

JE Electrical - Master Questions and Answer Keys

1)	Which of the following is true with a commutator?		
A)	It acts as an inverter in a motor	B)	It acts as a rectifier in a generator
C)	It requires frequent maintenance	D)	All the above
Correct Answer: D			
2)	Which of the following is true with a single phase induction motor?		
A)	It requires a starting circuit	B)	The starting circuit determines the operating direction
C)	Both A and B	D)	None of these
Correct Answer: C			
3)	What is one joule equal to?		
A)	1 N	B)	Pa.m^3
C)	C.W	D)	All the above
Correct Answer: B			
4)	In a capacitor, if the area of overlap of the plates is doubled, then the capacitance will _____		
A)	double	B)	be four times
C)	be half	D)	none of these
Correct Answer: A			
5)	Which of the following is the SI unit for solid angle?		
A)	Radian	B)	Degree-cubed
C)	Steradian	D)	Soligree
Correct Answer: C			
6)	What is the period if the frequency is 50 Hz?		
A)	0.02 s/cycle	B)	20 ms/cycle
C)	20,000 μs /cycle	D)	All the above
Correct Answer: D			
7)	The ratio of RMS value to the average value in AC waveform is known as		
A)	Absolute factor	B)	Form factor
C)	AC factor	D)	Wave factor
Correct Answer: B			
8)	A square matrix is called singular if _____		
A)	The determinant is equal to 1	B)	The determinant is equal to 0
C)	The determinant is strictly positive	D)	The determinant is strictly negative
Correct Answer: B			
9)	Which of the following is the SI unit for conductivity?		
A)	Ohms.meter	B)	Siemens.meter
C)	Siemens/meter	D)	Ohms/meter
Correct Answer: C			

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10)	Which of the following is a linear component?		
A)	Diode	B)	Transistor
C)	Resistor	D)	None of these
Correct Answer: C			
11)	What is the current when 50×10^{17} electrons pass through a conductor in 2 minutes and 5 seconds?		
A)	6.4 mA	B)	64 mA
C)	0.8 mA	D)	None of these
Correct Answer: A			
12)	Which of the following is the best choice for permanent magnets?		
A)	Ferromagnetic materials	B)	Diamagnetic materials
C)	Paramagnetic materials	D)	All the above
Correct Answer: A			
13)	The degree of magnetization of a material in response to an applied magnetic field is known as _____		
A)	Susceptibility	B)	Inductivity
C)	Magnetic moment	D)	None of these
Correct Answer: A			
14)	What is the induced EMF in a conductor with length 2 meters moving at right angle to a magnetic field having a flux density of 3 Wb/m^2 at a velocity of 40 m/s?		
A)	60 V	B)	240 V
C)	360 V	D)	None of these
Correct Answer: B			
15)	What is the SI unit for magnetic flux density?		
A)	Weber	B)	Weber/m
C)	Weber/m ³	D)	None of these
Correct Answer: D			
16)	What is the magnetic reluctance of a material that has a flux of 125 μWb with a MMF of 180 AT?		
A)	1,440,000 AT/Wb	B)	1440 AT/Wb
C)	22,500 AT/Wb	D)	None of these
Correct Answer: A			
17)	Consider a length of a wire of resistance R. What is its new resistance if it is uniformly stretched to twice its original length?		
A)	2R	B)	4R
C)	R	D)	None of these
Correct Answer: B			
18)	Which of the following is likely to have a positive temperature coefficient?		
A)	Rubber	B)	Germanium
C)	Mercury	D)	None of these
Correct Answer: C			

