Q=QUESTION A=ANSWER	question_description answer_description	question_ex answer_exp	question answer_i	question_difficulty answer_position
Q	In a single line diagram, Power Factor relay indicated by number	M		1
A	27		0	1
A	51		0	2
A	55		1	3
A	32		0	4
Q	In a single line diagram, number 27 represents as	M		1
A	Under Voltage Relay		1	1
A	Instantaneous overcurrent relay		0	2
A	Inverse time Earth fault relay		0	3
A	Thermal Overload relay		0	4
Q	Which of the following is a characteristic of single line diagram	M		1
A	Limit switches		0	1
A	Pressure switch		0	2
A	Switchgear Symbols		1	3
A	Level Switch		0	4
Q	Some money is deposited along with the tender is called as security deposit or_____	M		1
A	Earnest Money Deposit (EMD)		1	1
A	Equal Money Deposit		0	2
A	Equited Money Deposit		0	3
A	Equivalent Money Details		0	4
Q	HT connection for distribution network provides following advantage	M		1
A	Poor Reliability		0	1
A	Better earthing		1	2
A	Poor voltage regulation for distance feeder		0	3
A	Poor power quality		0	4
Q	Following is not a type of Electrical drawing used in Electrical projects	M		1
A	Single line diagram		0	1
A	Elementary diagram		1	2
A	Interconnection diagram		0	3
A	pin diagram		0	4
Q	In the stages of Tendering Process, which one is the first stage?	M		1
A	Selection Stage		0	1
A	Evaluation		0	2
A	Advertising the requirement		1	3
A	Award of contract		0	4

Q	The load of a consumer is generally measured in terms of	M		1
A	Volts		0	1
A	Amperes		0	2
A	Ampere hour		0	3
A	Watt		1	4
Q	Following is not a role of Electrical Engineer in Electrical projects	M		1
A	Design Engineer		0	1
A	Project Engineer		0	2
A	Maintainance Engineer		0	3
A	Software Engineer		1	4
Q	A tender is generally not advertised in _____	M		1
A	newspapers		0	1
A	Magazine on Economics		0	2
A	Buisness newspapers		0	3
A	Pamphlet		1	4
Q	Which of the folowing cooling method generally used in distribution transformer	M		1
A	ONAF		0	1
A	ONAN		1	2
A	OFAN		0	3
A	ONWN		0	4
Q	Comment on following statement related to Distribution transformer i) It requires Body earthing ii) It's neutral need not to be grounded	M		1
A	i) True ii) True		0	1
A	i) True ii) False		1	2
A	i) False ii) True		0	3
A	i) False ii) False		0	4
Q	Size and cost of electrical installation depends upon _____	M		1
A	average load		0	1
A	maximum demand		1	2
A	square mean load		0	3
A	square of peak load		0	4
Q	In design of distribution system, major cost is of?	M		1
A	Switchgear		0	1
A	Meters		0	2
A	Controllers		0	3
A	Transformer		1	4
Q	A three phase four wire system is suitable for?	M		1
A	Three phase load		0	1

Type	Text	M		
A	Single phase load		0	2
A	Single and three phase load		1	3
A	Does not affect the suitablity		0	4
Q	If operating voltage is reduced by keeping power same in an electrical circuit, the cross section area (a) of conductor will ?	M		1
A	Increase		1	1
A	Decrease		0	2
A	Constant		0	3
A	Unaffected		0	4
Q	The name plate of distribution transformer has the following information except?	M		1
A	Vector Group		0	1
A	Voltage rating		0	2
A	Current Rating		0	3
A	Tranformer Grounding Resistance Value		1	4
Q	Which part of the equipment is connected to the earth?	M		1
A	Live		0	1
A	Outer body		1	2
A	Inputs		0	3
A	Insulation		0	4
Q	Distribution transformer is always	M		1
A	Step up		0	1
A	Step up or Step down depends upon the application		0	2
A	Isolation Transformer		0	3
A	Stepdown		1	4
Q	Distribution transformer is generally of this type	M		1
A	Yy6		0	1
A	Yd1		0	2
A	Dy11		1	3
A	Dd0		0	4
Q	In distribution system design calculation, future estimates is the estimation of ?	M		1
A	Load		1	1
A	Manpower		0	2
A	Furniture		0	3
A	Manpower and Furniture		0	4
Q	Which of the following not to consider while designing transformer for the distribution system	M		1
A	Load Factor		0	1
A	Diversity Factor		0	2

