Number of Questions: 35 **Section Marks: 90**

Directions for questions 1 to 35: Select the correct alternative from the given choices.

1. The value of z_{22} for the figure shown below is ______________. (All impedances are in pu and ground as reference).

2. Which of the following equation is correct for the minimum voltage value, when the Distributor is fed at both ends with equal voltages.

(A) $V-\dfrac{IR}{2}$ (B) $V-\dfrac{IR}{4}$

(C) $V-\dfrac{IR}{8}$ (D) $V-\dfrac{IR}{12}$

3. A $3-\phi$ transmission line 300km long has the following constants

Resistance/phase/km = 0.20Ω

Reactance/phase/km = 0.5Ω

Shunt admittance/phase/km = 3×10^{-6}S.

The characteristic impedance of the line is

(A) $161.55 \angle 68.19$

(B) $0.145 \angle 158.19$

(C) $423.67 \angle -10.90$

(D) $179.5 \times 10^3 \angle -21.81$

4. The p.u impedance in a power system network is X, if the MVA is increased by two times and voltage becomes half of the previous value. Then the corresponding new p.u impedance is

(A) $8X$ (B) $4X$

(C) $2X$ (D) X

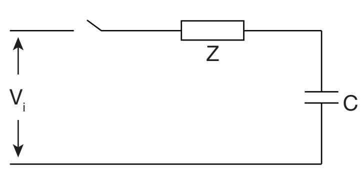
5. A sending end bus transfers power P_o through a transmission line with per unit impedance 0.4 pu. If the stability margin is 40%, the value of P_o (in pu) for the voltages at sending end and receiving end are 1.2 and 1 pu is ___________.

6. Which of the following turbine is Impulse turbine

(A) Pelton wheel turbine (B) Francis turbine

(C) Propeller turbine (D) Kaplan turbine

7. The refracted voltage equation for the following circuit is



(A) $V(1-e^{-t/zc})$ (B) $2V(1-e^{-t/zc})$

(C) $2V(1-e^{-Zt/c})$ (D) $V(1-e^{-zt/c})$

8. The Quantities to be calculated in a voltage controlled bus are

(A) $|V|, \delta$ (B) P, Q

(C) Q, δ (D) P, V

9. The restraining coil Torque is

(A) directly proportional to $\dfrac{(i_1+i_2)\,n_r}{2}$

(B) directly proportional to $(i_1+i_2)n_r$

(C) inversely proportional to $(i_1+i_2)n_r$

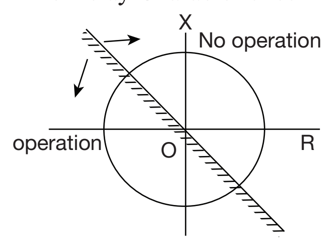
(D) inversely proportional to $\left(\dfrac{i_1+i_2}{2}\right)n_r$

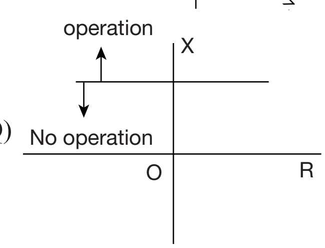
10. Match the following Relays.

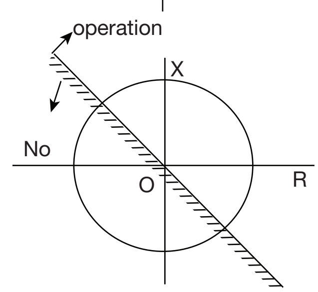
(1) Impedance Relay with directional unit

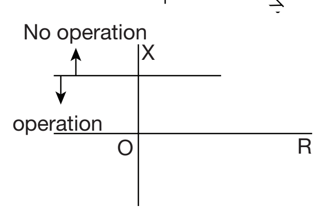
(2) Reactance Relay

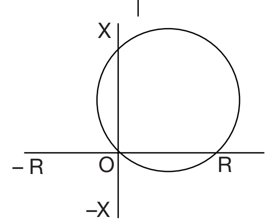
(3) Mho Relay Characteristics

(P) 

(Q) 

(R) 

(S) 

(T) 