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19)	What is the total resistance of a circuit consisting of a parallel combination of three resistors each of $6\ \Omega$ is connected in series with another parallel combination of two resistors of $5\ \Omega$ each?		
A)	$28\ \Omega$	B)	$1.11\ \Omega$
C)	$4.5\ \Omega$	D)	None of these
Correct Answer: C			
20)	Three equal value resistors are first connected in series then in parallel. What is the ratio of resultant resistance of the series combination to the parallel combination?		
A)	0.3333	B)	3
C)	9	D)	None of these
Correct Answer: C			
21)	Consider a parallel circuit with four resistors of values $100\ \Omega$, $50\ \Omega$, $25\ \Omega$ and $X\ \Omega$. What is the value of X if current through $25\ \Omega$ resistance is 5 A and the total current of the supply is 15 A?		
A)	$125\ \Omega$	B)	$20\ \Omega$
C)	$6.25\ \Omega$	D)	None of these
Correct Answer: B			
22)	When two resistances are connected in series, the total resistance of the circuit was $50\ \Omega$. What are the individual values of these two resistors if the total resistance turned out to be $8\ \Omega$ when they are connected in parallel?		
A)	$20\ \Omega$ and $30\ \Omega$	B)	$10\ \Omega$ and $40\ \Omega$
C)	$25\ \Omega$ and $25\ \Omega$	D)	None of these
Correct Answer: B			
23)	Two equal value resistors connected in series to a particular voltage source dissipate 40 W. What is the power dissipated if the same two resistors are connected in parallel to the same voltage source?		
A)	160 W	B)	40 W
C)	80 W	D)	None of these
Correct Answer: A			
24)	What is the resistance of a bulb which is rated 200 W, 220 V?		
A)	$200\ \Omega$	B)	$1100\ m\Omega$
C)	$242\ \Omega$	D)	None of these
Correct Answer: C			
25)	What is the resistance between any two of the corners when three $15\ \Omega$ resistors are connected to form a triangle?		
A)	$10\ \Omega$	B)	$30\ \Omega$
C)	$15\ \Omega$	D)	None of these
Correct Answer: A			

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26)	The impedance of a capacitor is _____		
A)	Directly proportional to the supply frequency	B)	Directly proportional to the square root of the supply frequency
C)	Directly proportional to the square of the supply frequency	D)	Inversely proportional to the supply frequency
Correct Answer: D			
27)	What is the capacitance when a capacitor carries a charge of 0.5 C at 20 V?		
A)	0.25 F	B)	0.025 F
C)	2.5 mF	D)	None of these
Correct Answer: B			
28)	What happens to the capacitance of a parallel plate capacitor when the area of the plates as well as the distance between them is doubled?		
A)	It doubles	B)	It becomes 4 times
C)	It remains the same	D)	It becomes one-half
Correct Answer: C			
29)	Two capacitors of 20 μ F and 30 μ F are connected in series. What is the total capacitance?		
A)	12 μ F	B)	50 μ F
C)	1.5 F	D)	None of these
Correct Answer: A			
30)	Which of the following does not effect the capacitance of a capacitor?		
A)	Distance between the plates	B)	Area of the plates
C)	Type of dielectric medium	D)	Thickness of the plates
Correct Answer: D			
31)	Where is the electric charge stored in a parallel plate capacitor?		
A)	Plates	B)	Dielectric
C)	Both A and B	D)	None of these
Correct Answer: B			
32)	A type of electrical battery which can be charged, discharged into a load, and then recharged many times is called _____		
A)	Rechargeable battery	B)	Secondary battery
C)	Primary battery	D)	Both A and B
Correct Answer: D			
33)	What is one ampere-hour equal to?		
A)	3.6 C	B)	3600 C
C)	60 A	D)	None of these
Correct Answer: B			
34)	What is the frequency if one cycle of AC waveform occurs every millisecond?		
A)	500 Hz	B)	1000 Hz
C)	2000 Hz	D)	None of these
Correct Answer: B			

