Total No. of Printed Pages : 21

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A

SET-X

PHD-EE-November, 2025
Electronics and Communication Engineering

Sr. No. .....10009.....

Time : **1¼ Hours** Max. Marks : **100** Total Questions : **100**

Roll No. (in figures)_____ (in words) _____

Name _____ Date of Birth_____

Father's Name _____ Mother's Name _____

Date of Examination _____

_____ _____

(Signature of the Candidate) (Signature of the Invigilator)

SEAL

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1. ..... is referred to as father of research on teaching.

(1) N. L. Gage (2) David Berliner

(3) Egon Brunswik (4) Donald T. Campbell

2. The main purpose of research in education is to ..... .

(1) Increase social status of an individual

(2) Increase job prospects for an individual

(3) Help in personal growth

(4) Help the person to become eminent educationist

3. ..... refers to inferring about the whole population based on the observation made on a small part.

(1) Pseudo inference (2) Objective inference

(3) Inductive inference (4) Deductive inference

4. Sampling is advantageous as it ..... .

(1) Saves time (2) Helps in capital saving

(3) Both (1) & (2) (4) Increases accuracy

5. Tippit table refers to ..... .

(1) Table of random digits

(2) Table used in sampling methods

(3) Table used in statistical investigations

(4) All of the above

6. ..... is preferred for sampling method for the population of finite size.

(1) Systematic Sampling (2) Purposive Sampling

(3) Cluster Sampling (4) Area Sampling

7. The longitudinal approach of research deals with ..... .

(1) Short term researches (2) Long term researches

(3) Horizontal researches (4) None of these

8. Dramaturgical interviewing is carried out through ..... .

(1) Debating (2) Sampling

(3) Case Study (4) Role Playing

9. The word "Anusandhan" implies ..... .

(1) Goal orientation (2) Following an aim

(3) Attaining an aim (4) Praying to achieve an aim

10. Evaluation research is concerned with ..... .

(1) Why we are doing ? (2) What we are doing ?

(3) How well we are doing ? (4) None of the above

11. Which of the following is ***not*** the characteristic of research ?

(1) Research is systematic (2) Research is not a process

(3) Research is not passive (4) Research is problem oriented

12. Which of the following statements are ***correct*** ?

(1) Discoveries research (2) Researches leads to discovery

(3) Invention and research are related (4) None of the above

13. Which one is ***not*** the quality of a researcher ?

(1) His assertion to outstrip the evidence

(2) Keenness in enquiry

(3) He must of alert mind

(4) Union with that of which he is search

14. Books and records are primary source of data in :

(1) Clinical research
(2) Laboratory research
(3) Participatory research
(4) Historical research

15. Which is the ***correct*** statement ?

(1) Objectives should be pin pointed
(2) Another word for problem is variable
(3) Objective can be written in statements on question form
(4) All of the above

16. Which is the main task of the research in modern society ?

(1) To discover new things
(2) To keep pace with the advancement in knowledge
(3) To systematically examine and critically analyse the investigation/sources with objectivity
(4) All of the above

17. One of aim of the scientific method in research is to :

(1) confirm triangulation
(2) introduce new variables
(3) improve data interpretation
(4) elimination spurious relations

18. The depth any research can be judged by :

(1) title of the research
(2) duration of the research
(3) objectives of the research
(4) total expenditure of the research

19. Which of the following is ***not*** the method of research ?

(1) Survey
(2) Historical
(3) Observation
(4) Philosophical

20. Research can be classified as :

(1) Basic, Applied and Action Research

(2) Quantitative and Qualitative Research

(3) Philosophical, Historical, Survey and Experimental

(4) All of the above

21. The first step of research is :

(1) Identifying a problem

(2) Finding a problem

(3) Selecting a problem

(4) Searching a problem

22. To test null hypothesis, a researcher uses :

(1) X

(2) t-test

(3) ANOVA

(4) Factorical analysis

23. A research problem in feasible only when :

(1) It is researchable

(2) It has utility and relevance

(3) It is new and adds something to knowledge

(4) All of the above

24. Bibliography given in a research report :

(1) Has no relevance to research

(2) Helps those interested in further research

(3) Shows vast knowledge of researcher

(4) All of the above

25. The study in which investigator attempt to trace an effect is known as :

(1) Survey research

(2) Historical research

(3) "Ex-post Facto" research

(4) Summative research

26. A ratio represents the relation between :

(1) Part and part

(2) Part and whole

(3) Whole and whole

(4) All of the above

27. Circle graphs used to show :

(1) How one part is related to other

(2) How various parts are related to the whole

(3) How various sections share in the whole

(4) How one whole is relate to other whole

28. Generalized conclusion on the basis of sample is technically known as :

(1) Statistical inference

(2) Parameter inference

(3) Data analysis and interpretation

(4) All of the above

29. The experimental study is based on :

(1) The manipulation of variables

(2) Survey of literature

(3) Conceptual parameters

(4) Replication of research

30. Authenticity of a research finding is its :

(1) Validity

(2) Objectivity

(3) Originality

(4) All of the above

31. Which technique is followed when population is finite ?

(1) Systematic sampling

(2) Purposive sampling

(3) Area sampling

(4) None of the above

32. Research problem is selected from the stand point of :

(1) Social relevance (2) Financial relevance

(3) Researcher's interest (4) Availability of relevant literature

33. Which one is called non-probability sampling ?

(1) Quota sampling (2) Cluster sampling

(3) Systematic sampling (4) Stratified random sampling

34. Formulation of hypothesis may not be required in :

(1) Survey method (2) Historical studies

(3) Normative studies (4) Experimental studies

35. CADENCE software is used in :

(1) Digital Signal Processing (2) Microwave

(3) VLSI (4) IoT

36. Field work based research is classified as :

(1) Historical (2) Emperical

(3) Biographical (4) Experimental

37. SCIE stands for :

(1) Science Citation Index Expanded

(2) Social Care Indexing for Excellence

(3) Science Collection Information for Engineers

(4) Social Citation Index for Economic

38. Which of the following is the most comprehensive source of population data ?

(1) Census
(2) National Sample Surveys
(3) Demographic Health Surveys
(4) National Family Health Surveys

39. The research that applies the laws at the time of field study to draw more and more clear ideas about the problem is :

(1) Extention research
(2) Experimental research
(3) Action research
(4) None of the above

40. The process not needed in experimental research :

(1) Controlling
(2) Observation
(3) Reference collection
(4) Manipulation and replication

41. A research problem is ***not*** feasible only when :

(1) It is researchable
(2) It has utility and relevance
(3) It is new and adds something to knowledge
(4) It consist of independent and dependent variables

42. How can objectivity of research be enhanced ?

(1) through its validity
(2) through its reliability
(3) through its impartiality
(4) All of the above

43. We use factorial analysis :

(1) To test the hypothesis
(2) To know the difference between two variables
(3) To know relationship between two variables
(4) To know difference among many variables

44. Manipulation is always a part of :

(1) Historical research
(2) Descriptive research
(3) Fundamental research
(4) Experimental research

45. Which of the coefficient best explain relationship between creativity and intelligence ?

(1) 0.3 (2) 0.5 (3) 1.0 (4) 1.5

46. Normal probability curve should be :

(1) Zero skewed
(2) Positively skewed
(3) Negatively skewed
(4) Leptokurtic skewed

47. Which of the following variables cannot be expressed in quantitative terms ?

(1) Marital status
(2) Numerical aptitude
(3) Professional attitude
(4) Socio-economic status

48. The "Sociogram" technique is used to study :

(1) Human relations
(2) Vocational Interest
(3) Achievement Motivation
(4) Professional Competence

49. Which is ***not*** an example of continuous variable ?

(1) Height (2) Attitude (3) Family Size (4) Intelligence

50. A research paper is a brief report of research work based on :

(1) Primary data only
(2) Secondary data only
(3) Both primary and secondary data
(4) None of the above

