Booklet Serial No. 15089

DO NOT BREAK THE SEAL OF THE BOOKLET UNTIL YOU ARE TOLD TO DO SO

SERIES : I

QUESTION BOOKLET

Subjects : General English, General Knowledge and Electrical Engineering

Full Marks : 350 **Time Allowed : 2½ Hours**

Read the following instructions carefully before you begin to answer the questions.

INSTRUCTIONS TO CANDIDATES

1. This Booklet contains 175 questions to be answered in a separate OMR Answer Sheet using Black Ballpoint Pen in the following four Parts :

Part—A	**: General English**	**:**	**50 questions**
Part—B	**: General Knowledge**	**:**	**25 questions**
Part—C	**: Electrical Engineering (Paper–I)**	**:**	**50 questions**
	Electrical Engineering (Paper–II)	**:**	**50 questions**

2. **All** questions are compulsory.
3. You will be supplied the Answer Sheet separately by the Invigilator. You must complete the details of particulars asked for.
4. Answer must be shown by completely blackening the corresponding circle in the Answer Sheet against the relevant question number by Black Ballpoint Pen. OMR Answer Sheet without marking Series shall not be evaluated.

   Example **:**

   Suppose the following question is asked :

   The Capital of Meghalaya is

   (A) Guwahati

   (B) Kohima

   (C) Shillong

   (D) Delhi

   You will have four alternatives in the Answer Sheet for your response corresponding to each question of the Question Booklet as below :

   Ⓐ Ⓑ Ⓒ Ⓓ

   In the above illustration, if your chosen response is alternative (C), i.e., Shillong, then the same should be marked on the Answer Sheet by blackening the relevant circle with a Black Ballpoint Pen only as below :

   Ⓐ Ⓑ ● Ⓓ

   The example shown above is the only correct method of answering.
5. Answer the questions as quickly and as carefully as you can. Some questions may be difficult and others easy. Do not spend too much time on any one question.
6. There will NOT be any negative marking for wrong answers.
7. The Answer Sheet must be handed over to the Invigilator before you leave the Examination Hall.
8. No Rough Work is to be done on the Answer Sheet. Space for Rough Work has been provided in the Question Booklet.

SEAL

PART—A : GENERAL ENGLISH

(*Marks* : 100)

Each question carries **2** marks :

Directions : Choose the correct option to fill in the gaps.

1. She was granted leave _____ visiting her uncle.

(A) to

(B) in

(C) for

(D) at

2. She is desirous and confident _____ success.

(A) at

(B) of

(C) into

(D) to

3. There is no harm _____ repeating the experiment.

(A) in

(B) too

(C) for

(D) on

4. He stopped me _____ going home.

(A) into

(B) on

(C) to

(D) from

5. I was told all _____ the accident.

(A) through

(B) onto

(C) about

(D) after

6. We make payment _____ cash or kind.

(A) by

(B) in

(C) at

(D) on

7. It's a machine _____ washing clothes.

(A) to

(B) at

(C) for

(D) too

8. She has to work _____ 10 am to 5 pm.

(A) since

(B) by

(C) in

(D) from

9. Translate this _____ English.

(A) into

(B) to

(C) for

(D) with

10. The people _____ this country are wise.

(A) off

(B) in

(C) on

(D) of

Directions : Select the one that fits best from the given alternatives.

11. One who believes in fate

(A) Fanatic

(B) Fatidic

(C) Fatalist

(D) Fanalist

12. An imaginary ideal society free of poverty and suffering

(A) Utopia

(B) Zootopia

(C) Etopia

(D) Miopia

13. A government of the wealthy

(A) Monarchy

(B) Democracy

(C) Nomocracy

(D) Plutocracy

14. A disguised or a secret way of writing

(A) Calligraph

(B) Dartograph

(C) Cypher

(D) Choreograph

15. A large cage, place or enclosure to keep birds

(A) Asylum

(B) Aviary

(C) Granary

(D) Armory

Directions : A sentence has been given in Active/Passive voice. Select one out of the four given alternatives which best expresses the same sentence and mark your answer.

