Question Booklet

ELECTRICAL ENGINEERING

Ser 40(

Time Allowed : 2 Hours | **Maximum Marks : 100**

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

IMPORTANT INSTRUCTIONS

1. This Question Booklet is divided into two Sections, Section—I and Section—II. Section—I is compulsory. Section—II consists of three Parts. **Part–A** is compulsory and candidates shall answer questions from any one Part out of two Parts—**Part–B** or **Part–C**..
2. This Question Booklet contains 125 questions in all. **Section—I** consists of Question Nos. **1** to **50 (Compulsory), Section—II : Part–A** consists of Question Nos. **51** to **75 (Compulsory), Section—II : Part–B** consists of Question Nos. **76** to **100** and **Section—II : Part–C** consists of Question Nos. **101** to **125**.
3. Attempt questions from Section—I **(Compulsory)**, Section—II : Part–A **(Compulsory)** and Section—II : Part–B **OR** Section—II : Part–C.
4. **All** questions carry equal marks.
5. **Immediately after commencement of the examination, you should check up your Question Booklet and ensure that the Question Booklet Series is printed on the top right-hand corner of the Booklet. Please check that the Booklet contains 44 printed pages including two pages (Page Nos. 42 and 43) for Rough Work and no page or question is missing or unprinted or torn or repeated. If you find any defect in this Booklet, get it replaced immediately by a complete Booklet of the same series.**
6. If there is any sort of mistake either of printing or of factual nature, then out of English and Hindi versions of the questions, the English version will be treated as standard.
7. You must write your Roll Number in the space provided on the top of this page. Do not write anything else on the Question Booklet.
8. An Answer Sheet will be supplied to you separately by the Invigilator to mark the answers. **You must write your Name, Roll No., Question Booklet Series, name of the chosen Section and Part and other particulars in the space provided on Page–2 of the Answer Sheet provided, failing which your Answer Sheet will not be evaluated.**
9. You should encode your **Roll Number** and the **Question Booklet Series A, B, C or D** as it is printed on the top right-hand corner of the Question Booklet with Black/Blue ink ballpoint pen in the space provided on **Page–2** of your Answer Sheet. **If you do not encode or fail to encode the correct series of your Question Booklet, your Answer Sheet will not be evaluated correctly.**
10. Questions and their responses are printed in English and Hindi versions in this Booklet. Each question comprises of **four** responses—(A), (B), (C) and (D). You are to select ONLY ONE correct response and mark it in your Answer Sheet. In case you feel that there are more than one correct response, mark the response which you consider the best. In any case choose ONLY ONE response for each question. Your total marks will depend on the number of correct responses marked by you in the Answer Sheet.

    In the Answer Sheet, there are **four** circles—(A), (B), (C) and (D) against each question. To answer the questions you are to mark with **Black/Blue ink ballpoint pen ONLY ONE circle** of your choice for each question. Select only one response for each question and mark it in your Answer Sheet. If you mark more than one answer for one question, the answer will be treated as wrong. **Use Black/Blue ink ballpoint pen only to mark the answer in the Answer Sheet. Any erasure or change is not allowed.**

    You should not remove or tear off any sheet from the Question Booklet. You are not allowed to take this Question Booklet and the Answer Sheet out of the Examination Hall during the examination. **After the examination has concluded, you must hand over your Answer Sheet to the Invigilator.** Thereafter, you are permitted to take away the Question Booklet with you.

    Failure to comply with any of the above instructions will render you liable to such action or penalty as the Commission may decide at their discretion.

