Exam 2011

प्रश्न पुस्तिका / QUESTION BOOKLET

105005

कोड / Code : **55**

विषय / **Subject :** Asst. Elect. Insp. (EID)

पुस्तिका में पृष्ठों की संख्या / Number of Pages in Booklet : **24**

पुस्तिका में प्रश्नों की संख्या / Number of Questions in Booklet : **100**

55 विषय कोड **Asst. Elect. Insp. (EID)** **A** बुकलेट सीरीज

समय / Time : **2.00** घंटे / Hours

पूर्णांक / Maximum Marks : **100**

INSTRUCTIONS

1. **Answer all questions.**
2. **All questions carry equal marks.**
3. Only one answer is to be given for each question.
4. If more than one answers are marked, it would be treated as wrong answer.
5. Each question has four alternative responses marked serially as **1, 2, 3, 4**. You have to darken only one circle **or** bubble indicating the correct answer on the Answer Sheet using **BLUE BALL POINT PEN.**
6. **1/3 part of the mark(s) of each question will be deducted for each wrong answer.** (A wrong answer means an incorrect answer **or** more than one answers for any question. Leaving all the relevant circles **or** bubbles of any question blank will not be considered as wrong answer.)
7. The candidate should ensure that Series Code of the Question Paper Booklet and Answer Sheet must be same after opening the envelopes. In case they are different, a candidate must obtain another question paper of the same series. Candidate himself shall be responsible for ensuring this.
8. Mobile Phone or any other electronic gadget in the examination hall is strictly prohibited. A candidate found with any of such objectionable material with him/her will be strictly dealt as per rules.
9. Please cirrectly fill your Roll Number in O.M.R. Sheet. 5 marks will be deducted for filling wrong or incomplete Roll Number.
10. If there is any sort of ambiguity/mistake either of printing or factual nature then out of Hindi and English Version of the question, the English Version will be treated as standard.

Warning : If a candidate is found copying or if any unauthorised material is found in his/her possession, F.I.R. would be lodged against him/her in the Police Station and he/she would liable to be prosecuted under Section 3 of the R.P.E. (Prevention of Unfairmeans) Act, 1992. Commission may also debar him/her permanently from all future examinations of the Commission.

निर्देश

1. सभी प्रश्नों के उत्तर दीजिए ।
2. सभी प्रश्नों के अंक समान हैं ।
3. प्रत्येक प्रश्न का केवल एक ही उत्तर दीजिए।
4. एक से अधिक उत्तर देने की दशा में प्रश्न के उत्तर को गलत माना जाएगा ।
5. प्रत्येक प्रश्न के चार वैकल्पिक उत्तर दिये गये हैं, जिन्हें क्रमशः 1, 2, 3, 4 अंकित किया गया हैं। अभ्यर्थी को सही उत्तर निर्दिष्ट करते हुए उनमें से केवल एक गोले अथवा बबल को उत्तर–पत्रक पर **नीले** वॉल प्वाइंट पेन से गहरा करना है ।
6. **प्रत्येक गलत उत्तर के लिए प्रश्न अंक का 1/3 भाग काटा जायेगा।** गलत उत्तर से तात्पर्य अशुद्ध उत्तर अथवा किसी भी प्रश्न के एक से अधिक उत्तर से है । किसी भी प्रश्न से संबंधित गोले या बबल को खाली छोड़ना गलत उत्तर नहीं माना जायेगा।
7. प्रश्न–पत्र पुस्तिका एवं उत्तर पत्रक के लिफाफे की सील खोलने पर परीक्षार्थी यह सुनिश्चित कर लें कि उसके प्रश्न–पत्र पुस्तिका पर वही सीरीज अंकित है जो उत्तर पत्रक पर अंकित है। इसमें कोई भिन्नता हो तो वीक्षक से प्रश्न–पत्र की ही सीरीज वाला दूसरा प्रश्न–पत्र का लिफाफा प्राप्त कर लें। ऐसा न करने पर जिम्मेदारी अभ्यर्थी की होगी।
8. मोबाईल फोन अथवा इलेक्ट्रोनिक यंत्र का परीक्षा हॉल में प्रयोग पूर्णतया वर्जित हैं। यदि किसी अभ्यर्थी के पास ऐसी कोई वर्जित सामग्री मिलती है तो उसके विरुद्ध आयोग द्वारा नियमानुसार कार्यवाही की जायेगी।
9. कृपया अपना रोल नम्बर ओ.एम.आर. पत्रक पर सावधानी पूर्वक सही भरें । गलत अथवा अपूर्ण रोल नम्बर भरने पर 5 अंक कुल प्राप्तांको में से अनिवार्य रूप से काटे जाएंगे।
10. यदि किसी प्रश्न में किसी प्रकार की कोई मुद्रण या तथ्यात्मक प्रकार की त्रुटि हो तो प्रश्न के हिन्दी तथा अंग्रेजी रूपान्तरों में से अंग्रेजी रूपान्तर मान्य होगा।

