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

QUESTION BOOKLET

SERIES III

Subjects : General English, General Knowledge & Electrical Engineering

BOOKLET SERIAL NO. 700119

Marks : 350
Time : $2^{1}/_{2}$ 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 Ball Pen in following three parts:

   Part-A-General English : 50 questions, Part-B-General Knowledge : 25 questions,

   Part-C-Electrical Engineering : 100 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. Answers must be shown by completely blackening the corresponding circles in the Answer Sheet against the relevant question number by Black Ball Pen. OMR Answer Sheet without marking series/ double series marking shall not be evaluated.

Example :

Supposing 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 Ball Point Pen only as below :-

Ⓐ Ⓑ ● Ⓓ

WHICH 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.

PART - A - GENERAL ENGLISH

Marks :100

Each question carries 2 marks :

Directions : (Q.No.1-5), In these questions out of the four alternatives given, choose the one which is opposite in meaning of the underlined word :

1. There is pandemonium in the hall.
a) confusion b) disquiet
c) peace d) friendship

2. My neighbour is an absolute snob .
a) modest b) extrovert
c) introvert d) pretender

3. It is going to be an arduous journey.
a) strenuous b) risky
c) easy d) enjoyable

4. She looked crestfallen when her friend lost the match.
a) sad b) elated
c) depressed d) eager

5. It was a macabre sight.
a) pleasant b) horrid
c) unknown d) comic

Directions : (Q.No. 6-15), In these questions out of the four alternatives given, choose the one which best expresses the meaning of the underlined word :

6. He likes to follow the policy of appeasing his subordinates.
a) distressing b) provoking
c) pacifying d) opposing

7. The teacher has admonished the student.
a) praised b) beaten
c) abused d) scolded

8. The car was damaged by miscreants .
a) vagabonds b) hermits
c) thieves d) beggars

9. The company has revoked its decision.
a) authorized b) enforced
c) changed d) cancelled

10. I do not want to emulate her.
a) imitate b) abandon
c) support d) leave

11. There is no dearth of good books in the library.
a) supply b) lack
c) excess d) demand

12. She is devoid of emotion.
a) full b) lacking
c) excessive d) occupied

13. There were incidents of sporadic violence.
a) occasional b) regular
c) continuous d) uncontrollable

14. The institution is facing a paucity of funds.
a) problem b) excess
c) scarcity d) stoppage

15. His behaviour with his family is deplorable.
a) praiseworthy b) suspicious
c) caring d) condemnable

Directions : (Q.No.16-25), In the following questions, sentences are given with blanks to be filled with an appropriate and suitable word. Four alternatives are suggested for each question. Choose the correct alternative out of the four.

16. Please _____ to let the woman pass.
a) stand aside b) stand down
c) stand beside d) stand off

17. I was _____ at the news.
a) taken aside b) taken aback
c) taken out d) taken in

18. The dog was _____ by a truck.
a) run out b) run on
c) run at d) run over

19. Each house and each tree _____ burnt down.
a) were b) was
c) is d) are

20. Neither the teacher _____ the students are coming.
a) or b) and
c) without d) nor

21. Either he or I _____ to blame.
a) is b) are
c) am d) am not

22. This is the boy who _____ done it.
a) will b) have
c) has d) was

23. Hardly had he left the house _____ it began to rain.
a) when b) then
c) that d) so

24. My _____ are bad.
a) circumstance b) positions
c) situations d) circumstances

25. He came to my house _____ night.
a) yesterday b) before
c) past d) last

Directions : (Q.No.26-35), fill in the blanks with the appropriate preposition from the options given :

26. He was accused _____ theft.
a) of b) over
c) about d) in

27. There is an affinity _____ the two languages.
a) in b) of
c) between d) in

28. You must show allegiance _____ your leader.
a) in b) to
c) into d) about

29. Exercise is beneficial _____ health.
a) to b) into
c) for d) of

30. He is bent _____ going to the cinema.
a) down b) with
c) on d) at

31. There is no cause _____ anxiety.
a) about b) with
c) in d) for

32. I want a certificate _____ character.
a) in b) on
c) against d) of

33. He is eligible _____ the post.
a) in b) for
c) on d) under

34. This point is immaterial _____ our case.
a) to b) for
c) against d) with

35. He guessed _____ the truth.
a) at b) of
c) with d) about

Directions : (Q.No. 36-45), In these questions four alternatives are given for the given idiom / phrase. Choose the alternative which best expresses the meaning of the given idiom / phrase.

