

Test Booklet No. _____

This booklet consists of 100 questions and __ printed pages.

RGUCET/2025/39

Series

A

RGUCET 2025
Common Entrance Test, 2025
MASTER OF TECHNOLOGY IN ELECTRONICS AND COMMUNICATION
ENGINEERING

Full Marks: 100

Time: 2 Hours

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Roll No.

Day and Date of Examination: _____

Signature of Invigilator(s) _____

Signature of Candidate _____

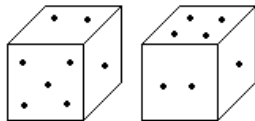
General Instructions:










PLEASE READ ALL THE INSTRUCTIONS CAREFULLY BEFORE MAKING ANY ENTRY.


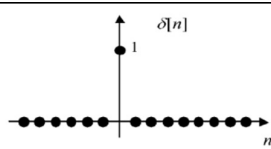
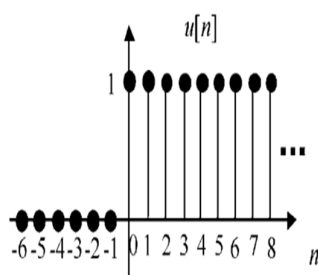
1. DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE TOLD TO DO SO.
2. Candidate must write his/her Roll Number on the space provided.
3. This Test Booklet contains 100 Multiple Choice Questions (MCQs) from the concerned subject. Each question carries 1 mark. There shall be negative marking of 0.25 against each wrong attempt.
4. Please check the Test Booklet to verify that the total pages and total number of questions contained in the test booklet are the same as those printed on the top of the first page. Also check whether the questions are in sequential order or not.
5. Candidates are not permitted to enter into the examination hall after the commencement of the entrance test or leave the examination hall before completion of Examination.
6. Making any identification mark in the OMR Answer Sheet or writing Roll Number anywhere other than the specified places will lead to disqualification of the candidate.
7. Candidates shall maintain silence inside and outside the examination hall. If candidates are found violating the instructions mentioned herein or announced in the examination hall, they will be summarily disqualified from the entrance test.
8. In case of any dispute, the decision of the Entrance Test Committee shall be final and binding.
9. The OMR Answer Sheet consists of two copies, the Original copy and the Student's copy