ध्यान दें : अनुदेशों का हिन्दी रूपान्तर इस पुस्तिका के अन्तिम पृष्ठ पर छपा है।

SECTION—I
(Compulsory)

1. The power-angle characteristics of a salient-pole synchronous machine contain

(A) fundamental component and a second harmonic component

(B) fundamental component only

(C) the variation of power P with $\cos \phi$

(D) None of the above

2. For better results, a strain gauge should have low

(A) resistance value

(B) gauge factor

(C) resistance temperature coefficient

(D) All of the above

3. A semiconductor strain gauge

(A) has a much higher gauge factor than that of a metal wire gauge

(B) employs piezoelectric property of undoped silicon

(C) does not require temperature compensation

(D) exhibits very little gauge factor variation as compared to that of metal wire gauges

4. The drawback(s) of incremental encoders is/are

(A) any false pulse resulting from electric noise will cause error which will persist even on disappearance of noise

(B) the failure of power supply causes total loss of position data which cannot be retrieved even after restoration of power supply

(C) these encoders are usually limited to a measurement of single revolution

(D) Both (A) and (B)

5. A shaft encoder attached to a DC motor has a sensitivity of 500 pulses per revolution. A frequency meter connected to the output of the encoder indicates the frequency to be 5500 Hz. The speed of the motor in r.p.m. is

(A) 110

(B) 220

(C) 550

(D) 660

6. In McLeod gauge

(A) high-pressure fluid is expanded to a low pressure which is read by the manometer technique

(B) low-pressure fluid is compressed to a high pressure which is read by the Bourdon technique

(C) high-pressure fluid is expanded to a low pressure which is read by the Bourdon technique

(D) low-pressure fluid is compressed to a high pressure which is read by the manometer technique

7. A pressure gauge used to measure vacuum indicates a gauge pressure of 5 kPa. If the atmospheric pressure is 100 kPa, the absolute pressure is

(A) 105 kPa

(B) 0·05 kPa

(C) 95 kPa

(D) 20 kPa

8. A platinum resistance thermometer has a resistance of 2 ohm at 0 °C and 3 ohm at 100 °C. What will be the temperature when resistance indicates 5 ohm?

(A) 300 °C

(B) 200 °C

(C) 350 °C

(D) 400 °C

9. The time constant of an *R-C* circuit is

(A) RC

(B) R/C

(C) R

(D) C

10. The value of the time constant in the *R-L* circuit is

(A) L/R

(B) R/L

(C) R

(D) L

11. After how many time constants, the transient part reaches more than 99% of its final value?

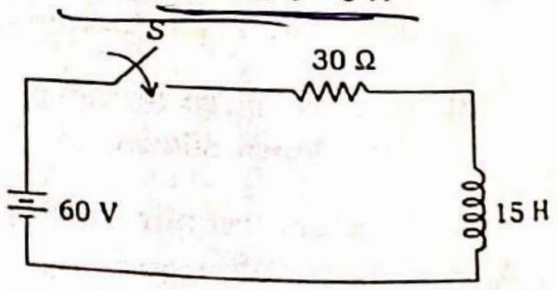
(A) 2

(B) 3

(C) 4

(D) 5

12. A series *R-L* circuit with $R = 30\ \Omega$ and $L = 15$ H has a constant voltage $V = 60$ V applied at $t = 0$ as shown in the figure. Determine the current in the circuit at $t = 0+$.



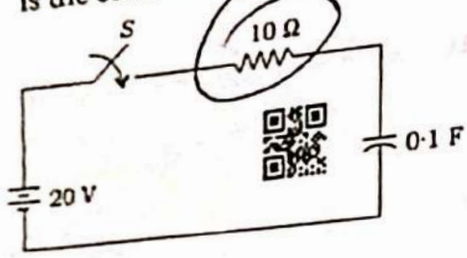
(A) 1 A

(B) 2 A

(C) 3 A

(D) 0 A

13. A series R-C circuit consists of a resistor of 10 Ω and a capacitor of 0·1 F as shown in the figure. A constant voltage of 20 V is applied to the circuit at $t = 0$. What is the current in the circuit at $t = 0$?