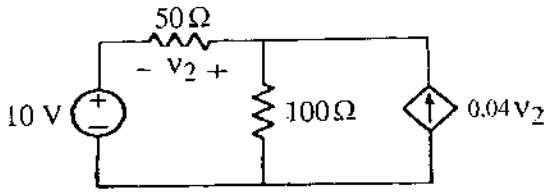
चेतावनी : अगर कोई अभ्यर्थी नकल करते पकड़ा जाता है या उसके पास से कोई अनधिकृत सामग्री पाई जाती है, उस अभ्यर्थी के विरुद्ध पुलिस में प्राथमिकी दर्ज कराई जायेगी और आर. पी. ई. (अनुचित साधनों की रोकथाम) अधिनियम, 1992 के नियम 3 के तहत कार्यवाही की जायेगी। साथ ही आयोग ऐसे अभ्यर्थी को भविष्य में होने वाली आयोग की समस्त परीक्षाओं से विवर्जित कर सकता है।

1 A circuit component that opposes the change in circuit voltage is

(1) Resistance (2) Capacitance

(3) Inductance (4) Conductance

2 In the following circuit voltage v_2 is



(1) 5 V (2) 75 V

(3) 3 V (4) 10 V

3 An RLC series circuit is predominantly inductive

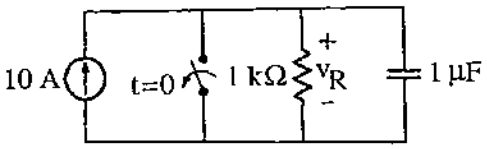
(1) At resonant frequency

(2) Below resonant frequency

(3) Above resonant frequency

(4) At the half power frequency

4 In the network shown below the switch is opened at t = 0. At $t = 0^+$ the value of d^2v_R/dt^2 is



(1) -10^{10} V/s^2 (2) 10^{10} V/s^2

(3) 10^{13} V/s^2 (4) -10^{13} V/s^2

5 The voltage response of a network to a unit step input is

$$V_0(s) = \frac{10}{s\left(s^2 + 8s + 16\right)}$$

The response is

(1) Underdamped (2) Overdamped

(3) Critically damped (4) Can't be determined

6 Two meters X and Y require 40 mA and 50 mA, respectively, to give full-scale deflection, then

(1) sensitivity cannot be judged with given information

(2) both are equally sensitive

(3) X is more sensitive

(4) Y is more sensitive

7 The minimum number of wattmeter(s) required to measure 3-phase, 3-wire balanced load

(1) one (2) two

(3) three (4) four

8 Which of the following indicating instruments has/have linear scale ?

(1) moving-iron meter

(2) permanent magnet moving-coil meter

(3) thermocouple meter

(4) rectifier type meter

9 A 12 bit A/D converter has a range 0-10. What is the approximate resolution of the converter ?

(1) 1 mV (2) 2.5 mV

(3) 2.5 μ V (4) 12 mV

10 The accuracy of Kelvin's double bridge for the measurement of low resistance is high because the bridge

(1) uses two pairs of resistance arms

(2) has medium value of resistance in the ratio arms

(3) uses a low resistance link between standard and test resistances

(4) uses a null indicating galvanometer

11 In a $3\frac{1}{2}$ digit voltmeter, the largest number that can be read is

(1) 0999 (2) 1999

(3) 4999 (4) 9999

12 The capacitance and loss angle of a given capacitor specimen are best measured by

(1) Wheatstone bridge (2) Maxwell bridge

(3) Anderson bridge (4) Schering bridge

13 Wave winding is employed in 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

14 A DC shunt generator delivers 195 A at a terminal voltage of 200 V. The armature resistance is 0.03 Ω and field winding resistance is 40 Ω respectively. The stray losses are 900 W. The total Cu losses are equal to

(1) 1200 W (2) 1000 W

(3) 2200 W (4) 2140 W

15 Which of the following materials is best suitable in construction of the armature of a DC machine ?

(1) Silicon steel (2) Wrought iron