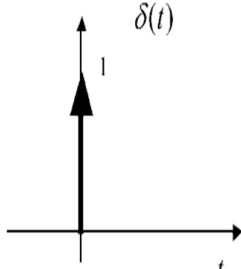
| | | | | | | | | | | | | | |
|----------------------|---|--------------------------|-----------------------|----------------------------|-----------------------|-----------|------------|----------|--------------|-------------|----------|-----------|--------------------|
| 1 | How many nouns are there in the below sentence? “The players were rewarded for their victory” | | | | two | | | | | | | | |
| | a) four | b) three | c) two | d) one | c) | | | | | | | | |
| 2 | Prefixes and Suffixes comes under _____ | | | | Secondary derivatives | | | | | | | | |
| | a)Primary derivatives | b) Secondary derivatives | c) Primary words | d) Compound word | b) | | | | | | | | |
| 3 | Choose the word which is the exact OPPOSITE of the given word. “EXODUS” | | | | Influx | | | | | | | | |
| | a)Influx | b)Home-coming | c) Return | d) Restoration | a | | | | | | | | |
| 4 | For me, breakfast isbest meal of the day | | | | the | | | | | | | | |
| | a) a | b) an | c) the | d) none of the above | c | | | | | | | | |
| 5 | Football is most popular sport in the world | | | | the | | | | | | | | |
| | a) a | b) an | c) the | d) none of the above | c | | | | | | | | |
| 6 | Match the following pairs: <table border="1"><tr><td>A. Arunachal Pradesh</td><td>1. Imphal</td></tr><tr><td>B. Manipur</td><td>2. Patna</td></tr><tr><td>C. Jharkhand</td><td>3. Itanagar</td></tr><tr><td>D. Bihar</td><td>4. Ranchi</td></tr></table> | | | | A. Arunachal Pradesh | 1. Imphal | B. Manipur | 2. Patna | C. Jharkhand | 3. Itanagar | D. Bihar | 4. Ranchi | A-3, B-1, C-4, D-2 |
| A. Arunachal Pradesh | 1. Imphal | | | | | | | | | | | | |
| B. Manipur | 2. Patna | | | | | | | | | | | | |
| C. Jharkhand | 3. Itanagar | | | | | | | | | | | | |
| D. Bihar | 4. Ranchi | | | | | | | | | | | | |
| | a) A-2, B-1, C-4, D-3 | b) A-3, B-1, C-4, D-2 | c) A-3, B-4, C-1, D-2 | d) A-3, B-1, C-2, D-4 | | | | | | | | | |
| 7 | Which Indian state is home to the Kokborok language, spoken by tribes like the Jamatia and Reangs? | | | | Tripura | | | | | | | | |
| | a) Mizoram | b) Nagaland | c) Manipur | d) Tripura | d | | | | | | | | |
| 8 | In 2019, Which popular singer was awarded the Bharat Ratna award? | | | | Bhupen Hazarika | | | | | | | | |
| | a)Lata Mangeshkar | b)Asha Bhosle | c) Bhupen Hazarika | d) Manna Dey | c) | | | | | | | | |
| 9 | What was the new national record time set in the men’s 4x100m relay at the 2 nd Indian Open Relay Competition? | | | | 38.69 | | | | | | | | |
| | a) 38.89 | b) 38.69 | c) 38.79 | d) 38.99 | b | | | | | | | | |
| 10 | Bharat forecast system is developed by which institute? | | | | IITM Pune | | | | | | | | |
| | a) IISc Bengaluru | b) IIT Delhi | c) IITM Pune | d) National Remote Sensing | c | | | | | | | | |

| | | | | | |
|----|--|-----------------------|-------------------------|-----------------------------|---------------------|
| | | | | centre Hyderabad | |
| 11 | Who has been appointed as the head of the revamped National Security Advisory Board (NSAB)? | | | | Alok Joshi |
| | a)Ajit Doval | b)Vikram Sood | c)AS Dulat | d)Alok Joshi | d |
| 12 | Which company announced a \$500 billion investment to establish AI chip manufacturing in the United States? | | | | Nvidia |
| | a) Intel | b) AMD | c) Nvidia | d) Qualcomm | c |
| 13 | Who has been appointed as the 52 nd Chief Justice of India? | | | | Justice B.R. Gavai |
| | a) Justice K.G. Balakrishnan | b) Justice B.R. Gavai | c)Justice Sanjiv Khanna | d) Justice D.Y. Chandrachud | b |
| 14 | What is “Alicella gigantean” that was recently seen in news? | | | | Amphipod crustacean |
| | a)Amphipod crustacean | b)Invasive weed | c) Traditional medicine | d) Bacteria | a |
| 15 | Which country is the host of 46 th Association of Southeast Asian Nations (ASEAN) Summit 2025? | | | | Malaysia |
| | a)Myanmar | b)Thailand | c)Vietnam | d)Malaysia | d |
| 16 | A man travelled 30% of his journey at a speed of 85 kmph and the rest of his journey at a speed of 33 kmph. Find his average speed throughout the journey. | | | | 48.6 kmph |
| | a) 46.6 kmph | b) 48.6 kmph | c) 42.6 kmph | d)44.6 kmph | b |
| 17 | Which of the following fraction is greater than $\frac{1}{2}$ and less than $\frac{5}{9}$? | | | | $\frac{6}{11}$ |
| | a) $\frac{2}{3}$ | b) $\frac{5}{8}$ | c) $\frac{4}{7}$ | d) $\frac{6}{11}$ | d |
| 18 | A card is drawn from a pack of 52 cards. The probability of getting a queen of club or a king of heart is: | | | | $\frac{1}{26}$ |
| | a) $\frac{1}{13}$ | b) $\frac{2}{13}$ | c) $\frac{1}{26}$ | d) $\frac{1}{56}$ | c |
| 19 | The sum of ages of 5 children born at the intervals of 3 years each is 50 years. What is the age of the youngest child? | | | | 4 years |
| | a)4 years | b) 8 years | c) 10 years | d) None of these | a |
| 20 | Two positions of dice are shown below. How many points will appear on the opposite to the face containing 5 points? | | | | 4 |

