

परीक्षेचे नाव - उप अभियंता (विद्युत)/सहायक विद्युत निरीक्षक गट -अ सार्वजनिक बांधकाम विभाग (जाहिरात क्र. ३३५- २०१३)  
ऑनलाईन परीक्षेचे दि. १८ ऑगस्ट, २०१३

महाराष्ट्र लोकसेवा आयोगामार्फत "उप अभियंता (विद्युत)/ सहायक विद्युत निरीक्षक गट -अ " या परीक्षेच्या वस्तुनिष्ठ स्वरूपाच्या प्रश्नपत्रिकेची उत्तरतालिका उमेदवारांच्या माहितीसाठी संकेतस्थळावर प्रसिध्द करण्यात आली होती. त्यासंदर्भात उमेदवारांनी अधिप्रमाणित (Authentic) स्पष्टीकरण/संदर्भ देऊन पाठविलेली लेखी निवेदने, तसेच तज्ञांचे अभिप्राय विचारात घेऊन आयोगाने उत्तरतालिका अंतिम केली आहे. या उत्तरतालिकेतील उत्तरे अंतिम समजण्यात येतील. यापुढे यासंदर्भात आलेली निवेदने विचारात घेतली जाणार नाहीत तसेच त्याबाबत कोणताही पत्रव्यवहार केला जाणार नाही याची कृपया नोंद घ्यावी.

## **Section-1(General Aptitude-Q 'n no-1-25)**

<b>Q No.-1</b>	For which special reason was the Right to Information bill needed in 2005?
1	Increasing awareness about policy.
2	Making it easier for government officials.
3	Making government more responsible.
4	Increasing citizen participation.
<b>Answer -3</b>	

<b>Q No.-2</b>	Who cannot make an RTI application?
1	Corporations
2	Individual citizen
3	Workers in a factory
4	Government employees
<b>Answer -1</b>	

<b>Q No.-3</b>	What information can be withheld under RTI?
1	The data collected about defence personnel
2	Public works which are yet to be completed
3	Treaties made with other countries on border security.
4	That which could lead to breach of national security.
<b>Answer -4</b>	

<b>Q No.-4</b>	Which of these organisations would not come under the RTI?
1	Non government organisation funded by State
2	Central Bureau of Investigation.
3	Semi Autonomous organisation
4	Public works departments
<b>Answer -2</b>	

<b>Q No.-5</b>	Who appoints the officers of the Central Information Commission?
1	Chief Justice of India
2	President of India
3	Cabinet Secretary
4	UPSC.
<b>Answer -2</b>	

<b>Q No.-6</b>	What is the main focus of the right to Education Act,2009.
1	To bring all the private and aided Schools under governmental control
2	To offer free and compulsory Education to children between six to Fourteen years.
3	To make-up the shortage of trained teachers through the services of parents.
4	To make Secondary Education accessible to all children in the whole country.
<b>Answer -2</b>	

<b>Q No.-7</b>	Which of these approaches would help to solve the twin problem of earthquake and flood in the Himalaya?
1	Increase forest cover in the upper reaches .
2	Design modern sturdy buildings
3	Live with Nature, not meddle with it
4	Control the rivers with dams and barrages
<b>Answer -3</b>	

<b>Q No.-8</b>	What did the recent law regarding mining rights declare?
1	Minerals belong to the State not the land.
2	All minerals found in a place are owned by the owner of the land
3	All minerals are the property of the State along with the land
4	All the land and the minerals belong to the Panchayat.
<b>Answer -2</b>	

<b>Q No.-9</b>	Which city has applied to the UNESCO to be considered a Heritage city?
1	Mumbai
2	Kolkata
3	Agra
4	Delhi
<b>Answer -4</b>	

<b>Q No.10</b>	Which mineral has the Indian Rare Earths Ltd been permitted to export ?
1	Monazite
2	Uranium
3	Lithium
4	Thorium
<b>Answer -1</b>	