(3) Cast iron (4) Soft iron

16 The armature reaction mmf in a DC machine has a form of

(1) Sinusoidal (2) Rectangular

(3) Trapezoidal (4) Triangular

17 A 100 kW, 230 V shunt generator with armature resistance is 0.05 Ω and shunt field resistance 57.5 Ω operated at rated voltage. What is the induced voltage at half full-load ?

(1) 252 V (2) 126 V

(3) 230 V (4) 241 V

18 A 6-pole lap connected d.c. generator with 480 conductors has an armature resistance of 0.6 Ω. If the conductors are re-connected to form a wave winding then the value of armature resistance will be

(1) 0.05 Ω (2) 0.06 Ω

(3) 0.50 Ω (4) 0.54 Ω

19 The armature resistance and brush voltage drop of a 120 V DC shunt motor are 0.2 Ω and 2 V respectively. The current at the instant of starting equals to

(1) 590 A (2) 600 A

(3) 10 A (4) 610 A

20 A DC series motor is accidentally connected to a single-phase AC supply. The torque produced will be

(1) Of zero average value

(2) Oscillating

(3) Steady and unidirectional

(4) Pulsating and unidirectional

21 A 220 V shunt motor is running at 500 rpm with an armature current of 50 A. The armature resistance of the motor is 0.2 Ω. If the torque is doubled while the flux remains constant, the speed of the motor will be

(1) 476 rpm (2) 525 rpm

(3) 21.7 rpm (4) 512 rpm

22 The torque speed characteristic of a series motor is

(1) Linearly rising (2) A rectangular parabola

(3) A parabola (4) Linearly decreasing

23 A 40 kVA 1-phase step down transformer has a full load secondary current of 200 A. The effective resistance referred to secondary is 0.008 Ω and the iron loss of transformer is 190 W. The efficiency of the transformer at ($3/4^{th}$) of the full load, unity power factor will be

(1) 98.78% (2) 99.08%

(3) 98.48% (4) 96.50%

24 Three phase transformers which cannot be connected in parallel are

(1) YY with $\Delta\Delta$ (2) $Y\Delta$ with ΔY

(3) YY with $Y\ \Delta$ (4) Both (2) and (3)

25 A single phase 150 kVA transformer has an efficiency of 96% at full load on 0.8 power factor. It is found that the same efficiency is achieved on the half-load 0.8 power factor lagging. The copper-loss and iron-loss in kW under full load operation respectively are

(1) 3, 2 (2) 2.67, 2.33

(3) 1, 4 (4) 3.33, 1.67

26 Three single phase transformers are connected in star-delta to form a 3-phase transformer bank. It is used to step down the voltage of a 3-phase 6600 V transformer line. If the primary line current is 10 A and the turns ratio is 12. The output kVA will be

(1) 66 (2) 198

(3) 38.1 (4) 114.3

27 The magnetizing current in a transformer is rich in

(1) 3^{rd} harmonic (2) 5^{th} harmonic

(3) 7^{th} harmonic (4) 13^{th} harmonic

28 A 60 Hz four pole induction motor runs at 1755 rpm at rated load. What is the frequency of rotor current ?

(1) 1.5 Hz (2) 61.5 Hz

(3) 73.125 Hz (4) 4.5 Hz

29 If transformer frequency is changed from 50 Hz to 60 Hz, the ratio of eddy current loss 50 Hz to 60 Hz at constant voltage is