36. Touch and go means
a) risky b) easy
c) wild d) unlimited

37. Storm in a tea cup means
a) stormy weather
b) excitement over an important matter
c) accusation
d) excitement over a small matter

38. a white elephant means
a) a precious pet
b) a very costly possession
c) a useless vehicle
d) a beautiful building

39. to bury the hatchet means
a) to end a business deal
b) to complete an assignment
c) to make up a quarrel
d) to bury the dead

40. Sailing in the same boat means
a) to be in the same situation
b) to be in the same family
c) to be in the same job
d) to be in the same ship

41. To smell a rat means
a) to accuse someone
b) to insult someone
c) to suspect something is wrong
d) to think everything is fine with the world

42. They won the match hands down . Hands down means
a) aggressively b) quietly
c) peacefully d) easily

43. He said this only to feel your pulse. Feel your pulse means
a) to have a medical examination
b) to know one's mind
c) to find a solution to a problem
d) to know one's habits

44. To keep the wolf from the door means
a) to hate someone
b) to keep away unwelcome visitors
c) to keep away animals
d) to keep away extreme poverty

45. To lose ground means
a) to go forward
b) to retreat
c) to run fast
d) to lose a match

Directions : (Q.No. 46-50), In these questions some of the sentences have errors and some have none. Find out which part of a sentence a, b, c, d has an error and select that part as an answer. If there is no error, then (d) is the answer.

46. He has purchased (a) / many furnitures (b) / from the market (c) / No error (d).

47. I am (a) / going foreign (b) / next month (c) / No error (d)

48. If you will run (a) / you will (b) / catch the train (c) / No error (d)

49. I wonder (a) / if ten thousand rupees (b) / are a large sum (c) / No error (d)

50. The soup will taste better (a) / if it has (b) / more salt in it (c) / No error (d)

PART - B - GENERAL KNOWLEDGE

Marks : 50

Each question carries 2 marks :

51. Imran Khan belongs to which of the following political party of Pakistan ?
a) Pakistan Muslim League (PML)
b) Pakistan People's Party (PPP)
c) Pakistan Tehreek-e-Insaf (PTI)
d) Muttahida Majlis-e-Aml Pakistan (MMAP)

52. Who among the following won the gold medal in the women's 400 m event at IAAF U-20 World Championships in Tampere, Finland in 2018 ?
a) Andrea Miklos b) Taylor Manson
c) Hima das d) P.V. Sindhu

53. Recently severe flooding affected which of the following South Indian State ?
a) Chennai b) Kerala
c) Andhra Pradesh d) Karnataka

54. Where is Lord Ayyappa temple located ?
a) Madhya Pradesh b) Uttarkhand
c) Kerala d) Chattisgarh

55. Which Indian state became the first to operationalise the Social Audit law 2017 ?
a) Kerala b) Gujrat
c) Meghalaya d) West Bengal

56. The state of Orissa has been renamed as
a) Odisha b) Orisa
c) Odisa d) Orisha

57. The term 'Tee' is associated with which of the following sports ?
a) Table Tennis b) Polo
c) Judo d) Golf

58. The Constitution of India provides for nomination of two members of Lok Sabha by the President to represent
a) Men of eminence
b) The Parsis
c) The Anglo-Indian community
d) The business community

59. The capital of Libya is
a) Loti b) Peso
c) Tripoli d) Pula

60. The Nuclear explosion at Pokhran took place on
a) November 2, 1970
b) December 10, 1972
c) February 18, 1973
d) May 18, 1974

61. Which one of the following is issued by the court in case of an illegal detention of a person ?
a) Habeas Corpus b) Mandamus
c) Certiorari d) Quo-Warranto

62. The concept of 'Directive Principles of State Policy' incorporated in the Constitution of India was borrowed from the Constitution of
a) Australia b) USA
c) Canada d) Ireland

63. 'Sichewal model' is related to
a) River cleaning
b) Poverty alleviation
c) Digitalization of Records
d) Land Acquisition and Rehabilitation

64. ShaGun is a web portal for
a) Skill development council
b) Medium and Small manufacturing Enterprises
c) Sarv Shiksha Abhiyan
d) Sagarmala Project

65. Eight Schedule of the Constitution consists
a) Allocation of seats in the council of states
b) Administration of scheduled areas
c) List of languages of India recognised by Constitution
d) Provisions of disqualification on grounds of defection

