Module Name : Junior Engineer Electrical
Exam Date : 27-Mar-2021   Batch : 09:00-11:00

Sr. No.	Client Question ID	Question Body and Alternatives	Marks	Negative Marks
		Objective Question		
1	1	What is the full form of 'CVC', an apex Indian governmental body?	1.0	0.25
		A1 : Central Voluntary Commission		
		A2 : Crime Vigilance Commission		
		A3 : Control Vigilance Commission		
		A4 : Central Vigilance Commission – (Correct Alternative)		
		Objective Question		
2	2	When was the British East India company formed?	1.0	0.25
		A1 : 1602		
		A2 : 1571		
		A3 : 1600 – (Correct Alternative)		
		A4 : 1532		
		Objective Question		
3	3	Which place was an emporium of western trade during the Mughal period?	1.0	0.25
		A1 : Surat – (Correct Alternative)		
		A2 : Hampi		
		A3 : Delhi		
		A4 : Madras		
		Objective Question		
4	4	Which of the following productions refers to 'Brown Revolution' in Indian Economy?	1.0	0.25
		A1 : Agriculture		
		A2 : Oil Seeds		
		A3 Cocoa – (Correct Alternative)		

		:		
		A4 : Wool		

5	5	Which apex development bank is set up by the Government of India in the field of credit for agriculture and other economic activities in rural areas in India?	1.0	0.25
		A1 : FCI		
		A2 : DRDO		
		A3 : SIDBI		
		A4 : NABARD – (Correct Alternative)		

6	6	Which is the world's largest inhabited riverine island?	1.0	0.25
		A1 : Lulu Island		
		A2 : Majuli – (Correct Alternative)		
		A3 : Srirangam		
		A4 : Csepel		

7	7	Recently, the ruler Mohammed Hosni Mubarak passed away. He belongs to which country?	1.0	0.25
		A1 : Egypt – (Correct Alternative)		
		A2 : Syria		
		A3 : Iraq		
		A4 : Jordan		

8	8	Which of the following states does not share International border with Bhutan?	1.0	0.25
		A1 : West Bengal		
		A2 : Sikkim		
		A3 : Manipur – (Correct Alternative)		
		A4 : Assam		

		Objective Question		
9	9	Who has won the 'Global Child Prodigy Award 2020' in the category of fitness and martial arts?	1.0	0.25
		A1 : Alpesh Patwari		
		A2 : Ajay Tokas		
		A3 : Anubhav Seth		
		A4 : Ishwar Sharma – (Correct Alternative)		

		Objective Question		
10	10	Who among the following sports persons was awarded "Sports Person of the Year 2020" by Federation of Indian Commerce and Industry (FICCI India Sports Awards 2020)?	1.0	0.25
		A1 : Elavenil Valarivan – (Correct Alternative)		
		A2 : Shagun Chowdary		
		A3 : Elizabeth Koshy		
		A4 : Deepali Deshpande		

		Objective Question		
11	11	Choose the correct article to complete the following sentence. Australia's jobless rate unexpectedly increased in _____ January despite a surge in full-time employment.	1.0	0.25
		A1 : a		
		A2 : an		
		A3 : the		
		A4 : No article – (Correct Alternative)		

		Objective Question		
12	12	Choose the correct article to complete the following sentence. Russian policies are thought by many to be among _____ best in the world.	1.0	0.25
		A1 : a		
		A2 : an		
		A3 : the – (Correct Alternative)		
		A4 : No article		

		Objective Question		
13	13	Fill in the correct prepositions. The team's late arrival was _____ the rain.	1.0	0.25

A1:	instead of
A2:	at
A3:	**owing to – (Correct Alternative)**
A4:	within

Objective Question

14	14	Fill in the correct prepositions. The world should be _____ animal experimentation.	1.0	0.25
		A1: to		
		A2: by		
		A3: across		
		A4: against – (Correct Alternative)		

Case Study from Question No. 16 to Question No. 18

15	15	**Read the following passage and answer the questions that follow.** Targeting risk factors is key to reducing deaths due to cardiovascular diseases. The reinvention of the wheel can be painful. Taking lessons from those who have already run the wheel several revolutions and tweaking those lessons for domestic conditions might not be a bad idea. For India, there is indeed valuable learning from the results of the Prospective Urban Rural Epidemiology (PURE) study published in The Lancet this week. Studying the situation in 21 countries across five continents, categorised by income levels, researchers showed that while cardiovascular disease (CVD) is the leading cause for death overall, there have been some transitions, particularly in the high-income countries, which have managed to reduce the number of deaths from CVD. In low-income countries, including India, however, CVD is still the top killer, with death three times more frequent than that due to cancer. What flies in the face of logic is that the risk burden of CVD-linked mortality is inversely proportional — lower risk but higher mortality in low-income countries, and higher risk but lower mortality in high-income countries. PURE's analysis concluded that the higher mortality in poorer countries was likely due to other factors, including 'lower quality and less health care'. Access to affordable, quality health care is still a dream in many pockets in India. A great amount of out-of-pocket expenditure (according to Health Ministry data for 2014-15, nearly 62.6 % of India's total health expenditure) often frustrates continuation of treatment, or adherence to drug regimens. While some States have shown limited successes with government-sponsored health insurance schemes, the Centre's Ayushman Bharat Yojana will have to take much of the burden of hospitalisation for complications of non-communicable diseases. National and State schemes running on mission mode, including the National Programme for Prevention and Control of Cancer, Diabetes, CVD and Stroke will have to step up efforts to target people at risk with life-saving interventions. While most of the **predominant** risk factors for cardiovascular disease present no startling medical revelation, it is significant that the single largest risk factor is a low education level. It is no doubt part of the job description of the National Programme to modify this risk factor. However, governments will have to muscle up to tackle a rather startling finding — ambient air pollution and indoor air pollution have an impact on CVD and mortality. Household air pollution is the third top risk factor in low-income countries, according to the study. The need of the hour is out-of-the-box solutions combined with inspiration from models of those who seem to have belled this particular cat. Any plans that target the risk factors and prevent the onset of non-communicable diseases will clearly have to be truly game-changing, and incorporate the environmental angle as well.	3.0	0.75