51. Which of the following elements of electrical engineering cannot be analysed using Ohm's law ?

(1) Capacitors (2) Inductors

(3) Transistors (4) Resistance

52. What will be the current density of metal if a current of 30A is passed through a cross sectional area of 0.5 m^2 ?

(1) 7.5 A/ m^2 (2) 15A/m^2

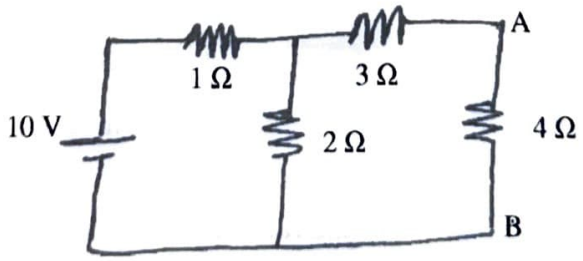
(3) 60A/m^2 (4) 120 A/m^2

53. Norton's theorem is true for ..... .

(1) Linear Networks (2) Non-linear Networks

(3) Both (1) and (2) (4) Neither (1) nor (2)

54. Calculate V_{th} for the given circuit between *A* and *B* :



(1) 5.54 V (2) 3.33 V

(3) 6.67 V (4) 3.67 V

55. What is the ROC of the signal $x(n) = \delta(n - k), k > 0$?

(1) $z = 0$

(2) $z = \infty$

(3) Entire z-plane, except $z = \infty$

(4) Entire z-plane, except $z = 0$

56. What is the equation of the fourier series coefficient C_k of an non-periodic signal ?

(1) $\frac{1}{T_P}\int_{0}^{t_0+T_P} x(t)e^{-j2\pi kf_o t}dt$

(2) $\frac{1}{T_P}\int_{-\infty}^{\infty} x(t)e^{-j2\pi kf_o t}dt$

(3) $\frac{1}{T_P}\int_{t_0}^{t_0+T_P} x(t)e^{-j2\pi kf_o t}dt$

(4) $\frac{1}{T_P}\int_{t_0}^{t_0+T_P} x(t)e^{j2\pi kf_o t}dt$

57. How many complex multiplications are need to be performed for each FFT algorithm ?

(1) (N/2 log N)

(2) $N \log_2 N$

(3) (N/2 $\log_2$ N)

(4) None of the above

58. When the temperature across a semiconductor is increased by 10°C then the conductivity is increased by ..... times.

(1) Double

(2) Triple

(3) Four

(4) None of the above

59. Which of the following diode is used in adjustable band pass filter electronic circuits ?

(1) Zener diode

(2) Varactor diode

(3) Tunnel diode

(4) Schottky diode

60. P/V of a diode in full wave bridge rectifier is given by :

(1) V_m volts

(2) $2V_m$ volts

(3) $\frac{V_m}{2}$ volts

(4) $\frac{2V_m}{\pi}$ volts

61. The relation between α and β is given by :

(1) $\frac{1}{1-\alpha} = 1-\beta$

(2) $\frac{1}{1+\alpha} = 1+\beta$

(3) $\frac{1}{1-\alpha} = 1+\beta$

(4) $\frac{1}{1+\alpha} = 1-\beta$

62. Which of the following helps in reducing the switching time of a transistor ?

(1) a resistor connected from base to ground

(2) a resistor connected from emitter to ground

(3) a capacitor connected from base to ground

(4) a capacitor connected from emitter to ground

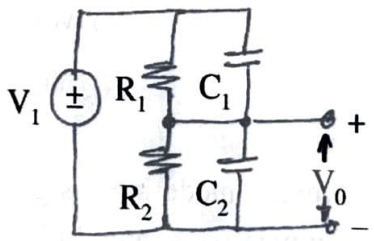
63. A circuit for attenuator is given, under what conditions the attenuator will be compensated ?

(1) $R_1C_1 = \frac{R_2}{C_2}$

(2) $C_1C_2 = R_1R_2$

(3) $R_1C_1 = 0$

(4) $R_1C_1 = R_2C_2$



64. The ideal values of the input and output resistances of a transconductance amplifier are :

(1) $R_i = 0$ and $R_o = 0$

(2) $R_i = \infty$ and $R_o = \infty$

(3) $R_i = \infty$ and $R_o = 0$

(4) $R_i = 0$ and $R_o = \infty$

65. The signal to be amplified is current signal and desired output is a voltage signal. Which of the following amplifier can perform this task ?

(1) Voltage amplifier

(2) c/n amplifier

(3) Transconductance amplifier

(4) Transresistance amplifier

66. Which of the following techniques is used to increase the effieicncy of class A amplifier ?

(1) By using FET

(2) By using PNP transistor

(3) By using matched transformers as load

(4) By using potentiometers as load

67. What are the units of slew rate ?

(1) second/volt

(2) volt/second

(3) It is a ratio, no units

(4) ohm/second

68. If for an amplifier the common mode input signals is V_c, the differential signal is V_d and A_c & A_d represents common mode and differential gains respectively, then the o/p voltage is given by :

(1) $V_o = A_d V_d - A_c V_c$

(2) $V_o = -A_d V_d + A_c V_c$

(3) $V_o = A_d V_d + A_c V_c$

(4) $V_o = -A_d V_d - A_c V_c$

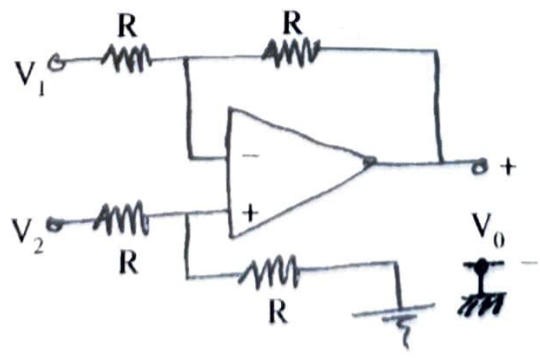
69. For the given difference amplifier shown, let the resistors be 10 KΩ ± x%. The expression for the worst case common mode gain is :

(1) $\frac{x}{50}$

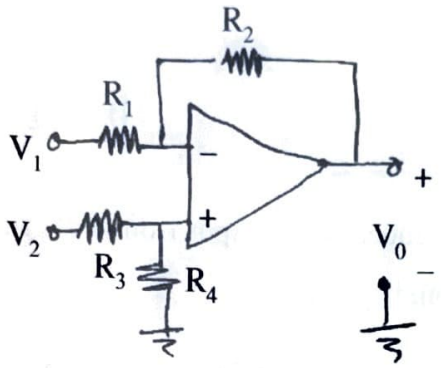
(2) $\frac{x}{100}$

(3) $\frac{2x}{(100-x)}$

(4) $\frac{2x}{(100+x)}$



70. Determine the voltage gain in the given circuit. Known that $R_1 = R_3 = 10$ K and $R_2 = R_4 = 10\,R_1$.



(1) 1

(2) 10

(3) 100

(4) 1000

71. A particular op Amp, characterized by a gain bandwidth product of 20 MHz, is operated with a closed loop gain of +100 v/v. What 3 dB band width results ? At what frequency does the closed loop amplifier exhibit a –6° phase shift ?

(1) 21 KHz

(2) 31.5 KHz

(3) 42 KHz

(4) 52.5 KHz

72. The slope obtained in V_{GS} v/s I_D was 0.002. What is the value of g_m.

(1) 1

(2) 2

(3) 0.002

(4) 0

73. When can one logic gate drive many other logic gates ?

(1) When its z_o is low and z_i is low

(2) When its z_o is high and z_i is high

(3) When its z_o is high and z_i is low

(4) When its z_o is low and z_i is high

74. What will be the output from D flipflop if the clock is low and D = 0 ?

(1) 0

(2) 1

(3) No change

(4) Toggle between 0 and 1

75. What will be the frequency of output from a JK flip-flop when j = k = 1 and a clock with pulse wavefrom is given ?

(1) Half the frequency of clock input.

(2) Equal the frequency of clock input.

(3) Twice the frequency of clock input.

