Government Of India, Ministry Of Railways
Railway Recruitment Boards
Centralised Exams
Model Question Paper/Practice Test

GENERAL KNOWLEDGE

1. What can be the maximum period of gap between any two sessions of the Indian Parliament ?
(A) Six months (B) Three months
(C) One year (D) Four months

2. The Ninth Schedule of the Constitution of India was
(A) Added by the 1st Amendment
(B) Added by the 24th Amendement
(C) Added by the 42nd Amendment
(D) A part of the original constitution

3. Who is the Supreme Commander of the Armed Forces in India ?
(A) The Prime Minister
(B) The Home Minister
(C) The Defence Minister
(D) The President

4. Which of the following bills cannot be introduced first in the Rajya Sabha ?
(A) Bill bringing a State under the President's rule
(B) Bill pertaining to the removal of the President by impeachment
(C) Money Bill
(D) Bill proclaiming the State of emergency arising out of war or external aggression.

5. Who is the Chief Law Officer of India ?
(A) Attorney General
(B) Advocate General
(C) Solicitor General
(D) Secretary, Law Department

6. Soil suitable for growing cotton is
(A) Black soil (B) Sandy soil
(C) Red soil (D) Laterite soil

7. The Sardar Sarovar Dam is associated with
(A) Mahanadi River
(B) Tapti River
(C) Bhakra Nangal Project
(D) Narmada River

8. Diamond mines are mainly found in India in the State of
(A) Bihar
(B) Madhya Pradesh
(C) Arunachal Pradesh
(D) Karnataka

9. Protectionism in the international trade stands for
(A) Free trade policy
(B) Semi-restricted trade
(C) Restricted trade policy
(D) All of these

10. Which is the most important source of revenue of the States in India ?
(A) Excise duty
(B) Land Revenue
(C) Professional taxes
(D) Sales Tax

11. Which of the following is an indirect tax ?
(A) Excise duty
(B) Capital gains tax
(C) Wealth tax
(D) Corporation tax

12. An international movement with its motto to save the world by involving itself with environmental problems is
(A) Greenfield   (B) Greenpeace
(C) Clean En   (D) Ecofriend

13. The name of the first Indian aircraft developed by a Government laboratory with private fund is
(A) Akash   (B) Tejas
(C) Hansa   (D) Eagle

14. Which of the following is the best conductor of electricity ?
(A) Saline water   (B) Warm water
(C) Cold water   (D) Distilled water

15. A solution of zinc chloride cannot be stored in a vessel made of
(A) Silver   (B) Gold
(C) Lead   (D) Aluminium

16. Leukaemia is a type of cancer in which there is an abnormal increase in the number of
(A) Red blood cells
(B) White blood cells
(C) Bone cells
(D) Platelets

17. Pepsin, a digestive enzyme, is produced in the
(A) Small intestine (B) Liver
(C) Kidney   (D) Stomach

18. Malaria is a disease which affects
(A) Liver   (B) Lungs
(C) Spleen   (D) Intestine

19. 'Palak leaves' are rich in
(A) Vitamin A   (B) Iron
(C) Carotene   (D) Cystine

20. 'Biosphere Reserve Project' is aimed at protecting
(A) Flora and Fauna
(B) Human beings from pollution
(C) Environment
(D) Cattle population

21. Santosh Trophy is related to
(A) Cricket   (B) Football
(C) Golf   (D) Basketball

22. The Sun shines vertically on the Equator
(A) Throughout the year
(B) Four times a year
(C) Twice a year
(D) Once a year

23. Which day is celebrated as United Nations Day every year?
(A) 7th April
(B) 24th October
(C) 14th November
(D) 27th December

24. Sheikh Hasina belongs to which political party of Bangladesh ?
(A) Awami League
(B) Jamat-i-Islami
(C) Bangladesh National Party
(D) Workers Party