(A) $1-P, 2-Q, 3-T$ (B) $1-P, 2-S, 3-T$
(C) $1-R, 2-S, 3-T$ (D) $1-R, 2-Q, 3-T$

11. A 5A IDMT relay has connected to CT of 400/5 ratio with a relay setting of 125%.calculate PSM of the relay with a fault current of 5000A.
(A) 10 (B) 8
(C) 6 (D) 7

12. Isolating switch is used under
(A) No load condition (B) Full load condition
(C) Normal load condition (D) All of the above

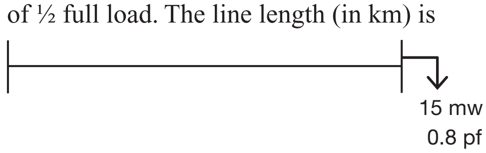
13. The efficiency of Thermal Plant is low due to
(A) Condenser (B) Turbine
(C) Super heater (D) Alternator

14. A circuit breaker has a time to reach the peak re-striking voltage of 200 kv at100 μsec. The average RRRV of the circuit breaker is
(A) 2 (B) 2×10^6
(C) $200\sqrt{2}$ (D) $200\sqrt{\frac{2}{3}}$

15. A circuit breaker is rated as 2000A, 1500 MVA, 33 kV, 5-second, 3-phase oil circuit breaker. The rated making current of circuit breaker is
(A) 26.24 KA (B) 45.45 KA
(C) 115.90 KA (D) 66.92 KA

16. A single core cable 10 km long has an insulation resistance of 0.5 MΩ. The core diameter is 30 mm and the diameter of the cable over the insulation is 80 mm. The resistivity of the insulating material is
(A) 3.08×10^{10} Ωm (B) 3.08×10^9 Ωm
(C) 3.08×10^6 Ωm (D) 3.08×10^3 Ωm

17. The transmission line shown in below has a resistance of 0.205 Ω/km with a loss in the transmission of 7.5% of ½ full load. The line length (in km) is



18. A 1-phase transmission line having a copper conductor of 0.8cm² cross section over which 300 kW at unity power factor and 3,000 V to be delivered. The efficiency of transmission line is 80% and specific resistance as 1.8μΩ/cm. The maximum length of the line is
(A) 3.75 km (B) 1.67 km
(C) 16.67 km (D) 166.67 km

19. A 3-phase line has a conductor of 5 cm in diameter spaced equilaterally 2 m apart. If the dielectric strength of air is 30 kV(max) per cm. The critical distruptive voltage of the line is ($m_o = 0.9$, $\delta = 0.98$)
(A) 141.91 kV (B) 78.93 kV
(C) 91.04 kV (D) 83.6 kV

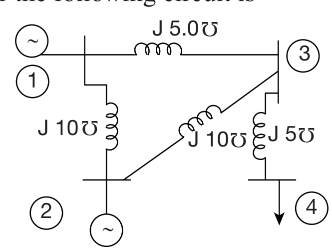
20. The most economical size of a single core cable working on 66kV, 3-phase system, if a dielectric stress of 50 kV/cm is
(A) 2.15 cm (B) 5.84 cm
(C) 4.30 cm (D) 11.68 cm

21. The insulation resistance of a single core cable is 500 MΩ per km. If the core diameter is 3cm and resistivity of insulation 5×10^{12} Ω-m. The insulation thickness of the cable is
(A) 2.81cm (B) 1.5cm
(C) 1.8cm (D) 1.31cm

22. A 3-phase, 10 kW induction motor has a $p.f$ of 0.8 lagging. A bank of capacitors is connected in delta across the supply terminals and $p.f$ raised to 0.95 lagging. The KVAR rating of the capacitors connected in each phase is
(A) 4.21 KVAR (B) 1.40 KVAR
(C) 12.63 KVAR (D) 2.43 KVAR

23. A hydro electric generating station is supplied from a reservoir of capacity 6×10^6 cubic meters at a head of 300 meters. The total energy available in kwh is ($\eta_{overall} = 85\%$, $\eta_{turbine} = 80\%$)
(A) 4.16×10^6 kwh (B) 6×10^9 kwh
(C) 138.975×10^3 kwh (D) 425×10^3 kwh