16. The gate was opened by David.

(A) The gate open by David.

(B) David did open the gate.

(C) Opened was the gate by David.

(D) David opened the gate.

17. My father will write a letter.

(A) A letter will be written by my father.

(B) A letter my father will write.

(C) My father writes a letter.

(D) My father is writing a letter.

18. The building was damaged by the fire.

(A) The fire damaged the building.

(B) The building damaged by fire.

(C) The fire had damaged the building.

(D) The fire did damaged the building.

19. I am cooking a meal.

(A) A meal is prepared.

(B) A meal is being cooked by me.

(C) A meal is cooked by me.

(D) Cooking a meal by me.

20. The road was lined with people.

(A) The people lined the road.

(B) The people will lined the road.

(C) People had lined on the road.

(D) People lined up the road.

Directions : Choose the correct alternatives which best expresses the meaning of the underlined words.

21. She gave vent to his anger by abusing him.

(A) disapprove

(B) showed

(C) agreed

(D) expressed

22. Because of bad planning, he went to the dogs.

(A) lost

(B) was in trouble

(C) got ruined

(D) flunk

23. He is in the habit of calling a spade a spade.

(A) lying

(B) speak frankly

(C) deceiving

(D) blaming

24. From the cut of his gibs a person takes him to be an artist.

(A) appearance

(B) look alike

(C) resemblance

(D) corner

25. He had to draw a blank in every business he tried.

(A) cheque

(B) demand

(C) cash

(D) fail

Directions : From the given alternatives choose the correct form of verb.

26. Who _____ the window?

(A) broken

(B) had broken

(C) has broken

(D) is broken

27. His parents _____ him Patrick.

(A) is name

(B) named

(C) name

(D) had name

28. The baby _____ behind the curtain.

(A) hide

(B) has hide

(C) hidden

(D) is hiding

29. The driver _____ the car.

(A) stopped

(B) is stopped

(C) stopping

(D) stop

30. The woman _____ the accident with her own eyes.

(A) seen

(B) see

(C) saw

(D) sawed

Directions : Choose the correct meaning for the words and phrases given below :

31. 'One who eats human flesh'

(A) cannabis

(B) cannibal

(C) carnivore

(D) cane

32. 'Appointed to settle disputes'

(A) moderator

(B) predictor

(C) arbitrator

(D) amateur

33. 'One who knows everything'

(A) omnipotent

(B) omnivore

(C) optimist

(D) omniscient

34. 'a style full of words'

(A) verbose

(B) alliteration

(C) vocabulary

(D) speech

35. 'Reserved in speech'

(A) rectified

(B) extempore

(C) recite

(D) reticent

36. 'Murder of a king'

(A) homicide

(B) nobicide

(C) regicide

(D) citicide

37. 'Fond of entertaining guests'

(A) hospitable

(B) host

(C) hostess

(D) hospital

38. 'Medicine that induces sleep'

(A) neurotic

(B) narcotic

(C) opium

(D) chloroform

39. 'No longer in use'

(A) obsolete

(B) absolute

(C) opaque

(D) irrelevant

40. 'One who easily believes'

(A) credible

(B) atheist

(C) theist

(D) credulous

Directions : Give the correct form of narration from the given alternatives.

41. David said, "I am directing a new film."

(A) David said he was directing a new flim.

(B) David said that he was directing a new film.

(C) David said that I will direct a new film.

(D) David said that I will been directing a new film.

42. He says, "I went home on Friday."

(A) He says that he went home on Friday.

(B) He said that he will go home on Friday.

(C) He says that he go home on Friday.

(D) On Friday he says he goes home.

43. Peter told Cynthia that he would go home soon.

(A) "I will go home soon," Peter said to Cynthia.

(B) Peter told Cynthia, "I am going home."

(C) Peter said to Cynthia, "I will go home."