66. National Highways Authority of India (NHAI) launched two mobile Apps- My FASTag and FASTag partner, it will primarily facilitate
a) Tracking of vehicle theft
b) Electronic toll collection
c) Check speeding vehicles on the National Highways
d) Reporting of pot holes on the Highways

67. What is the purpose of introducing

PRADHAN MANTRI YUVA Scheme ?
a) To provide Entrepreneurship education
b) To ensure DBT in SHG
c) Sports promotion programme
d) Women empowerment

68. The theme 'Shaping an interconnected world' was proposed in which of the following meet ?
a) BRICS b) SCO
c) Heart of Asia conference d) G 20

69. Summer Olympic 2024 will be held in
a) Tokyo b) Qatar
c) Paris d) Rio

70. Who is the de facto leader of the Organization of Petroleum Exporting Countries ?
a) USA b) Venezuela
c) Iran d) Saudi Arabia

71. Which of the following countries is not a BRICS member ?
a) BRITAIN b) South Africa
c) China d) Brazil

72. Which of the following countries is a member of BRICS ?
a) Bhutan b) Iran
c) South Africa d) Sudan

73. The three planets nearest to the Sun in the correct order are
a) Mercury, Earth, Mars
b) Mercury, Venus, Jupitar
c) Mercury, Venus, Earth
d) Mercury, Venus, Mars

74. Which of the following countries shares the longest border with India ?
a) Pakistan b) China
c) Myanmar d) Bangladesh

75. What does NRC stands for ?
a) National recruitment commission
b) National Register of citizens
c) National rehabilitation commission
d) None of the above

PART - C -ELECTRICAL ENGINEERING

Marks :200

Each question carries 2 marks :

76. An active low pass filter with RC passive components has the cut-off frequency

a) $2\pi RC$

b) $\frac{1}{2\pi\sqrt{RC}}$

c) $2\pi\sqrt{RC}$

d) $\frac{1}{2\pi RC}$

77. The dc gain of a system having transfer function H(s) = $H(s) = \frac{12}{(s+2)(s+3)}$ is given by

a) 1 b) 2

c) 12 d) 31

78. If the Laplace transform of i (t) is $i(t) = \frac{5s+4}{s(3s+1)(s^2+4s+5)}$, then its final value will be

a) 5/4 b) 5

c) 4 d) 4/5

79. At parallel resonance, the circuit draws a current of 2 mA. If the Q-factor of the circuit is 100, then the current through the capacitor is

a) 2 mA b) 1 mA

c) 200 mA d) 0.2 mA

80. The Two wattmeter method is used for measurement of power in a balanced three-phase load supplied from a balanced three-phase system. If one of the wattmeters reads half of the other (both positive), then the power factor of the load is

a) 0.531 b) 0.632

c) 0.707 d) 0.866

81. Using an a.c. voltmeter, the potential difference in the electrical line in a house is read to be 234 V. If the line frequency is known to be 50 Hz, the equation for the line voltage is

a) $v = 165 \sin(100\pi t)$

b) $v = 331 \sin(100\pi t)$

c) $v = 234 \sin(100\pi t)$

d) $v = 468 \sin(100\pi t)$

82. Condition for reciprocity in Z-parameters is

a) $z_{11} = z_{22}$ b) $z_{12} = z_{21}$

c) $z_{11} = z_{12}$ d) $z_{21} = z_{22}$

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

a) Overvoltage b) dv/dt

c) Over current d) Noise signals

84. Gate characteristics of a thyristor is

a) $V_g = a + bI_g$

b) a straight line passes through origin

c) a curve between V_g and I_g

d) spread between two curves of V_g-I_g

85. The most commonly used gate triggering signal for thyristor is

a) A short duration pulse

b) A steady dc signal

c) A high frequency pulse train

d) A low frequency pulse train

86. VAR Compensator is used to

a) Improve stability

b) Reduce faults

c) Improve voltage profile

d) Reduce leakage current

87. Insulation of modern Extra High Voltage lines is designed based on

a) Lightning voltage

b) Corona

c) Reduce switching voltage

d) Radio interference

88. Surge Impedance Loading for a 3 phase can be defined as

a) V^2/I b) V^2/Z

c) V^2/X d) X^2/I

89. The current drawn by the line due to corona losses is

a) Sinusoidal b) Square
c) Non-sinusoidal d) Triangular

90. The fact that a conductor carries more current on the surface as compared to core, is known as
a) Corona
b) Permeability
c) Unsymmetrical fault
d) Skin effect