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35)	What is the voltage when the current passing through a coil with 70 mH induction, changes at a uniform rate from 2 A to 5 A in 0.1 sec?		
A)	21 V	B)	2.1 V
C)	700 mV	D)	None of these
Correct Answer: B			
36)	What is the voltage when an appliance rated at 600 W and having a resistance of 6 Ω ?		
A)	60 V	B)	3600 V
C)	6 V	D)	None of these
Correct Answer: A			
37)	What is the bandwidth when a RLC circuit has a Q-factor of 120 and a resonance frequency of 180 kHz?		
A)	1.5 kHz	B)	666.67 Hz
C)	150 Hz	D)	None of these
Correct Answer: A			
38)	What is the resistance of the coil whose time constant is 2 and value of its inductor is 15 H?		
A)	7.5 Ω	B)	15 Ω
C)	30 Ω	D)	None of these
Correct Answer: C			
39)	Superposition theorem is applicable to which of the following?		
A)	Networks with non-linear elements	B)	Networks with linear elements
C)	Both A and B	D)	None of these
Correct Answer: B			
40)	What is the energy required to charge a 15 μ F capacitor to 200 V?		
A)	0.3 J	B)	3 J
C)	300000 J	D)	None of these
Correct Answer: A			
41)	A network which does not contain any active device is called _____		
A)	Idle network	B)	Ideal network
C)	Active network	D)	Passive network
Correct Answer: D			
42)	What is number of revolutions made when a single phase watt meter operating on 200 V and 6 A for 4 hours given that the meter constant in revolutions is 420 assuming a power factor of 1?		
A)	2016	B)	1920
C)	420	D)	None of these
Correct Answer: A			
43)	Which of the following is used to measure mutual inductance?		
A)	Heaviside Campbell Bridge	B)	Schering bridge
C)	Common bridge	D)	None of these
Correct Answer: A			

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44)	Schering bridge is used to measure which of the following?		
A)	Mutual inductance	B)	Capacitance
C)	Permittivity	D)	All the above
Correct Answer: B			
45)	Consider a circuit with four resistors in series connected to a voltage source. What happens to the current across each resistor, if the value of each of the resistors is doubled?		
A)	It doubles	B)	It remains the same
C)	It is reduced by half	D)	None of these
Correct Answer: C			
46)	Which of the following bridges can be used to measure inductance?		
A)	Maxwell bridge	B)	Anderson bridge
C)	Both A and B	D)	None of these
Correct Answer: C			
47)	A thermistor is used to measure which of the following?		
A)	Pressure	B)	Temperature
C)	Volume	D)	Density
Correct Answer: B			
48)	What is the relative error when the true value of a capacitor is 200 μF while its measured value is 195.5 μF ?		
A)	2.25%	B)	2.30%
C)	4.5%	D)	None of these
Correct Answer: A			
49)	Consider a pyrometer with a calibration range of 500°C to 900°C. If the dead zone is 0.08% of the span, what is the temperature change which might occur before it is detected?		
A)	8° C	B)	0.8° C
C)	0.32° C	D)	None of these
Correct Answer: C			
50)	Which of the following is a SI base unit?		
A)	Inductance (Henry)	B)	Magnetic flux (Weber)
C)	Length (Meter)	D)	None of these
Correct Answer: C			
51)	Which of the following is an example of integrating instrument?		
A)	Voltmeter	B)	Ammeter
C)	Household energy meter	D)	None of these
Correct Answer: C			
52)	In the case of a step-down transformer, current in the secondary is _____		
A)	More than the current in the primary	B)	Less than the current in the primary
C)	Same as that of the current in the primary	D)	Zero
Correct Answer: A			

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53)	Which of the following are important characteristics of a good transformer oil?		
A)	Lower volatility	B)	Higher flash point
C)	Moisture tolerance	D)	All the above
Correct Answer: D			
54)	A step-down transformer reduces the _____		
A)	Frequency	B)	Current
C)	Voltage	D)	All the above
Correct Answer: C			
55)	What is the ideal shape for the cross section of the core of a transformer?		
A)	Square	B)	Hexagonal
C)	Triangular	D)	Circular
Correct Answer: D			
56)	What is the speed of a four pole single phase induction motor operating on 220 V and 60 Hz?		
A)	1800 rpm	B)	1800 rps
C)	880 rpm	D)	None of these
Correct Answer: A			
57)	Which of the following is a self starting motor?		
A)	Single phase induction motor	B)	Polyphase induction motor
C)	Both A and B	D)	None of these
Correct Answer: B			
58)	Which of the following is an induction motor rotor type?		
A)	Squirrel cage rotor	B)	Wound rotor
C)	Both A and B	D)	None of these
Correct Answer: C			
59)	What is M. N. A. in the context of DC motors?		
A)	Minimum Natural Alignment	B)	Magnetic Neutral Axis
C)	Magnetized Natural Alignment	D)	None of these
Correct Answer: B			
60)	Which of the following is the material commonly used for brushes in a DC motor?		
A)	Aluminum	B)	Silver
C)	Carbon	D)	None of these
Correct Answer: C			
61)	What is the efficiency of a generator which delivers 30 A at 150 V, when supplied with a mechanical energy at the rate of 5000 J/second?		
A)	95%	B)	90%
C)	92%	D)	None of these
Correct Answer: B			