16	16	Read the following statements and select the option as per the passage given above. **Statement A :** In India, CVD is the top killer as compared to Cancer. **Statement B :** The number of deaths due to CVD in the low-income countries is more than the number of deaths in the high-income countries.	1.0	0.25
		A1: Statement A is True and Statement B is False		
		A2: Both the statements A and B are False		
		A3: Both the statements A and B are True – (Correct Alternative)		
		A4: Statement A is False and Statement B is True		
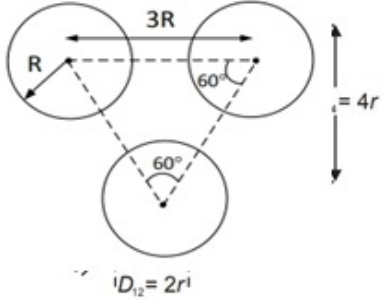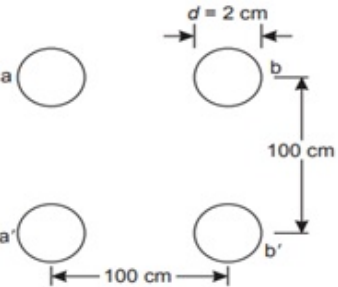
17	17	What is the conceptual meaning of the highlighted word 'Predominant'?	1.0	0.25
		A1 : **Important – (Correct Alternative)**		
		A2 : Inferior		
		A3 : Trivial		
		A4 : Casual		
18	18	Which is still a dream in India as per the above passage?	1.0	0.25
		A1 : Quality Education		
		A2 : **Affordable and quality health care – (Correct Alternative)**		
		A3 : Free Transport		
		A4 : Affordable petrol rates		

Objective Question

19	19	Choose the word which means most nearly the same as the given word " INDEFATIGABLE ".	1.0	0.25
		A1 : Idle		
		A2 : Wavering		
		A3 : Lazy		
		A4 : **Vigorous – (Correct Alternative)**		

Objective Question

20	20	Choose the word which expresses nearly the opposite meaning of the given word " SMUTTY ".	1.0	0.25
		A1 : Foul		
		A2 : Nasty		
		A3 : **Clean – (Correct Alternative)**		
		A4 : Rough		

Objective Question

| 21 | 21 | Select the one word which can substitute the given phrase/sentence. A false written statement to damage a person's repute. | 1.0 | 0.25 |
| | | **A1 :** **Libel – (Correct Alternative)** | | |

A2 : Universal

A3 : Flounder

A4 : Protocol

Objective Question				
22	22	If A is a singular matrix, then the product of eigen values of A^2+3A is	1.0	0.25

A1 : **0 – (Correct Alternative)**

A2 : 4

A3 : 2

A4 : 1

Objective Question				
23	23	The value of $\lim\limits_{x \to \infty} \frac{x^2}{e^x}$ is	1.0	0.25

A1 : 1

A2 : -1

A3 : **0 – (Correct Alternative)**

A4 : 2

Objective Question				
24	24	If $w = u^2 e^v$ where $u = \frac{x}{y}$ and $v = y\log x$ then the value of $\frac{\partial w}{\partial x}$ is	1.0	0.25

A1 : $\frac{x^y x}{y^2}(2+y)$ **– (Correct Alternative)**

A2 : $\frac{x^y x}{y^2}(2-y)$

A3 : $\frac{y^x y}{x^2}(2+y)$

A4 : $\frac{y^x y}{x^2}(2-y)$

Objective Question				
25	25	If $w = u^2 e^v$ where $u = \frac{x}{y}$ and $v = y\log x$ then the value of $\frac{\partial w}{\partial x}$ is	1.0	0.25

A1 :

$$\frac{1}{2}e$$

A2 : $\frac{1}{2}(e + 1)$

A3 : $\frac{1}{2}(e - 1)$

A4 : $\frac{1}{2}(2e + 1)$

		Objective Question		
26	26	The particular integral of $(D^2 + 5)y = x^2 + x + 1$ is	1.0	0.25

A1 : $\frac{1}{5}\left(x^2 - x + \frac{3}{5}\right)$

A2 : $\frac{1}{5}\left(x^2 + x + \frac{3}{5}\right)$ **– (Correct Alternative)**

A3 : $-\frac{1}{5}(x^2 + x + 1)$

A4 : $\frac{1}{5}(x^2 - x + 1)$

		Objective Question		
27	27	If $w = f(z)$ is analytic, then $\frac{\partial^2 w}{\partial z \partial \bar{z}}$ is equal to	1.0	0.25

A1 : 1

A2 : -1

A3 : **0 – (Correct Alternative)**

A4 : 2

		Objective Question		
28	28	The value of $L^{-1}\left\{\dfrac{s+2}{s^2-6s+13}\right\}$ is	1.0	0.25

A1 : $\frac{e^{3t}}{2}[2cos2t + 5sin2t]$ **– (Correct Alternative)**

A2 : $\frac{e^{3t}}{2}[5cos2t + 2sin2t]$

A3 : $\frac{e^{-3t}}{2}[2cos2t + 5sin2t]$

A4
: $\dfrac{e^{3t}}{2}[5cos2t - 2sin2t]$

Objective Question

| 29 | 29 | | 1.0 | 0.25 |

If $f(x) = (\pi - x)^2$ is a fourier series of period 2π in the interval $(0, 2\pi)$, then the value of a_0 is

A1
: $\dfrac{-2\pi^2}{3}$

A2
: $\dfrac{2\pi^2}{3}$ **– (Correct Alternative)**

A3
: $\dfrac{-3\pi^2}{2}$

A4
: $\dfrac{3\pi^2}{2}$

Objective Question

| 30 | 30 | | 1.0 | 0.25 |

The Fourier transform of $f(x)$ is $F(s)$, then for $a > 0$, $F[f(ax)]$ is

A1
: $-\dfrac{1}{a}F\left(\dfrac{s}{a}\right)$

A2
: $aF\left(\dfrac{s}{a}\right)$

A3
: $-aF\left(\dfrac{s}{a}\right)$

A4
: $\dfrac{1}{a}F\left(\dfrac{s}{a}\right)$ **– (Correct Alternative)**

Objective Question

| 31 | 31 | | 1.0 | 0.25 |

The complete integral of $p^2 + q^2 = 1$ is

A1
: $z = ax - \sqrt{1 - a^2}y + c$

A2
: $z = ax + \sqrt{1 - a^2}y + c$ **– (Correct Alternative)**

A3
: $z = ax + (1 + a^2)y + c$

A4
: $z = ax - (1 + a^2)y + c$

Objective Question

| 32 | 32 | | 1.0 | 0.25 |

In HRC fuse, the term 'HRC' stands for

A1
: High Resistance Capability

A2
: **High Rupturing Capacity – (Correct Alternative)**

Objective Question

33	33	In the translay system of protection of three phase transmission lines, the required number of pilot wire is _____.	1.0	0.25