(D) "I will go home soon", Peter told Cynthia.

44. He said, "Sit down."

(A) He asked to sit down.

(B) He ask me to sit down.

(C) He asked me to sit down.

(D) He told me, sit down.

45. She asked the students to start at once.

(A) "Do start at once", she said to the students.

(B) "Do start now", she said to the students.

(C) "Do it now", she said to the students.

(D) "Do it at once", she said to the students.

Directions : Read the following passage and answer the questions given below by choosing the correct alternative.

The other day we heard someone smilingly refer to piers as dreamers. Now, it is accurate to refer to poets as dreamers, but it is not discerning to infer, that the dreams of poets have no practical value beyond the realm of literary diversion. The truth is that poets are just as practical people like engineers and scientists; and just as close to reality and truth. Where they differ from the logician and the scientist is in the temporal sense alone, they are ahead of their time, whereas logician and scientists are abreast of their time.

46. Who are referred to as 'dreamers'?

(A) Scientists

(B) Logicians

(C) Poets

(D) Engineers

47. Where does the dream of the poet lie?

(A) Realm of the truth

(B) Realm of reality

(C) Practical values

(D) Realm of literary diversions

Directions : Choose the appropriate meaning of the words given below.

48. Realms

(A) city

(B) kingdom

(C) kingship

(D) mind

49. Logicians

(A) philosopher

(B) logic

(C) philosophy

(D) doctorate

50. Diversion

(A) direction

(B) backward

(C) redirection

(D) reverse

PART—B : GENERAL KNOWLEDGE

(*Marks* : 50)

Each question carries **2** marks :