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62)	Which of the following is measured by a tachometer?		
A)	Rate of change in the magnetic flux	B)	Speed of change in the current
C)	Rotation speed of a shaft	D)	All the above
Correct Answer: C			
63)	Which of the following is equal to the area under the load curve?		
A)	Peak demand	B)	Average demand
C)	Difference between the average and the peak demand	D)	None of these
Correct Answer: B			
64)	Which of the following type of power plant is not used as a base load power plant?		
A)	Run of the river hydro power plant	B)	Nuclear power plant
C)	Pumped storage power plant	D)	None of these
Correct Answer: C			
65)	One kilowatt hour is equal to how many kilocalories?		
A)	8598	B)	859.8
C)	85.98	D)	8.598
Correct Answer: B			
66)	Which of the following is an example of a turbine?		
A)	Battery	B)	Transformer
C)	Windmill	D)	None of these
Correct Answer: C			
67)	Where was India's first nuclear power plant set up?		
A)	Tarapur	B)	Kudankulam
C)	Kaiga	D)	RAPS
Correct Answer: A			
68)	Which of the following is responsible for Ferranti effect?		
A)	Inductance	B)	Capacitance
C)	Both A and B	D)	None of these
Correct Answer: C			
69)	Which of the following is a disadvantage of HVDC transmission?		
A)	The conversion is difficult and expensive	B)	There is only a limited overload capacity
C)	Both A and B	D)	None of these
Correct Answer: C			
70)	What is MCB?		
A)	Moulded Circuit Breaker	B)	Miniature Circuit Breaker
C)	Metalized Circuit Breaker	D)	Metallic Circuit Breaker
Correct Answer: B			

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71)	What is the dielectric constant of vacuum?		
A)	0.01	B)	1
C)	5.26	D)	3.12×10^{-6}
Correct Answer: B			
72)	Which of the following can convert a temperature gradient into electricity?		
A)	Thermistor	B)	Thermocouple
C)	Thermometer	D)	All the above
Correct Answer: B			
73)	The process of intentionally introduces impurities into an extremely pure semiconductor for the purpose of modulating its electrical properties is called _____		
A)	Coping	B)	Mopping
C)	Doping	D)	Roping
Correct Answer: C			
74)	What is the total flux emitted by a light having 49 candle power?		
A)	308 lumens	B)	616 lumens
C)	490 lumens	D)	None of these
Correct Answer: B			
75)	Which of the following is an example of open loop control system?		
A)	Bread toaster	B)	Sprinkler
C)	Ordinary washing machine	D)	All the above
Correct Answer: D			
76)	Rs. 23,000 is invested at 6% simple interest for a certain period of time. At the end of the period of time, the total amount (principal and interest) adds up to Rs. 28,520. How many years was the amount interested for?		
A)	4 years	B)	5 years
C)	6 years	D)	7 years
Correct Answer: A			
77)	The manger of a football team wants to form the core of his team comprising of 5 players. He reckons that there are 6 defenders and 4 forwards who could be part of the core that the manager wants to build around. How many different ways can the manager form this core, if the team needs to have exactly two defenders on it?		
A)	120	B)	220
C)	240	D)	60
Correct Answer: D			
78)	Devnath is senior to Sushil. Anshuman and Abhoy joined on the same day. Srinivasa is junior to Anshuman and Sushil is senior to Anshuman. Who is the senior most?		
A)	Devnath	B)	Anshuman
C)	Sushil	D)	Abhoy
Correct Answer: A			