**A1
:** **2 – (Correct Alternative)**

A2
: 3

A3
: 4

A4
: 6

Objective Question

34	34	Temperature rise test is carried out for all relays	1.0	0.25

A1
: To ascertain correct relay characteristic

A2
: To ensure integrity of the relay

**A3
:** **To check the withstand capability of insulation used in relays – (Correct Alternative)**

A4
: All of the Above

Objective Question

35	35	In SF_6 circuit breaker, the current chopping tendency is minimized by using the SF_6 gas at _____ pressure and _____ velocity.	1.0	0.25

A1
: low, high

A2
: high, low

**A3
:** **low, low – (Correct Alternative)**

A4
: high, high

Objective Question

36	36	If the circuit breaker has assigned rated breaking current of 25 kA, the breaker can be used for locations where the RMS value of short circuit current is	1.0	0.25

**A1
:** **less than 25 kA – (Correct Alternative)**

A2
: more than 25 kA but less than 50 kA

A3
: more than 50 kA

A4 zero

:

37	37	In a system of 132 kV, the circuit phase to ground capacitance is 0.01 µF and the inductance is 6 H. Calculate the voltage appearing across the pole of a circuit breaker if a magnetizing current of 5 A (instantaneous value) is interrupted.	1.0	0.25

A1
: 130.5 kV

A2
: 128.5 kV

**A3
: 122.5 kV – (Correct Alternative)**

A4
: 115.5 kV

38	38	A composite conductor consists of three conductors of radius R each. The conductors are arranged as shown below. The geometric mean radius (GMR) (in cm) of the composite conductor is kR. The value of k is _____.	1.0	0.25

**A1
: 1.9 – (Correct Alternative)**

A2
: 0.75

A3
: 3

A4
: 2.5

39	39	Calculate the inductance per conductor of the single-phase double circuit line shown in Fig. The diameter of each conductor is 2 cm.	1.0	0.25

A1
: 1.32 mH/km

A2
: 0.75 mH/km

**A3
: 0.52 mH/km – (Correct Alternative)**

A4
: 0.12 mH/km

40	40	The capacitance (F) per phase per meter of a double circuit 3-phase transmission line in regular hexagonal spacing arrangement is given by, _____ where D is conductor spacing and r is the radius of the conductor.	1.0	0.25

A1
:
$$C = \frac{\pi \varepsilon_0}{\ln\left(\frac{D}{\sqrt{2}r}\right)}$$

A2
:
$$C = \frac{\pi \varepsilon_0}{\ln\left(\frac{\sqrt{3}D}{2r}\right)}$$

A3
:
$$C = \frac{4\pi \varepsilon_0}{\ln\left(\frac{D}{r}\right)}$$

A4
:
$$C = \frac{4\pi \varepsilon_0}{\ln\left(\frac{\sqrt{3}D}{2r}\right)}$$
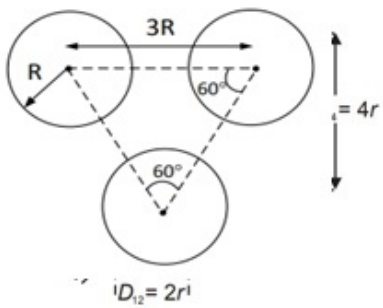**– (Correct Alternative)**

Objective Question				
41	41	A three phase 50 Hz overhead line has regularly transposed conductors equilaterally placed at 4 m spacing. The capacitance is 0.01 µF/km. Recalculate the capacitance per km to neutral when conductors are in the same horizontal plane with successive spacing of 4m and are regularly transposed.	1.0	0.25
		A1 : **0.0096 µF/km – (Correct Alternative)**		
		A2 : 0.096 µF/km		
		A3 : 0.96 µF/km		
		A4 : 9.6 µF/km		
Objective Question				
42	42	Which of the following statements regarding bundled conductors is true?	1.0	0.25
		A1 : They increase corona loss and decreases reactance.		
		A2 : They decrease corona loss and increases reactance		
		A3 : **They decrease both corona loss and reactance – (Correct Alternative)**		
		A4 : They increase both corona loss and reactance		
Objective Question				
43	43	Find GMR of a stranded conductor having seven identical strands each of radius r as shown in Fig.	1.0	0.25

A1
: 3r

		A2: 1.414r		
		A3: 1.732r		
		A4: 2.177r – (Correct Alternative)		

Objective Question

44	44	Which of the following states produce maximum wind energy in India?	1.0	0.25
		A1: Tamil Nadu – (Correct Alternative)		
		A2: Gujarat		
		A3: Rajasthan		
		A4: Maharashtra		

Objective Question

45	45	In wind turbine design, the term Tip Speed Ratio (TSR) is defined as	1.0	0.25
		A1: $TSR = 1 - \dfrac{Wind\,Speed}{Tip\,Speed\,of\,balde}$		
		A2: $TSR = \dfrac{Wind\,Speed}{Tip\,Speed\,of\,balde}$		
		A3: $TSR = \dfrac{Tip\,Speed\,of\,balde}{Wind\,Speed}$ – (Correct Alternative)		
		A4: $TSR = 1 - \dfrac{Tip\,Speed\,of\,balde}{Wind\,Speed}$		

Objective Question

46	46	The photovoltaic array comprises of 16 modules each with a rating of 160 W peak. Taking the derating of array as 0.77, and daily sunshine hours of 6, the DC energy output of the array is	1.0	0.25
		A1: 32.85 kWh		
		A2: 23.38 kWh		
		A3: 19.95 kWh		
		A4: 11.83 kWh – (Correct Alternative)		