51. Who won the Nobel Prize 2023 in the field of Literature?

(A) Jon Fosse

(B) Annie Ernaux

(C) Pierre Agostini

(D) Peter Handke

52. Which rank has India secured in the latest Global Hunger Index (GHI) for 2023?

(A) 102nd

(B) 100th

(C) 95th

(D) 111th

53. In which State will Corning Inc set up India's first gorilla glass factory?

(A) Assam

(B) Maharashtra

(C) Telangana

(D) Uttarakhand

54. The 37th National Games were recently held in which State?

(A) Goa

(B) Punjab

(C) Tamil Nadu

(D) Tripura

55. Who won the Men's Singles US Open, 2023?

(A) Daniil Medvedev

(B) Matthew Ebden

(C) Novak Djokovic

(D) Joe Salisbury

56. Where was the 18th G20 Summit recently held?

(A) Osaka

(B) New Delhi

(C) Riyadh

(D) Hangzhou

57. Who won the Italian Grand Prix, 2023?

(A) Max Verstappen

(B) Charles Leclerc

(C) Lewis Hamilton

(D) Carlos Sainz

58. When is World Tourism Day celebrated?

(A) 16th September

(B) 4th October

(C) 5th October

(D) 27th September

59. Which countries share borders with Israel?

(A) Lebanon, Syria, Jordan, Iran

(B) Lebanon, Iraq, Iran, Jordan

(C) Lebanon, Syria, Jordan, Egypt

(D) Syria, Jordan, Egypt, Turkey

60. What is the capital of Ukraine?

(A) Lviv

(B) Kyiv

(C) Warsaw

(D) Odessa

61. Who was the first Governor-General of India?

(A) Lord Dalhousie

(B) Lord Cornwallis

(C) Lord Minto I

(D) Lord William Bentinck

62. Who was known as the 'Iron Man of India'?

(A) Sardar Vallabhbhai Patel

(B) Subhas Chandra Bose

(C) Bhagat Singh

(D) Lala Lajpat Rai

63. The official languages of India are included in which Schedule of the Constitution?

(A) Fifth Schedule

(B) Sixth Schedule

(C) Eighth Schedule

(D) Ninth Schedule

64. What is the minimum age required to be a member of the Rajya Sabha?

(A) 25 years

(B) 28 years

(C) 32 years

(D) 30 years

65. Who authored the book, *Why I Am A Hindu*?

(A) Nirmala Sitharaman

(B) Shashi Tharoor

(C) Rajnath Singh

(D) S. Jaishankar

66. Which of the following rivers drains into the Bay of Bengal?

(A) Sutlej

(B) Tapi

(C) Narmada

(D) Krishna

67. Which is the largest rice producing State in India?

(A) West Bengal

(B) Bihar

(C) Uttar Pradesh

(D) Punjab

68. Which one of the following is ***not*** a greenhouse gas?

(A) Methane

(B) Hydrogen

(C) Water vapour

(D) Carbon dioxide

69. Which instrument is used to measure humidity?

(A) Barometer

(B) Anemometer

(C) Hygrometer

(D) Seismometer

70. Which of the following is a non-metal that remains liquid at room temperature?

(A) Helium

(B) Bromine

(C) Chlorine

(D) Phosphorus

71. How many National Parks are there in Meghalaya?

(A) 3

(B) 1

(C) 4

(D) 2

72. Which of the following is the largest district in Meghalaya?

(A) East Khasi Hills District

(B) West Khasi Hills District

(C) South Garo Hills District

(D) West Jaintia Hills District

73. Who was the first Chief Minister of Meghalaya?

(A) B. B. Lyngdoh

(B) P. A. Sangma

(C) Williamson A. Sangma

(D) None of them

74. In which year did Meghalaya get its 12th district, Eastern West Khasi Hills District?

(A) 2021

(B) 2020

(C) 2023

(D) 2022

75. How many member(s) is/are elected to the Rajya Sabha from Meghalaya?

(A) 2

(B) 4

(C) 3

(D) 1

PART—C : ELECTRICAL ENGINEERING (Paper—I)

(*Marks* : 100)

Each question carries **2** marks :

76. The form factor of sinusoidal alternating electric current is

(A) 1·12
(B) 1
(C) 1·11
(D) 0·11

77. Ammeters and voltmeters are calibrated to read

(A) RMS value
(B) peak value
(C) average value
(D) instantaneous value

78. Which of the following is not AC waveform?

(A) Sinusoidal
(B) Square
(C) Constant
(D) Triangular

79. The condition for maximum current to be transferred to the load is

(A) source resistance greater than or equal to load resistance
(B) source resistance equal to load resistance
(C) source resistance less than load resistance
(D) source resistance greater than load resistance

80. What happens to the current in the series circuit if the resistance is doubled?

(A) It becomes half of its original value
(B) It becomes double of its original value
(C) It becomes zero
(D) It becomes infinity

81. In a pure *L-C* parallel circuit under resonance condition, current drawn from the supply mains is

(A) very large
(B) $V\sqrt{LC}$
(C) $\frac{V}{\sqrt{LC}}$
(D) zero

82. In a circuit, voltage and current are given by $v = (10 + j5)$ volts and $i = (6 + j4)$ amperes. The circuit is

(A) inductive
(B) resistive
(C) capacitive
(D) It could be any of the above

83. A filter that passes frequencies between two designated cut-off frequencies and attenuates all other frequencies is called

(A) high-pass filter
(B) band-elimination filter
(C) band-pass filter
(D) low-pass filter

84. The quality of output signal from an A/D converter is measured in terms of

(A) signal to quantization noise ratio
(B) quantization error
(C) quantization to signal noise ratio
(D) conversion constant

85. If $x(n)$ is a discrete-time signal, then the value of $x(n)$ at non-integer value of n is

(A) zero
(B) positive
(C) negative
(D) not defined

86. What properties does a continuous time unit impulse function follow?

(A) Multiplication, sampling, shifting

(B) Shifting, sampling, differentiation, multiplication

(C) Shifting, multiplication, differentiation

(D) Sampling only

87. A time-invariant system is a system whose output

(A) increases with a delay in input

(B) decreases with a delay in input

(C) vanishes with a delay in input

(D) remains same with a delay in input

88. The z-transform of a system is $H(z) = \frac{z}{z - 0 \cdot 2}$. If the region of convergence (ROC) is $|z| < 0 \cdot 2$, then the impulse response is