(A) 1 A

(B) 2 A

(C) 3 A

(D) 4 A

14. Consider a rectangular voltage pulse having amplitude 1 V and duration from a to b. What will be $V(t)$?

(A) $V(t) = u(t-a) - u(t-b)$

(B) $V(t) = u(b-t) - u(a-t)$

(C) $V(t) = u(b-t) * u(t-a)$

(D) $V(t) = u(a-t) * u(t-b)$

15. The Laplace transform of delayed unit impulse function by 1 is

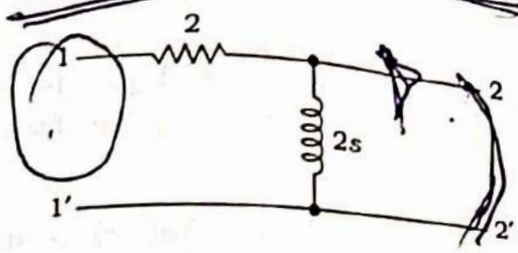
(A) unity

(B) zero

(C) e^{-s}

(D) s

16. The given two-port network has input voltage $V_1(s)$ and output voltage $V_2(s)$. Obtain the transfer function $G_{21}(s)$ in the circuit shown below.



(A) $(s+1)/s$

(B) $s+1$

(C) s

(D) $s/(s+1)$

17. If the number of poles (m) is greater than the number of zeros (n), then there will be _____ number of zeros at $s = \infty$.

(A) $m+n$

(B) $m-n$

(C) m

(D) n

18. Silicon is preferred over germanium because

(A) silicon has more thermal stability as compared to germanium

(B) silicon is available in plenty

(C) silicon has positive temperature coefficient of resistance

(D) silicon has negative temperature coefficient of resistance

19. The reverse saturation current for a diode

(A) depends upon the amount of reverse bias applied

(B) does not depend upon the amount of reverse bias applied

(C) depends upon the resistance in the circuit connected

(D) None of the above

20. The frequency, up to which a diode could be used, depends upon the

(A) reverse recovery time

(B) transition time

(C) storage time

(D) None of the above

21. A Zener diode in forward bias

(A) does not conduct

(B) takes more current for conduction

(C) works like a normal silicon diode

(D) None of the above

22. Which one of the following is true for a light-emitting diode?

(A) Rugged

(B) Power requirements in milli-watts range

(C) Long lifetime

(D) All of the above

23. The requirements of a clamper circuit are

(A) capacitor, diode, resistance, power supply

(B) capacitor, ideal diode, resistance, power supply

(C) capacitor, ideal diode, power supply

(D) capacitor, diode, resistance, power supply, inductor

24. The nominal voltage for a Zener diode, given $V_z = 10$ V, $T_c = 0{\cdot}02$, $T_1 = 100$ °C, $T_0 = 25$ °C, is

(A) 10 V

(B) 10·54 V

(C) 10·50 V

(D) 10·55 V

31. The incoming solar radiation at a place on the surface of the earth is 1·2 kW/m^2. The amplitude of the electric field corresponding to this incident power is nearly equal to

(A) 60 mV/m

(B) 2·5 V/m

(C) 30 V/m

(D) 950 V/m

32. To reduce the effect of fringing in a capacitive-type transducer

(A) the transducer is shielded and the shield is kept at ground potential

(B) a guard ring is provided and it is kept at ground potential

(C) the transducer is shielded and the shield is kept at the same potential as the moving plate

(D) a guard ring is provided and it is kept at the same potential as the moving plate

33. The speed of rotation of a shaft is measured by using a 120 teeth wheel and an inductive pick-up. The reading on a digital frequency meter is 3000 with a gating period of 10^6 microsecond. The shaft speed would be

(A) 750 r.p.m.

(B) 300 r.p.m.

(C) 1500 r.p.m.

(D) 3600 r.p.m.

34. The sensing element of a thermocouple at its hot junction is provided with a shield while taking measurements in a high temperature gas. The principal reason for providing the shield is

(A) to reduce conduction and convection errors

(B) to reduce radiation error

(C) to provide temperature compensation to the Seebeck voltage

(D) to improve air supply to the sensing element for better response

35. The efficiency of Class A power amplifier is

(A) 25%

(B) 80%

(C) 50%

(D) None of the above

36. For transistor amplifier, which feedback is incorporated?

(A) Positive

(B) Negative

(C) No feedback

(D) None of the above

37. For oscillator circuit, which feedback is incorporated?

(A) Positive

(B) Negative

(C) No feedback

(D) None of the above

38. Which of the following is true for electrostatics?

(A) $E = -\nabla V$

(B) $\nabla^2 V = 0$

(C) Both (A) and (B)