<b>Q No.11</b>	What is BHEEM?
1	Road roller
2	Rocket to be launched in to space
3	New diesel locomotive engine
4	Mars exploratory vehicle launched
<b>Answer -3</b>	

<b>Q No.12</b>	What is the best reason why special status is provided to tribal and indigenous communities?
1	Providing more facilities exclusively for tribes
2	Bringing Tribal people into the mainstream
3	creating more jobs in government sector
4	ensuring equality as per Constitution
<b>Answer -2</b>	

<b>Q No.13</b>	Which are the sectors where FDI is not allowed in India, both under the Automatic Route as well as under the Government Route
1	Defence Equipment .
2	Electronic goods.
3	Solar Technology.
4	Agricultural Food processing.
<b>Answer -4</b>	

<b>Q No.14</b>	Which Indian movie has been adjudged the best in the millennium by England?
1	Mother india
2	Sholay
3	Mughal-e-Azam
4	Alam -ara
<b>Answer -3</b>	

<b>Q No.15</b>	What privileges do the heritage sites enjoy?
1	Status and security
2	Money for upkeep and care
3	Expertise and labour
4	Advertisement
<b>Answer -1</b>	

<b>Q No.16</b>	Which Nonagenarian in the world is considered a symbol of peace and non-violence today?
1	Dalai lama
2	Pope Francis
3	Aung Sang Su Chi
4	Nelson Mandela
<b>Answer -4</b>	

<b>Q No.17</b>	What efforts are being made all over the world to preserve the identity of Indigenous tribes?
1	protection in their natural habitat
2	provision of special status for tribes
3	Recording of their habits and customs
4	Special educational facilities.
<b>Answer -1</b>	

<b>Q No.18</b>	In which city was the first Asian games held?
1	Beijing
2	Singapore
3	Colmbo
4	Delhi
<b>Answer -4</b>	

<b>Q No.19</b>	which of the following forms of the classical dance was patronized by the Mughal rulers?
1	Kathkali
2	Kathak
3	Bharatnatyam
4	Manipuri
<b>Answer -2</b>	

<b>Q No.20</b>	Who won the Wimbledon women single championship in 2013 ?
1	Serena williams
2	Anna Sharpova
3	Sabine Lisciki
4	Marion Bartoli
<b>Answer -4</b>	

<b>Q No.21</b>	What does IBL stand for?
1	International badminton league
2	Indian basketball league
3	Indian badminton league
4	International basketball league
<b>Answer -3</b>	

<b>Q No.22</b>	What controversial issue has Snowden raised?
1	Creating a policy for internet privacy.
2	Protection of privacy on internet.
3	Increasing the access to internet.
4	Creating awareness about safety.
<b>Answer -2</b>	

<b>Q No.23</b>	The duration of the current (12 <sup>th</sup> ) five year plan is:
1	2011-16
2	2012-17
3	2013-18
4	2010-15
<b>Answer -2</b>	

<b>Q No.24</b>	As per 2013-14 railway budget, Indian Railway will introduce a new hyper luxury class which is known as _____.
1	Udaan
2	Anand
3	Apoorva
4	Anubhuti
<b>Answer -4</b>	

<b>Q No.25</b>	The first woman to climb Mt Everest with artificial limbs?
1	Bachindri Pal
2	Raha Moharrak
3	Tamae Watanabe
4	Arunima Sinha
<b>Answer -4</b>	

## Section-2 (Electrical engineering-Q 'n no-26-100)

<b>Q No.26</b>	The First nuclear power plant was installed in India at
1	Kota
2	Kalpakkam
3	Tarapur
4	Narora
<b>Answer -3</b>	

<b>Q No.27</b>	The estimated value of installed power plant capacity requirements in India now is
1	3.5 x 10 <sup>5</sup> MW
2	2.5 x 10 <sup>5</sup> MW
3	1.5 x 10 <sup>5</sup> MW
4	1 x 10 <sup>5</sup> MW
<b>Answer -2</b>	