Type	Text	M	Val1	Val2
A	Grouping Factor		1	3
A	Power Factor		0	4
Q	Among the following is not a criterion of substation design?	M		1
A	Safety		0	1
A	Reliability		0	2
A	Protection		0	3
A	Manpower		1	4
Q	Earthing system is used for?	M		1
A	Protection from electrical shock		1	1
A	Communication		0	2
A	Metering		0	3
A	Design		0	4
Q	In a DG set, the generator is consuming 400 litres per hour diesel oil. If the specific	M		1
A	1200 KVA		0	1
A	2222 KVA		1	2
A	600 KVA		0	3
A	1600 KVA		0	4
Q	Which among the following lamps has the maximum burning hours?	M		1
A	Incandescent Lamp		0	1
A	LED		1	2
A	Compact Fluorescent Lamp		0	3
A	Metal Hallide		0	4
Q	Which lamp has the best Colour Rendering Index (CRI)?	M		1
A	LED		0	1
A	Fluorescent		0	2
A	Incandescent		1	3
A	High pressure sodium vapour		0	4
Q	What will be the number of lamps, each having 500 lumens, required to obtain an average illuminance of 250 lux on a 4m × 3m rectangular room? Ignore other parameters.	M		1
A	8		0	1
A	4		0	2
A	6		1	3
A	5		0	4
Q	The characteristic of conventional ballast in lighting application is one among the following:	M		1
A	They have low operational losses than electronic ballasts.		0	1
A	They have tuned circuit to deliver power at 25 Hz		0	2
A	They do not require a mechanical switch (starter)		0	3

A	They have high operational losses and high temperature rise		1	4
Q	Total flux or lumens required in any lighting scheme depends inversely on	M		1
A	utilization factor		1	1
A	reduction factor		0	2
A	reflection factor		0	3
A	None of these		0	4
Q	If cable is to decide for the installation which has fault capacity of 20kA. Protection equipement operates in 10ms and k =115, then minumum size of the cable required is	M		1
A	18.39sq.mm		0	1
A	17.39sq.mm		1	2
A	16.39sq.mm		0	3
A	19.39 sq.mm		0	4
Q	What is the illuminance at a point 5m just below a lamp emitting 100 candelas?	M		1
A	4		1	1
A	2		0	2
A	10		0	3
A	20		0	4
Q	Following is not the function of UPS system	M		1
A	Online quality power supply		0	1
A	Standby power supply		0	2
A	Bypass mains		0	3
A	Providing high frequency supply to the load		1	4
Q	Following does not serves the puropose of standby power supply	M		1
A	DG Set		0	1
A	online double conversion type UPS		0	2
A	line-interactive type UPS		0	3
A	Uncharged battery system		1	4
Q	Following is the least preferred criteria for the DG set	M		1
A	Power Factor of the load		0	1
A	Overload capacity required		0	2
A	% of Unbalanced load		0	3
A	Size of the foundation required		1	4
Q	Which of the following sequence of operation is correct for the operation of	M		1
A	Ensure CB is open-close isolator-open earthing switch-close circuit breaker		0	1

A	Ensure CB is open -open earthing switch- close isolator -close circuit breaker		1	2
A	Close CB – open earthing switch- close isolator		0	3
A	open earthing switch -Close CB –close isolator		0	4
Q	Following are belongs to switchgear family	M		1
A	Fuse		0	1
A	Contactor		0	2
A	both Fuse and Contactor		1	3
A	Capacitor bank		0	4
Q	Which of the following circuit breaker has highest no cycles of short circuit operation	M		1
A	Oil circuit breakers		0	1
A	Air blast breaker		0	2
A	Vacuum circuit breakers		1	3
A	SF6 circuit breakers		0	4
Q	The main function of a fuse is to	M		1
A	Connect the two terminal of line		0	1
A	Open the circuit		0	2
A	Protect against excessive currents		1	3
A	Reduce the current		0	4
Q	Out of which following is more compact device	M		1
A	MCCB		0	1
A	MCB		1	2
A	ACB		0	3
A	SDF		0	4
Q	The thickness of insulation layer provided on the conductor, in cables, depends upon	M		1
A	Operating voltage		1	1
A	Current to be carried		0	2
A	Power factor		0	3
A	no. of conductors		0	4
Q	Size of copper conductor cable for the same current rating _____ Aluminum conductor cable	M		1
A	Equal to		0	1
A	More than		0	2
A	Less than		1	3
A	Double than		0	4
Q	Which of the following prevents moisture entry into the cable?	M		1
A	Armour		0	1
A	bedding		0	2
A	conductor surface		0	3