Objective Question

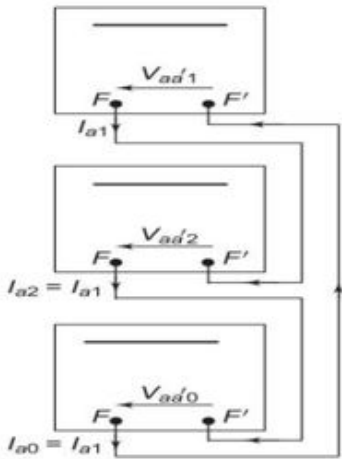| 47	47	The Unified Power Flow Controller (UPFC) is a combination of _____.	1.0	0.25
		A1: SSSC and TSC		
		A2 STATCOM and TCSC		

A3
: TSSC and TCR

**A4
: STATCOM and SSSC – (Correct Alternative)**

Objective Question

| 48 | 48 | The GTO Controlled Series Capacitor (GCSC) consists of a _____ capacitor in _____ with a GTO thyristor. | 1.0 | 0.25 |

A1
: fixed, series

**A2
: fixed, parallel – (Correct Alternative)**

A3
: variable, series

A4
: variable, parallel

Objective Question

| 49 | 49 | _____ is the amount of electric power that can be transferred reliably over the inter-control area transmission system under a given set of operating conditions considering the effect of occurrence of the worst credible contingency. | 1.0 | 0.25 |

**A1
: Total Tansfer Capability – (Correct Alternative)**

A2
: Transmission Reliability Margin

A3
: Available Tansfer Capability

A4
: Transmission Availability Margin

Objective Question

| 50 | 50 | A 3-phase, 20 MVA, 11 KV alternator has 10% sub-transient reactance. Find short circuit MVA and current, if a symmetrical fault occurs at its terminals. | 1.0 | 0.25 |

A1
: 100 MVA and 10.5 kA

**A2
: 200 MVA and 10.5 kA – (Correct Alternative)**

A3
: 100 MVA and 18.18 kA

A4
: 200 MVA and 9.09 kA

Objective Question

| 51 | 51 | Fig. shows the single-line diagram of a power system. The % reactance value of the 11 kV generators is calculated by taking their ratings as base values. Calculate the short-circuit MVA if a 3-phase fault occurs at the beginning of the feeder. Choose base MVA as 20 MVA. | 1.0 | 0.25 |

A1 :	45 MVA
A2 :	**90 MVA – (Correct Alternative)**
A3 :	130 MVA
A4 :	180 MVA

Objective Question

52	52	Generally in transmission lines, the zero sequence impedance is _____ positive and negative sequence impedances.	1.0	0.25
	A1 :	negligible compared to		
	A2 :	equal to		
	A3 :	slightly smaller than		
	A4 :	**larger than – (Correct Alternative)**		

Objective Question

53	53	Determine the magnitudes of the symmetrical components (I_{R1}, I_{R2} and I_{R0}) of the currents in a three phase (RYB) three wire system, when a short circuit occurs between R and Y phase wires, the fault current being 200 A.	1.0	0.25

A1 :
$$|I_{R1}| = \frac{100}{\sqrt{3}} A$$
$$|I_{R2}| = \frac{100}{\sqrt{3}} A$$
$$|I_{R0}| = \frac{100}{\sqrt{3}} A$$

A2 :
$$|I_{R1}| = \frac{100}{\sqrt{3}} A$$
$$|I_{R2}| = \frac{100}{\sqrt{3}} A$$
$$|I_{R0}| = 0 A$$

A3 :
$$|I_{R1}| = \frac{200}{\sqrt{3}} A$$
$$|I_{R2}| = \frac{200}{\sqrt{3}} A$$
$$|I_{R0}| = 0 A$$
– (Correct Alternative)

A4 :
$$|I_{R1}| = \frac{200}{\sqrt{3}} A$$
$$|I_{R2}| = \frac{200}{\sqrt{3}} A$$
$$|I_{R0}| = \frac{200}{\sqrt{3}} A$$
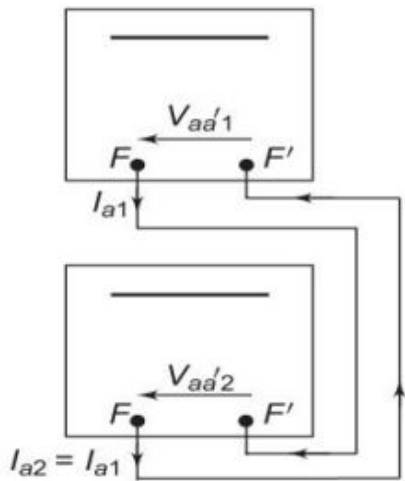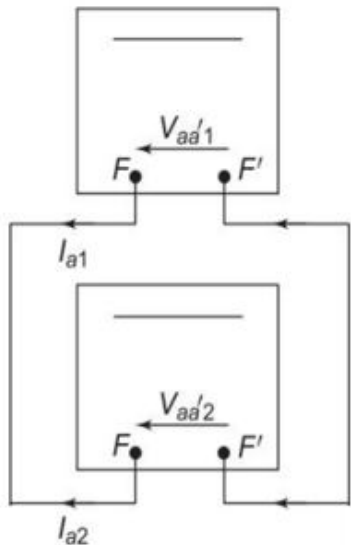
Objective Question

54	54	Which of the following Fig. represent the connection of sequence networks for two conductors open?	1.0	0.25

A1
:

A2
:

– (Correct Alternative)

A3
:

A4
:

Objective Question

55	55	Three similar resistors are connected in star across 400V, three-phase lines. The line current is 5A. Calculate the value of each resistor.	1.0	0.25

A1
: **46.188 Ω – (Correct Alternative)**

A2
: 56.568 Ω

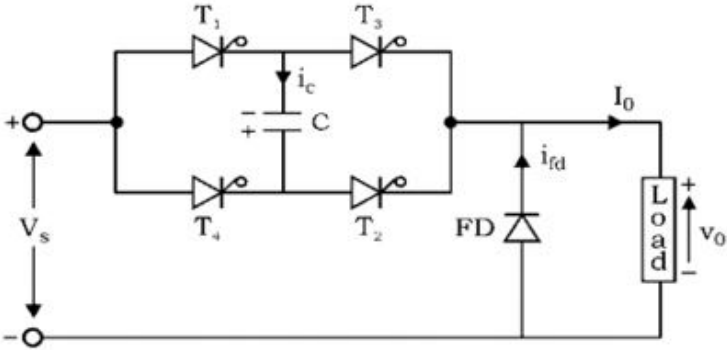|				
		A3 :	80 Ω	
		A4 :	138.56 Ω	

Objective Question

56	56	Three capacitors of 100 µF each are connected in delta to a 400V, three-phase, 50 Hz supply. What will be the capacitance of each of the three capacitors if the same three capacitors are connected in star across the same supply to draw the same line current?	1.0	0.25
		A1 : 33.33 µF		
		A2 : 100 µF		
		A3 : 200 µF		
		A4 : 300 µF – (Correct Alternative)		