(A) $(0 \cdot 2)^n \; u[n]$

(B) $(0 \cdot 2)^2 \; u[-n - 1]$

(C) $-(0 \cdot 2)^2 \; u[n]$

(D) $-(0 \cdot 2)^n \; u[-n - 1]$

89. The cut-off frequency of the TEM wave is

(A) zero

(B) 1 Hz

(C) 6 GHz

(D) 1 GHz

90. The characteristic impedance of a transmission line is normally chosen to be

(A) 50 ohms

(B) 75 ohms

(C) 100 ohms

(D) 50 or 75 ohms

91. The reflection coefficient of a wave travelling through two media having permittivities 4 and 9 respectively, is

(A) 0·2

(B) 0·5

(C) 0·25

(D) zero

92. The velocity of the travelling wave through a cable of relative permittivity 9 is

(A) 9×10^8 m/s

(B) 3×10^8 m/s

(C) 10^8 m/s

(D) 2×10^8 m/s

93. The propagation constant for a lossless transmission line will be

(A) complex and equal to phase constant

(B) complex

(C) real

(D) real and equal to phase constant

94. IGBT and BJT both possess

(A) low on-state power losses

(B) high on-state power losses

(C) low switching losses

(D) high input impedance

95. A quartz crystal oscillator consists of

(A) only series resonant frequency

(B) both series and parallel frequencies

(C) neither series nor parallel frequency

(D) only parallel resonant frequency

96. In a *p-n* junction diode under reverse bias, the magnitude of electric field is maximum at

(A) the edge of the depletion region on the *p*-side

(B) the edge of the depletion region on the *n*-side

(C) the *p-n* junction

(D) the center of the depletion region on the *n*-side

97. The output of a particular op-amp increases 8V in 12 μs. The slew rate is

(A) 90 V /μs

(B) 0·67 V /μs

(C) 1·5 V /μs

(D) 0·8 V /μs

98. The common-mode voltage gain is

(A) smaller than differential voltage gain

(B) equal to differential voltage gain

(C) greater than differential voltage gain

(D) None of the above

99. In an *S-R* latch built from NOR gates, which condition is not allowed?

(A) $S = 0, R = 0$

(B) $S = 0, R = 1$

(C) $S = 1, R = 0$

(D) $S = 1, R = 1$

100. Which among the following logic gates are designated as universal gates?

(A) NOR, NAND

(B) XOR, NOR, NAND

(C) OR, NOT, AND

(D) NOR, NAND, XNOR

101. If $J = K$ (J and K are shorted) in a *J-K* flip-flop, what circuit is made?

(A) *S-R* flip-flop

(B) Shorted *J-K* flip-flop

(C) *T* flip-flop

(D) *K* flip-flop

102. In 1-to-4 demultiplexer, how many select lines are required?

(A) 2

(B) 3

(C) 4

(D) 5

103. What is meant by parallel load of a shift register?

(A) Each flip-flop is loaded with data, one at a time

(B) All flip-flops are preset with data

(C) Parallel shifting of data

(D) All flip-flops are set with data

104. Unlike a shunt motor, it is difficult for a series motor to stall under heavy loading because

(A) it develops high overload torque

(B) its flux remains constant

(C) it slows down considerably

(D) its back e.m.f. is reduced to almost zero

105. If the field circuit of a loaded shunt motor is suddenly opened

(A) it would race to almost infinite speed

(B) it would draw abnormally high armature current

(C) torque developed by the motor would be reduced to zero

(D) circuit breaker or fuse will open the circuit before too much damage is done to the motor