A	lead sheath		1	4
Q	Armoured cable does not provides following characteristics	M		1
A	Provides Mechanical protection		0	1
A	Armour also act as circuit protective conductor		0	2
A	used dierctly for external or underground projects		0	3
A	Always to be laid through Metal conduits		1	4
Q	If d is the distance of a surface from a source, the illumination of the surface will vary as	M		1
A	d		0	1
A	d^2		0	2
A	1/d		0	3
A	$1/d^2$		1	4
Q	In trend line of production Vs Energy consumption, Poor scattering indicates ___.	M		1
A	poor level of control		1	1
A	good level of control		0	2
A	Production		0	3
A	Climate		0	4
Q	Following loss in transformer remains zero from no load to full load	M		1
A	Core loss		0	1
A	Friction loss		1	2
A	Eddy current loss		0	3
A	Hysteresis loss		0	4
Q	What is NOT a feature of the static capacitors?	M		1
A	Low noise		0	1
A	Smooth operation		0	2
A	Lower maintenance.		0	3
A	huge in size		1	4
Q	How reduction in core losses and increase in permeability can be obtained simultaneously in a transformer?	M		1
A	Core built-up of laminations of cold rolled grain oriented steel		1	1
A	Core built-up of laminations of hot rolled sheet		0	2
A	Cannot be determined		0	3
A	zero flux		0	4
Q	Power factor improvement does not provide following to the commercial consumer	M		1
A	Reduced kVA demand		0	1

A	Reduced conductor size		0	2
A	Reduction in electricity bill amount		0	3
A	Increases active power supply to the load		1	4
Q	Electricity duty is one of the component of _____consumer electricity bill.	M		1
A	Residential		0	1
A	Industrial		0	2
A	Commercial		0	3
A	Residential, Commercial and Industrial		1	4
Q	A 400W rated lamp was switched on for 10 hours per day. The supply volt is 230V (current= 2 amps & PF= 0.8). What is the energy consumption per day?	M		1
A	3.68 kWh		1	1
A	6.37 kWh		0	2
A	0.37 kWh		0	3
A	4.0 kWh		0	4
Q	Energy consumed for the period is given as 110 kWh for 10 tons and 180 kWh for 20 tons of production. The fixed energy consumption in kWh is .... (No graph is needed to arrive at correct answer).	M		1
A	10 kWh		0	1
A	20 kWh		0	2
A	40 kWh		1	3
A	30 kWh		0	4
Q	In the "energy consumption versus production chart" coordinate system, the trend is	M		1
A	always a straight line		1	1
A	always a straight line going through zero point		0	2
A	sometimes a curve		0	3
A	never a straight line		0	4
Q	_____is a statistical technique which determines and quantifies the relationship between variables and enables standard equations to be established for energy consumption.	M		1
A	linear regression analysis		1	1
A	time-dependent energy analysis		0	2
A	moving annual total		0	3
A	CUSUM		0	4
Q	In a cumulative sum chart if the graph is going down, it means	M		1

A	Poor energy performance		0	1
A	Improved energy performance		1	2
A	Specific energy consumption is coming down		0	3
A	No inference can be made		0	4
Q	Which of the following statements are true? i) reactive current is necessary to build up the flux for the magnetic field of inductive devices ii) some portion of reactive current is converted into work iii) the cosine of angle between kVA and kVAr vector is called power factor iv) the cosine of angle between kW and kVA vector is called power factor	M		1
A	i & iv		1	1
A	ii & iii		0	2
A	i & iii		0	3
A	iii & iv		0	4
Q	The energy consumed by a 3phase 50 kW motor loaded at 40 kW over a period of 4 hour is	M		1
A	50 kWh		0	1
A	160 kWh		1	2
A	40 kWh		0	3
A	2000 kWh		0	4
Q	The essential elements of monitoring and targeting system is	M		1
A	Recording		0	1
A	Reporting		0	2
A	Controlling		0	3
A	Recording, Reporting and controlling		1	4
Q	The monthly electricity bill for a plant is Rs. 100 lakhs which accounts for 45% of the total monthly energy bill. How much is the plant's monthly energy bill	M		1
A	Rs 222.22 lakhs		1	1
A	Rs 100 lakhs		0	2
A	Rs 138 lakhs		0	3
A	Rs 192 lakhs		0	4
Q	Which task is not considered a major duty of an energy manager	M		1
A	prepare an annual activity plan		0	1
A	establish an improved data recording system		0	2
A	conduct mandatory energy audit		1	3