(D) None of the above

39. Poynting vector is obtained as

(A) $P = E \times H$

(B) $S = E \times H$

(C) $E = P \times H$

(D) $H = E \times P$

40. According to Ampere's circuital law

(A) $\int Hdl = I$

(B) $\int Hdl = I_{enc}$

(C) $\int Hdl = \int (\nabla \times H) ds$

(D) $\nabla \times E = -\partial B / \partial t$

41. Ampere's circuital law and which of the following laws in electrostatics are analogous?

(A) Lenz's law

(B) Gauss's law

(C) Biot-Savart law

(D) Faraday's law

42. The energy stored in a capacitor is given by

(A) $W = \frac{1}{2} CV^2$

(B) $W = Q^2 / (2C)$

(C) Both (A) and (B)

(D) None of the above

43. Two two-port networks are connected in cascade. The combination is to be represented as a single two-port network by multiplying the individual

(A) z-parameter matrix

(B) h-parameter matrix

(C) y-parameter matrix

(D) $ABCD$-parameter matrix

44. The condition for maximum efficiency in DC machine is

(A) iron losses are equal to copper losses

(B) variable losses are equal to constant losses

(C) iron losses are equal to variable losses

(D) mechanical losses and iron losses together are equal to copper losses

45. DC series motor when connected to AC supply works satisfactorily because

(A) torque production does not get affected

(B) AC supply is having magnitude and direction

(C) DC series motor's working principle is based on Fleming's left-hand rule which is applicable for AC supply also

(D) Both (A) and (C)

46. Induction generator and induction motor differ with respect to

(A) speed of rotation N_s and mode of power transfer and its direction

(B) generation and load

(C) construction and application

(D) None of the above

47. Static excitation system has replaced DC excitation system because

(A) DC excitation system is sluggish in control

(B) static excitation system has small time constant and is fast in operation

(C) DC excitation system has large time constant and is stable

(D) static excitation system is cheaper

48. Variable frequency drives are used for speed control of induction motor since

(A) it has better control of speed from no load to full load as well as speed-torque characteristics

(B) it is based on power electronics principles

(C) VFD can be integrated with modern control technologies also

(D) All of the above

49. Distributed generation by renewable sources is preferred because

(A) local power requirement can be met

(B) it attracts more carbon footprints

(C) it is required to reduce dependency on conventional sources

(D) All of the above

50. A synchronous motor working on leading power factors and not driving any mechanical system is called as

(A) power factor controller

(B) synchronous condenser

(C) synchronous alternator

(D) None of the above

SECTION—II (Part—A)
(Compulsory)

51. The breakaway point of the root locus occurs at

(A) imaginary axis

(B) real axis

(C) multiple roots of characteristic equation

(D) Either (A) or (B)

