ECAT Pre General Science Physics Chapter 16 Alternating Current Online Test

Sr	Questions	Answers Choice
1	The average of A.C. current and voltage over a complete cycle is	A. Maximum B. zero C. Neither zero nor maximum D. None of these
2	During each cycle, alternating voltage reaches a peak value	A. One time B. Two times C. Four times D. A number of times depending on the frequency
3	The basic circuit elements of A.C circuit are	A. Resistor B. Inductor C. Capacitor D. All the three
4	In an A.C circuit with resistor only, the current and voltage have a phase angle of	A. 90° B. 0° C. 180° D. none of these
5	Which one of the following is correct?	A. V_o= 1.414 V_{rms} B. I_{ams}= 1.414 I_o C. VO = 10.70 Vrms D. Both a and b
6	At higher frequency of the alternating current, the capacitive reactance X_c	A. Increases B. Decreases C. Remains the same D. Increases only when the voltage increases
7	An A.C varies as a function of	A. Current B. Voltage C. Time D. Charge
8	Alternating current can induce voltage because it has a	A. High peak value B. Varying magnetic field C. Stronger field than direct curren D. Constant magnetic field
9	The device which allows only the flow of an A.C. through a circuit is	A. Capacitor B. Inductor C. D.C. motor D. Battery
10	The r.m.s. value of alternating current is equal to its maximum value at angle of	A. 60° B. 45° C. 30° D. 90°
11	A resonance curve for RLC series circuit is a plot of frequency versus	A. Voltage B. Current C. Impedance D. Reactance
12	In RLC series circuit, resonance occurs when	A. X_{L > Xc} B. X_{L < Xc}

		C. X_L = X_C D. None of these
13	The power factor of resonant series circuit is	A. 1 B. 0 C. -1 D. 0.5
14	At resonance, the phase angle for RLC series resonance circuit equals	A. 0° B. 90° C. 180° D. 270°
15	When either L or C is increased, the resonant frequency of the RLC series circuit	A. Increases B. Decreases C. Remains the same D. Becomes zero
16	At resonance, the impedance of RLC series circuit is	A. Maximum B. Zero C. Minimum D. Determinate
17	To design a resonant circuit of frequency 100 KHz with an inductor of inductance 5 mH, we need a capacitor of capacitance	A. 5.07 pF B. 50 pF C. 0.507 pF D. 507 pF
18	An A.C. voltmeter read 250 volts. The frequency of alternating is 50 Hz, the peak value of voltage is	A. 3525.0 volts B. 35.35 volts C. 353.5 volts D. 3.535 volts
19	The impedance of RLC series resonance circuit at resonant frequency is	A. Greater than R B. Equal to R C. Less than R D. None of these
20	At resonance frequency the impedance of parallel resonance circuit is	A. Maximum B. Minimum C. Zero D. None of the above
21	An A.C. voltage is applied across the inductor. When the frequency of the voltage is increased, the current	A. Decreases B. Increases C. Does not change D. Momentarily goes to zero
22	In series RC circuit when $R=X_C$, then the phase angle is	A. 0° B. 90° C. 70° D. 45°
23	SI unit of impedance is	A. hertz B. henry C. ampere D. ohms
24	The total reactance of a series RLC circuit at resonance is	A. zero B. Equal to the resistance C. Infinity D. Capacitive
25	The phase angle of a series RLC circuit at resonance is	A. 180° B. 90° C. 0° D. None of the these