106. The maximum torque of a DC motor is limited by

(A) heating

(B) speed

(C) armature current

(D) commutation

107. What will happen to a torque, if a DC series motor is accidentally connected to single-phase AC supply voltage?

(A) Pulsating and unidirectional

(B) Steady and unidirectional

(C) Oscillating

(D) Cannot be determined

108. Hysteresis loss in a DC machine is directly proportional to

(A) speed

(B) $(\text{speed})^2$

(C) $(\text{speed})^{1.6}$

(D) $(\text{speed})^3$

109. The value of flux involved in the e.m.f. equation of a transformer is

(A) average value

(B) maximum value

(C) RMS value

(D) instantaneous value

110. Damper winding in a synchronous motor

(A) reduces windage losses

(B) serves to start the motor

(C) improves power factor of the motor

(D) increases hunting of the motor

111. In a transformer, the tappings are generally provided on

(A) primary side

(B) low-voltage side

(C) secondary side

(D) Can be connected to any side

112. On which factor(s), transformer routine efficiency depends upon?

(A) Supply frequency

(B) Load current

(C) Power factor of load

(D) Load current and power factor of load

113. Synchronous motors are generally used in applications requiring

(A) infrequent starting

(B) variable speed

(C) sudden application of heavy loads

(D) frequent stopping

114. The starting torque of a squirrel-cage induction motor is

(A) full-load torque

(B) slightly more than full-load torque

(C) negligible

(D) low

115. If any two phases for an induction motor are interchanged

(A) the motor will run in reverse direction

(B) the motor will continue to run in the same direction

(C) the motor will stop

(D) the motor will burn

116. A step-up chopper has input voltage 110 V and output voltage 150 V. The value of duty cycle is

(A) 0·32

(B) 0·67

(C) 0·45

(D) 0·27

117. A power MOSFET has three terminals called

(A) collector, emitter and gate

(B) drain, source and gate

(C) drain, source and base

(D) collector, emitter and base

118. The resistance and capacitance are connected across gate circuit to protect the thyristor gate against

(A) over voltage

(B) dv/dt

(C) overcurrent

(D) noise signals

119. The average output voltage is maximum when SCR is triggered at

(A) $\omega t = \pi$

(B) $\omega t = 0$

(C) $\omega t = \frac{\pi}{2}$

(D) $\omega t = \frac{\pi}{4}$

120. The most commonly used gate triggering signal for SCR is

(A) a short duration pulse

(B) a steady DC signal

(C) a low-frequency pulse train

(D) a high-frequency pulse train

121. A chopper is a/an

(A) time ratio controller

(B) AC to DC converter

(C) high-speed semiconductor switch

(D) DC transformer

122. An inductor filter connected in series with a resistive load provides a

(A) smoothing of the output voltage waveform

(B) smoothing of the input voltage waveform

(C) smoothing of the output current waveform

(D) smoothing of the input current waveform

123. In TV transmission, sound signal is

(A) frequency modulated

(B) phase modulated

(C) pulse modulated

(D) amplitude modulated

124. What is the role of transmitter in communication system?

(A) To decode a signal to be transmitted

(B) To produce radio waves to transmit data

(C) To convert one form of energy into other

(D) To detect and amplify information signal from the carrier

125. The solid area through which all the powers radiated by the antenna is

(A) beam area

(B) effective area

(C) aperture area

(D) beam efficiency

ELECTRICAL ENGINEERING (Paper—II)

(*Marks* : 100)

Each question carries **2** marks :