91. Pin insulators are normally used up to voltage of about
a) 66 kV b) 33 kV
c) 43 kV d) 100 kV

92. 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

93. The X : R ratio for 220 kV line as compared to 400 kV line is
a) Greater
b) Smaller
c) Equal
d) It could be anything

94. The inertia constant (H) of a machine of 200 MVA is 2 p.u. Its value corresponding to 400 MVA will be
a) 4 b) 2
c) 1 d) 0.5

95. The coefficient of reflection for current for an open ended line is
a) 1.0 b) 0.5
c) -1.0 d) Zero

96. The velocity of the traveling 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

97. In which of the following configuration power transferability is higher ?
a) Triangular configuration
b) Horizontal configuration
c) Same in both configuration
d) None of these

98. With 100% inductive shunt compensation, the voltage profile is flat for
a) 100% loading of line
b) 50% loading of line
c) Zero loading of line
d) 20% loading of line

99. In a pure LC 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

100. The current at a given point in a certain circuit may be given as i (t) = -3 + t. The total charge passing the point between t = 99 sec and t = 102 sec is
a) 112 C b) 242.5 C
c) 292.5 C d) 345.6 C

101. In a circuit, voltage and current are given by v = (10 + j5) and i = (6 + j4). The circuit is a
a) Inductive
b) Resistive
c) Capacitive
d) It could be any of the above

102. An alternator has a phase sequence of RYB for its phase voltage. In case the direction of rotation of alternator is reversed, the phase sequence will be
a) RBY
b) RYB
c) YRB
d) None of the above

103. The capacitance of line to ground when considered the effect of earth is
a) Decreased
b) Increased
c) Remain unaltered
d) Become infinite

104. The most efficient torque-producing actuating structure for induction type relay is
a) Shaded-pole structure
b) Watt-hour-meter structure
c) Induction-cup structure
d) Single-induction-loop structure

105. For a transmission line with resistance R, reactance X and negligible capacitance, the transmission constant A is
a) 0 b) 1
c) R + j x d) R + X

106. If the fault current is 2 kA, the relay setting is 50% and the CT ration is 400/5, then the plug setting multiplier of a relay will be
a) 5 b) 7
c) 8 d) 10

107. The per unit impedance of synchronous machine is 0.242. If the base voltage is increased by 1.1 times, the per unit value will be
a) 0.266 b) 0.242
c) 0.220 d) 0.200

108. A fault occurring on an end supplied transmission line is more severe from the point of view of Rate of Rise of Restriking voltage (RRRV) if it is a
a) Long line fault
b) Short line fault
c) Medium line fault
d) Generator fault

109. In a short transmission line, voltage regulation is zero when the power factor angle of the load at receiving end side is equal to
a) $\tan^{-1}\frac{X}{R}$
b) $\tan^{-1}\frac{R}{X}$
c) $\tan^{-1}\frac{X}{Z}$
d) $\tan^{-1}\frac{R}{Z}$

110. A step voltage (V) is applied to an R-L series circuit. The rate of change of current is maximum at
a) t = 0 b) t = R/L
c) t = L/R d) Infinity

111. Double energy transients occur in
a) R-L-C circuits
b) R-L circuits
c) R circuits
d) R-C circuits

112. An electric fan and a heater are marked as 100 W, 220 V and 1000 W, 220 V respectively. The resistance of the heater is
a) Zero
b) Greater than that of fan
c) Less than that of fan
d) Equal to that of fan

113. An Active element in a circuit is one which
a) Receives energy
b) Supplies energy
c) Both (a) and (b)
d) None of the above

114. Superposition theorem is applicable to
a) Nonlinear electrical circuits
b) Only linear circuits
c) Electrical circuits involving only active and passive components
d) All of the above

115. Resistor is basically
a) Active and unilateral element
b) Passive and unilateral element
c) Active and bilateral element
d) Passive and bilateral element

116. The Laplace transform of $\cos\omega t$ function is
a) $\frac{\omega}{s^2+\omega^2}$
b) $\frac{s}{s^2+\omega^2}$
c) $\frac{1}{s^2}$
d) $\frac{s^2}{s^2+\omega^2}$