Objective Question

57	57	Consider the following statements about feeding 3-phase loads from a balanced 3-phase supply and choose the correct option. Statement 1: In an unbalanced delta-connected load, the sum of the three-phase voltages is zero. Statement 2: In a four-wire system, the voltages are always balanced irrespective of balanced or unbalanced load.	1.0	0.25
		A1 : Both Statement 1 and Statement 2 are TRUE – (Correct Alternative)		
		A2 : Both Statement 1 and Statement 2 are FALSE		
		A3 : Statement 1 is TRUE and Statement 2 is FALSE		
		A4 : Statement 1 is FALSE and Statement 2 is TRUE		

Objective Question

58	58	Determine the power and power factor (pf) of a three-phase load if the two wattmeters used for power measurement by Two Wattmeter method read 500 W each of positive sign.	1.0	0.25
		A1 : 1000 W, pf = 0		
		A2 : 1000 W, pf = 1 – (Correct Alternative)		
		A3 : 0 W, pf = 0		
		A4 : 0 W, pf = 1		

Objective Question

59	59	In Two Wattmeter method, each of two wattmeters connected to measure the power input to a three-phase circuit read 10 kW on a balanced load, when the power factor is unity. What does the instruments read when the power factor falls to 0.866 lagging, the total three-phase power remaining unaltered?	1.0	0.25
		A1 : $P_1 = 0$ kW and $P_2 = 20$ kW		
		A2 : $P_1 = 10$ kW and $P_2 = 10$ kW		

		A3 : $P_1 = 6.66$ kW and $P_2 = 13.34$ kW – **(Correct Alternative)**		
		A4 : $P_1 = 3.33$ kW and $P_2 = 16.67$ kW		

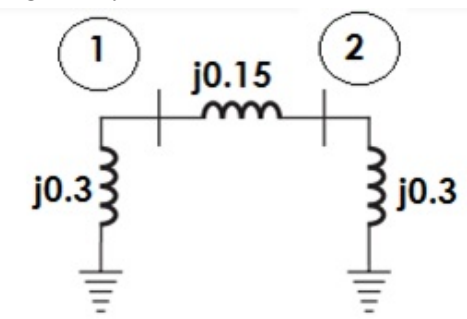**Objective Question**

60	60	What should be the kVA rating of a capacitor which would raise the power factor of a single phase load of 100 kW from 0.5 lagging to 0.9 lagging with constant supply voltage?	1.0	0.25
		A1 : **125 kVA – (Correct Alternative)**		
		A2 : 100 kVA		
		A3 : 250 kVA		
		A4 : 175 kVA		

Objective Question

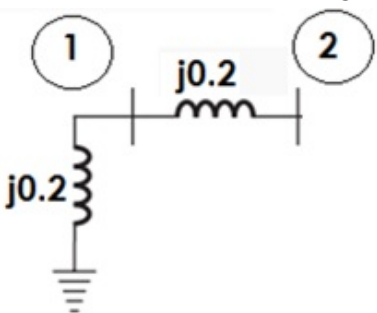|				
61	61	The power circuit diagram of the load-commutated chopper consists of four thyristors T_1–T_4 and one commutating capacitor C is shown in Fig. If the maximum chopping frequency is 'f_{max}', the value of commutating capacitor C is given by	1.0	0.25

A1 :
$$C = \frac{I_0}{\sqrt{2}V_s f_{max}}$$

A2 :
$$C = \frac{2I_0}{3V_s f_{max}}$$

A3 :
$$C = \frac{I_0}{2V_s f_{max}}$$
– (Correct Alternative)

A4 :
$$C = \frac{2I_0}{V_s f_{max}}$$
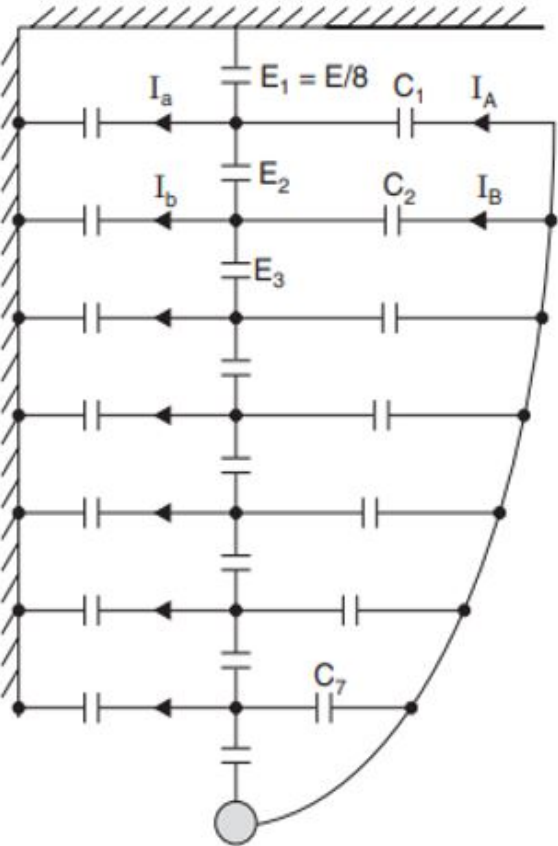
Objective Question

62	62	A shunt reactor at 200 MVAr is operated at 99% of its rated voltage and at 97% of its rated frequency. The reactive power absorbed by the reactor is	1.0	0.25
		A1 : **202.08 MVAr – (Correct Alternative)**		
		A2 : 204.12 MVAr		

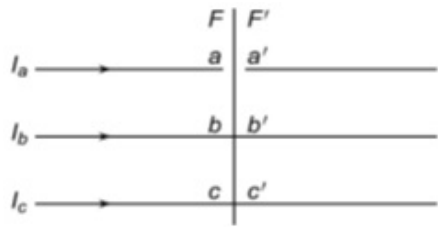|				
		A3 195.96 MVAr :		
		A4 : 197.94 MVAr		