126. The root locus of the open-loop transfer function $G(s) = \frac{Ks}{(s^2+4)}$ shall lie on the real axis, when

(A) $K = 0$

(B) $K < 0{\cdot}25$

(C) $K < 4$

(D) $K \geq 4$

127. Routh-Hurwitz criterion gives

(A) the number of roots in the right half of the *s*-plane

(B) the value of roots

(C) the number of roots in the left half of the *s*-plane

(D) the number of roots in the top half of the *s*-plane

128. Time response for a second-order system depends on the value of ξ. If $\xi > 1$, then the system is called as

(A) undamped system

(B) underdamped system

(C) overdamped system

(D) critically damped system

129. The gain margin of a system with the loop transfer function $\frac{64}{(s+1)^4}$ is

(A) 64

(B) 1

(C) $\frac{1}{16}$

(D) $\frac{1}{64}$

130. Open-loop transfer function of a system having one zero with a positive real value is called

(A) zero-phase function

(B) negative phase function

(C) positive phase function

(D) non-minimum phase function

131. Root locus is used to calculate

(A) marginal stability

(B) relative stability

(C) absolute stability

(D) conditional stability

132. In time domain system, which response has its existence even after an extinction of transient response?

(A) Step response

(B) Impulse response

(C) Steady-state response

(D) All of the above

133. A perfect conductor has

(A) zero conductivity

(B) unity conductivity

(C) infinity conductivity

(D) None of the above

134. Piezoelectric materials serve as a source of

(A) resonant waves

(B) musical waves

(C) microwaves

(D) ultrasonic waves

135. In graphite, bonding is

(A) covalent

(B) metallic

(C) Van der Waals

(D) Van der Waals and Covalent

136. Superconductivity is observed for

(A) infrared frequencies

(B) DC and low frequencies

(C) AC and high frequencies

(D) frequencies having no effect

137. A memory system has a total of 8 memory chips, each with 12 address lines and 4 data lines. The total size of the memory system is

(A) 16 kbytes

(B) 48 kbytes

(C) 32 kbytes

(D) 64 kbytes

138. In a microprocessor-based system, the stack is always in

(A) microprocessor

(B) RAM

(C) ROM

(D) EPROM

139. The clock frequency of 8085 microprocessor is

(A) 2 MHz

(B) 3 MHz

(C) 4 MHz

(D) 6 MHz

140. A stack is

(A) an 8-bit register in the microprocessor

(B) a 16-bit register in the microprocessor

(C) a set of memory locations in R/W memory reserved for storing information

(D) a 16-bit memory address stored in the PC

141. The instrument used in an ohmmeter is

(A) moving-iron type

(B) hot-wire type

(C) permanent magnet moving-coil type

(D) dynamometer type

142. The nominal ratio for a current transformer is given by

(A) (Rated primary winding current)/(Rated secondary winding current)

(B) (Number of turns in the primary winding)/(Number of turns in the secondary winding)

(C) (Number of turns in the secondary winding)/(Number of turns in the primary winding)

(D) (Rated secondary winding current)/(Rated primary winding current)

143. If the resistance in a circuit is given by $80\ \Omega \pm 0{\cdot}2\ \%$ and the current flowing through it is $5A \pm 0{\cdot}1\%$, then the uncertainty in the power will be