(1) 5/6 (2) 25/36

(3) 6/5 (4) 1

30 An induction motor when started on load does not accelerate up to full speed but runs at $1/7^{th}$ of the rated speed. The motor is said to be

(1) Locking (2) Plugging

(3) Crawling (4) Cogging

31 Which one of the following statements is correct ?

A smaller air gap in a poly-phase induction motor helps to

(1) Reduce the changes of crawling

(2) Increase the starting torque

(3) Reduce the chance of cogging

(4) Reduce the magnetizing current

32 At low slip the torque-slip characteristic of an induction motor varies as

(1) Torque $\propto (1/slip^2)$ (2) Torque $\propto$ $(slip^2)$

(3) Torque $\propto (1/slip)$ (4) Torque $\propto$ slip

33 A voltmeter gives 120 oscillations per minute when connected to the rotor of an induction motor. The stator frequency is 50 Hz. The slip of the motor is

(1) 2% (2) 2.5%

(3) 4% (4) 5%

34 Which one of the following methods are suitable for speed control of squirrel cage induction rotor ?

(A) Voltage control (B) Rotor resistance control

(C) Frequency control (D) Pole changing method

Select the correct answer using the codes given below

(1) (B), (C) and (D) (2) (A), (C) and (D)

(3) (A), (B) and (C) (4) (B) and (D)

35 Star delta starting is equivalent to autotransformer staring with

(1) 85% tapping (2) 58% tapping

(3) 52% tapping (4) 33% tapping

36 For wound rotor motors, rotor resistance is preferred over reduced voltage staring because it

(1) limits staring current only

(2) increases starting torque only

(3) improves staring power factor only

(4) limits staring current, increases starting torque and also improves staring power factor

37 Smooth control of induction motor can be obtained by

(1) variation of rotor resistance

(2) variation of supply frequency only

(3) rotor slip-power control only

(4) both variation of supply frequency and rotor slip-power control

38 Plugging is executed when

(1) two stator terminals are shorted together

(2) the supply terminals of any two stator phases are interchanged

(3) any two stator terminals are earthed

(4) any two stator terminals are connected to a d.c. source

39 Regenerative braking occurs when

(1) no. of poles is decreased in pole changing motor

(2) the load is lifted by a hoisting machine

(3) the load is lowered by a hoisting machine

(4) the load move upside on slope

40 In dynamic braking

(1) the stator terminals are switched over to d.c. source from the a.c. supply

(2) the supply terminals of any two stator phase are interchanged

(3) any two stator terminals are earthed

(4) a d.c. voltage is injected in the rotor circuit

41 If the rotor poles of an 8-pole synchronous generator shift by 10 mechanical degrees from no-load to full-load, what will be the value of torque angle ?

(1) 20° (2) 10°

(3) 40° (4) 15°

42 Damper windings in a synchronous machine are

(1) Embedded on the rotor in interpolar regions to prevent the rotor from running at sub-synchronous speed

(2) Embedded in the pole shoes to prevent the rotor from running at super synchronous speed

(3) Embedded in the pole shoes to reduce the rotor oscillation about the operating point

(4) Embedded in the rotor in the interpolar regions to reduce the rotor oscillation about the operating point.

43 Which of the following methods gives more accurate results for determination of voltage regulation of an alternator ?

(1) m.m.f. method

(2) synchronous impedance method

(3) Potier triangle method

(4) American institute standard method

44 In a salient pole synchronous generator reluctance power is given by

(1) $3V_t^2\left(\frac{X_d+X_q}{2X_qX_d}\right)\sin\delta$ (2) $3V_t^2\left(\frac{X_d+X_q}{2X_qX_d}\right)\sin 2\delta$

(3) $3V_t^2\left(\frac{X_d-X_q}{2X_qX_d}\right)\sin\delta$ (4) $3V_t^2\left(\frac{X_d-X_q}{2X_qX_d}\right)\sin 2\delta$

45 When a 3-phase alternator is suddenly short-circuited at its terminals the initial value of the short circuit current is limited by which one of the following ?