<b>Q No.28</b>	Which one of the following is NOT considered as commercial energy ?
1	Electrical Energy
2	Oil Energy
3	Coal Energy
4	Solar Energy
<b>Answer -4</b>	

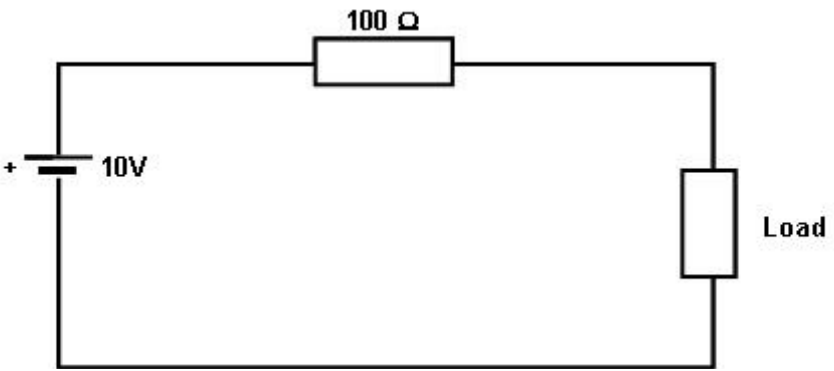
<b>Q No.29</b>	The Bureau of Energy Efficiency (BEE) has been established in order to
1	Provide policy frame work and direction to national energy conservation
2	Promote power generation avenues in India.
3	Train engineers in Power sector for better performance
4	Increase Transmission efficiency by reduction of losses
<b>Answer -1</b>	

<b>Q No.30</b>	As per the Electricity Act 2003, the term <b>cogeneration</b> means
1	Interconnection of power systems
2	Production of energy by nonconventional methods
3	Working of power generating agencies together
4	A process which simultaneously produces two or more forms of useful energy
<b>Answer -4</b>	

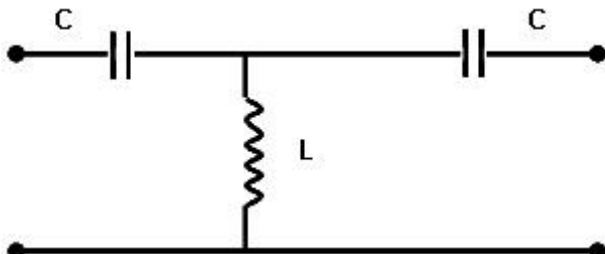
<b>Q No.31</b>	Which one of the following is a characteristic of an Ideal voltage source ?
1	The voltage is in direct proportion to current
2	It has zero internal resistance
3	It has infinite internal resistance
4	Open circuit voltage is equal to voltage on full load
<b>Answer -2</b>	

<b>Q No.32</b>	The number of branches in a network having 4 nodes and 3 independent loops will be
1	5
2	6
3	7
4	8
<b>Answer -2</b>	



<b>Q No.33</b>	<p>The maximum power that can be transferred to the load in the given circuit is</p> 
1	0.25 W
2	0.5 W
3	1.0 W
4	10 W
<b>Answer -1</b>	

<b>Q No.34</b>	<p>For a 3 phase balanced system, which one of the following conditions are necessary ? A. The line voltages are equal B. The phase difference between line voltages is same C. The impedances in phases are equal</p>
1	A, B, C only
2	A and C only
3	A and B only
4	B and C only
<b>Answer -1</b>	

<b>Q No.35</b>	<p>The circuit shown in the figure illustrates a</p> 
1	low pass filter
2	high pass filter
3	band pass filter
4	band reject filter
<b>Answer -2</b>	