26	If the value of C in a series RLC circuit is increased, the resonant frequency	A. Is not affected B. Increase C. Remains the same D. Decreases
27	In frequency modulation (FM), the carrier waves amplitude	A. Remains constant B. Increase C. Decreases D. None of these
28	Which one of the following waves belongs to electromagnetic spectrum	A. Radio and TV waves B. Radar waves C. Micro waves D. All of them
29	Chock consumes externally small	A. Charge B. Current C. Power D. Potential
30	Which one of the following Electro-magnetic wave have the highest frequency and shortest wave-length	A. X-rays B. Ultraviolet rays C. y-rays D. Cosmic rays
31	Electromagnetic waves transmit energy equal to	A. 1/2 mv² B. m_oc² C. hf/c D. hf
32	Transmitting antenna emits	A. Magnetic waves B. Electric waves C. Electromagnetic waves D. Sound waves
33	In free space, the speed of electromagnetic waves is	A. 3 x 10⁸ms⁻¹ B. 3 x 10⁶ms⁻¹ C. 4 x 10⁷ms⁻¹ D. 3 x 10⁹ms⁻¹
34	When electrons in the transmitting antenna vibrate 94000 time per second, they produce radiowaves having frequency	A. 9.4 kHz B. 940 kHz C. 94 kHz D. None of these
35	A changing magnetic flux creates around itself	A. An electromotive force B. An electric field (changing electric flux) C. Magnetic field D. None of the above
36	Average value of A.C voltage during one cycle is	A. 1 B. Zero C. Maximum D. Variable
37	A p-n junction is formed when a crystal of silicon is growth in such a way that its one half is doped with trivalent impurity and the other half with a impurity from	A. 2nd group B. fourth group C. fifth group D. sixth group
38	The value of the potential difference across the depletion region for the case of germanium is	A. 0.3 V B. 0.5 V C. 0.7 V D. 0.9 V
39	When the p-n junction is forward biased its resistance is of the order of	A. few mega ohms B. few kilo ohms C. few ohms D. few milli ohms
40	When the pn-junction is forward biased. the current flows through it is of the order of	A. mili-amperes B. amperes C. nano-amperes D. micro-amperes
41	When the pn-junction is in reversed biased, current flows through the junction due to the	A. majority carriers B. minority carriers C. either of them D. none of them
42	When the pn-junction is connected reversed biased, its resistance is of the order of	A. few ohms B. few kilo-ohms C. few mega-ohms

		D. few mili-ohms
43	A diode characteristic curve is a plot between	A. current and time B. voltage and time C. voltage and current D. forward voltage and reversed voltage
44	Conversion of alternating current into direct current is called	A. amplification B. rectification C. conduction D. polarization
45	The output voltage of half wave rectification is in the form of	A. a smooth curve B. a smooth wave C. pulses D. all of the above
46	During the positive half-cycle in the half-wave rectification,the diode	A. does not conduct B. conducts C. either of these D. neither of these
47	During the negative half-cycle of the half-wave rectification, the diode	A. does not conduct B. conducts C. either of these D. none of these
48	In half wave rectification	A. both halves of the input voltage is used B. only one half of the input voltage is used C. either of these D. none of these
49	The bridge circuit of full wave rectification uses	A. one diode B. two diode C. three diode D. four diode
50	The circuit which is used to smooth the output voltage of the full-wave rectification is known as	A. transformer B. rectifier C. filter D. none of these
51	In which of the following components, pn-junction is used	A. light emitting diode B. photo diode C. photo voltaic cell D. all of these
52	In which of the following diodes when an electron combines with a hole during the forward biasing, photon of visible light is emitted.	A. photo diode B. light emitting diode C. photo voltaic cell D. all of them
53	Which of the following diode is used for the detection of light	A. photo diode B. light emitting diode C. photo voltaic cell D. all of them
54	Which of the following diode is used to derive the current in external circuit when light is incident in the circuit	A. photo diode B. light emitting diode C. photo voltaic cell D. none of these
55	Which of the following diodes can operate in the reverse biased condition	A. photo diode B. light emitting diode C. photo voltaic cell D. none of these
56	In a transistor, if the central region is p-type then this type of transistor is known as	A. p-n-p transistor B. n-p-n transistor C. either of these D. none of these
57	In a transistor, if the central region is n-type, then this type of transistor is known as	A. n-p-n transistor B. p-n-p transistor C. either of these D. none of these
58	In a transistor, the central region is called	A. collector B. emitter C. base D. none of them
59	Which of the following has a great concentration of impurity	A. base B. emitter C. collector