52. If the gain (K) of a system becomes zero, the root will

(A) move away from zeros

(B) move away from poles

(C) coincide with zeros

(D) coincide with poles

53. While increasing the value of gain factor K, the system becomes

(A) less stable

(B) more stable

(C) unstable

(D) absolutely stable

54. For a stable system

(A) gain margin and phase margin both are positive

(B) gain margin and phase margin both are negative

(C) gain margin is positive and phase margin is negative

(D) gain margin is negative and phase margin is positive

55. A synchro is used to

(A) accelerate a rotating shaft

(B) convert an angular position of shaft into an electrical signal

(C) convert linear motion into angular position

(D) amplify low-frequency signals

56. If the gain of the loop system is doubled, the gain margin of the system is

(A) not affected

(B) doubled

(C) halved

(D) one-fourth of the original value

57. The mathematical model of a system is linear, if it obeys the principle of

(A) superposition

(B) homogeneity

(C) reciprocity

(D) superposition and homogeneity

58. The most suitable method for determining the stability and transient response of a system is

(A) root locus

(B) Bode plot

(C) Nyquist criterion

(D) Routh-Hurwitz criterion

59. The average current rating of a conductor diode will be maximum for

(A) full-wave rectified AC

(B) half-wave rectified AC

(C) pure AC

(D) pure DC

60. The function of a filter in a rectifier is to

(A) limit the total current in the rectifier

(B) limit the peak voltage in the rectifier

(C) limit the DC current

(D) reduce the ripple voltage in the output

61. In controlled rectifiers, the nature of load current, i.e., whether load current is continuous or discontinuous

(A) does not depend on the type of load and firing angle delay

(B) depends on the type of load and firing angle delay both

(C) depends only on the type of load

(D) depends only on the firing angle delay

62. A freewheeling diode across inductive load will provide

(A) quick turn-on

(B) slow turn-off

(C) reduced utilization factor

(D) improved power factor

63. A single-phase full-bridge inverter can operate in load-commutation mode in case load consists of

(A) *R-L*

(B) *R-L-C* underdamped

(C) *R-L-C* overdamped

(D) *R-L-C* critically damped

64. A time margin for series inverter ensures

(A) low power loss

(B) safety of the device

(C) improved power factor

(D) absence of harmonics

65. A chopper, where voltage as well as current remains negative, is known as

(A) Type A

(B) Type B

(C) Type C

(D) Type D

66. A chopper, in which current remains positive but voltage may be positive or negative, is known as

(A) Type A

(B) Type B

(C) Type C

(D) Type D

67. A three-phase semiconverter feeds the armature of a separately excited DC motor, supplying a non-zero torque. For steady-state operation, the motor armature current is found to drop to zero at certain instances of time. At such instances, the voltage assumes a value that is

(A) equal to the instantaneous value of the AC phase voltage

(B) equal to the instantaneous value of the motor back e.m.f.

(C) arbitrary

(D) zero

68. Slip-power control schemes provide a range of speed control of a three-phase induction motor. The range is

(A) 0 to N_s

(B) $-N_s$ to N_s

(C) 0 to $2N_s$

(D) $-2N_s$ to $2N_s$

where N_s is the synchronous speed.

69. The most suitable device for high-frequency inversion in SMPS is

(A) BJT

(B) IGBT

(C) MOSFET

(D) GTO

70. With a negative feedback, the system gain and stability

(A) decreases, increases

(B) increases, decreases

(C) increases, increases

(D) decreases, decreases

71. Signal-flow graph is a

(A) topological representation of a set of differential equations

(B) Bode plot

(C) polar plot

(D) None of the above

72. Insertion of negative feedback in a control system affects

(A) the transient response to vanish uniformly

(B) the transient response to decay very fast

(C) No change in the transient response

(D) the transient response to decay at a slow rate

73. The steady-state error is determined as the difference between the reference input and the system output at

(A) $t = t_p$

(B) $t = \infty$

(C) $t = 0$

(D) t = time constant

74. For Type 1 system, the steady-state error due to step input is equal to

(A) infinity

(B) zero

(C) one

(D) None of the above

75. The stability of a system

(A) decreases as the type of the system increases

(B) increases as the type of the system increases

(C) does not change as the type of the system increases

(D) None of the above

SECTION—II (Part—B)
(Heavy Currents)

76. Hunting in a synchronous motor takes place

(A) when supply voltage fluctuates

(B) when load varies

(C) when power factor is unity

(D) when motor is underloaded

77. Hollow conductors are used in transmission line to

(A) reduce weight of conductor

(B) improve power transfer capability

(C) reduce corona

(D) increase stability

78. Shunt reactors are needed to

(A) boost receiving-end voltage under light loads

(B) boost receiving-end voltage under heavy loads

(C) bring down receiving-end voltage at light loads

(D) bring down receiving-end voltage under heavy loads

79. The transmission efficiency increases with

(A) decrease in power factor and increase in voltage level

(B) decrease in power factor and decrease in voltage level

(C) increase in power factor and increase in voltage level

(D) increase in power factor and decrease in voltage level

80. Fast-acting circuit breakers

(A) improve transient stability

(B) improve steady-state stability

(C) improve transient and steady-state stability both

(D) do not affect stability

81. The angle swings during transients

(A) should not exceed 90°

(B) can exceed 90° but cannot exceed 180°

(C) can go beyond 180°

(D) will not be greater than swings under minor disturbances

82. For protection of short lines against ground faults, where arc resistance is comparable to the impedance of the line, the preferred relay is