A	prepare information material			0	4
Q	An oil-fired furnace is retrofitted to fire coconut shell chips. Boiler thermal efficiency drops from 82% to 72%. How much more, or less energy, in percent is spent to generate same amount of steam.	M			1
A	10% more			0	1
A	12.2% more			0	2
A	13.9% less			0	3
A	13.9% more			1	4
Q	Which comparison is not an energy benchmarking exercise?	M			1
A	best practices			0	1
A	past performance			0	2
A	industry average			0	3
A	least cost			1	4
Q	Which of the following statements are true? i) Rice husk is a source of secondary energy ii) nuclear energy is non-renewable energy iii) electricity is basically a convenient form of primary energy iv) steam is a convenient form of secondary energy	M			1
A	(ii) & (iii)			0	1
A	(i) & (iii)			0	2
A	(ii) & (iv)			1	3
A	(ii) & (i)			0	4
Q	The sector consuming major share of energy in India	M			1
A	Agriculture Sector			0	1
A	Transport Sector			0	2
A	Industrial Sector			1	3
A	Domestic Sector			0	4
Q	Lux meter is used to measure_____	M			1
A	Sound intensity			0	1
A	Illumination level			1	2
A	Harmonics			0	3
A	Speed			0	4
Q	An energy policy does not include	M			1
A	Target energy consumption reduction			0	1
A	Time period for reduction			0	2
A	Declaration of top management commitment			0	3
A	Future production projection			1	4

Q	The percentage of energy saved at the current rate of use, compared to the reference year rate of use, is called	M		1
A	Energy Utilization		0	1
A	Energy Efficiency		0	2
A	Energy		0	3
A	Energy Performance		1	4
Q	The production factor is defined as the ratio of	M		1
A	current year production to the reference year production		1	1
A	current year production to the reference month production		0	2
A	reference month production to the current month production		0	3
A	reference year production to the current year production		0	4
Q	Which of the following is not a part of energy audit as per the Energy Conservation Act, 2001?	M		1
A	monitoring and analysis of energy use		0	1
A	verification of energy use		0	2
A	submission of technical report with recommendations		0	3
A	ensuring implementation of recommended measures followed by review		1	4
Q	From the following Which is not the Type of Energy Audit	M		1
A	Both Preliminary Audit and Detailed Audit		0	1
A	Preliminary Audit		0	2
A	Detailed Audit		0	3
A	Special Energy Audit		1	4
Q	Following is not an example Constant Torque load	M		1
A	conveyors		0	1
A	mixers		0	2
A	Pump		1	3
A	compressors		0	4
Q	Following is an example Variable Torque load	M		1
A	conveyors		0	1
A	mixers		0	2
A	Pump		1	3
A	compressors		0	4
Q	An energy audit requires	M		1

A	quantum reduction in power consumption		0	1
A	quantification of energy use		1	2
A	qualification of energy use		0	3
A	converting all energy use to one single unit		0	4
Q	Primary energy sources are,	M		1
A	electricity		0	1
A	converted into secondary energy sources		1	2
A	used in diesel generator sets		0	3
A	LPG, petrol & diesel		0	4
Q	Which of the following parameters is not considered for external Bench Marking?	M		1
A	scale of operation		0	1
A	raw materials and product quality		0	2
A	vintage of technology		0	3
A	energy pricing		1	4
Q	Which instrument is used to Voltage and current of the system?	M		1
A	Power analyzer		1	1
A	Pyrometer		0	2
A	Combustion analyzer		0	3
A	Fyrite		0	4
Q	The various types of the instruments, which requires during audit need to be	M		1
A	easy to carry		1	1
A	Heavy		0	2
A	Large equipment		0	3
A	expensive		0	4
Q	Energy conservation act was inacted by the Government of India in the year	M		1
A	2001		1	1
A	1998		0	2
A	2000		0	3
A	1991		0	4
Q	Energy Efficiency of the lighting system is analysed by using	M		1
A	Production Factor		0	1
A	Illuminance		0	2
A	Power factor		0	3
A	Installed Load Efficacy Ratio		1	4
Q	For calculating plant energy performance which of the following data is not required	M		1
A	current year's production		0	1