		D. none of these
60	For the normal operation of the transistor, its	A. emitter-base and collector base junctions are forward biased B. emitter-base junction is reversed biased and collector base junction is forward biased C. emitter-base junction is forward biased and collector-base junction is reverse biased D. any one of these
61	For normal operation of transistor, the batteries	A. V_{CC}is of much lower value than V_{BB} B. V_{CC}is of much higher value than V_{BB} C. V_{CC is equal to}V_{BB} D. none of these
62	In n-p-n transistor, emitter base junction is kept	A. reversed B. forward biased C. may be reversed or may be forward biased D. none of these
63	In a normally biased n-p-n transistor, an electron c current $I_E$flows from the	A. emitter into the base B. collector into the base C. base into collector D. none of these
64	For a n-p-n transistor, the conventional current equation can be written as	A. I_E+ I_C= I_B B. I_C- I_B= I_E C. I_C+ I_B= I_E D. I_B+ I_E= I_C
65	The value of current gain of n-p-n transistor is of the order of	A. tens B. hundreds C. thousands D. ten thousands
66	When the emitter-base junction of a transistor is reverse biased, collector current	A. Reverses B. Increases C. Decreases D. Stops
67	The emitter-base junction of a transistor is forward-biased and collector-base junction is reverse-biased. If the base current is increased, its	A. I_cwill decrease B. V_{CE}will increase C. I_Cwill increase D. V_{CC}will increase
68	When a transistor is used as a switch the circuit in which the current is to be switched OFF and ON, is connected between the	A. base and emitter B. collector and emitter C. base and collector D. any one of these
69	The amplifier which us used to perform mathematical operations electronically is known as	A. calculator B. OP-AMP C. computer D. any one of them
70	OP-AMP has the following input terminals	A. one B. two C. three D. four
71	A signal appears after amplification, at the output terminal with a phase shift of 180° , if it is applied at	A. inverting input B. non-inverting input C. any one of the input terminal D. none of them
72	A signal is amplified at the output without any change of phase, if it is applied at the	A. inverting input B. non-inverting input C. at any of the input D. none of these
73	The input resistance of the OP-AMP is the resistance between the	A. (-) input and output B. (+) input and output C. (-) and (+) inputs D. between any inputs
74	The value of the input resistance of OP-AMP is of the order of	A. few ohms B. few hundred ohms C. several kilo ohms D. several maga ohms

75	Due to the high value of the input resistance, practically, the value of the current which flows between the input terminals is	A. zero B. small C. large D. very large
76	The value of output resistance of OP-AMOP is of the order of	A. few ohms B. few hundred ohms C. several kilo ohms D. several mega ohms
77	The open loop gain of OP-AMP is of the order of	A. 10² B. 10³ C. 10⁴ D. 10⁵
78	The closed loop gain of the inverting amplifier is written as	A. G = R₂/R₁ B. G = 1 + R₂/R₁ C. G = - R₂/R₁ D. G = 1 - R₂/R₁
79	The closed loop gain of the non-inverting amplifier is given by	A. G = R₂/R₁ B. G = - R₂/R₁ C. G = 1 - R₂/R₁ D. G = 1 + T₂/R₁
80	The R_1= infinity and R_2= 0, then the gain of non-inverting amplifier is	A. zero B. infinity C. one D. any one of these
81	Most OP-AMP operates with	A. <u>+</u> 6 V supply B. <u>+</u> 10 V supply C. <u>+</u> 12 V supply D. <u>+</u> 24 V supply
82	A digital system deals with quantities or variables which have	A. only one state B. only two discrete states C. three discrete states D. four discrete states
83	Mathematical manipulation of the two quantized states can be best carried if they are represented by	A. high - low B. yes - no C. on - off D. 0 - 1
84	In describing functions of digital systems, a closed switch will be shown as	A. 0 B. 1 C. low D. any one of these
85	A P-N juction or semiconductor diode cannot be used as	A. A rectifier B. Detector C. Oscillator D. An amplifier
86	Alternating current can be transmitted:	A. To long distance B. At very high cost C. At very low cost D. Both (A) and (C) E. Both (A) and (B)
87	Alternating current is produced by a voltage source which polarity:	A. Remains the same B. Reverse after period T C. Keeps on reversing with time D. Reverse after every time interval T/2 E. Both (C) and (D)
88	Nowadays, Most of the electric energy is produced by the A.C. generators using:	A. Hydal water B. Geothermal energy C. Solar energy D. Biomass E. Both (B) and (D)
89	The time interval during which the Voltage source changes its polarity once is known as:	A. Time period T B. Half the time period C. Quarter the time period D. Two third of the time period E. None of these
90	The most common source of alternating voltage is:	A. Motor B. Transformer C. AC genrator D. Both (A) and (C)