(1) Sub transient reactance X_d''

(2) Transient reactance X_d'

(3) Synchronous reactance X_d

(4) Sum of X_d'', X_d' and X_d

46 A synchronous motor draws a 2000 kVA at a power factor of 90% leading. If the efficiency of the motor is 95%, the developed power will be

(1) 1800 kW (2) 2000 kW

(3) 1710 kW (4) 1897.7 kW

47 Which of the following types of motor is not a self-starting ?

(1) Synchronous motor

(2) DC series motor

(3) Induction motor with medium slip

(4) Induction motor with high slip

48 A 500 V, 120 kW, 50 Hz, star-connected synchronous motor operating at 0.8 pf leading has full load efficiency of 91%. The armature resistance is equal to 0.08 Ω. The magnitude of the armature current is nearly equal to

(1) 173 A (2) 240 A

(3) 190 A (4) 127 A

49 The power factor of a synchronous motor

(1) Improves with increase in excitation and may even become leading at high excitations

(2) Decreases with increase in excitation

(3) Is independent of its excitation

(4) Increases with loading for a given excitation

50 In the 'V' curve of a synchronous motor what x and y coordinates represents ?

(1) Armature current and field current

(2) Power factor and field current

(3) Armature current torque

(4) Torque and field current

51 Size of conductor in Distribution system is found using

(1) Ohm's law (2) Kirchoff's law

(3) Kelvin's law (4) Faraday's law

52 The ideal load factor should be

(1) 1.0 (2) 0.5

(3) 0.2 (4) 0.8

53 For transmission line which of the following relations is true ?

(1) $AD - BC = 1$ (2) $-AD - BC = 1$

(3) $AD - BC = -1$ (4) $AD - BC = 0$

54 Bundled conductors are employed to improve

(1) Appearance of the transmission line

(2) Mechanical stability of the line

(3) Current capacity of the line

(4) Corona performance of the line

55 Consider the following statements :

Addition of lumped capacitances in parallel to a loss-free transmission line increases

(A) Characteristic impedance

(B) Propagation constant

(C) System stability

(D) Charging current

Which of these statements are correct ?

(1) (A) and (C) (2) (B) and (D)

(3) (B), (C) and (D) (4) (A), (B) and (D)

56 In short transmission line, voltage regulation is zero when the power factor angle of the load at the receiving end side is equal to

(1) $\tan^{-1}(X/R)$ (2) $\tan^{-1}(R/X)$

(3) $\tan^{-1}(X/Z)$ (4) $\tan^{-1}(R/Z)$

57 During the corona along with hissing noise a smell of the following gas is also come

(1) O_2 (2) O_3

(3) H_2 (4) H_2S

58 Which of the following is not a method of voltage equalization in a string insulator ?

(1) Increasing of length of cross arm

(2) Grading of the units

(3) Static shielding

(4) Connecting two discs in parallel

59 Which of the following insulators is used in transmission lines at the river and road crossings ?

(1) Pin type insulator (2) Suspension type insulator

(3) Strain type insulator (4) Both (1) and (2)