25. Rukmini Devi is associated with
(A) Painting
(B) Music
(C) Dancing
(D) Theatre

26. 'Neela Chand' is a novel written by
(A) Ramakant Rath
(B) Subhash Mukhopadhyay
(C) Shiv Prasad Singh
(D) Ram Vilas Sharma

27. Who among the following has been honoured with the Bharat Ratna 2014 ?
(A) A.B. Vajpayee
(B) L.K. Advani
(C) Mahatma Phule
(D) Viswanathan Anand

28. Which day of the year is observed as 'World Standard Day'?
(A) October 14   (B) November 25
(C) September 14   (D) August 14

29. Who said, "Thank God, I have done my duty."
(A) J. L. Nehru
(B) Admiral Nelson
(C) Nelson Mandela
(D) G. W. Crane

30. 'Navajivan Express' runs between
(A) Jammu Tawi–Thiruvananthapuram
(B) Howrah–Chennai
(C) Bhopal–New Delhi
(D) Chennai–Ahmedabad

31. What is the next term of the letter series HUA, GTZ, FSY, ERX, (.....) ?
(A) QWD   (B) WDQ
(C) DQW   (D) DWQ

32. A man walks 20 metres east, then further 10 metres south, then he walks 35 metres west and further 5 metres north. Then he walks 15 metres towards east. What is the distance between his starting point and the terminating point ?
(A) 0 metre   (B) 5 metres
(C) 10 metres   (D) 20 metres

33. How many 3's are there in the following number sequence which are immediately preceded by 6 but not immediately followed by 7 ?
2 3 7 4 3 5 6 3 7 4 6 3 8 9
6 3 5 1 8 3 7 2 4 2 8 6 3 9
(A) One   (B) Two
(C) Three   (D) Four

34. There are six persons in a Family A, B, C, D, E and F. There are two married couples in the family. D is grandson of B. C is mother of A who is father of E. What is the relation of E to D ?
(A) Sister
(B) Brother
(C) Either Brother or Sister
(D) Cousin

35. 'Moon' is related to 'Satellite' as 'Earth' is related to
(A) Planet   (B) Solar System
(C) Sun   (D) Jupiter

36. The philosophy of Upanishads emphasises
(A) Bhakti   (B) Gyan
(C) Karma   (D) Tapa

37. In whose reign, Hiuen Tsang, a Chinese pilgrim, visited India ?
(A) Harshavardhana
(B) Samudragupta
(C) Chandragupta Maurya
(D) Kanishka

38. Both Vardhamana Mahavira and Gautam Buddha preached their doctrines during the reign of
(A) Nandivardhana
(B) Udayi
(C) Ajatashatru
(D) Bimbisara

39. The capital of Harshavardhana was at
(A) Pataliputra   (B) Kannauj
(C) Varanasi   (D) Nalanda

40. The battle of Kalinga proved to be the deciding point in the life of
(A) Alexander   (B) Kautilya
(C) Ashoka   (D) Samudragupta

41. The rock cut temples known as the Seven Pagodas are at
(A) Mahabalipuram
(B) Mahabaleshwar
(C) Kanchi
(D) Tanjore

42. Akbar was the first Muslim ruler to introduce
(A) Administrative reforms
(B) Land and revenue reforms
(C) Social reforms
(D) Judicial reforms

43. In which battle, Rana Pratap of Mewar was defeated by the Mughal Army ?
(A) Udaipur   (B) Mewar
(C) Panipat   (D) Haldighati

44. Who among the following was the eldest son of Shahjahan ?
(A) Shuja   (B) Dara Shikoh
(C) Murad Baksh   (D) Aurangzeb