		D. Both (A) and (C) E. Both (A) and (B)
91	The wave form of alternating voltage is the graph between:	A. Voltage across X-axis and time across y-axis B. Current and time C. Voltage along y-axis and time along x-axis D. Voltage and current E. Either (B) or (D)
92	The waveform of alternating voltage is a:	A. Square B. Rectangular C. Saw-tooth D. Sinusoidal E. None of these
93	The entire wave form of sinusoidal voltage is actually a set of all the:	A. Positive maximum value + V_oand negative maximum value -V_o B. Posiotive maximum value +V_oand zero C. Zero and negative maximum value -V_o D. Any of these E. None of these
94	The highest value reached by the voltage or current:	A. In quarter cycle is called Instantaneous value B. In half cycle is called peak-to-peak value C. In one cycle is called peak value D. In half cycle is called Instantaneous value E. None of these
95	The sum of positive and negative peak values is called:	A. Instantaneous value B. Peak value C. Rms valuie D. Peak-to peak-value E. None of these
96	Peak value of alternative current is:	A. one of its Instantaneous value B. Equal to its RMS value C. The same as its peak-to-peak value D. Both (B) and (C) E. None of these
97	The Instantaneous value of alternative current maybe:	A. The same as its RMS value B. Greater than its Rms value C. The same as its peak value D. Any of these E. None of these
98	The RMS value of alternating current is:	A. 0.7 times at the peak value B. 0.5 times the peak value C. 0.7 times the Instantaneous value D. Equal to maximum voltage E. None of these
99	If we connected the ordinary DC ammeter to measure alternating current, it would measure its:	A. Instantaneous value B. RMS value C. Value averaged over a cycle D. Either (B) or (C) E. Either (A) or (C)
100	The magnitude of alternative voltage V:	A. Always increase B. Always decrease C. Remains constant D. Does not remain constant E. None of these
101	The alternative voltage of current is actually measured by:	A. Its RMS value B. Square root of its mean square value C. Instantaneous value D. Peak value E. Both (A) and (B)
		A. 0º <o:p></o:p> <span style="font-size:12.0pt; line-height:107%;font

102	The phase at the positive peak of an A.C. cycle is:	size:12.0pt; line-height:107%;font-family:"Times New Roman","serif""><o:p></o:p> B. 90º <o:p></o:p> C. 180º <o:p></o:p> D. 0 and<span style="font-size:12.0pt;line-height:107%; font-family:"Plantagenet Cherokee","serif";mso-fareast-font-family:Calibri; mso-fareast-theme-font:minor-latin;mso-bidi-font-family:"Times New Roman"; mso-ansi-language:EN-US;mso-fareast-language:EN-US;mso-bidi-language:AR-SA">ﻝ E. <span style="font-size:12.0pt;line-height:107%; font-family:"Plantagenet Cherokee","serif";mso-fareast-font-family:Calibri; mso-fareast-theme-font:minor-latin;mso-bidi-font-family:"Times New Roman"; mso-ansi-language:EN-US;mso-fareast-language:EN-US;mso-bidi-language:AR-SA">ﻝ/2 and 3 <span style="font-size:12.0pt;line-height:107%; font-family:"Plantagenet Cherokee","serif";mso-fareast-font-family:Calibri; mso-fareast-theme-font:minor-latin;mso-bidi-font-family:"Times New Roman"; mso-ansi-language:EN-US;mso-fareast-language:EN-US;mso-bidi-language:AR-SA">ﻝ/2
103	If we connect a A.C. volt meter to read A.C. voltage, It would read its:	A. RMS value B. Instantaneous value C. Valued average over a cycle D. Zero E. Both (B) and (C)
104	If 250V is the RMS value of alternative voltage, then its peak value $V_o$will be:	A. 353.5V B. 250V C. 175V D. zero E. 400V
105	A sinusoidally alternating voltage or current can be graphically represented by a:	A. Vector B. Rotating vector C. Clockwise vector D. Anticlockwise voltage vector E. None of these
106	The length of rotating vector (on a certain scale) represents the:	A. Peak value of alternating quantity B. RMS value of alternating quantity C. Instantaneous value of alternating quantity D. Either (B) or (C) E. Either (A) or (B)
107	Unless stated otherwise, when we speak of A.C. meter reading, we usualy mean:	A. Peak value B. RMS value C. Instantaneous value D. Peak-to-peak value E. Both (A) and (C0
108	The basic circuit element in A.C. circuits are:	A. Resistor and capacitor B. Resistor and Inductor C. Capacitor only D. Both (B) and (C) E. None of these

109	The basic circuit element in D.C. circuit is:	A. A capacitor B. A resistor C. An inductor D. Both (A) and (C) E. Both (A) and (B)