(4) Independent of the frequency of clock input.

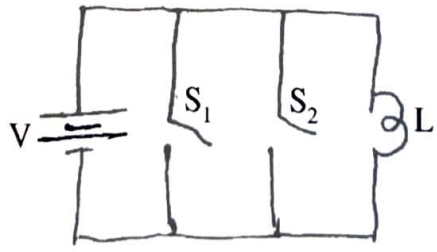
76. The given switch and lamp logic with two I/P is example of which gate ?

(1) NOR

(2) NAND

(3) XOR

(4) None of the above



77. Which of these code pairs correctly represent reflective codes ?

(1) 2421 and 8421

(2) 5211 and 8421

(3) 5421 and 2421

(4) 2421 and 5211

78. The memory which is used for storing programs and data currently being processed by the CPU is called ..... .

(1) PROM

(2) Main Memory

(3) Non-volatile Memory

(4) Mass Memory

79. LDAX is a ..... addressing mode instruction.

(1) Direct

(2) Indirect

(3) Relative

(4) Register indirect

80. A binary input 000 is fed to a 3 bit DAC/ADC. The resultant output is 101. Find the type of error :

(1) Settling error

(2) Gain error

(3) Offset error

(4) Linearity error

81. Which of the following element is ***not*** used in an automatic control system ?

(1) Final control element

(2) Sensor

(3) Oscillator

(4) Error detector

82. In a temperature control system, what conversion in signal takes place ?

(1) Error to Digital

(2) Error to Analog

(3) Digital to Analog

(4) Analog to Digital

83. The characteristics equation of a control system is given by $s(s + 4)(s^2 + 2s + s) + k(s + 1) = 0$. What are the angles of asymptotes for the root loci ?

(1) 0°, 180°, 300°

(2) 0°, 120°, 240°

(3) 60, 180°, 300°

(4) 120°, 180°, 240°

84. What is the relation between output and I/P response and signal respectively in a closed loop system ?

(1) Non-linear

(2) Linear

(3) Exponential

(4) Parabolic

85. Which of the motions in actuators are preferred ?

(1) Rotary

(2) Stationary

(3) Translator

(4) Non-stationary

86. The constant M-circle represented by the equation $x^2 + 2.25x + y^2 = 1.25$ has the value of M equal to :

(1) 1

(2) 2

(3) 3

(4) 4

87. Consider a feedback system with gain margin of about 30. At what point does Nyquist plot crosses negative real axis ?

(1) –3

(2) –0.3

(3) –30

(4) –0.03

88. What is the advantage of superhetrodyning ?

(1) High selectivity and sexsitivity

(2) Low band width

(3) Low adjacent channel rejection

(4) Low fidelity

89. When will aliasing will take place ?

(1) Sampling signals less than Nyquist rate

(2) Sampling signals more than Nyquist rate

(3) Sampling signals equals Nyquist rate

(4) Sampling signals at a rate which is twice of Nyquist rate

90. The method of the communication in which tail of one pulse smears into adjacent symbol intervals is called as :

(1) Inter symbol interference

(2) Inter bit interference

(3) Inter channel interference

(4) None of the mentioned

91. Examples of Nyquist filters are :

(1) Root raised cosine filter

(2) Raised cosine filter

(3) Root raised and raised cosine filter

(4) None of the mentioned

92. Examples of double side band signals are :

(1) ASK

(2) PSK

(3) ASK and PSK

(4) None of the mentioned

93. In delta modulation system, granular noise occurs when :

(1) Modulating signal increases rapidly

(2) Pulse rate decreases

(3) Pulse amplitude decreases

(4) Modulating signal remains constant

94. An PWM signal can be generated by :

(1) An astable multivibrator

(2) A monostable multivibrator

(3) Integrating a PPM signal

(4) Differentiating a PPM signal

95. In good conductors, the electric and magnetic fields will be :

(1) 45° in phase

(2) 45° out of phase

(3) 90° in phase

(4) 90° out of phase

96. The divergence of which quantity will be zero ?

(1) E

(2) D

(3) H

(4) B

97. Find the Maxwell's equation derived from Faraday's law ?

(1) Div(H) = J

(2) Div(D) = I

(3) Curl(E) = –dB/dt

(4) Curl(B) = –dH/dt

98. When equipotential surface is null, then the electric field intensity will be :

(1) 0

(2) 1

(3) dA/dt

(4) –dA/dt

99. The conduction c/n in the transmission line having a voltage of 24 V is 1.2 A. Find receiving impedence of the line :

(1) 25.2

(2) 22.8

(3) 28.8

(4) 20

100. The propagation constant of a transmission line with impedence and admittance of 9 and 16 is :

(1) 12

(2) 25

(3) 144

(4) 7

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   (2) 2
   (3) 0.002
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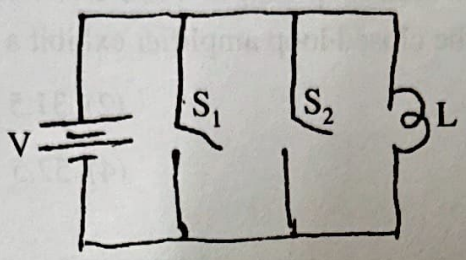
(3) XOR

(4) None of the above



7. Which of these code pairs correctly represent reflective codes ?

(1) 2421 and 8421

(2) 5211 and 8421

(3) 5421 and 2421

(4) 2421 and 5211

8. The memory which is used for storing programs and data currently being processed by the CPU is called ..... .

(1) PROM

(2) Main Memory

(3) Non-volatile Memory

(4) Mass Memory

9. LDAX is a ..... addressing mode instruction.

(1) Direct

(2) Indirect

(3) Relative

(4) Register indirect

10. A binary input 000 is fed to a 3 bit DAC/ADC. The resultant output is 101. Find the type of error :

(1) Settling error

(2) Gain error

(3) Offset error

(4) Linearity error

11. Which of the following elements of electrical engineering cannot be analysed using Ohm's law ?

(1) Capacitors

(2) Inductors

(3) Transistors

(4) Resistance

12. What will be the current density of metal if a current of 30A is passed through a cross sectional area of 0.5 m^2 ?

(1) 7.5 A/ m^2

(2) 15A/m^2

(3) 60A/m^2

(4) 120 A/m^2

13. Norton's theorem is true for ..... .

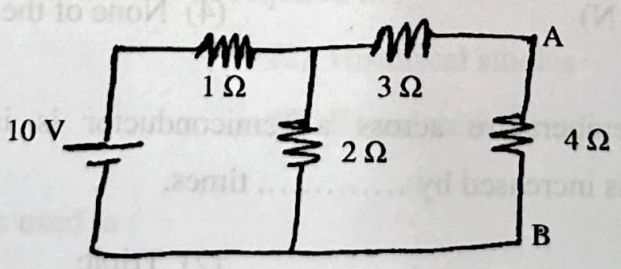
(1) Linear Networks

(2) Non-linear Networks

(3) Both (1) and (2)

(4) Neither (1) nor (2)

14. Calculate V_{th} for the given circuit between *A* and *B* :



(1) 5.54 V

(2) 3.33 V

(3) 6.67 V

(4) 3.67 V

15. What is the ROC of the signal $x(n) = \delta(n-k)$, $k > 0$?

(1) $z = 0$

(2) $z = \infty$

(3) Entire z-plane, except $z = \infty$

(4) Entire z-plane, except $z = 0$

16. What is the equation of the fourier series coefficient C_k of an non-periodic signal ?

(1) $\frac{1}{T_P}\int_{0}^{t_0+T_P} x(t)e^{-j2\pi kf_o t}dt$

(2) $\frac{1}{T_P}\int_{-\infty}^{\infty} x(t)e^{-j2\pi kf_o t}dt$

(3) $\frac{1}{T_P}\int_{t_0}^{t_0+T_P} x(t)e^{-j2\pi kf_o t}dt$

(4) $\frac{1}{T_P}\int_{t_0}^{t_0+T_P} x(t)e^{j2\pi kf_o t}dt$

17. How many complex multiplications are need to be performed for each FFT algorithm ?

(1) (N/2 log N)