<b>Q No.36</b>	The iron losses in a single phase transformer are 5000 watts. The full load copper losses are 6400 watts. At half load, the copper losses and iron losses will be respectively
1	3200 watts and 2500 watts
2	3200 watts and 5000 watts
3	1600 watts and 1250 watts
4	1600 watts and 5000 watts
<b>Answer -4</b>	

<b>Q No.37</b>	In a transformer zero voltage regulation can be obtained by
1	Resistive loads
2	Inductive loads
3	Capacitive loads
4	Combination of resistive and inductive loads
<b>Answer -3</b>	

<b>Q No.38</b>	A power transformer will operate at highest efficiency when
1	Iron losses are equal to copper losses
2	Iron losses are less than copper losses
3	Iron losses are more than copper losses
4	Eddy current losses are equal to hysteresis losses.
<b>Answer -1</b>	

<b>Q No.39</b>	Two transformers are operating in parallel. The load shared will depend on their
1	Efficiency
2	Ratings
3	Turns ratio
4	Per unit impedance
<b>Answer -4</b>	

<b>Q No.40</b>	Which one of the following combinations of 3 phase transformer can operate in parallel ?
1	Star / star and start / delta
2	Delta / star and delta / delta
3	Delta / star and delta / star
4	Delta / delta and delta / delta
<b>Answer - # Cancelled</b>	

<b>Q No.41</b>	Which one of the motors should NOT be run on no load ?
1	DC shunt motor
2	DC series motor
3	Induction motor
4	Synchronous motor
<b>Answer -2</b>	

<b>Q No.42</b>	Wave winding is employed is a DC machine of
1	high current and low voltage rating
2	low current and high voltage rating
3	high current and high voltage rating
4	low current and low voltage rating
<b>Answer -2</b>	

<b>Q No.43</b>	The most economical method of electrical braking is
1	Plugging
2	Dynamic braking with separate excitation
3	Dynamic braking with self excitation
4	Regenerative braking
<b>Answer -4</b>	

<b>Q No.44</b>	A single phase motor fails to start and gives humming noise. The reason could be
1	Low voltage
2	High voltage
3	Blown fuses
4	Shorted stator winding
<b>Answer -1</b>	

<b>Q No.45</b>	If the phase sequences of applied voltage in a 3 phase induction motor is changed, the result will be that
1	No torque will be developed
2	Direction of rotation of the motor will change
3	The slip will increase
4	Motor will draw more current
<b>Answer -2</b>	

<b>Q No.46</b>	For the same output, the space required by a steam power station is less than
1	diesel power station
2	atomic power station
3	hydropower station
4	gas turbine power station
<b>Answer -3</b>	

<b>Q No.47</b>	In a thermal power station, the feed water coming to the economizer is heated using
1	low pressure steam
2	high pressure stem
3	furnace heat
4	flue gases
<b>Answer -4</b>	

<b>Q No.48</b>	A load curve shows the relationship between
1	load and time
2	units generated and time
3	load and current
4	energy output and current
<b>Answer -1</b>	

<b>Q No.49</b>	The advantages of interconnected power systems is
1	less reserve capacity requirement and higher reliability
2	high reserve capacity requirement and high power factor
3	high reserve capacity and low reliability
4	less faults and high power factor
<b>Answer -1</b>	

<b>Q No.50</b>	Heavy water is used in nuclear plants as
1	fuel and coolant
2	coolant and moderator
3	shield and moderator
4	fuel and reflector
<b>Answer -2</b>	

<b>Q No.51</b>	As compared with a solid conductor of the same radius, corona appears on a stranded conductor at low voltage, because the stranding of the conductor
1	helps ionization process
2	makes the current flow spirally
3	produces surfaces of smaller radius
4	reduces the value of current
<b>Answer -3</b>	

<b>Q No.52</b>	High voltage transmission lines are transposed to
1	reduce corona losses
2	prevent interference with telephone lines
3	prevent short circuit between lines
4	reduce transmission losses
<b>Answer -2</b>	