| | | | | | | | | | | | | | | |
|-----------|--|---|---|---|--|----------|-----------|-------|-----------|---------|----------|-----------|--------------------|--|
| |  | | | | | | | | | | | | | |
| | a)3 | b) 1 | c) 2 | d) 4 | d | | | | | | | | | |
| 21 | The fixed resistors restrict the flow of current up to what level? | | | | Certain level | | | | | | | | | |
| | a)Variable range | b)Any range | c)Certain level | d)Infinite level | c | | | | | | | | | |
| 22 | Which of the following is an impurity added in a semiconductor to make it a N-Type semiconductor? | | | | Antimony | | | | | | | | | |
| | a) Boron | b) Antimony | c)Indium | d)Gallium | b | | | | | | | | | |
| 23 | Statement1: If two sets A and B are equal, then $A \subseteq B$ and $B \subseteq A$ Statement2: Two sets are equal if and only if every element of A is in B, and every element of B is in A. | | | | Both are True | | | | | | | | | |
| | a) 1 is True and 2 is False | b) 1 is False and 2 is True | c) Both are False | d) Both are True | d | | | | | | | | | |
| 24 | Relate these statements and mark the correct choice. Assertion (A): When we rub a glass rod with silk, the rod gets positively charged and the silk gets negatively charged. Reason (R): On rubbing, electrons from silk cloth moves to the glass rod. | | | | Assertion (A) is true but Reason (R) is false. | | | | | | | | | |
| | a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). | b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A). | c) Assertion (A) is true but Reason (R) is false. | d) Both Assertion (A) and Reason (R) are false. | c | | | | | | | | | |
| 25 | Match the following questions: <table><tr><td>A. Mass</td><td>1. Joule</td></tr><tr><td>B. Weight</td><td>2. KG</td></tr><tr><td>C. Energy</td><td>3. Watt</td></tr><tr><td>D. Power</td><td>4. Newton</td></tr></table> | | | | A. Mass | 1. Joule | B. Weight | 2. KG | C. Energy | 3. Watt | D. Power | 4. Newton | A-2, B-4, C-1, D-3 | |
| A. Mass | 1. Joule | | | | | | | | | | | | | |
| B. Weight | 2. KG | | | | | | | | | | | | | |
| C. Energy | 3. Watt | | | | | | | | | | | | | |
| D. Power | 4. Newton | | | | | | | | | | | | | |
| | a) A-2, B-4, C-1, D-3 | b) A-4, B-2, C-1, D-3 | c) A-2, B-4, C-3, D-1 | d) A-4, B-1, C-2, D-3 | a | | | | | | | | | |