(2) N $\log_2$ N

(3) (N/2 $\log_2$ N)

(4) None of the above

18. When the temperature across a semiconductor is increased by 10°C then the conductivity is increased by ..... times.

(1) Double

(2) Triple

(3) Four

(4) None of the above

19. Which of the following diode is used in adjustable band pass filter electronic circuits ?

(1) Zener diode
(2) Varactor diode
(3) Tunnel diode
(4) Schottky diode

20. P/V of a diode in full wave bridge rectifier is given by :

(1) V_m volts
(2) $2V_m$ volts
(3) $\frac{V_m}{2}$ volts
(4) $\frac{2V_m}{\pi}$ volts

21. Which technique is followed when population is finite ?

(1) Systematic sampling
(2) Purposive sampling
(3) Area sampling
(4) None of the above

22. Research problem is selected from the stand point of :

(1) Social relevance
(2) Financial relevance
(3) Researcher's interest
(4) Availability of relevant literature

23. Which one is called non-probability sampling ?

(1) Quota sampling
(2) Cluster sampling
(3) Systematic sampling
(4) Stratified random sampling

24. Formulation of hypothesis may not be required in :

(1) Survey method
(2) Historical studies
(3) Normative studies
(4) Experimental studies

25. CADENCE software is used in :

(1) Digital Signal Procssing
(2) Microwave
(3) VLSI
(4) IoT

26. Field work based research is classified as :

(1) Historical (2) Emperical

(3) Biographical (4) Experimental

27. SCIE stands for :

(1) Science Citation Index Expanded

(2) Social Care Indexing for Excellence

(3) Science Collection Information for Engineers

(4) Social Citation Index for Economic

28. Which of the following is the most comprehensive source of population data ?

(1) Census (2) National Sample Surveys

(3) Demographic Health Surveys (4) National Family Health Surveys

29. The research that applies the laws at the time of field study to draw more and more clear ideas about the problem is :

(1) Extention research (2) Experimental research

(3) Action research (4) None of the above

30. The process not needed in experimental research :

(1) Controlling (2) Observation

(3) Reference collection (4) Manipulation and replication

31. Which of the following is ***not*** the characteristic of research ?

(1) Research is systematic (2) Research is not a process

(3) Research is not passive (4) Research is problem oriented

32. Which of the following statements are ***correct*** ?

(1) Discoveries research

(2) Researches leads to discovery

(3) Invention and research are related

(4) None of the above

33. Which one is ***not*** the quality of a researcher ?

(1) His assertion to outstrip the evidence

(2) Keenness in enquiry

(3) He must of alert mind

(4) Union with that of which he is search

34. Books and records are primary source of data in :

(1) Clinical research (2) Laboratory research

(3) Participatory research (4) Historical research

35. Which is the ***correct*** statement ?

(1) Objectives should be pin pointed

(2) Another word for problem is variable

(3) Objective can be written in statements on question form

(4) All of the above

36. Which is the main task of the research in modern society ?

(1) To discover new things

(2) To keep pace with the advancement in knowledge

(3) To systematically examine and critically analyse the investigation/sources with objectivity

(4) All of the above

37. One of aim of the scientific method in research is to :

(1) confirm triangulation

(2) introduce new variables

(3) improve data interpretation

(4) elimination spurious relations

38. The depth any research can be judged by :

(1) title of the research

(2) duration of the research

(3) objectives of the research

(4) total expenditure of the research

39. Which of the following is ***not*** the method of research ?

(1) Survey (2) Historical

(3) Observation (4) Philosophical

40. Research can be classified as :

(1) Basic, Applied and Action Research

(2) Quantitative and Qualitative Research

(3) Philosophical, Historical, Survey and Experimental

(4) All of the above

41. Examples of Nyquist filters are :

(1) Root raised cosine filter

(2) Raised cosine filter

(3) Root raised and raised cosine filter

(4) None of the mentioned

42. Examples of double side band signals are :

(1) ASK

(2) PSK

(3) ASK and PSK

(4) None of the mentioned

43. In delta modulation system, granular noise occurs when :

(1) Modulating signal increases rapidly

(2) Pulse rate decreases

(3) Pulse amplitude decreases

(4) Modulating signal remains constant

44. An PWM signal can be generated by :

(1) An astable multivibrator

(2) A monostable multivibrator

(3) Integrating a PPM signal

(4) Differentiating a PPM signal

45. In good conductors, the electric and magnetic fields will be :

(1) 45° in phase

(2) 45° out of phase

(3) 90° in phase

(4) 90° out of phase

46. The divergence of which quantity will be zero ?

(1) E

(2) D

(3) H

(4) B

47. Find the Maxwell's equation derived from Faraday's law ?

(1) Div(H) = J

(2) Div(D) = I

(3) Curl(E) = –dB/dt

(4) Curl(B) = –dH/dt

48. When equipotential surface is null, then the electric field intensity will be :

(1) 0

(2) 1

(3) dA/dt

(4) –dA/dt

49. The conduction c/n in the transmission line having a voltage of 24 V is 1.2 A. Find receiving impedence of the line :

(1) 25.2

(2) 22.8

(3) 28.8

(4) 20

50. The propagation constant of a transmission line with impedence and admittance of 9 and 16 is :

(1) 12

(2) 25

(3) 144

(4) 7

51. The relation between α and β is given by :

(1) $\frac{1}{1-\alpha}=1-\beta$

(2) $\frac{1}{1+\alpha}=1+\beta$

(3) $\frac{1}{1-\alpha}=1+\beta$

(4) $\frac{1}{1+\alpha}=1-\beta$

52. Which of the following helps in reducing the switching time of a transistor ?

(1) a resistor connected from base to ground

(2) a resistor connected from emitter to ground

(3) a capacitor connected from base to ground

(4) a capacitor connected from emitter to ground

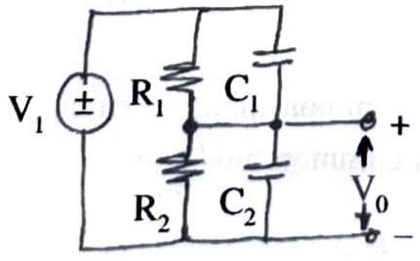
53. A circuit for attenuator is given, under what conditions the attenuator will be compensated ?

(1) $R_1C_1=\frac{R_2}{C_2}$

(2) $C_1C_2=R_1R_2$

(3) $R_1C_1=0$

(4) $R_1C_1=R_2C_2$



54. The ideal values of the input and output resistances of a transconductance amplifier are :

(1) $R_i = 0$ and $R_o = 0$

(2) $R_i = \infty$ and $R_o = \infty$

(3) $R_i = \infty$ and $R_o = 0$

(4) $R_i = 0$ and $R_o = \infty$

55. The signal to be amplified is current signal and desired output is a voltage signal. Which of the following amplifier can perform this task ?