Objective Question

63	63	If the real power flow through the uncompensated line is 1 pu and the degree of series compensation 'K' is 0.5, the power flow through the series compensated line is	1.0	0.25
		A1 : 0.5 pu		
		A2 : 4 pu		
		A3 : 1 pu		
		A4 : 2 pu – (Correct Alternative)		

Objective Question

64	64	The per unit impedance of the circuit element is j0.2. If the base kV is doubled and base MVA is halved, then the new value of the per unit impedance of the circuit element will be	1.0	0.25
		A1 : j 0.4		
		A2 : j 1.6		
		A3 : j 0.1		
		A4 : j 0.025 – (Correct Alternative)		

Objective Question

65	65	Three generators are connected in parallel whose ratings are as follows: G1: 100 MVA, 12 kV, Xg1 = 0.1 pu G2: 200 MVA, 12 kV, Xg2 = 0.15 pu G3: 150 MVA, 15 kV, Xg1 = 0.15 pu Find the equivalent per unit reactance of the system on 200 MVA, 15 kV system base.	1.0	0.25
		A1 : 0.019 pu		
		A2 : 0.043 pu – (Correct Alternative)		
		A3 : 0.19 pu		
		A4 : 0.43 pu		

Objective Question

66	66	A power system network consists of three elements as shown in Fig. All values are in per unit. It's bus impedance matrix is given by	1.0	0.25

A1: $Z_{bus} = \begin{bmatrix} j0.3 & j0.12 \\ j0.12 & j0.75 \end{bmatrix}$

A2: $Z_{bus} = \begin{bmatrix} j0.3 & j0.45 \\ j0.45 & j0.75 \end{bmatrix}$

A3: $Z_{bus} = \begin{bmatrix} j0.18 & j0.12 \\ j0.12 & j0.18 \end{bmatrix}$ **– (Correct Alternative)**

A4: $Z_{bus} = \begin{bmatrix} j0.18 & j0.45 \\ j0.45 & j0.18 \end{bmatrix}$

Objective Question

67	67	Statement 1: The transient stability of the power system can be effectively improved by phase shifting transformer. Statement 2: The steady state stability of a power system is improved by single pole switching.	1.0	0.25

A1: Both Statement 1 and Statement 2 are TRUE

A2: **Both Statement 1 and Statement 2 are FALSE – (Correct Alternative)**

A3: Statement 1 is TRUE and Statement 2 is FALSE

A4: Statement 1 is FALSE and Statement 2 is TRUE

Objective Question

68	68	The feeder lines that interconnect two sub-stations in a given area are sometimes called as _____	1.0	0.25

A1: **Tie Lines – (Correct Alternative)**

A2: Transmission Lines

A3: Distribution Lines

A4: All of the Above

Objective Question

69	69	In the network as shown in Fig, the marked parameters are p.u. impedances. The bus-admittance matrix of the network is	1.0	0.25

A1:

$$Y_{bus} = \begin{bmatrix} -j5 & j5 \\ j5 & -j5 \end{bmatrix}$$

A2
:
$$Y_{bus} = \begin{bmatrix} -j10 & j10 \\ j10 & -j5 \end{bmatrix}$$

A3
:
$$Y_{bus} = \begin{bmatrix} -j10 & j5 \\ j5 & -j5 \end{bmatrix}$$
– (Correct Alternative)

A4
:
$$Y_{bus} = \begin{bmatrix} -j10 & j5 \\ j5 & -j10 \end{bmatrix}$$

Objective Question				
70	70	In a load flow problem solved by Newton-Raphson method with polar coordinates, the size of the Jacobian is 75 x 75. If there are 25 PV buses in addition to PQ buses and a slack bus, the total number of buses in the system is ………… A1 : 50 **A2 : 51 – (Correct Alternative)** A3 : 75 A4 : 76	1.0	0.25

Objective Question				
71	71	A 50 kVA, 4400/220 V transformer has primary winding and secondary winding resistance are R1 = 3.45 Ω and R2 = 0.009 Ω respectively. Calculate the equivalent resistance of the transformer as referred to primary side. A1 : 3.45 Ω **A2 : 7.05 Ω – (Correct Alternative)** A3 : 13.80 Ω A4 : 17.62 Ω	1.0	0.25

Objective Question				
72	72	Open circuit and short circuit tests on a 3 kVA, 230 / 230 V, 50 Hz, single phase transformer gave the following results: OC test: 230 V, 2 A, 100 W SC test: 15 V, 13 A, 120 W Determine the efficiency of the transformer at full load and 0.80 power factor lagging. **A1 : 91.60% – (Correct Alternative)** A2 : 94.60% A3 : 96.60%	1.0	0.25

	A4 :	98.60%		

73	73	Statement 1: The string efficiency of a DC system is 100%. Statement 2: Suspension insulators are made up of porcelain.	1.0	0.25

A1 : **Both Statement 1 and Statement 2 are TRUE – (Correct Alternative)**

A2 : Both Statement 1 and Statement 2 are FALSE

A3 : Statement 1 is TRUE and Statement 2 is FALSE

A4 : Statement 1 is FALSE and Statement 2 is TRUE

74	74	A string of eight suspension insulators is to be fitted with a grading ring as shown in Fig. If the pin to earth capacitances are all equal to C, find the value of line to pin capacitance 'C$_1$' that would give a uniform voltage distribution over the string.	1.0	0.25

A1 : $C_1 = C$

A2 : $C_1 = 3C$

A3 : **$C_1 = C/7$ – (Correct Alternative)**

A4 : $C_1 = 3C/5$

75	75	For a generating unit, the fuel input in millions of Btu/hr is expressed as a function of output P$_G$ in MW by 0.035 P$_G$^{2} +6.5 P$_G$ + 150. Determine the equation for incremental fuel cost in Rs/MWhr as a function of PG in MW based on a fuel cost of Rs. 2 per million Btu.	1.0	0.25

A1 : $\dfrac{dF}{dP_G} = 0.07 P_G + 13$

A2 :	$\dfrac{dF}{dP_G} = 0.07 P_G + 26$		
A3 :	$\dfrac{dF}{dP_G} = 0.14 P_G + 13$ **– (Correct Alternative)**		
A4 :	$\dfrac{dF}{dP_G} = 0.14 P_G + 26$		