<b>Q No.53</b>	In underground cables, the electrostatic stress is
1	maximum at the conductor surface
2	maximum at the sheath
3	minimum at conductor surface
4	same at the conductor and sheath
<b>Answer -1</b>	

<b>Q No.54</b>	The pu impedance of a line to 50 MVA, 132 KV base is 0.4, the pu impedance to a 100 MVA, 132 KV base will be
1	0.2
2	0.6
3	0.8
4	1.6
<b>Answer -3</b>	

<b>Q No.55</b>	In HVDC transmission system, the AC harmonics which are eliminated by 12 pulse bridge converters are
1	3rd harmonics
2	3rd, 5th and 7th harmonics
3	3rd and 5th harmonics
4	5th and 7th harmonics
<b>Answer -4</b>	

<b>Q No.56</b>	In case of an unbalanced star connected load supplied from an unbalanced 3 phase 3 wire system, the load currents will consist of
1	positive sequence components only
2	negative sequence components only
3	zero sequence components only
4	positive and negative sequence components only
<b>Answer -4</b>	

<b>Q No.57</b>	In case of an Air blast circuit breaker, current chopping will be observed, when which one of the following is switched off ?
1	long overhead line
2	bank of capacitors
3	transformer on no load
4	heavy load
<b>Answer -3</b>	

<b>Q No.58</b>	In distance protection, the relay measures
1	negative sequence impedance of the line from relay upto the fault point
2	positive sequence impedance of the line from relay upto the fault point
3	self impedance of the relay upto the fault point
4	zero sequence impedance of the relay upto the fault point
<b>Answer -2</b>	

<b>Q No.59</b>	Differential relays protect the equipment against
1	over current
2	internal faults
3	reverse current
4	reverse power
<b>Answer -2</b>	

<b>Q No.60</b>	Load flow study is used for
1	system planning
2	economic considerations
3	fault calculations
4	stability consideration
<b>Answer -1</b>	

<b>Q No.61</b>	The sensitivity of a potentiometer can be increased by
1	decreasing the length of potentiometer wire
2	decreasing the resistance of potentiometer wire
3	increasing the length of potentiometer wire
4	increasing the voltage applied
<b>Answer -3</b>	

<b>Q No.62</b>	A moving iron voltmeter draws a current of 1 mA for full scale value of 100V. If it draws a current of 0.5 mA, the meter reading will be
1	25V
2	50V
3	100V
4	200V
<b>Answer -2</b>	

<b>Q No.63</b>	Which one of the following digital voltmeters is most suitable to eliminate effect of period noise
1	ramp type
2	integrating type
3	successive approximation type
4	servo type
<b>Answer -4</b>	



<b>Q No.64</b>	While measuring power in a balanced 3 phase, 3 wire circuit by 2 wattmeter method, the readings of the watt meters are equal and positive. The power factor is
1	Zero
2	0.5
3	0.866
4	Unity
<b>Answer -4</b>	

<b>Q No.65</b>	According to regulations, the megger voltage for testing 500 V installation should be
1	1000V
2	750V
3	500V
4	250V
<b>Answer -1</b>	

<b>Q No.66</b>	As per the electricity regulations in India, what should be the permissible percentage voltage drop at the consumers premises ?
1	± 3%
2	± 6%
3	± 10%
4	± 12%
<b>Answer -2</b>	

<b>Q No.67</b>	Which one of the following neutral systems requires the lightning arrestor of least voltage rating ?
1	Insulated
2	solidly earthed
3	resistance earthed
4	reactance earthed
<b>Answer -2</b>	

<b>Q No.68</b>	Series capacitor is used in a transmission line to
1	reduce line loss
2	limit short circuit current
3	compensate the voltage drop
4	improve load power factor
<b>Answer -3</b>	