24. The y_{BUS} for the following circuit is



(A) $J\begin{bmatrix} 15 & 10 & 5 & 0 \\ 10 & 20 & 10 & 0 \\ 5 & 10 & 20 & 5 \\ 0 & 0 & 5 & 5 \end{bmatrix}$

(B) $-J\begin{bmatrix} 0.067 & 0.1 & 0.2 & 0 \\ 0.1 & 0.05 & 0.1 & 0 \\ 0.2 & 0.1 & 0.05 & 0.2 \\ 0 & 0 & 0.2 & 0.2 \end{bmatrix}$

(C) $J\begin{bmatrix} 20 & 10 & 0 \\ 10 & 5 & 5 \\ 0 & 5 & 10 \end{bmatrix}$

(D) $-J\begin{bmatrix} 15 & 5 & 10 & 0 \\ 5 & 20 & 0 & 5 \\ 10 & 0 & 20 & 10 \\ 0 & 5 & 10 & 15 \end{bmatrix}$

25. The power system network is characterized as $P_e = \frac{EV}{X}$ sin δ. The voltages of the generator and infinite buses are 1.2 and 1 pu. The reactance of the system is 0.6 pu. The degree of magnetic coupling when the generator initially operating at a power angle of 60° is ____________ pu.

26. A 33kV, 3-phase overhead transmission line has a resistance and reactance per phase of 6Ω and 24Ω respectively. The load at the receiving end is 20 MW at a power factor of 0.85 lagging calculate the current supplied by the synchronous conductor to maintain the receiving end voltage 33 kV.

(A) 408.85A (B) 349.90A
(C) 230.52A (D) 419.01A

27. A diesel power station has the following data
Fuel consumption/day = 2000kg
Units generated/day = 6000kwh
Calorific value of fuel = 12000 k cal/kg
Calculate the overall efficiency of the plant if the alternator efficiency is 92%

(A) 21.5% (B) 33%
(C) 36.5% (D) 34.20%

28. A 3-phase 33kV/11kV star/delta transformer is protected by circulating current scheme with 600/5 *CT* on the 33 kV side. The *CT* ratio on 11 kV side is

(A) 207.84 : 1 (B) 360 : 1
(C) 69.28 : 1 (D) 600 : $5\sqrt{3}$

29. A fuse wire of circular cross-section has a radius of 0.6 mm. The wire blows off at a current of 6A. The radius of the wire that will blow off at a current of 2A is

(A) 0.2 mm (B) 8 mm
(C) 0.008 mm (D) 0.28 mm

30. A motor is receiving 30% of the power from an infinite bus if the load on the motor is two times, Calculate the maximum value of δ.

(A) 30° (B) 60°
(C) 45° (D) 50°

31. A system of 132kV, the line to Ground capacitance is 0.02 μF and inductance is 6H. Calculate the voltage appearing across the pole of *C.B*, if a magnetizing current of 10A and 10kΩ Resistance across the breaker.

(A) 132.40 kV (B) 152.50 kV
(C) 100 kV (D) 173.20 kV

Common Data for Questions 32 and 33:

A delta connected load is supplied from a 3-phase supply. The fuse in the *B* line is removed and current in the other two lines is 50A.

32. The positive sequence current in the *R*-phase is

(A) 86.60A (B) 28.86A
(C) 0A (D) 49.98A

33. The negative sequence current in the *B*-phase is

(A) 0A (B) 86.60A
(C) 28.86A (D) 49.98A

Statement for Linked Answer Questions 34 and 35:

A single core cable used on a 3-phase, 50Hz, 66 kV system. The cable is 2km long having a core diameter of 20 cm and an impregnated paper in thickness 8 cm. The relative permitivity of the insulation as 4.