Objective Question

76	76	Individual Voltage distortion based on IEEE 519 standard in 11 kV system must be limited to ____ of fundamental component.	1.0	0.25
		A1 : 1%		
		A2 : 2%		
		A3 : 3% – (Correct Alternative)		
		A4 : 4%		

Objective Question

77	77	Which biomass feedstock has the least environmental risk?	1.0	0.25
		A1 : Corn		
		A2 : Palm oil		
		A3 : Forest residues – (Correct Alternative)		
		A4 : All of the above		

Objective Question

78	78	Statement 1: The percentage of energy saved at the current rate of use, compared to the reference year rate of use, is called energy utilization. Statement 2: Pipelines is the most common and economical way of transporting natural gas over land for a distance less than 1500 km.	1.0	0.25
		A1 : Both Statement 1 and Statement 2 are TRUE		
		A2 : Both Statement 1 and Statement 2 are FALSE		
		A3 : Statement 1 is TRUE and Statement 2 is FALSE		
		A4 : Statement 1 is FALSE and Statement 2 is TRUE – (Correct Alternative)		

Objective Question

79	79		1.0	0.25

Consider the symmetrical component complex operator $a = 1\angle 120^\circ$. Consider the following relations:

1. $1 + a + a^2 = 0$
2. $1 + a^4 + a^5 = 0$
3. $1 - a^3 = 0$

Choose the correct option.

A1 : Only 1 is correct

A2 : Only 2 is correct

A3 : Only 3 is correct

A4 : All are correct – (Correct Alternative)

Objective Question

| 80 | 80 | Two generators of the ratings 50 MW and 500 MW, respectively are supplying power to a system. The frequency is 50 Hz and each generator is half loaded. The system load increases by 110 MW and as a result the frequency drops to 49.5 Hz. What must be the individual regulations if the two generators should increase their turbine powers in proportion to their ratings? | 1.0 | 0.25 |

A1 : $R_1 = R_2 = 5$ % – (Correct Alternative)

A2 : $R_1 = 0$ and $R_2 = 5$ %

A3 : $R_1 = 5\%$ ad $R_2 = 0$

A4 : $R_1 = R_2 = 2.5$ %

Objective Question

| 81 | 81 | Fig. shows currents in a 3-phase conductor. The ends of the system on the sides of the fault are identified as F, F′, while the conductor ends are identified as aa′, bb′ and cc′. For one conductor open fault, the symmetrical components can be represented as | 1.0 | 0.25 |

A1 :
$$V_{aa'1} = V_{aa'2} = V_{aa'0} = \frac{1}{3}V_{aa'}$$
$$I_{a1} + I_{a2} + I_{a0} = 0$$
– (Correct Alternative)

A2 :
$$V_{aa'1} = V_{aa'2} = V_{aa'0} = 0$$
$$I_{a1} = I_{a2} = I_{a0} = \frac{I_a}{3}$$

A3 :
$$V_{aa'1} = V_{aa'2} = V_{aa'0} = 0$$
$$I_{a1} = I_{a2} = I_{a0} = 3I_a$$

A4 :
$$V_{aa'1} = V_{aa'2} = V_{aa'0} = \frac{1}{3}V_{aa'}$$
$$I_{a1} = I_{a2} = I_{a0} = \frac{I_a}{3}$$

82	82	Which of the following computers belongs to Second generation of computers?	1.0	0.25
		A1: ENIAC		
		A2: **TRADIC – (Correct Alternative)**		
		A3: CDC 6600		
		A4: IBM 360		

83	83	Device driver is defined as _____.	1.0	0.25
		A1: a shell and is essential if human interaction is to be supported.		
		A2: a memory management technique that provides an "idealized abstraction of the storage resources that are actually available on a given machine" which "creates the illusion to users of a very large (main) memory".		
		A3: **a specific type of computer software developed to allow interaction with hardware devices. – (Correct Alternative)**		
		A4: an abstract layer on top of a more concrete file system.		

84	84	Statement A: Distributed Operating System manages a group of distinct, networked computers and makes them appear to be a single computer, as all computations are distributed (divided amongst the constituent computers). Statement B: In the distributed and cloud computing context of an OS, templating refers to creating a single virtual machine image as a guest operating system, then saving it as a tool for multiple running virtual machines.	1.0	0.25
		A1: Statement A is true and Statement B is false		
		A2: Statement A is false and Statement B is true		
		A3: **Both the statements are true – (Correct Alternative)**		
		A4: Both the statements are false		

85	85	A color code "FFFFFF" refers to white color. Which number system is used to denote this value?	1.0	0.25
		A1: Binary		
		A2: Octal		
		A3: Decimal		
		A4: **Hexadecimal – (Correct Alternative)**		

86	86	Statement A: Flash memory is slower than DRAM but needs no power to retain its contents. Statement B: Solid-state disks have several variants but in general are faster than magnetic disks and are nonvolatile.	1.0	0.25

A1:	Statement A is true and Statement B is false
A2:	Statement A is false and Statement B is true
A3:	**Both the statements are true – (Correct Alternative)**
A4:	Both the statements are false

Objective Question

87	87	_____ enable/s Excel to dynamically produce new outputs when one or more inputs in the referenced cells are changed.	1.0	0.25
		A1: Cell References – (Correct Alternative)		
		A2: Wordwrap		
		A3: Pastespecial		
		A4: Queries		

Objective Question

88	88	Microsoft Excel automatically adjusts the cell reference when the formula is copied and paste into the rest of the cell locations in the column, this process is called _____.	1.0	0.25
		A1: ABSOLUTE REFERENCES		
		A2: CONSTANT REFERENCES		
		A3: RELATIVE REFERENCES – (Correct Alternative)		
		A4: VARIABLE REFERENCES		

Objective Question

89	89	Which type of section break is used when your document is set up with double sided printing and mirror margins?	1.0	0.25
		A1: New page section breaks		
		A2: Odd page and Even page section breaks – (Correct Alternative)		
		A3: Next page section breaks		
		A4: Newspaper section breaks		

Objective Question

90	90	Which of the following is a primary method of VLAN hopping? A) Switch spoofing B) Double tagging C) DNS spoofing	1.0	0.25
		A1 A & B – (Correct Alternative)		