60 The surge impedance of an underground cable is around

(1) 400 ohms (2) 25 ohms

(3) 50 ohms (4) 100 ohms

61 When the diameter of the core and cable is doubled, the value of capacitance

(1) Will be reduced to half

(2) Will be reduced to one-fourth

(3) Will be doubled

(4) Remains unchanged

62 Copper as conductor for cables is used as

(1) Hard drawn (2) Hardened and tempered

(3) Annealed (4) Alloyed with chromium

63 The distribution transformer is generally connected in

(1) Delta / Delta (2) Delta / Star

(3) Star / Star (4) Star / Delta

64 The most appropriate speed of generator in rpm used in thermal, nuclear and hydro power plants would be respectively

(1) 3000, 300 and 1500 (2) 3000, 3000 and 300

(3) 1500, 1500 and 3000 (4) 1000, 900 and 750

65 In three phase, 4 wire AC system, unbalancing is caused due to connection of

(1) Single phase loads

(2) Three phase induction motors

(3) Synchronous condenser

(4) Three phase transformers

66 In AC motors, the magnetizing current

(1) Lags the voltage by 90°

(2) Leads the voltage by 90°

(3) Is in phase with the voltage

(4) Phase opposition with the voltage

67 The diversity factor is always

(1) Equal to 1 (2) Less than 1

(3) Greater than 1 (4) Zero

68 A 100 MW power station delivers 100 MW for 2 hours, 50 MW for 6 hours, and is shut down for the rest of each day. It is also shut down for maintenance for 45 days each year. Energy supplied per year is

(1) 12×10^4 MWh (2) 8×10^4 MWh

(3) 6×10^5 MWh (4) 16×10^4 MWh

69 The relay operating coil is supplied through

(1) Fuse (2) Current transformer

(3) Power transformer (4) Pulse transformer

70 How many relays are used to detect interphase faults of a three-line system ?

(1) One (2) Two

(3) Three (4) Six

71 Which one of the following relay has the capability of anticipating the possible major fault in a transformer ?

(1) Over current relay (2) Differential relay

(3) Buchholz relay (4) Over-fluxing relay

72 The protective relay is used to

(1) Provide additional safety to the circuit breaker in the operation

(2) Close the contacts when the actuating quantity attains a certain pre-determined value.

(3) Limit the arcing current during the circuit breaker operation

(4) Earth any stray voltage

73 Mho relay is normally used for the protection of

(1) Short transmission lines

(2) Medium transmission lines

(3) Long transmission lines

(4) No length criterion

74 Which is the main relay for protecting up to 90% of the transmission line-length in the forward direction ?

(1) Directional over-current relay

(2) Mho relay

(3) Carrier-current protection relay

(4) Impedance relay

75 When a fault occurs in a high voltage transmission line, first the

(1) Circuit breaker operates then the relay

(2) Relay operates then the circuit breaker

(3) Relay operates, then successfully the isolator and the circuit breaker

(4) Isolator operates, then successively the relay and the circuit breaker

76 Phase relays are used to provide protection against

(1) Single line to ground fault

(2) Three phase faults only

(3) Phase faults involving two or more phases

(4) Double phase to ground fault only

77 In a biased differential relay the bias is defined as the ratio of

(1) Number of turns of restraining and operating coil

(2) Operating coil current and restraining coil current

(3) Fault current and operating current

(4) Fault current and restraining coil current

78 In the R-X plane the characteristics of an impedance relay is represented by

(1) Parabola (2) Circle

(3) Straight line (4) Ellipse

79 For a solidly grounded system and reactance grounded system the value of $\frac{X_0}{X_1}$ are

(1) $\frac{X_0}{X_1} > 3; \frac{X_0}{X_1} < 3$ (2) $\frac{X_0}{X_1} < 3; \frac{X_0}{X_1} > 3$

(3) $\frac{X_0}{X_1} = 3; \frac{X_0}{X_1} < 3$ (4) $\frac{X_0}{X_1} > 3; \frac{X_0}{X_1} = 3$

80 The system is said to be effectively grounded only if R_0/X_1 and X_0/X_1 are respectively (symbols have usual meaning)