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79)	Which of the following materials is a good conductor of heat but bad conductor of electricity?		
A)	Asbestos	B)	Mica
C)	Mercury	D)	Nickel
Correct Answer: B			
80)	Which of the following rivers do not originate in India?		
A)	Ganga	B)	Yamuna
C)	Brahmaputra	D)	Godavari
Correct Answer: C			
81)	Identify the odd one out?		
A)	Amartya Sen	B)	Rabindranath Tagore
C)	Mahatma Gandhi	D)	Mother Teresa
Correct Answer: C			
82)	How many times has India hosted the Asian Games?		
A)	One	B)	Two
C)	Three	D)	Never
Correct Answer: B			
83)	Who succeeded Pandit Jawaharlal Nehru as the Prime Minister of India?		
A)	Lal Bahadur Shastri	B)	Indira Gandhi
C)	Morarji Desai	D)	Gulzarilal Nanda
Correct Answer: D			
84)	The minimum educational qualification to contest for the post of member of Parliament in India is		
A)	Graduate	B)	Post Graduate
C)	SSLC or its equivalent	D)	None of these
Correct Answer: D			
85)	A circular field has a diameter of 14 meters. The field is divided in to four separate quadrants. What is the cost of fencing one quadrant at Rs. 100 per meter?		
A)	Rs. 2500	B)	Rs. 5800
C)	Rs. 3600	D)	Rs. 4400
Correct Answer: A			
86)	A number was first increased by 35% and then it is further increased by 42%. The increase altogether as compared to the original number is		
A)	77%	B)	91.7%
C)	7%	D)	None of the above
Correct Answer: B			
87)	The national flower of India is		
A)	Rose	B)	Lotus
C)	Hibiscus	D)	None of these
Correct Answer: B			

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88)	Buland Darwaza can be found at		
A)	Agra	B)	Fatehpur Sikri
C)	Old Delhi	D)	Amritsar
Correct Answer: B			
89)	The minimum age for a voter in India, as envisaged in the original version of the constitution of India was		
A)	21 years	B)	25 years
C)	18 years	D)	16 years
Correct Answer: A			
90)	Identify the correct combination?		
A)	Gol Gumbaz - Bijapur	B)	Gomateshwara statue – Mysore
C)	Bannerghatta National Park – Hubli	D)	Lalbagh - Gulbarga
Correct Answer: A			
91)	The oldest football tournament in India is		
A)	The Durand Cup	B)	The Indian Soccer League
C)	The Santosh Trophy	D)	The Federation Cup
Correct Answer: A			
92)	Two dice are tossed. The probability that the total score is a prime number is:		
A)	(1/6)	B)	(5/12)
C)	(1/2)	D)	(7/9)
Correct Answer: B			
93)	A 1 kilometre long train passes through a tunnel of 2 kilometre length at a speed of 1 kilometre per minute. How much time will it take to pass through it completely (the last part of the train to be out of the tunnel)?		
A)	1 minute	B)	2 minutes
C)	3 minutes	D)	4 minutes
Correct Answer: D			
94)	The “Hussain Sagar Lake” is found in		
A)	Udaipur	B)	Mount Abu
C)	Hyderabad	D)	None of the above
Correct Answer: C			
95)	The most common element used in the manufacture of filaments in ordinary electric bulbs is		
A)	Iron	B)	Nickel
C)	Copper	D)	Tungsten
Correct Answer: D			
96)	Which of the following is bio-degradable?		
A)	Glass	B)	Crude oil
C)	Nylon	D)	Farm yard manure
Correct Answer: D			

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97)	In geometry, a line is defined as		
A)	Being straight (no curves)	B)	Having no thickness
C)	Extending in both directions infinitely	D)	All of the above
Correct Answer: D			
98)	A man is trying to climb a 6 metre high well – oiled smooth pole. It is also observed that the rate at which he climbs is 2 metres per minute. However, for every minute he climbs, he takes rest for 1 minute before continuing and while resting, he slides down 1 metre. How long will it take for him to reach the top of the pole?		
A)	5 minutes	B)	7 minutes
C)	6 minutes	D)	11 minutes
Correct Answer: D			
99)	Who has been the longest serving chief minister of Karnataka till date?		
A)	S M Krishna	B)	B S Yeddyurappa
C)	D Devraj Urs	D)	H D Devegowda
Correct Answer: C			
100)	The age of a mother is twice that of her elder daughter. Ten years from now the age of the mother will be thrice of her younger daughter. If the difference in ages of the two daughters is 15, the age of the mother is:		
A)	45 years	B)	55 years
C)	50 years	D)	70 years
Correct Answer: C			