The value of highest resistance in star will be :

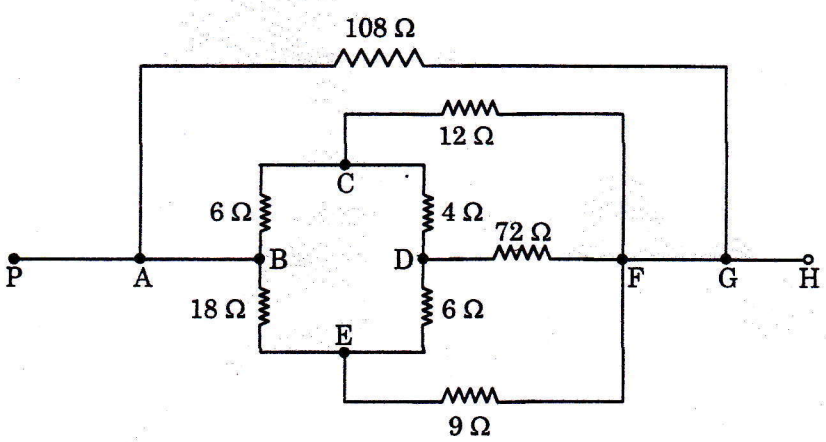
(A) $\frac{1}{4}$ ohm (B) $\frac{1}{3}$ ohm (C) $\frac{1}{2}$ ohm (D) 1 ohm

A **79.** Superposition theorem requires as many circuits to be solved as there are

(A) sources (B) nodes

(C) sources + nodes (D) sources + nodes + meshes

B **80.**

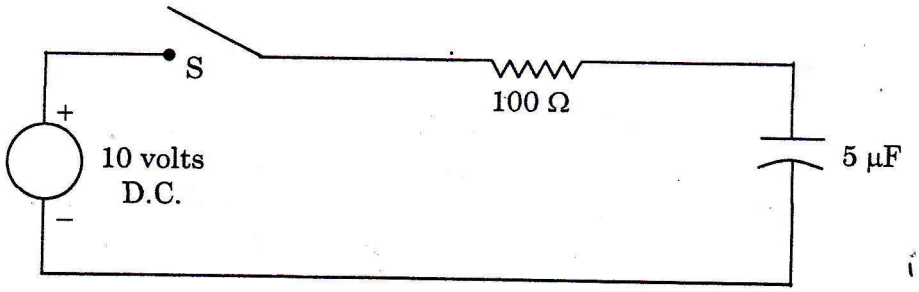


The circuit shown above can be easily solved by

(A) Series-parallel network (B) Star-mesh theorem

(C) Thevenin's theorem (D) Reciprocity theorem

81. In the given $R-C$ circuit, the current reaches its maximum value



(A) after 50 μ. sec. of turning on the switch S

(B) after 100 μ. sec. of turning on the switch S

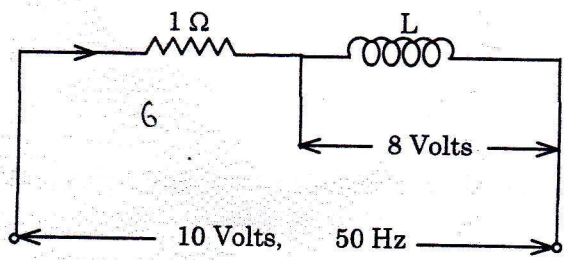
(C) after 1000 μ. sec. of turning on the switch S

(D) immediately after turning on the switch S

82. The time constant of a series $R-L$ circuit is given by

(A) L^2R (B) LR^2 (C) LR (D) $\frac{L}{R}$

83. For the circuit given below, the current through 1 ohm resistor will be



(A) 2 amps (B) 4 amps (C) 6 amps (D) 8 amps

84. Admittance is the reciprocal of

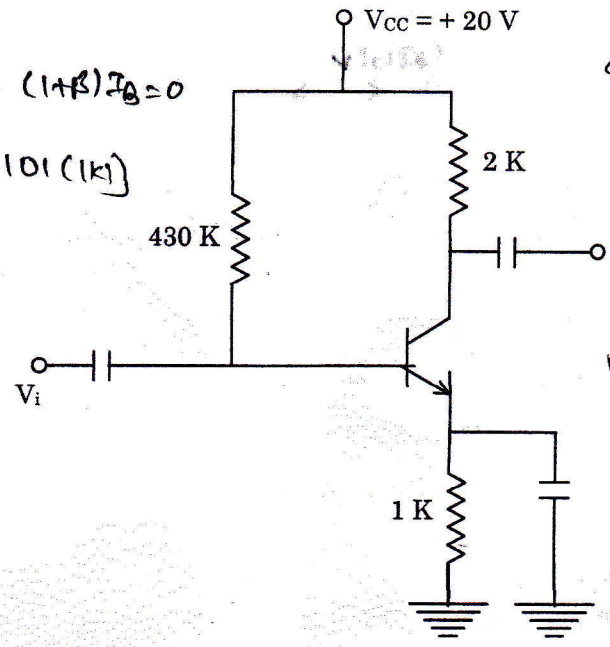
(A) impedance (B) inductance (C) susceptance (D) reactance