<b>Q No.69</b>	According to regulations, the total connected load and the number of points on a lighting sub circuit should not exceed
1	700 watts and 8 points
2	800 watts and 10 points
3	900 watts and 10 points
4	1000 watts and 10 points
<b>Answer -2</b>	

<b>Q No.70</b>	Earthing gives protection against
1	Temperature rise
2	Over loading
3	Voltage protection
4	Electric shocks
<b>Answer -4</b>	

<b>Q No.71</b>	A ring main distribution system is preferred to a radial distribution system because A. Power factor is higher B. Voltage drop in the feeder is less C. Supply is more reliable
1	A and B only
2	A and C only
3	A, B and C only
4	B and C only
<b>Answer -4</b>	

<b>Q No.72</b>	On which one of the following faults the rating of a circuit breaker is usually determined ?
1	Symmetrical
2	Line to line
3	Single line to ground
4	Double line to ground
<b>Answer -1</b>	

<b>Q No.73</b>	An isolator is used to break the circuit under
1	No load conditions
2	Fault conditions
3	Abnormal current flow
4	Over voltage conditions
<b>Answer -1</b>	

<b>Q No.74</b>	Which one of the following sequence of operations is to be followed for operation of circuit breaker, isolator and earthing switch while opening a circuit ?
1	Open circuit breaker • open isolator → close earthing switch
2	Open isolator • open circuit breaker → close earthing switch
3	Open earthing switch → open isolator → open circuit breaker
4	Open circuit breaker • close earthing switch • open isolator
<b>Answer -1</b>	

<b>Q No.75</b>	A bus coupler circuit breaker is utilized in a substation for joining the
1	transmission line with station bus bar
2	main and transfer bus in a substation
3	generator with transfer bus
4	neutral of the generator with earth
<b>Answer -2</b>	

<b>Q No.76</b>	If the secondary of a current transformer is open circuited when the primary is carrying current the effect will be that the
1	primary current will become zero
2	high voltage will be induced across secondary causing flash over
3	high voltage will be induced across primary
4	secondary current and voltage will become zero
<b>Answer -2</b>	

<b>Q No.77</b>	Which one of the bus bar arrangement is more reliable and flexible ?
1	mains and transfer bus scheme
2	one and half breaker scheme
3	double main bus bar scheme
4	single bus bar scheme
<b>Answer -2</b>	

<b>Q No.78</b>	A bus bar is rated by
1	current and frequency
2	voltage and frequency
3	current, voltage and frequency
4	current, voltage, frequency and short circuit current
<b>Answer -4</b>	

<b>Q No.79</b>	What is the maximum transmission voltage substation in India
1	400 kV
2	500 kV
3	750 kV
4	1000 kV
<b>Answer -3</b>	

<b>Q No.80</b>	The electronic cable fault locaters work on the principle of
1	wheat stone bridge
2	reflection of voltage impulse
3	charging and discharging the cable
4	fall of potential
<b>Answer -2</b>	

<b>Q No.81</b>	One tonne of refrigeration (1 TR) means that the heat removing capacity is
1	21 kJ/min
2	41 kJ/min
3	210 kJ/min
4	410 kJ/min
<b>Answer -3</b>	

<b>Q No.82</b>	In a vapour compression system, the condition of refrigerant after passing through the compressor and before entering the condenser is
1	wet vapour
2	dry vapour
3	high pressure saturated liquid
4	super heated vapour
<b>Answer -4</b>	

<b>Q No.83</b>	The Freon group of refrigerant are
1	halo-carbon refrigerants
2	hydro-carbon refrigerants
3	in organic refrigerants
4	high pressure refrigerants
<b>Answer -1</b>	

<b>Q No.84</b>	During humidification process which one of the following increases ?
1	wet bulb temperature
2	dry bulb temperature
3	relative humidity
4	specific humidity
<b>Answer -3</b>	

<b>Q No.85</b>	If the speed of a Fan is reduced by 10% the power consumption will
1	decrease by 13%
2	increase by 23%
3	increase by 33%
4	decrease by 23%
<b>Answer - # Cancelled</b>	