34. The capacitance value is

(A) 0.328 μF (B) 0.082 μF
(C) 0.164 μF (D) 1.312 μF

35. The charging current is

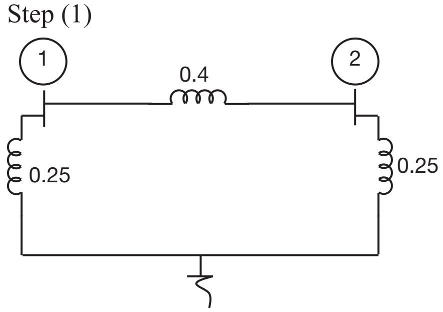
(A) 0.981A (B) 15.70A
(C) 7.34A (D) 3.92A

Answer Keys

2. C	**3.** C	**4.** A	**6.** A	**7.** B	**8.** C	**9.** A	**10.** C	**11.** A	**12.** A
13. A	**14.** A	**15.** D	**16.** A	**18.** C	**19.** A	**20.** A	**21.** D	**22.** B	**23.** A
24. A	**26.** A	**27.** A	**28.** A	**29.** D	**30.** B	**31.** D	**32.** B	**33.** C	**34.** A
35. D									

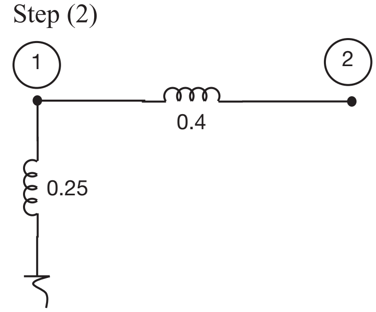
Hints and Explanations

1. Step (1)



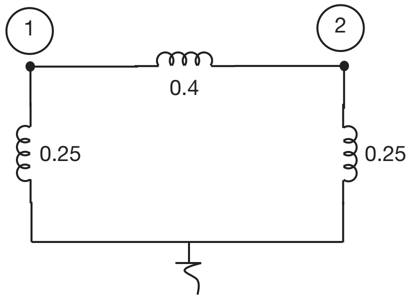
Z_{bus} = [0.25}

Step (2)



$$Z_{bus} = \begin{matrix} 0.25 & 0.25 \\ 0.25 & 0.65 \end{matrix}$$

Step (3)



$$Z_{bus_{new}} = \begin{matrix} 0.25 & 0.25 \\ 0.25 & 0.65 \end{matrix} - \frac{1}{0.65+0.25} \begin{matrix} 0.25 \\ 0.65 \end{matrix} [0.25 \quad 0.65]$$

$$= \begin{matrix} 0.25 & 0.25 \\ 0.25 & 0.65 \end{matrix} - \frac{1}{0.9} \begin{matrix} 0.0625 & 0.1625 \\ 0.1625 & 0.4225 \end{matrix}$$

$$Z_{bus} = \begin{matrix} 0.1806 & 0.0695 \\ 0.0695 & 0.1806 \end{matrix}$$

$$Z_{22} = 0.1806$$

2. Minimum voltage $= V - \dfrac{IR}{8}$ volts Choice (C)

3. Total Resistance/phase $R = 0.2 \times 300 = 60\Omega$
Total Reactance/phase $X_L = 0.5 \times 300 = 150\Omega$
Total Shunt admittance/phase $Y = j3 \times 10^{-6} \times 300$
$= 0.0009\angle 90^o$
Series Impedance/phase $Z = 60 + j150 = 161.55\ \angle 68.19$

Characteristic impedance $= \sqrt{\dfrac{Z}{Y}}$

$$= \sqrt{\frac{(161.55\ \angle 68.19)}{(0.009\angle 90)}}$$

$= 423.67\angle{-10.90}$

Choice (C)

4. Per unit impedance $\alpha\ \dfrac{MVA}{(kv)^2}$

$$\frac{X_1}{X_2} = \frac{MVA_1}{(kv_1)^2} \times \frac{(kv_2)^2}{MVA_2}$$

$$= \frac{MVA_1}{(kv_1)^2} \times \frac{(kv_1)^2}{4 \times 2\,MVA_1}$$

$\Rightarrow\ X_2 = 8X_1 \Rightarrow X_2 = 8X$ Choice (A)

5. Steady state stability margin $= \dfrac{P_{max} - P_o}{P_{max}} \times 100$

$$P_o = P_{max} \sin\delta$$

$$40 = \frac{P_{max} - P_{max}\sin\delta}{P_{max}} \times 100$$

$1 - \sin\delta = 0.4$

$\sin\delta = 0.6$

$\delta = 36.86^o$

$$P_o = \frac{+EV}{X}\sin\delta$$

$$= \frac{1.2 \times 1}{0.4} \times 0.6$$

$P_o = 1.8$ pu.