(A) impedance relay

(B) reactance relay

(C) admittance relay

(D) overcurrent relay

83. Pilot relaying schemes are used for the protection of

(A) bus bars

(B) transformers

(C) instrument transformers

(D) transmission lines

84. Braking through plugging without any additional corrective measures, is possible for

(A) three-phase induction motor

(B) DC series motor

(C) synchronous motor

(D) All of the above

85. There may be zero-sequence components in

(A) line voltage of star circuit

(B) phase voltage of star circuit

(C) line current of delta circuit

(D) All of the above

86. In solution of load flow equations, if slack bus is changed

(A) complex voltages and losses will change

(B) only complex voltages will change, losses will be same

(C) complex voltages do not change, however line losses are affected

(D) Choice of slack bus has no effect on solution of load flow equations

87. The load-carrying capability of a long AC line is

(A) limited by conductor size

(B) limited by stability considerations

(C) limited by thermal considerations

(D) decreased by using bundled conductors

88. Series capacitors in a transmission line

(A) reduce line loading

(B) improve steady-state stability

(C) improve protection of line

(D) reduce voltage of buses at the two ends

89. A drive having mixed properties of DC shunt motor and DC series motor is

(A) DC series motor

(B) DC shunt motor

(C) differentially compounded DC motor

(D) cumulatively compounded DC motor

90. Out of the given set of characteristics, the more significant electrical characteristics for a traction motor are

(A) running characteristics

(B) starting characteristics

(C) speed control characteristics

(D) braking characteristics

91. Dielectric heating is more effective when

(A) voltage is low, but frequency is high

(B) voltage is high, but frequency is low

(C) both voltage and frequency are low

(D) both voltage and frequency are high

92. The 'pinch' effect' in coreless induction heating is checked by

(A) continuously stirring the charge

(B) rocking the furnace

(C) using some molten charge right from start of heating process

(D) All the above post-possibilities are theoretical and non-practicable

93. The voltages across the various discs of a string of suspension insulators having identical discs are different due to

(A) surface leakage currents

(B) series capacitance

(C) shunt capacitances to ground

(D) series and shunt capacitances

94. A fault is more severe from the viewpoint of RRRV, if it is a

(A) short line fault

(B) medium length line fault

(C) long line fault

(D) None of the above

95. In the circle diagram for induction motor, the diameter of the circle represents

(A) slip

(B) rotor current

(C) running torque

(D) line voltage

96. In a three-phase induction motor, the number of poles in the rotor winding is always

(A) zero

(B) more than the number of poles in stator

(C) less than the number of poles in stator

(D) equal to the number of poles in stator

97. The torque developed by a three-phase induction motor depends on

(A) synchronous speed, rotor speed and frequency

(B) speed, number of poles and frequency

(C) rotor e.m.f., rotor current and rotor power factor

(D) voltage, stator impedance and current

98. Dampers in large generators

(A) reduce voltage fluctuations

(B) increase stability

(C) reduce frequency fluctuations

(D) None of the above

99. In which case, the terminal voltage rise of an alternator will be more?

(A) When unity power factor load is thrown off

(B) When leading power factor load is thrown off

(C) When lagging power factor load is thrown off

(D) None of the above

100. For V-curves for a synchronous motor, the graph is drawn between

(A) field current and armature current

(B) terminal voltage and load factor

(C) power factor and field current

(D) armature current and power factor

OR

SECTION—II (Part—C)
(Light Currents)