45. Prithvi Raj Chauhan was defeated in the year
(A) 1192 A.D.   (B) 1295 A.D.
(C) 1626 A.D.   (D) 1561 A.D.

46. When was the partition of Bengal, effected during the time of Curzon, annulled ?

    (A) 1914   (B) 1913
    (C) 1911   (D)1912

47. Clive laid the foundation of British Empire by winning the battle of

    (A) Panipat   (B) Plassey
    (C) Jhansi   (D)None of these

48. Chand Bibi was the ruler of

    (A) Asirgarh
    (B) Bijapur
    (C) Ahmednagar
    (D) Golconda

49. The first railway line in India was opened in

    (A) 1851   (B) 1852
    (C) 1853   (D)1855

50. Who was against the abolition of Sati ?

    (A) Radha Kant Deb
    (B) B. G. Tilak
    (C) B. C. Pal
    (D) Rammohun Roy

ANSWERS

1. (A)	**2.** (A)	**3.** (D)	**4.** (C)
5. (A)	**6.** (A)	**7.** (D)	**8.** (B)

9. (C)	**10.** (A)	**11.** (A)	**12.** (B)
13. (D)	**14.** (A)	**15.** (A)	**16.** (B)
17. (D)	**18.** (A)	**19.** (B)	**20.** (A)
21. (B)	**22.** (C)	**23.** (B)	**24.** (A)
25. (C)	**26.** (C)		

27. (A) : Besides, Madan Mohan Malaviya was also given Bharat Ratna posthumously.

28. (A)	**29.** (B)	**30.** (D)

31. (C) : Each letter moves –1 step

32. (B) :
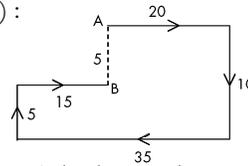
A is the starting point. B is the terminating point.

33. (C) : 638, 635, 639

34. (C) :

The married couples are BC and AF

35. (A)	**36.** (B)	**37.** (A)	**38.** (D)
39. (B)	**40.** (C)	**41.** (A)	**42.** (D)
43. (D)	**44.** (B)	**45.** (A)	**46.** (C)
47. (B)	**48.** (C)	**49.** (C)	**50.** (A)

ELECTRICAL ENGINEERING

51. Which type of magnetic behaviour is observed in a type-1 super conductor ?

    (A) Perfect diamagnetism
    (B) Perfect paramagnetism
    (C) Perfect ferromagnetism
    (D) Perfect ferrimagnetism

52. Lead is widely used in

    (A)Transformers
    (B) Switch gears
    (C) Galvanised pipes
    (D)Batteries

53. The conductivity of a metal at ultraviolet frequency (10^{14} Hz) approximately equals

    (A) Infinity
    (B) Zero
    (C) Half of the D. C. conductivity
    (D) D. C. conductivity

54. Which one of the following materials is piezoelectric ?

    (A) Pb_2Au (B) BaT_4O_3
    (C) $MgAl_2O_4$ (D)$H_4Fe_2O_4$

55. Thermal noise power in a conductor is proportional to

(A) $\dfrac{1}{\sqrt{B}}$

(B) $\dfrac{1}{B}$

(C) B

(D) B^2

where B is the bandwidth

56. A 2.5 volt 500 Hz voltage frequency modulates the carrier to cause frequency deviations of a 5 KHz. The modulation index is

(A) 10   (B)   50

(C) 25   (D)   5

57. An automatic washing machine is

(A) A single feedback control system

(B) A multi feedback control system

(C) An open loop control system

(D) None of these

58. The a.c. motor used in servo applications is a

(A) Single phase induction motor

(B) Two phase induction motor

(C) Three phase induction motor

(D) Synchronous motor

59. Yoke in a small d.c. machine is made of

(A) Cast iron

(B) Cast steel

(C) Mild steel

(D) Grain-oriented steel

60. In a d.c. machine if P is the number of poles, N is the armature speed in rpm, then the frequency of magnetic reversal will be

(A) $\dfrac{PN}{60}$ (B) $\dfrac{PN}{30}$ (C) $\dfrac{PN}{120}$ (D) $\dfrac{PN}{180}$

61. Iron losses in a d.c. machine take place in

(A) Yoke

(B) Armature rotor

(C) Commutator

(D) Armature conductors

62. A cumulative compound d.c. generator builds up a voltage of 200 volts on rated speed and no load. In its differential mode, the voltage build up at no load equals