| | | | | | | | | | | | |
|-------------------|--|---|---|---|--|--|-------------------|--|-------------------|--|--------------------|
| 26 | Statement1: The intersection of two disjoint sets is the empty set. Statement2: Disjoint sets have common elements. | | | | 1 is True and 2 is False | | | | | | |
| | a) 1 is True and 2 is False | b) 1 is False and 2 is True | c) Both are False | d) Both are True | a | | | | | | |
| 27 | Relate these statements and mark the correct choice. Assertion (A): No two electric lines of force can intersect each other. Reason (R): Tangent at any point of electric line of force gives the direction of electric field. | | | | Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). | | | | | | |
| | a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). | b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A). | c) Assertion (A) is true but Reason (R) is false. | d) Both Assertion (A) and Reason (R) are false. | a | | | | | | |
| 28 | Type Questions here for matching pairs: <table><tr><td>A. Tunnel Diode</td><td>1. </td></tr><tr><td>B. Junction Diode</td><td>2. </td></tr><tr><td>C. Schottky Diode</td><td>3. </td></tr></table> | | | | A. Tunnel Diode | 1.  | B. Junction Diode | 2.  | C. Schottky Diode | 3.  | A-3, B-1, C-4, D-2 |
| A. Tunnel Diode | 1.  | | | | | | | | | | |
| B. Junction Diode | 2.  | | | | | | | | | | |
| C. Schottky Diode | 3.  | | | | | | | | | | |

| | | | | | |
|----|--|--------------------------------|--|--------------------------|---|
| | D. Zener Diode | | <div><div></div><div>4.</div></div> | | |
| | a) A-2, B-4, C-1, D-3 | b) A-3, B-1, C-4, D-2 | c) A-4, B-1, C-3, D-2 | d) A-3, B-1, C-2, D-4 | b |
| 29 | The abbreviation PIV in the case of a diode stands for _____ | | | | Peak Inverse Voltage |
| | a) Peak Inferior Voltage | b) Problematic Inverse Voltage | c) Peak Inverse Voltage | d) Peak Internal Voltage | c |
| 30 | <p>Statement1: According to Kepler's second law, a planet sweeps out equal areas in equal intervals of time.</p> <p>Statement2: The areal velocity of a planet (area swept per unit time) is constant because of the conservation of angular momentum.</p> <p>1 is True and 2 is False 1 is False and 2 is True Both are False Both are True</p> | | | | 1 is True and 2 is False 1 is False and 2 is True Both are False Both are True |
| | a) 1 | b) 2 | c) 3 | d) 4 | a |
| 31 | Type Questions here for matching pairs: | | | | A-3, B-1, C-2 |
| | A Unit Impulse | | <div><div></div><div>1.</div></div> | | |
| | B Discrete-time unit impulse | | <div><div></div><div>2.</div></div> | | |

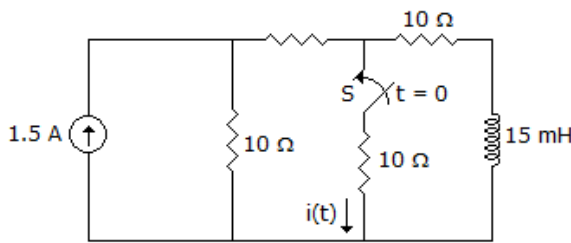
| | | | | | | | | | | | |
|----------------|---|--|---|--|--|-----------------------|--------------|--------------------------------|---------------|---|--------|
| | unit step | <div>CDiscrete-time</div> <div></div> <div>3.</div> | | | | | | | | | |
| | a) A-1, B-3, C-2 | b) A-3, B-1, C-2 | c) A-1, B-2, C-3 | d) A-2, B-1, C-3 | b | | | | | | |
| 32 | In Superposition theorem, while considering a source, all other current sources are? | | | | open circuited | | | | | | |
| | a)short circuited | b)change its position | c)open circuited | d)removed from the circuit | c | | | | | | |
| 33 | Directions: In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R). Mark the correct choice as: Assertion: The line integral of a vector field along a curve depends on both the field and the path taken. Reason: In a vector field, the line integral calculates the cumulative effect of the field along the path, considering both the field's magnitude and direction at each point on the curve. | | | | Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). | | | | | | |
| | a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A). | b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A). | c) Assertion (A) is true but Reason (R) is false. | d) Both Assertion (A) and Reason (R) are false | a | | | | | | |
| 34 | Type Questions here for matching pairs: <div><table><tr><td>A. Homogeneity</td><td>1. $f(x+y)=f(x)+f(y)$</td></tr><tr><td>B. Linearity</td><td>2. $f(a \cdot x)=a \cdot f(x)$</td></tr><tr><td>C. Additivity</td><td>3. $f(a \cdot x+b \cdot y)=a \cdot f(x)+b \cdot f(y)$</td></tr></table></div> | | | | A. Homogeneity | 1. $f(x+y)=f(x)+f(y)$ | B. Linearity | 2. $f(a \cdot x)=a \cdot f(x)$ | C. Additivity | 3. $f(a \cdot x+b \cdot y)=a \cdot f(x)+b \cdot f(y)$ | Answer |
| A. Homogeneity | 1. $f(x+y)=f(x)+f(y)$ | | | | | | | | | | |
| B. Linearity | 2. $f(a \cdot x)=a \cdot f(x)$ | | | | | | | | | | |
| C. Additivity | 3. $f(a \cdot x+b \cdot y)=a \cdot f(x)+b \cdot f(y)$ | | | | | | | | | | |
| | a) A-2, B-3, C-1 | b) A-1, B-2, C-3 | c) A-1, B-3, C-2 | d) A-1, B-3, C-2 | A | | | | | | |
| 35 | Find the Eigen values for the following 2×2 matrix. | | | | -3 | | | | | | |