117. Which circuit requires one SCR ?
a) Half wave controlled rectifier
b) Full wave controlled rectifier circuit using center tap transformer
c) Half controlled bridge rectifier
d) Semi-converter

118. In a single phase full converter, if the load current is I_o which is ripple free, the average

thyristor current is

a) I_o b) $\frac{I_o}{2}$

c) $\frac{I_o}{3}$ d) $\frac{I_o}{4}$

119. The capacity of cell is measured in
a) watt-hour b) watts
c) amperes d) ampere-hours

120. Which statement is true for latching current ?
a) It is related to turn off process of the device
b) It is related to conduction process of device
c) It is related to turn on process of the device
d) Both (c) and (d)

121. 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

122. Secondary breakdown occurred in
a) BJT only
b) MOSFET only
c) Both BJT and MOSFET
d) Static induction transistor only

123. In an SR 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

124. Which of these sets of logic gates are designated as universal gates ?
a) NOR, NAND
b) XOR, NOR, NAND
c) OR, NOT, AND
d) NOR, NAND, XNOR

125. If J = K (J and K are shorted) in a JK flip-flop, what circuit is made
a) SR flip-flop
b) Shorted JK flip-flop
c) T flip-flop
d) K flip-flop

126. According to the property of impulse test signal, what is the value of an impulse at t = 0 ?
a) Zero b) Unity
c) Infinite d) Unpredictable

127. If a linear system is subjected to an input $r(t) = A\sin(\omega t)$, what output will be generated?

a) $C(t) = B\sin(\omega t + \phi)$

b) $C(t) = B\cos(\omega t + \phi)$

c) $C(t) = B\tan(\omega t + \phi)$

d) $C(t) = B\cot(\omega t + \phi)$

128. 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

129. The gain margin of a system with the loop transfer function $\frac{64}{(S+1)^4}$ is
a) 64 b) 1
c) 1/16 d) 1/64

130. 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

131. 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

132. IGBT & BJT both posses
a) Low on-state power losses
b) High on-state power losses
c) Low switching losses
d) High input impedance

133. The reverse current in a diode is of the order of
a) kA b) mA

c) μA d) A

134. The coupling field between electrical and mechanical systems of dc machine is
a) Electric field
b) Magnetic field
c) Both (a) and (b)
d) None of the above

135. Hysteresis loss in a dc machine is directly proportional to
a) Speed b) $(Speed)^2$
c) $(Speed)^{1.6}$ d) $(Speed)^3$

136. The maximum torque of a d.c. motors is limited by
a) Heating b) Speed
c) Armature current d) Commutation

137. The counter e.m.f. of a d.c. motor
a) Often exceeds the supply voltage
b) Aids the applied voltage
c) Helps in energy conversion
d) Regulates its armature voltage

138. The dc series motor should never be switched on at no load because
a) The field current is zero
b) The machine does not pick up
c) The speed becomes dangerously high
d) It will take too long to accelerate

139. 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

140. 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

141. A 40 kVA transformer has iron loss of 450 W and full load copper loss of 850 W. If the power factor of the load is 0.8 lagging, the full load efficiency of the transformer is
a) 85.2% b) 96.1%
c) 78.5% d) 91.2%

142. Which of the following transformer should never have the secondary side open circuited while the primary is energised ?
a) Power transformer
b) Potential transformer
c) Auto transformer
d) Current transformer

143. The size of a transformer core will depend on
a) Frequency
b) Area of the core
c) Flux density of the core material
d) Frequency and area of the core

144. Distribution transformers are generally designed for maximum efficiency around
a) 50% loading
b) 90% loading
c) 25% loading
d) 100% loading

145. The value of flux involved in the e.m.f. equation of a transformer is
a) Average value
b) Maximum value
c) R.M.S value
d) Instantaneous value

146. In transformer, negative voltage regulation indicates that the load is
a) Capacitive
b) Inductive
c) Resistive
d) Inductive and resistive

147. If a 3-phase induction motor is running at slips (s), then the rotor copper loss is equal to
a) $(1-s)$ x Rotor input
b) $(1+s)$ x Rotor input
c) (s x Rotor input)
d) (s x Rotor output)

148. If the slip of induction motor is increased, then current in the stator winding is
a) Increased b) Decreased
c) Remain unchanged d) Infinite

149. Damper winding in a synchronous motors

a) Reduces windage losses
b) Serves to start the motor
c) Improves power factor of the motor
d) Increases hunting of the motor