6. Choice (A)

7. $V^{11}(s) =$ refracted voltage $= \dfrac{2.\dfrac{1}{CS}}{z + \dfrac{1}{CS}} \cdot \dfrac{V}{S}$

$$= \frac{2V}{S} \cdot \frac{1}{1 + ZCS}$$

$$= \frac{2V}{S} \cdot \frac{\frac{1}{ZC}}{S + \frac{1}{ZC}} = 2V\left(\frac{1}{S} - \frac{1}{S + \frac{1}{ZC}}\right)$$

$V^{11}(t) = 2V(1 - e^{-t/zc})$ Choice (B)

8. The P, V Quantities specified for voltage controlled bus and Q, δ Quantities are to be calculated. Choice (C)

9. Choice (A)

10. Choice (C)

11. PSM $= \dfrac{\text{secondary current}}{\text{Relay current setting}}$

$= \dfrac{5000}{6.25 \times 80} = 10$ Choice (A)

12. Isolating switch is Generally used under no load condition only. Choice (A)

13. Choice (A)

14. Average RRRV $= \dfrac{200\text{ kV}}{100} = 2\text{ kV}/\mu\text{sec}$ Choice (A)

15. Rated making current $= 2.55 \times \dfrac{1500 \times 10^6}{\sqrt{3} \times 33 \times 10^3}$

$= 66.92$ KA Choice (D)

16. Length l = 10,000m
Insulation Resistance $R = 0.5 \times 10^6\ \Omega$

Conductor radius $r_1 = \dfrac{30}{2} = 15\text{mm}$

Internal sheath radius $r_2 = \dfrac{80}{2} = 40\text{mm}$

$$R = \frac{\rho}{2\pi l}\ell_n \frac{r_2}{r_1}$$

$$0.5 \times 10^6 = \frac{\rho}{2\pi \times 10{,}000}\ln\left(\frac{40}{15}\right)$$

$\rho = 0.5 \times 10^6 \times 2\pi \times 10,000\ ln\left(\frac{40}{15}\right)$

$\rho = 3.08 \times 10^{10}\ \Omega$m Choice (A)

17. Line current $I = \dfrac{P}{\sqrt{3}\,\text{V}\cos\varphi}$

$= \dfrac{15\times10^6}{\sqrt{3}\times132\times10^3\times0.8}$

= 82 A

Line losses = $3I^2 R = \dfrac{7.5}{100}\times\dfrac{15\text{ m}}{2}$

= 562.5 kW

$R = \dfrac{562.5\times10^3}{3\times82^2}$

= 27.88 Ω

Line length = $\dfrac{27.88}{0.205}$ = 136 km.

18. Receiving end power = 300kW = 3, 00,000 watts
Transmission efficiency = 0.8

Sending end power $= \dfrac{3,00,000}{0.8} = 3,75,000$ watts

Line losses = 3, 75,000 – 3, 00,000 = 75, 000 W

Line current $I = \dfrac{300\times10^3}{3000} = 100$A

Line losses = $2\ I^2\ R$

$75,000 = 2\times(100)^2\times R \Rightarrow R = \dfrac{75,000}{2\times(100)^2} = 3.75\ \Omega$

$R = \dfrac{\rho L}{a}$

$l = \dfrac{3.75\times0.8}{1.8\times10^{-6}} = 1.67\times10^6$ cm $\Rightarrow$ 16.67 km Choice (C)

19. Conductor radius $r = \dfrac{5}{2} = 2.5$cm

Conductor spacing d = 2m = 200cm
Dielectric strength g_o = 21.2 kV(rms) per cm
Distruptive critical voltage

$V_c = m_o\, g_o\, \delta\, r \ln\left(\frac{d}{r}\right)$ kV/phase

$= 0.9\times21.2\times0.98\times1\times\ln\left(\frac{200}{2.5}\right)$

= 81.936 kV/phase

Line voltage = $\sqrt{3}\times 81.93$ = 141.91 kV Choice (A)