(1) Voltage amplifier

(2) c/n amplifier

(3) Transconductance amplifier

(4) Transresistance amplifier

56. Which of the following techniques is used to increase the effieicncy of class A amplifier ?

(1) By using FET

(2) By using PNP transistor

(3) By using matched transformers as load

(4) By using potentiometers as load

57. What are the units of slew rate ?

(1) second/volt

(2) volt/second

(3) It is a ratio, no units

(4) ohm/second

58. If for an amplifier the common mode input signals is V_c, the differential signal is V_d and A_c & A_d represents common mode and differential gains respectively, then the o/p voltage is given by :

(1) $V_o = A_d V_d - A_c V_c$

(2) $V_o = -A_d V_d + A_c V_c$

(3) $V_o = A_d V_d + A_c V_c$

(4) $V_o = -A_d V_d - A_c V_c$

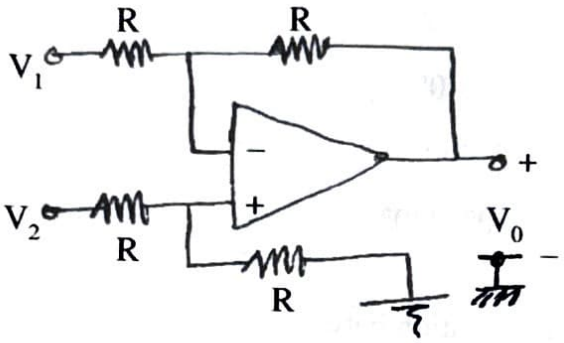
59. For the given difference amplifier shown, let the resistors be 10 KΩ ± x%. The expression for the worst case common mode gain is :

(1) $\frac{x}{50}$

(2) $\frac{x}{100}$

(3) $\frac{2x}{(100-x)}$

(4) $\frac{2x}{(100+x)}$



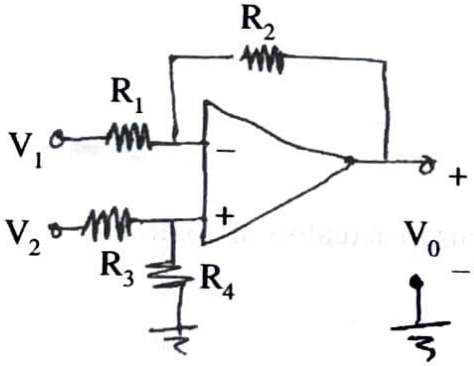
60. Determine the voltage gain in the given circuit. Known that $R_1 = R_3 = 10$ K and $R_2 = R_4 = 10\,R_1$.

(1) 1

(2) 10

(3) 100

(4) 1000



61. Which of the following element is ***not*** used in an automatic control system ?

(1) Final control element

(2) Sensor

(3) Oscillator

(4) Error detector

62. In a temperature control system, what conversion in signal takes place ?

(1) Error to Digital

(2) Error to Analog

(3) Digital to Analog

(4) Analog to Digital

63. The characteristics equation of a control system is given by $s(s + 4)(s^2 + 2s + s) + k(s + 1) = 0$. What are the angles of asymptotes for the root loci ?

(1) 0°, 180°, 300°

(2) 0°, 120°, 240°

(3) 60, 180°, 300°

(4) 120°, 180°, 240°

64. What is the relation between output and I/P response and signal respectively in a closed loop system ?

(1) Non-linear

(2) Linear

(3) Exponential

(4) Parabolic

65. Which of the motions in actuators are preferred ?

(1) Rotary

(2) Stationary

(3) Translator

(4) Non-stationary

66. The constant M-circle represented by the equation $x^2 + 2.25x + y^2 = 1.25$ has the value of M equal to :

(1) 1

(2) 2

(3) 3

(4) 4

67. Consider a feedback system with gain margin of about 30. At what point does Nyquist plot crosses negative real axis ?

(1) –3

(2) –0.3

(3) –30

(4) –0.03

68. What is the advantage of superhetrodyning ?

(1) High selectivity and sexsitivity

(2) Low band width

(3) Low adjacent channel rejection

(4) Low fidelity

69. When will aliasing will take place ?

(1) Sampling signals less than Nyquist rate

(2) Sampling signals more than Nyquist rate

(3) Sampling signals equals Nyquist rate

(4) Sampling signals at a rate which is twice of Nyquist rate

70. The method of the communication in which tail of one pulse smears into adjacent symbol intervals is called as :

(1) Inter symbol interference

(2) Inter bit interference

(3) Inter channel interference

(4) None of the mentioned

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(1) through its validity

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C

SET-X

PHD-EE-November, 2025

Electronics and Communication Engineering

10003

Sr. No. .....

Time : **1¼ Hours** Max. Marks : **100** Total Questions : **100**

Roll No. (in figures)_____ (in words) _____

Name _____ Date of Birth_____

Father's Name _____ Mother's Name _____

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3. Keeping in view the transparency of the examination system, carbonless OMR Sheet is provided to the candidate so that a copy of OMR Sheet may be kept by the candidate.
4. Question Booklet along with answer key of all the A, B, C & D code shall be got uploaded on the University Website immediately after the conduct of Entrance Examination. Candidates may raise valid objection/complaint if any, with regard to discrepancy in the question booklet/answer key within 24 hours of uploading the same on the University Website. The complaint be sent by the students to the Controller of Examinations by hand or through email. Thereafter, no complaint in any case, will be considered.
5. The candidate ***must not*** do any rough work or writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question booklet itself. Answers ***must not*** be ticked in the question booklet.
6. ***There will be negative marking and a deduction of 0.25 marks for each wrong answer. Each correct answer will be awarded one full mark. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.***
7. Use only **Black** or **Blue Ball Point Pen** of good quality in the OMR Answer-Sheet.
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(1) 45° in phase

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(1) E

(2) D

(3) H

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37. Find the Maxwell's equation derived from Faraday's law ?

(1) Div(H) = J

(2) Div(D) = I

(3) Curl(E) = –dB/dt

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39. The conduction c/n in the transmission line having a voltage of 24 V is 1.2 A. Find receiving impedence of the line :

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(2) 25

(3) 144

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41. The relation between α and β is given by :

(1) $\frac{1}{1-\alpha} = 1-\beta$

(2) $\frac{1}{1+\alpha} = 1+\beta$

(3) $\frac{1}{1-\alpha} = 1+\beta$

(4) $\frac{1}{1+\alpha} = 1-\beta$

42. Which of the following helps in reducing the switching time of a transistor ?

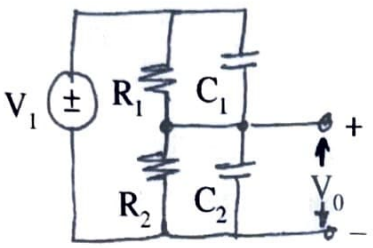
(1) a resistor connected from base to ground

(2) a resistor connected from emitter to ground

(3) a capacitor connected from base to ground

(4) a capacitor connected from emitter to ground

43. A circuit for attenuator is given, under what conditions the attenuator will be compensated ?



(1) $R_1C_1 = \frac{R_2}{C_2}$

(2) $C_1C_2 = R_1R_2$

(3) $R_1C_1 = 0$

(4) $R_1C_1 = R_2C_2$

44. The ideal values of the input and output resistances of a transconductance amplifier are :

(1) $R_i = 0$ and $R_o = 0$

(2) $R_i = \infty$ and $R_o = \infty$

(3) $R_i = \infty$ and $R_o = 0$

(4) $R_i = 0$ and $R_o = \infty$

45. The signal to be amplified is current signal and desired output is a voltage signal. Which of the following amplifier can perform this task ?

(1) Voltage amplifier

(2) c/n amplifier

(3) Transconductance amplifier

(4) Transresistance amplifier

46. Which of the following techniques is used to increase the effieicncy of class A amplifier ?

(1) By using FET

(2) By using PNP transistor

(3) By using matched transformers as load

(4) By using potentiometers as load

47. What are the units of slew rate ?

(1) second/volt
(2) volt/second
(3) It is a ratio, no units
(4) ohm/second

48. If for an amplifier the common mode input signals is V_c, the differential signal is V_d and A_c & A_d represents common mode and differential gains respectively, then the o/p voltage is given by :