(A) $\pm 0{\cdot}2\ \%$

(B) $\pm 0{\cdot}4\ \%$

(C) $\pm 0{\cdot}6\ \%$

(D) $\pm 0{\cdot}8\ \%$

144. LVDT, an instrument for the measurement of displacement, works on the principle of

(A) linear inductance

(B) non-linear inductance

(C) mutual inductance

(D) linear capacitance

145. Megger works on the principle of

(A) Kirchhoff's current laws

(B) Ohm's law

(C) Gauss' law

(D) electromagnetic induction

146. The simplest type of bridge used for the measurement of medium resistance is known as

(A) Kelvin

(B) Schering

(C) Wheatstone

(D) Anderson

147. Thermistors have

(A) zero temperature coefficient

(B) negative temperature coefficient

(C) infinity temperature coefficient

(D) None of the above

148. Electrical strain gauge works on the principle of

(A) variation of resistance

(B) variation of capacitance

(C) variation of inductance

(D) variation of area

149. In kitchen applications, a piezoelectric crystal is used for

(A) skimming milk

(B) lighting a gas stove

(C) grinding

(D) mixing

150. The active components in an IC are

(A) resistors

(B) transistors and diodes

(C) capacitors

(D) None of the above

151. Operational amplifiers use

(A) both linear and digital ICs

(B) linear ICs

(C) digital ICs

(D) None of the above

152. Insulation of the modern extra high-voltage lines is designed based on

(A) lightning voltage

(B) corona

(C) switching voltage

(D) radio interference

153. Surge impedance loading for a 3-phase can be defined as

(A) $\frac{V^2}{I}$

(B) $\frac{V^2}{Z}$

(C) $\frac{V^2}{X}$

(D) $\frac{X^2}{I}$

154. Transmission efficiency increases as

(A) voltage and power factor both increase

(B) voltage and power factor both decrease

(C) voltage increases but power factor decreases

(D) voltage decreases but power factor increases

155. The unit of speed regulation parameter is

(A) Hz/MVAr

(B) Hz/MVA

(C) Hz/MW

(D) Hz-s

156. Normally Y-bus matrix in a power system is considered as

(A) null matrix

(B) sparse matrix

(C) full matrix

(D) unit matrix

157. For accurate load flow calculations on large power systems, the best method is

(A) G-S method

(B) decoupled method

(C) N-R method

(D) All of the above

158. The inertia constant (H) of a machine of 200 mVA is 2 p.u. Its value corresponding to 400 mVA will be

(A) 1

(B) 2

(C) 2·5

(D) 0·5

159. Equal area criterion gives the information regarding

(A) stability region

(B) absolute stability

(C) relative stability

(D) swing curves

160. A fault occurring on an end-supplied transmission line is more severe from the point of view of RRRV if it is a

(A) long line fault

(B) medium line fault

(C) short line fault

(D) generator fault

161. A distance relay is said to be inherently directional if its characteristic on R-X diagram is

(A) a circle that passes through the origin

(B) a straight line off-set from the origin

(C) a circle that encloses the origin

(D) always a separate directional relay required

162. If the fault current is 2 kA, the relay setting is 50% and the CT ratio is 400/5, then the plug setting multiplier of a relay will be

(A) 5

(B) 7

(C) 8

(D) 10

163. A mho relay is a

(A) voltage-restrained directional relay

(B) voltage-controlled overcurrent relay

(C) directional restrained overcurrent relay

(D) directional-restrained over voltage relay

164. If a 3-phase circuit breaker is rated at 2000 mVA, 33 kV, its making current will be

(A) 35 kA

(B) 49 kA

(C) 70 kA

(D) 89 kA

165. Homopolar HVDC transmission link is employed instead of bipolar HVDC link to

(A) reduce corona loss

(B) reduce radio interference

(C) improve reliability

(D) reduce skin effect

166. The demodulator in delta modulation technique is

(A) differentiator

(B) integrator

(C) quantizer

(D) rectifier

167. In PCM encoding, quantization level varies as a function of

(A) frequency

(B) square of frequency

(C) square of amplitude

(D) amplitude

168. Quantization noise can be reduced by

(A) increasing the number of levels

(B) doubling the number of levels

(C) squaring the number of levels

(D) All of the above

169. The satellite that is used as a relay to extend communication distance is called as

(A) relay satellite

(B) communication satellite

(C) repeater satellite

(D) geosynchronous satellite

170. The configuration in which the Doppler radar beams are both forward and backward looking is called as

(A) Janus

(B) dual

(C) redundant

(D) wide beam

171. Multimode step-index fibre has

(A) large core diameter and large numerical aperture

(B) large core diameter and small numerical aperture

(C) small core diameter and large numerical aperture

(D) small core diameter and small numerical aperture

172. As per Betz criterion, maximum energy extractable by an ideal wind turbine is

(A) 57%

(B) 50%

(C) 59%

(D) 39%

173. The standard value of solar constant is

(A) 1 kW/m^2

(B) 1·367 kW/m^2

(C) 1·5 kW/m^2

(D) 5 kW/m^2

174. The efficiency of the solar cell is about

(A) 25%

(B) 15%

(C) 80%

(D) 70%

175. In the production of wave energy, which form of energy is used?

(A) Potential energy

(B) Solar energy

(C) Kinetic energy

(D) Wind energy