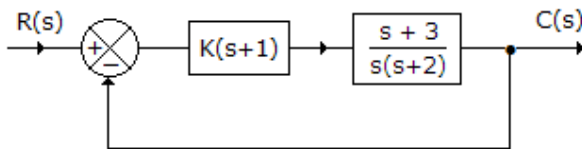
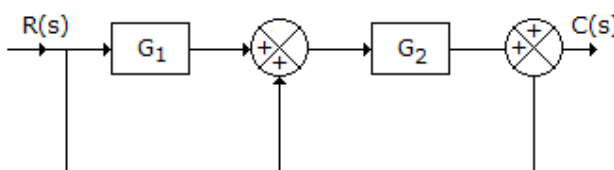
| | | | | | | | | | | | |
|--------------------------|---|------------------|------------------|-------------------------|----------------------|---------------|--------------------------|-------------------------|----------------------|----------------|---------------|
| | $A = \begin{bmatrix} 1 & 8 \\ 2 & 1 \end{bmatrix}$ | | | | | | | | | | |
| | a) -3 | b) 2 | c) 6 | d) -7 | a | | | | | | |
| 36 | Statement1: An oscillator is a system that exhibits periodic motion or oscillation over time. Statement2: An oscillator undergoes repetitive fluctuations or cycles due to the interplay of restoring forces and inertia, often governed by differential equations. 1. 1 is True and 2 is False 2. 1 is False and 2 is True 3. Both are False 4. Both are True | | | | 4 | | | | | | |
| | a) 1 | b) 2 | c) 3 | d) 4 | d | | | | | | |
| 37 | Type Questions here for matching pairs: <table><tr><td>A. Symmetric Matrix</td><td>i. $A^T = -A$</td></tr><tr><td>B. Skew-Symmetric Matrix</td><td>ii. $A^T A = A A^T = I$</td></tr><tr><td>C. Orthogonal Matrix</td><td>iii. $A^T = A$</td></tr></table> | | | | A. Symmetric Matrix | i. $A^T = -A$ | B. Skew-Symmetric Matrix | ii. $A^T A = A A^T = I$ | C. Orthogonal Matrix | iii. $A^T = A$ | A-3, B-1, C-2 |
| A. Symmetric Matrix | i. $A^T = -A$ | | | | | | | | | | |
| B. Skew-Symmetric Matrix | ii. $A^T A = A A^T = I$ | | | | | | | | | | |
| C. Orthogonal Matrix | iii. $A^T = A$ | | | | | | | | | | |
| | a) A-1, B-2, C-3 | b) A-3, B-1, C-2 | c) A-1, B-3, C-2 | d) A-1, B-3, C-2 | b | | | | | | |
| 38 | Which of the following is a type of microprocessor? | | | | All of the mentioned | | | | | | |
| | a) CISC | b) RISC | c) EPIC | d) All of the mentioned | d | | | | | | |