(1) $V_o = A_d V_d - A_c V_c$
(2) $V_o = -A_d V_d + A_c V_c$
(3) $V_o = A_d V_d + A_c V_c$
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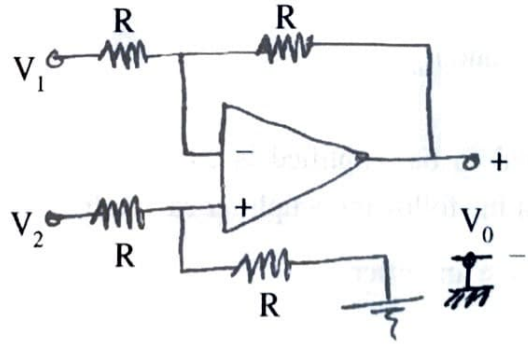
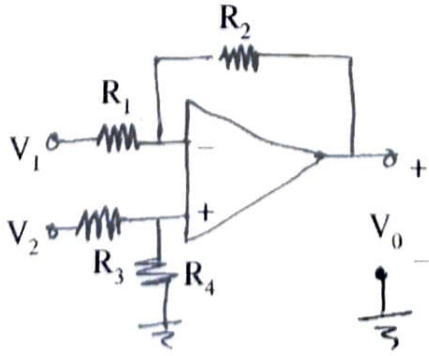
49. For the given difference amplifier shown, let the resistors be 10 KΩ ± x%. The expression for the worst case common mode gain is :

(1) $\frac{x}{50}$
(2) $\frac{x}{100}$
(3) $\frac{2x}{(100-x)}$
(4) $\frac{2x}{(100+x)}$



50. Determine the voltage gain in the given circuit. Known that $R_1 = R_3 = 10$ K and $R_2 = R_4 = 10\,R_1$.

(1) 1
(2) 10
(3) 100
(4) 1000



51. Which technique is followed when population is finite ?

(1) Systematic sampling
(2) Purposive sampling
(3) Area sampling
(4) None of the above

52. Research problem is selected from the stand point of :

(1) Social relevance
(2) Financial relevance
(3) Researcher's interest
(4) Availability of relevant literature

53. Which one is called non-probability sampling ?

(1) Quota sampling
(2) Cluster sampling
(3) Systematic sampling
(4) Stratified random sampling

54. Formulation of hypothesis may not be required in :

(1) Survey method
(2) Historical studies
(3) Normative studies
(4) Experimental studies

55. CADENCE software is used in :

(1) Digital Signal Procssing
(2) Microwave
(3) VLSI
(4) IoT

56. Field work based research is classified as :

(1) Historical
(2) Emperical
(3) Biographical
(4) Experimental

57. SCIE stands for :

(1) Science Citation Index Expanded
(2) Social Care Indexing for Excellence
(3) Science Collection Information for Engineers
(4) Social Citation Index for Economic

58. Which of the following is the most comprehensive source of population data ?

(1) Census
(2) National Sample Surveys
(3) Demographic Health Surveys
(4) National Family Health Surveys

59. The research that applies the laws at the time of field study to draw more and more clear ideas about the problem is :

(1) Extention research
(2) Experimental research
(3) Action research
(4) None of the above

60. The process not needed in experimental research :

(1) Controlling
(2) Observation
(3) Reference collection
(4) Manipulation and replication

61. A particular op Amp, characterized by a gain bandwidth product of 20 MHz, is operated with a closed loop gain of +100 v/v. What 3 dB band width results ? At what frequency does the closed loop amplifier exhibit a –6° phase shift ?

(1) 21 KHz
(2) 31.5 KHz
(3) 42 KHz
(4) 52.5 KHz

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(1) 1
(2) 2
(3) 0.002
(4) 0

63. When can one logic gate drive many other logic gates ?

(1) When its z_o is low and z_i is low
(2) When its z_o is high and z_i is high
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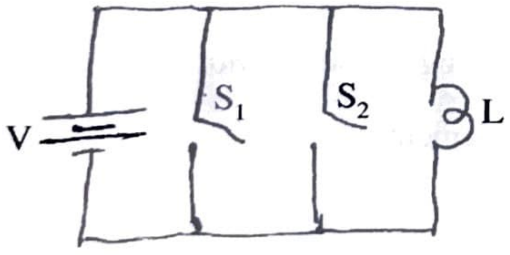

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(2) Gain error

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71. Which of the following element is ***not*** used in an automatic control system ?

(1) Final control element

(2) Sensor

(3) Oscillator

(4) Error detector

72. In a temperature control system, what conversion in signal takes place ?

(1) Error to Digital

(2) Error to Analog

(3) Digital to Analog

(4) Analog to Digital

73. The characteristics equation of a control system is given by $s(s + 4)(s^2 + 2s + s) + k(s + 1) = 0$. What are the angles of asymptotes for the root loci ?

(1) 0°, 180°, 300°

(2) 0°, 120°, 240°

(3) 60, 180°, 300°

(4) 120°, 180°, 240°

74. What is the relation between output and I/P response and signal respectively in a closed loop system ?

(1) Non-linear

(2) Linear

(3) Exponential

(4) Parabolic

75. Which of the motions in actuators are preferred ?

(1) Rotary

(2) Stationary

(3) Translator

(4) Non-stationary

76. The constant M-circle represented by the equation $x^2 + 2.25x + y^2 = 1.25$ has the value of M equal to :

(1) 1

(2) 2

(3) 3

(4) 4

77. Consider a feedback system with gain margin of about 30. At what point does Nyquist plot crosses negative real axis ?

(1) –3

(2) –0.3

(3) –30

(4) –0.03

78. What is the advantage of superhetrodyning ?

(1) High selectivity and sexsitivity

(2) Low band width

(3) Low adjacent channel rejection

(4) Low fidelity

79. When will aliasing will take place ?

(1) Sampling signals less than Nyquist rate

(2) Sampling signals more than Nyquist rate

(3) Sampling signals equals Nyquist rate

(4) Sampling signals at a rate which is twice of Nyquist rate

80. The method of the communication in which tail of one pulse smears into adjacent symbol intervals is called as :

(1) Inter symbol interference

(2) Inter bit interference

(3) Inter channel interference

(4) None of the mentioned

81. Which of the following is ***not*** the characteristic of research ?

(1) Research is systematic

(2) Research is not a process

(3) Research is not passive

(4) Research is problem oriented

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(1) Discoveries research

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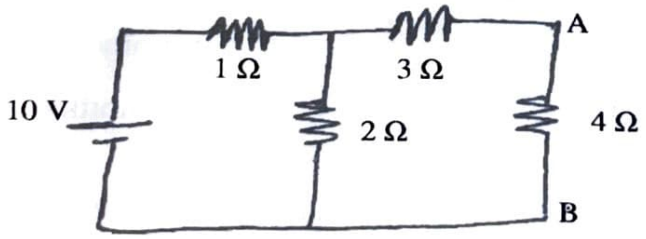

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(1) (N/2 log N)

(2) $N \log_2 N$

(3) $(N/2 \log_2 N)$

(4) None of the above

98. When the temperature across a semiconductor is increased by 10°C then the conductivity is increased by ..... times.

(1) Double

(2) Triple

(3) Four

(4) None of the above

99. Which of the following diode is used in adjustable band pass filter electronic circuits ?

(1) Zener diode

(2) Varactor diode

(3) Tunnel diode

(4) Schottky diode

100. P/V of a diode in full wave bridge rectifier is given by :

(1) V_m volts

(2) $2V_m$ volts

(3) $\frac{V_m}{2}$ volts

(4) $\frac{2V_m}{\pi}$ volts

Total No. of Printed Pages : 21

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D

SET-X

PHD-EE-November, 2025
Electronics and Communication Engineering

Sr. No. 10008

Time : **1¼ Hours** Max. Marks : **100** Total Questions : **100**

Roll No. (in figures)_____ (in words) _____

Name _____ Date of Birth_____

Father's Name _____ Mother's Name_____

Date of Examination _____

_____ _____

(Signature of the Candidate) (Signature of the Invigilator)

SEAL

CANDIDATES MUST READ THE FOLLOWING INFORMATION/INSTRUCTIONS BEFORE STARTING THE QUESTION PAPER.