A	reference year's production		0	2
A	reference year energy use		0	3
A	capacity utilization		1	4
Q	Non contact speed measurements can be carried out by	M		1
A	Tachometer		0	1
A	Oscilloscope		0	2
A	Speedometer		0	3
A	Stroboscope		1	4
Q	Construction of BLDC is exactly similar to the	M		1
A	Slip Ring IM		0	1
A	Squirrell Cage IM		0	2
A	Permanent Magnet Synchronous Motor		1	3
A	Totally different		0	4
Q	In case of EEM motors rotor copper losses are reduced in comparison to standard motor	M		1
A	By using large rotor bars of copper conductor		1	1
A	by using high grade silicon steel		0	2
A	using thinner laminations		0	3
A	using low loss fan design		0	4
Q	If an existing CFL of 36W is replaced by 15W LED lamp. If the cost of an LED lamp is Rs. 450. Operating hours of the lamp is 10Hours /day. The annual energy savings due to this replacement is _____	M		1
A	56.7 units		0	1
A	76.7 units		1	2
A	86.7 units		0	3
A	36.7uniits		0	4
Q	Application of occupancy sensors is well suited for ___.	M		1
A	day light based controllers		0	1
A	night based controllers		0	2
A	motor controllers		0	3
A	movement or noise detector in room space		1	4
Q	Following statements regarding BLDC motors are a)The speed of a BLDC motor is controlled by Changing winding connection and b) The Hall effect sensor is used as the rotor position sensor for the BLDC motor	M		1
A	True, Flase		0	1
A	False, False		0	2
A	True, True		0	3

A	Flase, True		1	4
Q	The cause of excessive wear and premature failure of chains, belts, gears, mechanical seals is	M		1
A	more torque at full speed		1	1
A	low speed at the start		0	2
A	Higher starting torque		0	3
A	more torque at low speed		0	4
Q	What does illumination refer to?	M		1
A	The wavelength used to generate light		0	1
A	The ratio of light produced to energy consumed		0	2
A	The color patterns used in lighting		0	3
A	The distribution of light on a horizontal surface		1	4
Q	In case of APFC capacitors controlled by the relay must be switched on/off	M		1
A	in random sequence		0	1
A	in linear sequence		1	2
A	in a non-linear sequence		0	3
A	All simultaneously		0	4
Q	Over compensation of reactive power result into	M		1
A	Leading power factor operation		1	1
A	Lagging power factor operation		0	2
A	Unity Power factor operation		0	3
A	no effect on the system power factor		0	4
Q	Reactive power compensation at the motor terminal causes	M		1
A	only lagging reactive power drawn by the motor		0	1
A	only leading reactive power drawn by the motor		0	2
A	No reactive power drawn by the motor		0	3
A	Both Active and lagging reactive power drawn by the motor		1	4
Q	Daylight integration into lighting system	M		1
A	Will result into more number of lamps required		0	1
A	Reduced energy consumption if used effectively		1	2
A	Increased energy consumption		0	3
A	Effect can't be determined		0	4

Type	Text		Correct	No.
Q	The following statements are a) Variable torque applications has higher energy saving b) Constant horse power applications provides significant energy saving if used with VFD	M		1
A	True, False		1	1
A	False, False		0	2
A	True, True		0	3
A	False, True		0	4
Q	Glare is the result of	M		1
A	very low luminance		0	1
A	normal luminance		0	2
A	excessive luminance		1	3
A	Glass envelope of the source		0	4
Q	Which of the following is not a advantage of BLDC motor over conventional DC motor.	M		1
A	Less maintenance		0	1
A	Long life		0	2
A	No risk of explosion or possibility of RF radiation		0	3
A	Low cost		1	4
Q	What the word 'EMS' stands for	M		1
A	Environment Management System		0	1
A	Environment Monitoring System		0	2
A	Energy Monitoring System		0	3
A	Energy Management System		1	4
Q	Following is not energy efficient measure for lighting system	M		1
A	Occupancy sensor		0	1
A	Daylight integration into lighting system		0	2
A	Use of Incandescent lamp throughout		1	3
A	Use of Electronic ballast for Flueroscent lamp		0	4
Q	Energy efficient transformer core is made up of	M		1
A	silicon alloyed iron (grain oriented)		0	1
A	copper		0	2
A	amorphous core - metallic glass alloy		1	3
A	Silicon steel with proper insulation so as to reduce eddy current losses		0	4
Q	Which of the following is energy efficient application in case of Slip ring IM.	M		1
A	Slip control IM		0	1
A	Slip power recovery system		1	2
A	Fluid Coupling		0	3
A	Resistance control		0	4