20. Phase voltage of cable $= \dfrac{66}{\sqrt{3}}$ = 38.10kV

Peak value of phase voltage $V = 38.01\times\sqrt{2} = 53.73$kV
Maximum permissible stress g_{max} = 50kV/cm

Most economical conductor diameter is

$d = \dfrac{2V}{g_{\max}} = \dfrac{2\times53.75}{50} = 2.15$cm Choice (A)

21. Length of cable ℓ = 1km = 1000m
Cable insulation Resistance $R = 500\times10^6\Omega$

Conductor radius $= \dfrac{3}{2} = 1.5$cm

$\rho = 5\times10^{12}\ \Omega$m

r_2 = internal sheath radius

$R = \dfrac{\rho}{2\pi 1}\ln\left(\frac{r_2}{r_1}\right)$

$\ln\left(\frac{r_2}{r_1}\right) = \dfrac{2\pi lR}{\rho} = \dfrac{2\pi\times1000\times500\times10^6}{5\times10^{12}} = 0.628$

$\dfrac{r_2}{r_1} = 1.87 \Rightarrow r_2 = 1.5\text{cm}\times1.87 = 2.81$cm

Insulation thickness = $r_2 - r_1$ = 1.31cm Choice (D)

22. $\cos\phi_1$ = 0.8 lag $\Rightarrow \phi_1$ = 36.86
P = 10kW
$\cos\phi_2$ = 0.95 lag $\Rightarrow \phi_2$ = 18.19
Leading KVAR taken by the condenser bank
$= p(\tan\phi_1 - \tan\phi_2)$
= 10(tan 36.86 – tan 18.19)
= 4.21 KVAR
∴ Rating of capacitors connected in each phase
$= \dfrac{4.211}{3}$ = 1.40 KVAR Choice (B)

23. Weight of water available is
W = volume of water × density
$= 6\times10^6\times1000$ (∵ mass of 1m^3 of water is 1000kg)
$= 6\times10^9$ kg $= 6\times10^9\times9.81$ N
Electrical energy available = $\omega\times H\times\eta_{\text{overall}}$
$= 9.81\times6\times10^9\times300\times0.85$ watt sec

$= \dfrac{6\times10^9\times300\times9.81\times0.85}{3600\times1000}$

$= 4.16\times10^6$ kwh Choice (A)

24. By Inspection method the y_{bus} matrix is

$y_{BUS} = J\begin{bmatrix}15 & 10 & 5 & 0\\ 10 & 20 & 10 & 0\\ 5 & 10 & 20 & 5\\ 0 & 0 & 5 & 5\end{bmatrix}$ Choice (A)

25. Degree of magnetic coupling = Synchronous power

$= \dfrac{EV}{X}\sin\delta$

$= \dfrac{1.2\times1}{0.6}\cos 60°$

= 1 pu.

26. Load current $I_L = \dfrac{20\times10^6}{\sqrt{3}\times33000\times0.85} = 411.65\text{ A}$

Sending end voltage/phase Vs = receiving end voltage/phase V_r

$$= \frac{33\times10^3}{\sqrt{3}} = 19053\text{V}$$

$$V_s^2 = \left[V_r + I_L\cos\varphi.R - \left(I_c - I_L\sin\varphi\right)X\right]^2 +$$

$$\left[\text{I}_L\cos\varphi..x + (I_c - I_l\sin\theta)\,R\right]^2$$

$(19053)^2 = [19053 + 411.65 \times 0.85 \times 6 - (I_c - 411.65 \times 0.52)\ 24]^2 + [411.65 \times 0.85 \times 24 + (I_c - 411.65 \times 0.52)6]^2$

$(19053)^2 = [19053 + 2099.41 - 24I_c + 5137.39]^2 + [8397.66 + 6I_c - 1284.34]^2$ ———— (1)

On solving equation (1) $I_c = 408.85$A, 1513.60 the synchronous condenser current $I_c = 408.85$A Choice (A)