150. Synchronous motor are generally used in applications requiring
a) Infrequent starting
b) Variable speed
c) Sudden application of heavy loads
d) Frequent stopping

151. An alternator is generating power at 210 V per phase while running at 1500 rpm. If the speed of the alternator drops to 1000 rpm, the generated voltage per phase will be
a) 180 V b) 150 V
c) 140 V d) 101 V

152. Fleming's left hand rule may be applied to an electric generator to find out
a) Direction of rotor rotation
b) Polarity of induced emf
c) Direction of induced emf
d) Direction of magnetic field

153. The instrument used in an ohmmeter
a) Moving iron type
b) Hot wire type
c) Permanent magnet moving coil type
d) Dynamometer type

154. 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)

155. To send 10% of main current through a moving coil galvanometer of resistance $99\,\Omega$, the value of shunt resistance required is
a) 33 ohm b) 9.9 ohm
c) 22 ohm d) 11 ohm

156. To measure high frequency currents, commonly used ammeter is
a) Hot wire b) Dynamometer
c) Moving iron d) Thermocouple

157. If an electrostatic voltmeter is used on AC circuit and has non uniform waves, then it will read
a) Average values b) RMS values
c) Peak values d) Instantaneous

158. Electrostatic instruments are generally used as
a) Voltmeters b) Ammeters
c) Wattmeters d) Watt-hour meters

159. If the resistance in a circuit is given by $80\Omega \pm 0.2\%$ and the current flowing through it is $5A \pm 0.1\%$, then the uncertainty in the power will be
a) $\pm 0.2\%$ b) $\pm 0.4\%$
c) $\pm 0.6\%$ d) $\pm 0.8\%$

160. LVDT which is 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

161. Random errors in a measurement system are due to
a) Environmental changes
b) Use of uncalibrated instrument
c) Poor cabling practices
d) Unpredictable effects

162. A unity feedback system has the open loop transfer function $G(s) = \dfrac{1}{(S-1)(S+2)(S+3)}$.

The Nyquist plot of G encircled the origin
a) Never b) Once
c) Twice d) Thrice

163. At series resonance
a) Circuit impedance is very large
b) Circuit power factor is minimum
c) Voltage across L or C is zero
d) Circuit power factor is unity

164. 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

165. The z-transform of a system is $H(z)=\frac{z}{z-0.2}$. If the rate of convergence (ROC) is $|z|<0.2$, then the impulse response

a) $(0.2)^n\ u[n]$

b) $(0.2)^2\ u[-n-1]$

c) $-(0.2)^2\ u[n]$

d) $-(0.2)^n\ u[-n-1]$

166. The ROC of the z-transform of the discrete time sequence

$x(n)=\left(\frac{1}{3}\right)^n u(n)-\left(\frac{1}{2}\right)^n u(-n-1)$ is

a) $\frac{1}{3}<|z|<\frac{1}{2}$

b) $|z|<\frac{1}{2}$

c) $|z|<\frac{1}{3}$

d) $2<|z|<3$

167. The quality of output signal from a A/D converter is measured in terms of
a) Quantization error
b) Quantization to signal noise ratio
c) Signal to quantization noise ratio
d) Conversion constant

168. 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 < 0.25
c) K < 4 d) K ≥ 4

169. Which of the following is an open loop control system ?
a) Field controlled D.C. motor
b) Ward leonard control
c) Metadyne
d) Stroboscope

170. Routh Hurwitz criterion gives
a) Number of roots in the right half of the s-plane
b) Value of the roots
c) Number of roots in the left half of the s-plane
d) Number of roots in the top half of the s-plane

171. If $G(s)=\frac{S+4}{S^2(S+2)(S+4)}$, find the type of the system ?
a) 4 b) 2
c) 1 d) 3

172. Time response for a second order system depends on value of ξ. If $\xi > 1$, then the system is called as
a) Undamped system
b) Under damped system
c) Over damped system
d) Critically damped system

173. How much energy in kWh is consumed in operating 50 W bulbs for 10 hours per day in the month of June ?
a) 1500 b) 15000
c) 15 d) 150

174. If the relative permeability of the material surrounding the coil is increased, the inductance of the coil.
a) Is increased
b) Is decreased
c) Remains unchanged
d) None of the above

175. At low frequencies, the material used for transformer cores is
a) Copper b) Silicon iron
c) Soft iron d) Ferrite

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