(A) Zero

(B) 200 V

(C) – 200 V

(D) – 400 V

63. If the speed of a d.c. shunt motor increases, then the back emf

(A) Increases

(B) Decreases

(C) Remains unaltered

(D) First increases and then decreases

64. In Ward Leonard Method of speed control, the d.c. motor is

(A) Series motor

(B) Shunt motor

(C) Compound motor

(D) Separately excited motor

65. The most economical method of electrical braking of a d.c. motor is

(A) Regenerative braking

(B) Dynamic braking with self excitation

(C) Dynamic braking with separate excitation

(D) Plugging

66. The back emf in a d.c. motor

　　1. depends on the armature speed

　　2. makes the motor self starting

　　3. adds to the supply voltage

(A) 1

(B) 2

(C) 1 and 2

(D) 2 and 3

67. Helical coils are very well-suited for

(A) HV winding of a small rating transformer

(B) HV winding of a large rating transformer

(C) LV winding of a small rating transformer

(D) LV winding of a large rating transformer

68. Eddy current loss in a transformer depends on the

(A) Voltage alone

(B) Frequency alone

(C) Thickness of lamination

(D) All of these

69. In Scott connections, if the ratio of main transformation is K, then the teaser transformer has transformation ratio of

(A) $\dfrac{2K}{\sqrt{3}}$
(B) $\dfrac{3\sqrt{K}}{2}$

(C) $\dfrac{K}{\sqrt{3}}$
(D) $\dfrac{K}{2}$

70. Salient pole machines have

(A) Small number of poles

(B) Large number of poles

(C) Small diameters

(D) Long cores

71. The pitch factor of a 6 pole, 3-phase alternator having 54 coils and coil span of 6 slots is

(A) 0.66   (B) 0.707

(C) 0.866   (D) 0.955

72. The generated emf in an alternator is

1. proportional to flux per pole
2. proportional to frequency of generated voltage
3. inversely proportional to the number of poles
4. depends on the armature resistance

(A) 1 and 2   (B) 1, 2 and 3

(C) 2, 3 and 4   (D) 3 and 4

73. In a large alternator, the moving part is

(A) Armature   (B) The poles

(C) Brushes   (D) None of these

74. In case the field of a synchronous motor is underexcited, the power factor will be

(A) Zero   (B) Leading

(C) Lagging   (D) Unity

75. Which of the following is an unexcited single phase synchronous motor ?

(A) A.C. series motor

(B) Universal motor

(C) Repulsion motor

(D) Reluctance motor

76. The armature current of a synchronous motor has large values for

(A) Low excitation only

(B) High excitation only

(C) Both low and high excitation

(D) Depends on other factors

77. The magnitude of stator back emf depends on

1. Load
2. speed
3. D. C. excitation

(A) 1 only   (B) 1 and 2 only

(C) 2 and 3 only (D) 1, 2 and 3

78. A 3-phase induction motor running at 1440 rpm on rated supply will run at which of the following rpm when fuse of one phase gets burnt ?

(A) 1440   (B) 1380

(C) 1500   (D) Zero

79. The rotor output of an induction motor is 15 kW and the slip is 4%. Then the rotor copper loss is

(A) 600 Watt   (B) 300 Watt

(C) 700 Watt   (D) 1200 Watt

80. In a 3-phase induction motor, electrical torque T in terms of supply voltage V is proportional to

(A) V   (B) $\sqrt{V}$

(C) V^2 (D) V^3

81. In a capacitor-start, capacitor-run motor, the two capacitors
(A) Have similar construction
(B) Are of different types
(C) Have equal capacitances
(D) None of these

82. The motor in which stator and rotor magnetic field rotate at the same speed is
(A) Induction motor
(B) Reduction motor
(C) Universal motor
(D) Synchronous motor

83. A single-phase voltage source square-wave inverter feeds pure inductive load. The waveform of the load current will be
(A) Sinusoidal
(B) Rectangular
(C) Triangular
(D) Trapezoidal