<b>Q No.86</b>	For fans, the relation between discharge and speed is indicated by the relationship (where Q and N represent the discharge and speed respectively)
1	$Q1/Q2 = N1/N2$
2	$Q1/Q2 = (N1/N2)^2$
3	$Q1/Q2 = (N1/N2)^3$
4	$Q1/Q2 = (N1/N2)^4$
<b>Answer -1</b>	

<b>Q No.87</b>	Which type of control gives maximum benefits for fan application from energy saving point of view?
1	discharge damper control
2	inlet guide vane control
3	variable pitch control
4	speed control
<b>Answer -4</b>	

<b>Q No.88</b>	The pressure to be considered for calculating the power required for centrifugal fans is:
1	suction static pressure
2	discharge pressure
3	total static pressure
4	static plus dynamic pressure
<b>Answer -3</b>	

<b>Q No.89</b>	Motor used for driving blowers and fans is usually
1	slip ring induction motor
2	squirrel cage induction motor
3	dc shunt motor
4	cascade controlled ac motor
<b>Answer - 3</b>	

<b>Q No.90</b>	A heat pump working on a reverse carnot cycle has a co-efficient of performance (COP) of 5. It works as a refrigerator taking 1 kW of work input. The referigerating effect will be
1	2 kW
2	3 kW
3	4 kW
4	5 kW
<b>Answer -3</b>	

<b>Q No.91</b>	The flicker effect of fluorescent lamps is more visible at
1	lower voltages
2	lower frequencies
3	higher voltages
4	higher frequencies
<b>Answer -2</b>	

<b>Q No.92</b>	The purpose of choke in a fluorescent tube circuit is to
1	improve power factor
2	reduce radio interference
3	produce high voltage for starting
4	reduce the flicker
<b>Answer -3</b>	

<b>Q No.93</b>	Which one of the following lamps gives higher luminous efficiency at selected colours for the same wattage ?
1	metal halide lamps
2	compact fluorescent lamps
3	mercury vapour lamps
4	sodium vaour lamps
<b>Answer -1</b>	

<b>Q No.94</b>	Which one of the following requires the highest level of illumination ?
1	machine shop
2	Printing
3	operation theatre
4	drawing halls
<b>Answer -3</b>	

<b>Q No.95</b>	The light emitting diodes (LED) have
1	characteristics similar to pnp junctions
2	characteristics similar to npn junctions
3	higher forward and lower reverse breakdown voltage ratings
4	lower forward and higher reverse breakdown voltage ratings
<b>Answer -3</b>	

<b>Q No.96</b>	The plates of a lead acid battery are most likely to be short circuited if
1	high voltage charging is used
2	too much distilled water is used
3	sediment is collected at the bottom
4	battery is charged very slowly
<b>Answer - 3</b>	



<b>Q No.97</b>	In lead acid batteries, sedimentation occurs due to
1	Battery remaining idle for long periods
2	Over charging of batteries at slow rate
3	Over charging of batteries at high rate
4	Slow charging of batteries at low rate
<b>Answer -3</b>	

<b>Q No.98</b>	The function of MOSFET in an uninterrupted power supply (USP) is to
1	cut off over load circuit and restart the supply
2	generate and amplify oscillation signals
3	act as switching device at the output section
4	detect abnormal conditions at the input section
<b>Answer -3</b>	

<b>Q No.99</b>	In a Diesel Generator (DG) set, the white smoke indicates
1	presence of water in the combustion chamber
2	improper combustion
3	burning of oil in combustion chamber
4	worn out piston rings
<b>Answer - 2</b>	

<b>Q No.100</b>	The SAE number of the oil used in DG Sets denotes
1	oil viscosity
2	oil density
3	oil flash point
4	oil ambient temperature
<b>Answer -1</b>	