101. Which of the following receivers does ***not*** have amplitude limiter stage?

(A) AM

(B) FM

(C) Both AM and FM

(D) None of the above

102. Which system is free from noise?

(A) FM

(B) AM

(C) Both FM and AM

(D) None of the above

103. Which of the following is ***not*** necessarily an advantage of FM over AM?

(A) Less modulation power is required

(B) Lower bandwidth is required

(C) Better noise immunity is required

(D) The transmitted power is more useful

04. In case of antenna, the ratio of the power radiated in the desired direction to the power radiated in the opposite direction is known as

(A) transmission efficiency

(B) front-to-back ratio

(C) loss coefficient

(D) None of the above

105. Antenna radiation efficiency can be increased by

(A) reducing radiation resistance of the system

(B) increasing radiation resistance of the system

(C) providing effective earthing

(D) Any of the above

106. Sampling theorem finds application in

(A) amplitude modulation

(B) frequency modulation

(C) PCM

(D) None of the above

107. Which type of transmission line will have the least characteristic impedance?

(A) Open-wire line

(B) Twin-lead line

(C) Coaxial cable

(D) All of the above

108. The reflection coefficient on lossless transmission line

(A) is always purely imaginary

(B) is always purely real

(C) is always complex

(D) can be anyway

109. A device used for coupling microwave energy is known as

(A) antenna

(B) resonator

(C) waveguide

(D) loop

110. When microwave signals follow the curvature of the earth, this is known as

(A) Faraday effect

(B) ducting

(C) tropospheric scatter

(D) ionospheric reflection

111. Which of the following is **not** an application of microwave cavities?

(A) Band-pass filter

(B) Band-stop filter

(C) Oscillator frequency control

(D) Detector

112. The angle between electric and magnetic fields in a waveguide is

(A) 90°

(B) 0°

(C) 180°

(D) 360°

113. The advantage of microwave over lower frequency signals is

(A) increased bandwidth

(B) ability to use high gain

(C) increased secrecy

(D) All of the above

114. Large microwave power may be measured with the help of

(A) calorimeter

(B) thermistor

(C) bolometer

(D) baretter

115. Magic tee is a combination of

(A) one H-plane tee and one E-plane tee

(B) two H-plane tees and one E-plane tee

(C) one H-plane tee and two E-plane tees

(D) None of the above

116. What is the advantage of a direct-coupled amplifier?

(A) The circuit arrangement is very simple because it uses a minimum number of resistors

(B) The circuit cost is low because of the absence of expensive coupling devices

(C) It can amplify very low frequency signals down to zero frequency

(D) All of the above

117. The bandwidth of a differential amplifier is comparable to that of a

(A) cascade amplifier

(B) Darlington amplifier

(C) double-stage CE amplifier

(D) single-stage CE amplifier

118. A four-quadrant chopper ***cannot*** be operated as

(A) one-quadrant chopper

(B) cycloconverter

(C) inverter

(D) bidirectional rectifier

119. Which one of the following is the most suitable device for a DC-DC converter?

(A) BJT

(B) GTO

(C) MOSFET

(D) Thyristor

120. Which of the following analog modulation schemes requires minimum transmitted power and minimum channel bandwidth?

(A) VSB

(B) DSB-SC

(C) SSB

(D) AM

121. A PPL can be used to demodulate

(A) PAM signals

(B) PCM signals

(C) FM signals

(D) DSB-SC signals

122. Amplitude modulation is used for broadcasting because

(A) it is more noise immune than other modulation systems

(B) compared with other systems, it requires less transmitting power

(C) its use avoids receiver complexity

(D) no other modulation system can provide the necessary bandwidth for high fidelity

123. The most commonly used filter in SSB generation is

(A) mechanical

(B) *R-C*

(C) *L-C*

(D) low-pass

124. The difference between phase and frequency modulation

(A) is purely theoretical as they are same in practice

(B) is too great to make the two systems compatible

(C) lies in the poorer audio response of phase modulation

(D) lies in the different definitions of the modulation index

125. When the modulating frequency is doubled, the modulation index is halved, and the modulating voltage remains constant. The modulation system is

(A) amplitude modulation

(B) phase modulation

(C) frequency modulation

(D) Any of the above