84. Excess majority carriers are those which are
(A) In excess of the equilibrium number
(B) Thermally-generated
(C) In excess of the minority carrier
(D) Total majority carriers

85. The ideal characteristic of a stabiliser is
(A) Constant output voltage with low internal resistance
(B) Constant output with low internal resistance
(C) Constant output voltage with high internal resistance
(D) Constant internal resistance with variable output voltage

86. In a differential amplifier, CMRR can be improved by using an increased
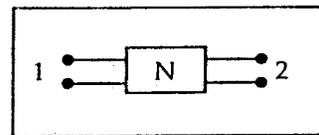(A) Emitter resistance
(B) Collector resistance
(C) Power supply voltage
(D) Source resistance

87. Current I_v in the given circuit is
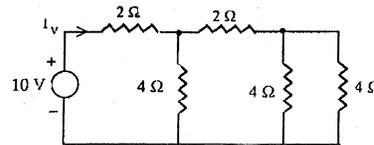
(A) 1.25 Amp   (B) 2 Amp
(C) 2.5 Amp   (D) 5 Amp

88. The load resistance which should be connected between terminal A and B for maximum transfer of power source to the combined load is
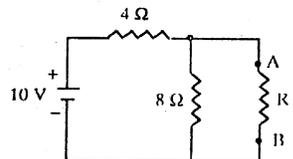

(A) 4 Ω (B) 8 Ω

(C) 12 Ω (D) $\dfrac{8}{3}$ Ω

89. A two port network N has transmission parameters
$$\begin{bmatrix} A & B \\ C & D \end{bmatrix}$$
The input impedance of the network at port-1 will be

(A) $\dfrac{D}{C}$ (B) $\dfrac{AD}{BC}$

(C) $\dfrac{AB}{DC}$ (D) $\dfrac{A}{C}$

90. Unit of displacement density is
(A) Farad/metre   (B) Amp/metre
(C) Webers/metre^2 (D) Ohm/metre

91. The directivity of an isotropic antenna is
(A) Zero   (B) Unity
(C) Less than unity (D) Infinity

92. Given that L = 1μ II/m, C = 11 pf/m, the group delay time is

(A) 0.33 n sec   (B) 0.3 μ sec

(C) 0.33 sec   (D) Zero

93. Electrostatic voltmeters

(A) Are not frequency limited

(B) Have uniform scale

(C) Have scale reading rms value on an a.c. circuit

(D) Have scale reading peak value on an a.c. circuit

94. Transistor voltmeter is a highly sensitive instrument and can be used for the measurement of

(A) Energy

(B) Power

(C) D. C. voltage only

(D) Voltage and current

95. Which of the following errors does not result in moving iron instrument with both D.C. and A.C. ?

(A) A stray magnetic field error

(B) Hysteresis error

(C) Eddy current error

(D) Temperature error

96. With typical load resistance of 4 KΩ, the voltage gain of a typical CC amplifier stage is of the order of

(A) 200   (B) 20

(C) 1   (D) 0.99

97. A NAND gate is equivalent to an

(A) AND gate followed by an OR gate

(B) AND gate followed by an inverter

(C) Inverter followed by an OR gate

(D) Inverter followed by an AND gate

98. For the logic circuit shown in the figure below, the output Y is equal to
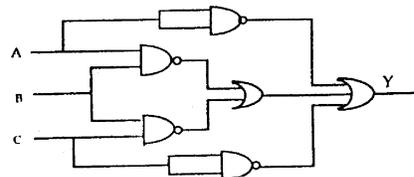
(A) $\overline{ABC}$

(B) $\overline{A} + \overline{B} + \overline{C}$

(C) $\overline{AB} + \overline{BC} + \overline{A} + \overline{C}$

(D) $\overline{AB} + \overline{BC}$

99. A full-adder can be implemented with half-adders and OR gates. A 4-bit parallel full-adder without any initial carry requires