85. The power expression in 3-phase circuit in terms of line voltage V_L, line current I_L and power factor of the load is $\sqrt{3}V_L I_L \cos\phi$ where ϕ is the angle between

(A) line voltage and line current (B) line voltage and phase current

(C) phase voltage and line current (D) phase voltage and phase current

A **86.** For the BJT shown in fig., $V_{BE} = 0.7V$, $\beta = 100$, find I_B



(A) 36.35 μA (B) 19.3 mA (C) 38.6 mA (D) 57 μA

B **87.** The value of transconductance at a bias voltage of 0 V for the JFET which is having $I_{DSS} = 9\ mA$ and $V_P = -3V$ is

(A) $6mV$ (B) $6mS$ (C) $27S$ (D) $3mS$

C **88.** The efficiency of a class B amplifier for a supply voltage $V_{CC} = 24V$ with peak-to-peak output of $6V$ is

(A) 4% (B) 48% (C) 19.6% (D) 39.2%

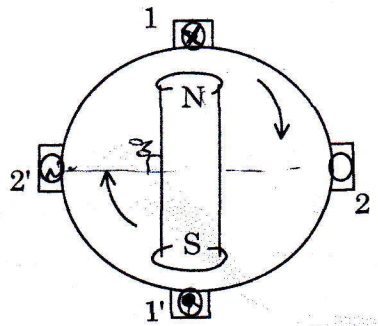
B **89.** The ripple voltage of a FWR with a 100 μF filter capacitor connected to a load of 50 mA is

(A) 2.4 V (B) 1.2 V (C) 4.4 V (D) 6.6 V

D **90.** The timing resistor is 10 kΩ and timing capacitor is 200 PF for a 565 PLL. The free running frequency is

(A) 500 KHz (B) 350 KHz (C) 250 KHz (D) 150 KHz

A **91.** Four conductors in a stationary armature (alternator) are shown as 1,1′,2,2′. For given direction of rotation of rotor the direction of induced emf (at the instant shown) in the conductors respectively



Conductor →	1	1′	2	2′
(A)	⊗	⊙	○	○
(B)	○	○	⊗	⊙
(C)	⊗	⊙	⊗	⊙
(D)	⊙	⊗	⊙	⊗

** D **92.** A synchronous machine has $X_s = 1\ pu$ and operates at $V = 1\ pu$. When its emf is 1.5 pu with load angle 0°_e, current as $(0 + j0.5)$, the mode of operation is

(A) generator with lagging pf (B) generator with leading pf

(C) motor with lagging pf (D) motor with leading pf

* B **93.** A 3-phase, 16-pole, 108-slot alternator will have the following phase grouping in each phase with 60° phase spread

(A) 2, 2, 2, 2 coils in basic unit of 4 poles

(B) 3, 2, 2, 2 coils in basic unit of 4 poles

(C) 3, 2, 2, 2 coils in basic unit of 16 poles

(D) 2, 2, 2, 2 coils in basic unit of 8 poles

* B **94.** A 4-pole turbo generator rated 500 MVA, 22 KV has its angular acceleration 437.8 ele.degrees/sec^2; It is equivalent to

(A) 1500 rpm/sec (B) 36.48 rpm/sec

(C) 145.92 rpm/sec (D) 72.97 rpm/sec

C **95.** A 50 Hz generator having H = 6 MJ/MVA is connected to synchronous motor having H = 4 MJ/MVA through a network of reactances. The generator is delivering power of 1.0 p.u. to the motor which reduces to 0.6 p.u. when fault occurs. The angular acceleration in ele.degrees/sec^2 is

(A) 360 (B) 180 (C) 1500 (D) 1800

B **96.** Synchronizing power coefficient can be written as

(A) $P_a.\cos\delta_0$ (B) $P_{max}.\cos\delta_0$ (C) $P_e.\cos\delta_0$ (D) $P_{max}.\sin\delta_0$

A **97.** The relay that most likely to operate during power swings is

(A) Reactance relay (B) Impedance relay

(C) Mho relay (D) Bucholtz's relay

C **98.** An OCB is rated 1500 A, 2000 MVA, 33 KV. Its making current in kA is

(A) 51.51 (B) 35 (C) 89.25 (D) 154.54

* C **99.** The rating of lightning arrester used for 220 kV, 3 phase system is

(A) 220 kV, 10 kA (B) 220 kV, 5 kA (C) 198 kV, 10 kA (D) 198 kV, 2 kA

B **100.** A generating station has maximum demand of 30 MW, a load factor of 0.6 and plant capacity factor 0.48; The reserve capacity of the plant is

(A) 37.5 MW (B) 7.5 MW (C) 19.5 MW (D) 12 MW