(1) ≤ 1 and ≤ 3 (2) ≥ 1 and ≥ 3

(3) ≤ 2 and ≥ 2 (4) ≥ 2 and ≤ 2

81 Which method of heating is likely to give leading power factor ?

(1) Electric arc heating (2) Induction heating

(3) Dielectric heating (4) Resistance heating

82 The effect of tachometer feedback in a control system is to reduce

(1) Only time constant (2) Only gain

(3) Damping (4) Both gain and time constant

83 If d is the distance of surface from a source, the illumination upon the surface will vary as

(1) d (2) d^2

(3) $1/d$ (4) $1/d^2$

84 The open-loop transfer function with unity feedback are given below for different systems. The unstable system is

(1) $\frac{2}{s+2}$ (2) $\frac{2}{s^2(s+2)}$

(3) $\frac{2}{s(s-2)}$ (4) $\frac{2(s+1)}{s(s+2)}$

85 The open-loop transfer function of a unity feedback system is

$$G(s)=\frac{K(s+10)(s+20)}{s^2(s+2)}$$

The closed loop system will be stable if the value of K is

(1) 2 (2) 3

(3) 4 (4) 5

86 The transfer function for a single loop non-unity feedback control system is

$$G(s)=\frac{1}{s^2+s+2}$$

$$H(s)=\frac{1}{s+1}$$

The steady state due to unit step input is

(1) 6/7 (2) 6/5

(3) 2/3 (4) 0

87 The system has the following transfer function

$$G(s)=\frac{100(s+15)(s+50)}{s^4(s+12)\left(s^2+3s+10\right)}$$

The type and order of the system are respectively

(1) 7 and 5 (2) 4 and 5

(3) 4 and 7 (4) 7 and 4

88 The phase margin of a system with the open loop transfer function

$$G(s)H(s)=\frac{(1-s)}{(1+s)(3+s)}$$

(1) 68.3° (2) 90°

(3) 0° (4) ∞

89 In a thyristor, the holding current I_H is

(1) More than the latching current I_L

(2) Less than I_L

(3) Equal to I_L

(4) Zero

90 The snubber circuit is used in thyristor circuit for

(1) Triggering

(2) dv/dt protection

(3) di/dt protection

(4) phase shifting

91 A DC chopper operates on 230 V dc and frequency of 400 Hz, feeds an R-L load. If the output voltage of chopper is 150 V, the ON time of the chopper is

(1) 3.84 msec

(2) 2.5 msec

(3) 1.63 msec

(4) 0.65 msec

92 A single phase full bridge inverter is fed from a 48 V battery and is delivering power output to a pure resistive load. What is the value of fundamental output voltage ?

(1) 21.62 V

(2) 30.56 V

(3) 43.22 V

(4) 14.4 V

93 A three phase bridge converter is fed from a 500 V dc source. The inverter is operated in 180° conduction mode and it is supplying a purely resistive, star connected load. The RMS value of the output (line) voltage is

(1) 450 V

(2) 259.80 V

(3) 408 V

(4) 235.56 V

94 In a single pulse modulation PWM inverter, third harmonic can be eliminated if pulse-width is made equal to

(1) 30° (2) 150°

(3) 60° (4) 120°

95 An AC induction motor is used for a speed control application. It is driven from an inverter with a constant V/F control. The motor name plate details are as follows : (no. of poles = 2)

V = 415 V; V_{ph} = 3 V; F = 50 Hz; N = 2850 rpm

The motor runs with the inverter output frequency set at 40 Hz, and with half the rated slip. The running speed of motor is

(1) 2400 rpm (2) 2280 rpm

(3) 2340 rpm (4) 2790 rpm

96 Which one of the following is not a vectored interrupt ?

(1) TRAP (2) INTR

(3) RST 3 (4) RST 7.5

97 In 8085, if the clock frequency is 5 MHz, the time required to execute an instruction of 18 T-states in μs ?

(1) 3 (2) 3.6

(3) 4 (4) 6

98 Consider the following loop :

```
        XRA     A
        LXI     B, 0007H
LOOP:   DCX     B
        JNZ     LOOP
```

This loop will be executed

(1) 1 time

(2) 8 times

(3) 7 times

(4) Infinite times

99 The number of output pin of a 8085 microprocessor is

(1) 40 (2) 27

(3) 21 (4) 19

100 Which of these instructions is a 3-byte instruction ?

(1) MVI A (2) LDAX B

(3) JMP 2050 (4) MOV A, M

5
5
5
5
5
5

SPACE FOR ROUGH WORK

$$\frac{E(1)}{\Phi(1)} = 165$$