(A) 8 half-adders, 4 OR gates

(B) 8 half-adders, 3 OR gates

(C) 7 half-adders, 4 OR gates

(D) 7 half-adders, 3 OR gates

100. Which of the following Operational Amplifier Systems is non-linear ?

(A) Current to voltage converter

(B) Active filter

(C) Logarithmic amplifier

(D) Delay equaliser

ANSWERS

51. (C)	**52.** (D)	**53.** (B)	**54.** (B)
55. (C)	**56.** (C)	**57.** (C)	**58.** (D)
59. (A)	**60.** (C)	**61.** (B)	**62.** (B)
63. (A)	**64.** (B)	**65.** (C)	**66.** (C)
67. (B)	**68.** (A)	**69.** (C)	**70.** (B)
71. (C)	**72.** (A)	**73.** (A)	**74.** (C)
75. (D)	**76.** (C)	**77.** (C)	**78.** (A)
79. (C)	**80.** (C)	**81.** (B)	**82.** (A)
83. (C)	**84.** (C)	**85.** (A)	**86.** (B)
87. (C)	**88.** (A)	**89.** (D)	**90.** (C)
91. (B)	**92.** (C)	**93.** (B)	**94.** (C)
95. (A)	**96.** (C)	**97.** (B)	**98.** (A)
99. (B)	**100.** (C)		

ELECTRONICS AND TELECOMMUNICATION ENGINEERING

101. A waveguide acts as a
(A) Low pass filter
(B) High pass filter
(C) Band pass filter
(D) Band stop filter

102. In a two-wattmeter method of measuring power in a balanced three phase circuit, one wattmeter shows zero and the other positive maximum. The load power factor is
(A) Zero   (B) 0.5
(C) 0.866   (D) 1.0

103. The function of a filter in a rectifier is to
(A) Limit the total current in the rectifier
(B) Limit the peak voltage of the rectifier
(C) Limit the d.c. current
(D) Reduce the ripple voltage in the output

104. A transistor is said to be in quiescent state when
(A) It is unbiased
(B) No current is flowing in it
(C) No signal is applied to it
(D) Emitter junction bias is equal to the collector junction bias

105. The circuit given below is functionally equivalent to
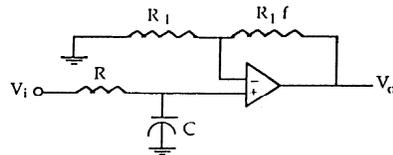
(A) AND gate
(B) OR gate
(C) NOR gate
(D) NAND gate

106. A pulse train can be delayed by a finite number of clock periods using

(A) A parallel-in parallel-out shift register
(B) A serial-parallel-out shift register
(C) A parallel-in serial-out shift register
(D) A serial-in serial-out shift register

107. A divide by 78 counter can be realised by using
(A) 6 nos. of mod–13 counters
(B) 13 nos. of mod–6 counters
(C) One mod–13 counter followed by one mod–6 counter
(D) 13 nos. of mod–13 counters

108. The differential gain of an operational amplifier should be
(A) Unity   (B) Very large
(C) Very small   (D) Medium

109. The operational amplifier circuit given below behaves as a
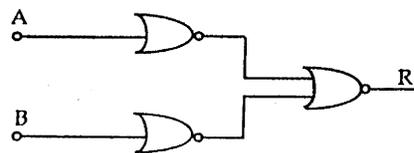
(A) Differentiator
(B) High pass filter
(C) Low pass filter
(D) Notch filter

110. The property of operational amplifier which permits voltage gain down to zero frequency is
(A) High open loop gain
(B) Direct coupling
(C) Capacitance coupling
(D) Feed back

111. The maximum degree of any node in simple graph with n vertices is

(A) $\dfrac{n}{2}$ (B) n
(C) $(n-1)$ (D) $(n-2)$

112. A tree with n nodes has

(A) $\dfrac{n}{2}$ edges   (B) (n − 1) edges

(C) n edges   (D)(n + 1) edges

113. Channel capacity is exactly equal to

(A) Amount of information per second

(B) Bandwidth of demand

(C) Noise rate in the demand

(D) None of these

114. In frequency modulation, if the frequency of the modulating voltage is doubled, then the maximum frequency deviation