1. ***All questions are compulsory.***
2. The candidates ***must return*** the question booklet as well as OMR Answer-Sheet to the Invigilator concerned before leaving the Examination Hall, failing which a case of use of unfair-means / mis-behaviour will be registered against him / her, in addition to lodging of an FIR with the police. Further the answer-sheet of such a candidate will not be evaluated.
3. Keeping in view the transparency of the examination system, carbonless OMR Sheet is provided to the candidate so that a copy of OMR Sheet may be kept by the candidate.
4. Question Booklet along with answer key of all the A, B, C & D code shall be got uploaded on the University Website immediately after the conduct of Entrance Examination. Candidates may raise valid objection/complaint if any, with regard to discrepancy in the question booklet/answer key within 24 hours of uploading the same on the University Website. The complaint be sent by the students to the Controller of Examinations by hand or through email. Thereafter, no complaint in any case, will be considered.
5. The candidate ***must not*** do any rough work or writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question booklet itself. Answers ***must not*** be ticked in the question booklet.
6. ***There will be negative marking and a deduction of 0.25 marks for each wrong answer. Each correct answer will be awarded one full mark. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer.***
7. Use only **Black** or **Blue Ball Point Pen** of good quality in the OMR Answer-Sheet.
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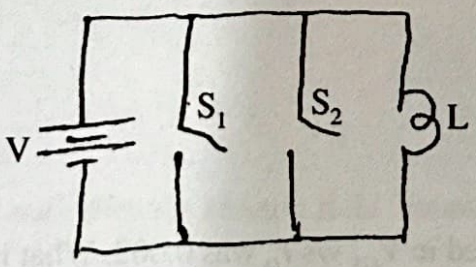

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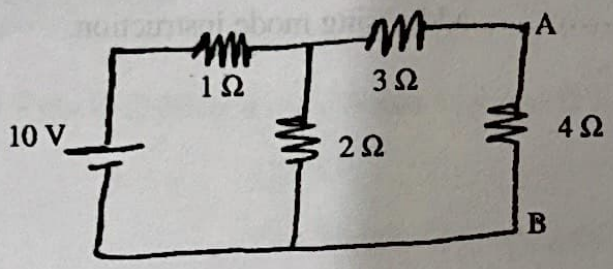

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(2) N $\log_2$ N
(3) (N/2 $\log_2$ N)
(4) None of the above

38. When the temperature across a semiconductor is increased by 10°C then the conductivity is increased by ..... times.

(1) Double
(2) Triple
(3) Four
(4) None of the above

39. Which of the following diode is used in adjustable band pass filter electronic circuits ?

(1) Zener diode
(2) Varactor diode
(3) Tunnel diode
(4) Schottky diode

40. P/V of a diode in full wave bridge rectifier is given by :

(1) V_m volts
(2) $2V_m$ volts
(3) $\frac{V_m}{2}$ volts
(4) $\frac{2V_m}{\pi}$ volts

41. Which technique is followed when population is finite ?

(1) Systematic sampling
(2) Purposive sampling
(3) Area sampling
(4) None of the above

42. Research problem is selected from the stand point of :

(1) Social relevance
(2) Financial relevance
(3) Researcher's interest
(4) Availability of relevant literature

43. Which one is called non-probability sampling ?

(1) Quota sampling
(2) Cluster sampling
(3) Systematic sampling
(4) Stratified random sampling

44. Formulation of hypothesis may not be required in :

(1) Survey method
(2) Historical studies
(3) Normative studies
(4) Experimental studies

45. CADENCE software is used in :

(1) Digital Signal Procssing
(2) Microwave
(3) VLSI
(4) IoT

46. Field work based research is classified as :

(1) Historical
(2) Emperical
(3) Biographical
(4) Experimental

47. SCIE stands for :

(1) Science Citation Index Expanded
(2) Social Care Indexing for Excellence
(3) Science Collection Information for Engineers
(4) Social Citation Index for Economic

48. Which of the following is the most comprehensive source of population data ?

(1) Census
(2) National Sample Surveys
(3) Demographic Health Surveys
(4) National Family Health Surveys

49. The research that applies the laws at the time of field study to draw more and more clear ideas about the problem is :

(1) Extention research
(2) Experimental research
(3) Action research
(4) None of the above

50. The process not needed in experimental research :

(1) Controlling
(2) Observation
(3) Reference collection
(4) Manipulation and replication

51. The first step of research is :

(1) Identifying a problem
(2) Finding a problem
(3) Selecting a problem
(4) Searching a problem

52. To test null hypothesis, a researcher uses :

(1) X
(2) t-test
(3) ANOVA
(4) Factorical analysis

53. A research problem in feasible only when :

(1) It is researchable
(2) It has utility and relevance
(3) It is new and adds something to knowledge
(4) All of the above

54. Bibliography given in a research report :

(1) Has no relevance to research
(2) Helps those interested in further research
(3) Shows vast knowledge of researcher
(4) All of the above

55. The study in which investigator attempt to trace an effect is known as :

(1) Survey research
(2) Historical research
(3) "Ex-post Facto" research
(4) Summative research

56. A ratio represents the relation between :

(1) Part and part
(2) Part and whole
(3) Whole and whole
(4) All of the above

57. Circle graphs used to show :

(1) How one part is related to other

(2) How various parts are related to the whole

(3) How various sections share in the whole

(4) How one whole is relate to other whole

58. Generalized conclusion on the basis of sample is technically known as :

(1) Statistical inference

(2) Parameter inference

(3) Data analysis and interpretation

(4) All of the above

59. The experimental study is based on :

(1) The manipulation of variables

(2) Survey of literature

(3) Conceptual parameters

(4) Replication of research

60. Authenticity of a research finding is its :

(1) Validity (2) Objectivity

(3) Originality (4) All of the above

61. A research problem is ***not*** feasible only when :

(1) It is researchable

(2) It has utility and relevance

(3) It is new and adds something to knowledge

(4) It consist of independent and dependent variables

62. How can objectivity of research be enhanced ?

(1) through its validity
(2) through its reliability
(3) through its impartiality
(4) All of the above

63. We use factorial analysis :

(1) To test the hypothesis
(2) To know the difference between two variables
(3) To know relationship between two variables
(4) To know difference among many variables

64. Manipulation is always a part of :

(1) Historical research
(2) Descriptive research
(3) Fundamental research
(4) Experimental research

65. Which of the coefficient best explain relationship between creativity and intelligence ?

(1) 0.3
(2) 0.5
(3) 1.0
(4) 1.5

66. Normal probability curve should be :

(1) Zero skewed
(2) Positively skewed
(3) Negatively skewed
(4) Leptokurtic skewed

67. Which of the following variables cannot be expressed in quantitative terms ?

(1) Marital status
(2) Numerical aptitude
(3) Professional attitude
(4) Socio-economic status

68. The "Sociogram" technique is used to study :

(1) Human relations
(2) Vocational Interest
(3) Achievement Motivation
(4) Professional Competence

69. Which is ***not*** an example of continuous variable ?

(1) Height (2) Attitude (3) Family Size (4) Intelligence

70. A research paper is a brief report of research work based on :

(1) Primary data only

(2) Secondary data only

(3) Both primary and secondary data

(4) None of the above

71. The relation between α and β is given by :

(1) $\frac{1}{1-\alpha}=1-\beta$ (2) $\frac{1}{1+\alpha}=1+\beta$

(3) $\frac{1}{1-\alpha}=1+\beta$ (4) $\frac{1}{1+\alpha}=1-\beta$

72. Which of the following helps in reducing the switching time of a transistor ?

(1) a resistor connected from base to ground

(2) a resistor connected from emitter to ground

(3) a capacitor connected from base to ground

(4) a capacitor connected from emitter to ground

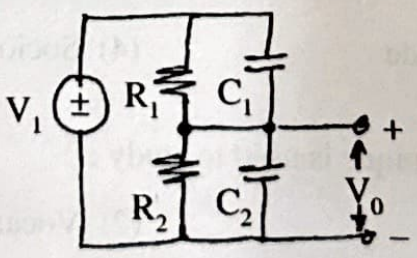
73. A circuit for attenuator is given, under what conditions the attenuator will be compensated ?