27. Fuel consumption $= \dfrac{2000}{6000} = 0.34\text{kg/kwh}$

Heat produced by fuel per day = 2000 × 1200 = 24 × 10^6 k cal

Oveall efficiency $= \dfrac{\text{electrical output in heat units per day}}{\text{Heat produced by fuel per day}}$

$$= \frac{6000\times860}{24\times10^6} = 21.5\%$$ Choice (A)

28. Phase current of delta connected *CTs* on 33kV side = 5A

Line current of delta connected *CTs* on 33kV side $= 5\sqrt{3}$ A

Phase current of star connected *CTs* on 11000V side $= 5\sqrt{3}$A

if I is the line current on 11000V side then

primary apparent power = secondary apparent power

$$\sqrt{3}\times33000\times600 = \sqrt{3}\times11000\times I$$

I = 1800 A

Turn-ratio of *CT's* on 11000 V side

$= 1800{:}\ 5\sqrt{3} = 207.84{:}1$ Choice (A)

29. $I\,a\,(r)^{\frac{3}{2}}$

$$\frac{I_2}{I_1} = \left(\frac{r_2}{r_1}\right)^{\frac{3}{2}}$$

$$r_2 = r_1\times\left(\frac{I_2}{I_1}\right)^{\frac{2}{3}} = 0.6\times\left(\frac{2}{6}\right)^{\frac{2}{3}} = 0.28\text{ mm}$$ Choice (D)

30. $\sin\delta_o = 0.3 \Rightarrow \delta_o = 17.46$

$\sin\delta_c = 0.6 \Rightarrow \delta_c = 36.86$

$\delta_m = ?$

$$(\delta_m - \delta_o)\ 0.6 = \int_{\delta_o}^{\delta_m}\sin\delta\,d\delta$$

$0.6(\delta_m - 0.304) = \cos\delta_o - \cos\delta_m$

$0.6\delta_m = \cos\delta_o - \cos\delta_m + 0.1824$

$0.6\delta_m + \cos\delta_m = \cos(17.46) + 0.1824$

$0.6\delta_m + \cos\delta_m = 0.9539 + 0.1824 = 1.1363$

Guess $\delta_m > 30$, solving above equation $\delta_m = 60$

Choice (B)

31. Voltage $V = i\sqrt{\dfrac{L}{C}}$

$$= 10\sqrt{\frac{6}{0.02\mu}} = 10\times10^3\sqrt{\frac{600}{2}}$$

$$= 10\times10^4\sqrt{3} = 173.20\text{kV}$$ Choice (D)

32. Given Data $I_R = 50\angle0$

$I_Y = 50\ \angle180^\circ$

$I_B = 0A$

$$I_{R1} = \frac{1}{3}\left(I_R + a\,I_Y + a^2\,I_B\right)$$

$$= \frac{1}{3}\left[50\angle0 + 1\angle120\times50\angle180\right] = 28.86\angle-30$$

$$I_{R_2} = \frac{1}{3}\left[I_R + a^2\,I_Y + a\,I_B\right]$$

$$= \frac{1}{3}\left[50\angle0 + 1\angle240\times50\angle180 + 0\right]$$

$= 28.86\ \angle30^\circ$ Choice (B)

33. $I_{b_2} = a^2\,I_{R_2} = 1\angle240\times28.86\angle30$

$= 28.86\ \angle{-90^\circ}$ Choice (C)

34. Capacitance of cable $C = \dfrac{\epsilon_r\,l}{41.4\ln\left(\dfrac{D}{d}\right)}\times10^{-9}$ F

Here $\epsilon_r = 4$, l = 2000m

d = 20cm D = 20 + 2 × 8 = 36cm

$$C = \frac{4\times2000}{41.4\ln\left(\dfrac{36}{20}\right)}\times10^{-9} = 0.328\mu\text{F}$$ Choice (A)

35. Voltage between core and sheath is

$$V_{ph} = \frac{66}{\sqrt{3}} = 38.10\times10^3\text{ V}$$

= 38.10 kV

Charging current = $V_{ph}/X_c = 2\pi fc\ V_{ph}$

= 2π × 50 × 0.328 × 10^{-6} × 38.1 × 10^3

= 3.92A Choice (D)