(A) Doubles

(B) Becomes four times

(C) Remains unaltered

(D) Becomes half

115. In FM, the output noise may be decreased by

(A) Decreasing frequency deviation

(B) Increasing frequency deviation

(C) Keeping deviation constant

(D) None of these

116. The number of AM broadcast stations which can be accommodated in 200 kHz frequency spectrum for highest modulating frequency of 5 kHz is

(A) 10   (B) 100

(C) 20   (D)None of these

117. Night effect is most prominent in

(A) Loop antenna

(B) Adcock antenna

(C) Vertical antenna

(D) All of these

118. Telephone traffic is measured in terms of

(A) Hz   (B) Bauds

(C) Numbers   (D)Erlangs

119. In CCIR-B system, the horizontal sync. frequency is

(A) 15.625 Hz   (B) 125 Hz

(C) 15 Hz   (D)50 Hz

120. An active satellite has

(A) Only antenna system

(B) Antenna system, transmitter and receiver

(C) Antenna system, transmitter, receiver and power supply

(D) Only metallic balloon

121. Signal flow graph is used to find

(A) Stability of the system

(B) Controllability of the system

(C) Poles of the system

(D) Transfer function of the system

122. The wavelength of microwave at 100 GHz will be

(A) 0.03 cm   (B) 0.3 m

(C) 3 cm   (D)0.3 cm

123. Input cavity of a two-cavity Klystron is 0.1 cm wide. If the frequency of applied RF signal is 1000 MHz and beam accelerating potential is 2500 V, then the number of cycles that would elapse during the transit of beam through the input gap is

(A)0.067 cycle

(B) 2.4 cycle

(C) 1 cycle

(D)None of the above

124. Which of the following is unlikely to be used as a pulsed device ?

(A) TWT   (B) BWO

(C) CFA   (D)Multicavity

125. A circular waveguide has internal diameter of 5 cm. The cut off frequency for TE_H mode will be

(A) 5 MHz   (B) 35 MHz

(C) 3.5 GHz   (D)35 GHz

126. Waveguides are pressurised above normal atmospheric pressure for

(A) Preventing higher order modes from propagating

(B) Increasing their power handling capacity

(C) Improving the conductivity of their walls

(D) Varying the wave impedance

127. Measurement with a crystal detector indicates a maximum and minimum direct crystal currents of 40 and 10 micro amperes respectively as the detector is moved along the wave guide. If exponent p for crystal is 2, then the standing wave ratio is

(A) 4   (B) 2
(C) 16   (D) None of these

128. Baretters and bolometers are used for the measurement of

(A) VSWR
(B) Transmission losses
(C) Microwave power
(D) None of these

129. In CCIR B-system, pre-eualising pulses extend for the duration of

(A) 3 H   (B) 3.5 H   (C) 2 H   (D) 2.5 H

130. TV transmitting antennas are

(A) Directional
(B) Unidirectional
(C) Omnidirectional
(D) Bidirectional

131. The region of light spectrum that appears brightest to the human eye is

(A) 5200 A°   (B) 5550 A°
(C) 4400 A°   (D) 5500 A°

132. For high band monochrome video-tape recording operation, the frequency that corresponds to the blanking is

(A) 10 MHz   (B) 7.9 MHz
(C) 5 MHz   (D) None of these

133. The voltage required for a television picture tube anode having a 51 cm screen is typically

(A) 20 KV
(B) 1000 KV
(C) 15 KV
(D) 10 KV

134. The resolution of a TV picture is determined by

(A) Video amplification factor
(B) Video bandwidth
(C) The number of frames scanned
(D) The output of the video detector

135. A rhombic antenna comprises of

(A) Four half wave dipoles
(B) Two half wave dipoles
(C) Four quarter wave dipoles
(D) None of these