(1) $R_1C_1=\frac{R_2}{C_2}$

(2) $C_1C_2=R_1R_2$

(3) $R_1C_1=0$

(4) $R_1C_1=R_2C_2$



74. The ideal values of the input and output resistances of a transconductance amplifier are :

(1) $R_i = 0$ and $R_o = 0$

(2) $R_i = \infty$ and $R_o = \infty$

(3) $R_i = \infty$ and $R_o = 0$

(4) $R_i = 0$ and $R_o = \infty$

75. The signal to be amplified is current signal and desired output is a voltage signal. Which of the following amplifier can perform this task ?

(1) Voltage amplifier

(2) c/n amplifier

(3) Transconductance amplifier

(4) Transresistance amplifier

76. Which of the following techniques is used to increase the effieicncy of class A amplifier ?

(1) By using FET

(2) By using PNP transistor

(3) By using matched transformers as load

(4) By using potentiometers as load

77. What are the units of slew rate ?

(1) second/volt

(2) volt/second

(3) It is a ratio, no units

(4) ohm/second

78. If for an amplifier the common mode input signals is V_c, the differential signal is V_d and A_c & A_d represents common mode and differential gains respectively, then the o/p voltage is given by :

(1) $V_o = A_d V_d - A_c V_c$

(2) $V_o = -A_d V_d + A_c V_c$

(3) $V_o = A_d V_d + A_c V_c$

(4) $V_o = -A_d V_d - A_c V_c$

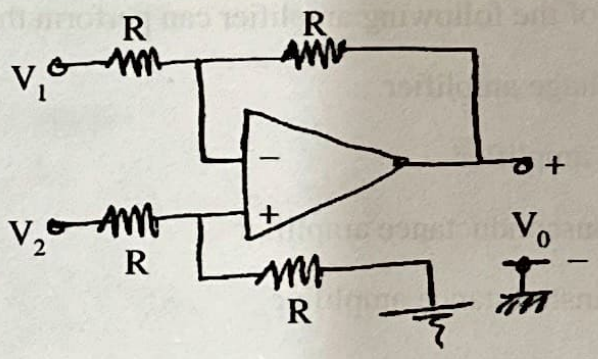
79. For the given difference amplifier shown, let the resistors be 10 KΩ ± x%. The expression for the worst case common mode gain is :

(1) $\frac{x}{50}$

(2) $\frac{x}{100}$

(3) $\frac{2x}{(100-x)}$

(4) $\frac{2x}{(100+x)}$



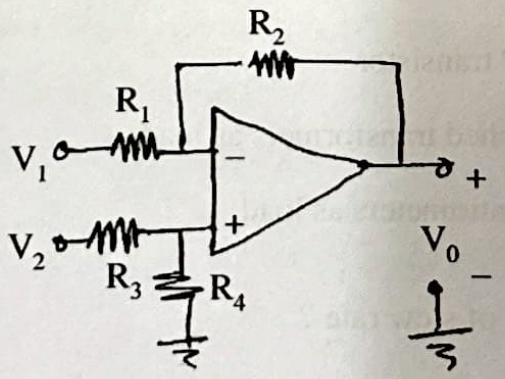
80. Determine the voltage gain in the given circuit. Known that $R_1 = R_3 = 10$ K and $R_2 = R_4 = 10\,R_1$.

(1) 1

(2) 10

(3) 100

(4) 1000



81. ..... is referred to as father of research on teaching.

(1) N. L. Gage

(2) David Berliner

(3) Egon Brunswik

(4) Donald T. Campbell

82. The main purpose of research in education is to ..... .

(1) Increase social status of an individual

(2) Increase job prospects for an individual

(3) Help in personal growth

(4) Help the person to become eminent educationist

83. ..... refers to inferring about the whole population based on the observation made on a small part.

(1) Pseudo inference

(2) Objective inference

(3) Inductive inference

(4) Deductive inference

84. Sampling is advantageous as it ..... .

(1) Saves time

(2) Helps in capital saving

(3) Both (1) & (2)

(4) Increases accuracy

85. Tippit table refers to ..... .

(1) Table of random digits

(2) Table used in sampling methods

(3) Table used in statistical investigations

(4) All of the above

86. ..... is preferred for sampling method for the population of finite size.

(1) Systematic Sampling

(2) Purposive Sampling

(3) Cluster Sampling

(4) Area Sampling

87. The longitudinal approach of research deals with ..... .

(1) Short term researches

(2) Long term researches

(3) Horizontal researches

(4) None of these

88. Dramaturgical interviewing is carried out through ..... .

(1) Debating (2) Sampling

(3) Case Study (4) Role Playing

89. The word "Anusandhan" implies ..... .

(1) Goal orientation (2) Following an aim

(3) Attaining an aim (4) Praying to achieve an aim

90. Evaluation research is concerned with ..... .

(1) Why we are doing ? (2) What we are doing ?

(3) How well we are doing ? (4) None of the above

91. Which of the following element is ***not*** used in an automatic control system ?

(1) Final control element (2) Sensor

(3) Oscillator (4) Error detector

92. In a temperature control system, what conversion in signal takes place ?

(1) Error to Digital

(2) Error to Analog

(3) Digital to Analog

(4) Analog to Digital

93. The characteristics equation of a control system is given by $s(s + 4)(s^2 + 2s + s) + k(s + 1) = 0$. What are the angles of asymptotes for the root loci ?

(1) 0°, 180°, 300° (2) 0°, 120°, 240°

(3) 60, 180°, 300° (4) 120°, 180°, 240°

94. What is the relation between output and I/P response and signal respectively in a closed loop system ?

(1) Non-linear

(2) Linear

(3) Exponential

(4) Parabolic

95. Which of the motions in actuators are preferred ?

(1) Rotary

(2) Stationary

(3) Translator

(4) Non-stationary

96. The constant M-circle represented by the equation $x^2 + 2.25x + y^2 = 1.25$ has the value of M equal to :

(1) 1

(2) 2

(3) 3

(4) 4

97. Consider a feedback system with gain margin of about 30. At what point does Nyquist plot crosses negative real axis ?

(1) –3

(2) –0.3

(3) –30

(4) –0.03

98. What is the advantage of superhetrodyning ?

(1) High selectivity and sexsitivity

(2) Low band width

(3) Low adjacent channel rejection

(4) Low fidelity

99. When will aliasing will take place ?

(1) Sampling signals less than Nyquist rate

(2) Sampling signals more than Nyquist rate

(3) Sampling signals equals Nyquist rate

(4) Sampling signals at a rate which is twice of Nyquist rate

100. The method of the communication in which tail of one pulse smears into adjacent symbol intervals is called as :

(1) Inter symbol interference

(2) Inter bit interference

(3) Inter channel interference

(4) None of the mentioned

Ph.D ECE Nov 2025 Answer Key

Sr. No	Set A	Set B	Set C	Set D
1	A	A	D	B
2	D	C	D	B
3	C	D	B	A
4	C	C	B	D
5	D	A	C	A
6	A	A	A	D
7	B	D	C	D
8	D	A	A	C
9	B	D	D	C
10	C	C	C	D
11	B	C	A	C
12	B	C	C	C
13	A	A	D	D
14	D	C	B	B
15	A	D	C	B
16	D	B	D	D
17	D	C	B	C
18	C	A	C	D
19	C	B	A	D
20	D	A	B	A
21	A	A	A	A
22	C	A	D	C
23	D	A	C	D
24	B	B	C	C
25	C	C	D	A
26	D	B	A	A
27	B	A	B	D
28	C	A	D	A
29	A	B	B	D
30	B	B	C	C
31	A	B	C	C
32	A	B	C	C
33	A	A	D	A
34	B	D	B	C
35	C	A	B	D
36	B	D	D	B
37	A	D	C	C
38	A	C	D	A
39	B	C	D	B
40	B	D	A	A
41	D	C	C	A
42	D	C	A	A
43	B	D	D	A
44	B	B	B	B
45	C	B	D	C
46	A	D	C	B
47	C	C	B	A
48	A	D	C	A
49	D	D	D	B
50	C	A	B	B
51	C	C	A	A

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

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