A2
: A & C

A3
: B & C

A4
: only B

Objective Question

91	91	_____ is used where the company's telephone system meets its computer system with PBX.	1.0	0.25
		A1 : Computer Telephony Integration – (Correct Alternative)		
		A2 : Print server		
		A3 : Database		
		A4 : Network Controller		

Objective Question

92	92	નીચેનામાંથી કયું સમાનાર્થી જોડકું યોગ્ય નથી?	1.0	0.25
		A1 : – (Correct Alternative) **પ્રથમી-પાણી**		
		A2 : શોણિત-રક્ત		
		A3 : તોખાર- અશ્વ		
		A4 : નિરામય-નીરોગી		

Objective Question

93	93	સમજ'નો વિરોધી અર્થ આપતું વાક્ય જણાવો.	1.0	0.25
		A1 : – (Correct Alternative) **તેનામાં હજુ અણસમજ છે.**		
		A2 : તેને ગેરસમજ થઇ લાગે છે.		
		A3 : તે સાવ નાસમજ છે.		
		A4 : તે વાત સમજી શકતો નથી.		

Objective Question

94	94	લોહી' શબ્દ પર આધારીત કયો એક રૂઢિપ્રયોગ નથી?	1.0	0.25
		A1 : લોહી ઊકળવું		
		A2 :		

લોહી પીવું

A3 – (Correct Alternative)
:
   લોહી ચઢાવવું

A4
:
   લોહીનું પાણી થવું

Objective Question				

95	95	એક સાંધે ત્યાં તેર તૂટે' - કહેવતનો અર્થ આપેલા વિકલ્પમાંથી જણાવો.
		
		A1
		:
		   એક ટાંકો મારે ત્યાં તેર ટાંકા તૂટે
		
		A2 – (Correct Alternative)
		:
		   એક મુશ્કેલી ટળે ત્યાં બીજી દસ મુશ્કેલી પેદા થાય.
		
		A3
		:
		   એક જગાએ સાંધે ત્યાં બીજી તેર જગ્યાએ તૂટે
		
		A4
		:
		   એક જ સાંધાથી તેર મુશ્કેલી દૂર થાય
			1.0	0.25

Objective Question				

96	96	સમાન જણાતા આ શબ્દોમાંથી કોના અર્થ ખોટા છે?
		(1) અનુસાર: તે મુજબ (2) અનુસ્વાર: લિપિચિહ્ન (3) અનલ: પવન (4) અનિલ: અગ્નિ
		
		A1
		:
		   (1) અને (2) ખોટાં અને (3) અને (4) સાચાં
		
		A2 – (Correct Alternative)
		:
		   (1) અને (2) સાચાં અને (3) અને (4) ખોટાં
		
		A3
		:
		   (1), (2), (3) અને (4) ચારેય સાચાં
		
		A4
		:
		   (1), (2), (3) અને (4) ચારેય ખોટાં
			1.0	0.25

Objective Question				

97	97	યોગ્ય દ્વિરુક્ત શબ્દ-જોડી ગોઠવો. કયા વિકલ્પમાં સાચી જોડી છે તે જણાવો.
		(1) કેટકેટલું (અ) ટપટપ ટપટપ
		(2) ભાગંભાગ (બ) પાણીબાણી
		(3) ધરબર (ક) આટઆટલું
		(4) ધડધડ ધડધડ (S) વારેવાર
		
		A1
		:
		   (1)- (S), (2)-(ક), (3)- (બ), (4)-(અ)
		
		A2
		:
		   (1)- (S), (2)-(ક), (3)- (અ), (4)-(બ)
		
		A3 – (Correct Alternative)
		:
		   (1)- (ક), (2)-(S), (3)- (બ), (4)-(અ)
		
		A4
		:
		   (1)- (બ), (2)-(ક), (3)- (અ), (4)-(ક)
			1.0	0.25

Objective Question				
98	98	આ બંને વાક્યો સાચાં છે કે ખોટાં? વિકલ્પ પસંદ કરીને જણાવો. 1. નાટકમાં ગોવર્ધન ગોપી બનીને નાચી. 2. ગામનાં બધાં કૂતરાં ભસતાં હતાં. A1 :	1.0	0.25

વાક્ય 1 અને વાક્ય 2 બંને સાચાં છે.

A2 :

વાક્ય 1 અને વાક્ય 2 બંને ખોટાં છે.

A3 :

વાક્ય 1 સાચું છે અને વાક્ય 2 ખોટું છે.

A4 : – (Correct Alternative)

વાક્ય 1 ખોટું છે અને વાક્ય 2 સાચું છે.

		Objective Question		
99	99	અમારે એક/ સારા વિજ્ઞાનના/ શિક્ષકની/ જરૂર છે. આ વાક્યમાં કયા ભાગમાં ભૂલ છે? A1 : અમારે એક **A2 : – (Correct Alternative)** **સારા વિજ્ઞાનના** A3 : શિક્ષકની A4 : જરૂર છે	1.0	0.25
		Objective Question		
100	100	માણસથી મનોરથ સેવાય છે.' આ વાક્યનું કર્તરિ વાક્ય વિકલ્પોમાંથી પસંદ કરો. A1 : માણસથી મનોરથ સેવાતા હોય છે. A2 : માણસથી મનોરથ સેવાશે **A3 : – (Correct Alternative)** **માણસ મનોરથ સેવે છે** A4 : કર્તરિ રચના શક્ય નથી	1.0	0.25
		Objective Question		
101	101	નીચેના વાક્યોના પ્રકાર જણાવો. 1. વિદ્વાનો અને વડીલો સાથે વાતો કરવાથી જ્ઞાન મળે છે. 2. જો શિક્ષક હા પાડે તો જ રજા મળે. A1 : વાક્ય 1 અને વાક્ય 2 બંને સંયુક્ત વાક્યો છે. A2 : વાક્ય 1 અને વાક્ય 2 બંને સંકુલ વાક્યો છે. **A3 : – (Correct Alternative)** **વાક્ય 1 સાદું વાક્ય અને વાક્ય 2 સંકુલ વાક્ય છે.** A4 : વાક્ય 1 સંયુક્ત અને વાક્ય 2 સંકુલ વાક્ય છે.	1.0	0.25