136. The radiated field of a short dipole is directly proportional to

(A) Frequency
(B) Length of antenna
(C) Antenna current
(D) All of these

137. For the earth station antennas to be 6 feet in diameter, the satellite frequency bands must be in

(A) 4/6 GHz range
(B) 20/30 GHz range
(C) 12/14 GHz range
(D) Both (A) and (C)

138. At low temperatures, the mean free path and collision time are proportional to

(A) $\dfrac{1}{T^3}$ (B) $\dfrac{1}{T^2}$

(C) T   (D) $\dfrac{1}{T}$

139. Piezo-electric effect is the production of electricity by

(A) Pressure
(B) Temperature
(C) Chemical energy
(D) Varying field

140. Ferrite materials are used for producing

(A) Entertainment electronic goods
(B) Capacitors
(C) Magnetism
(D) Heavy loss goods

141. Order of resistivity of silver is

(A) Pico-ohm-metre
(B) Milli-ohm-metre
(C) Nano-ohm-metre
(D) Micro-ohm-metre

142. In any conductor, hall voltage V_H is proportional to

(A) B^2　　　　(B) B

(C) $\dfrac{1}{B}$　　　　(D) $\dfrac{1}{B^2}$

where B is the magnetic field.

143. In a PNP Ge transistor, the cut in voltage is about

(A) –0.01 Volt

(B) –0.5 Volt

(C) –5 Volt

(D) –0.1 Volt

144. As compared to a full-wave rectifier using two diodes, the four diode bridge rectifier has the dominant advantage of

(A) Higher current carrying capacity

(B) Lower ripple factor

(C) Lower peak inverse voltage requirement

(D) Higher efficiency

145. Voltage V_1 and V_2 in the given circuit are respectively
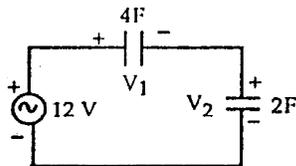
(A) 8 Volts and 4 Volts

(B) 4 Volts and 8 Volts

(C) 6 Volts and 6 Volts

(D) 12 Volts and 12 Volts

146. A D.C. voltage 10 Volt is applied to a series circuit consisting of resistor $R = 2\Omega$ and inductance $L = 2H$. The steady state current is

(A) 5 Amp

(B) 10 Amp

(C) 2.5 Amp

(D) 1.25 Amp

147. Maxwell's divergence equation in case of static electric field states that

(A) $\nabla.E = \varepsilon$

(B) $\nabla.E = \varepsilon\rho$

(C) $\nabla.E = \dfrac{\rho}{\varepsilon_0}$

(D) $\nabla.E = \dfrac{1}{\rho}$

Notations are standard.

148. The intrinsic impedance of copper at high frequencies is

(A) Purely resistive

(B) Purely inductive

(C) Complex with a capacitive component

(D) Complex with an inductive component

149. The coil of a moving coil meter is wound on

(A) Insulating frame

(B) Iron frame

(C) Aluminium frame

(D) A semiconductor material

150. The damping torque is produced by the

(A) Spring control

(B) Gravity control

(C) Utilising thermal effect

(D) Air friction or eddy currents

ANSWERS

101. (B)	**102.** (B)	**103.** (D)	**104.** (C)
105. (B)	**106.** (A)	**107.** (C)	**108.** (B)
109. (C)	**110.** (C)	**111.** (C)	**112.** (B)
113. (A)	**114.** (D)	**115.** (B)	**116.** (C)
117. (D)	**118.** (B)	**119.** (A)	**120.** (C)
121. (D)	**122.** (D)	**123.** (D)	**124.** (C)
125. (C)	**126.** (A)	**127.** (A)	**128.** (C)
129. (C)	**130.** (C)	**131.** (C)	**132.** (D)
133. (A)	**134.** (C)	**135.** (C)	**136.** (D)
137. (D)	**138.** (D)	**139.** (A)	**140.** (C)
141. (A)	**142.** (B)	**143.** (B)	**144.** (C)
145. (B)	**146.** (A)	**147.** (C)	**148.** (B)
149. (B)	**150.** (A)		