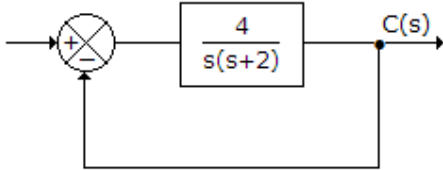
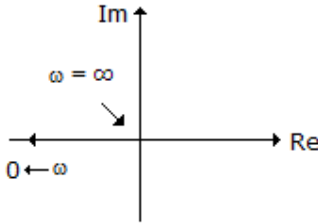
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| 39 | Circular polarization | | | | is useful in reducing depolarization effect on received wave |
| | a) is useful in reducing depolarization effect on received wave | b) involves critical alignment of transmitting and receiving antenna | c) is useful in discrimination between reception of adjacent | d) none of the above | a |

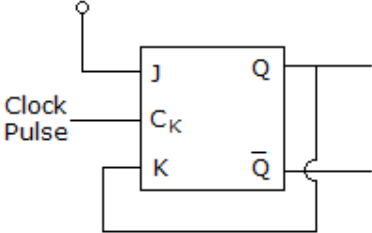
| | | | | | |
|----|--|------------------------------|---|------------------------------|--|
| | | | beams | | |
| 40 | An FM radio receiver which is tuned to a 91.6 MHz broadcast station may receive an image frequency of _____ MHz. | | | | 113 |
| | a) 102.3 | b) 113 | c) 70.2 | d).80.9 | b |
| 41 | The frequency range of 300 kHz to 3000 kHz is known as | | | | medium frequency |
| | a) low frequency | b) medium frequency | c) high frequency | d) very high frequency | b |
| 42 | Which of the given filter has maximum flatness? | | | | Butterworth filter |
| | a) Bessel filter | b) Butterworth filter | c) Low pass filter | d) High pass filter | b |
| 43 | When modulation index of an AM wave is increased from 0.5 to 1, the transmitted power | | | | increases by 33.3% |
| | a) remains the same | b) increases by 25% | c) increases by 33.3% | d) increases by 50% | c |
| 44 | Quantizing error occurs in | | | | PCM |
| | a) TDM | b) FDM | c) PCM | d) PWD | c |
| 45 | A trimmer is basically a | | | | capacitor |
| | a) insulator | b) inductor | c) capacitor | d) variable resistor | c |
| 46 | The major advantage of FM over AM is | | | | Reception is less noisy |
| | a) Reception is less noisy | b) Higher carrier frequency | c) Smaller bandwidth | d) Small frequency deviation | a |
| 47 | Superhertodyne principle refers to | | | | Obtaining lower fixed intermediate frequency |
| | a) Using a large number of amplifier stages | b) Using a push-pull circuit | c) Obtaining lower fixed intermediate frequency | d) None of the above | c |
| 48 | As the frequency increases, the absorption of ground wave by earth's surface | | | | increases |
| | a) decreases | b) increases | c) remains | d) either (a) or (c) | b |

| | | | | | |
|----|---|---------------------------------------|---------------------------------------|-----------------------------------|-------------------------------------|
| | | | the same | | |
| 49 | Two materials having temperature coefficients of 0.004 and 0.0004 respectively are joined in series. The overall temperature coefficient is likely to be | | | | 0.001 |
| | a) 0.08 | b) 0.04 | c) 0.001 | d) 0.0001 | c |
| 50 | $Z_L = 200 \Omega$ and it is desired that $Z_i = 50 \Omega$ The quarter wave transformer should have a characteristic impedance of | | | | 100 Ω |
| | a) 100 Ω | b) 40 Ω | c) 10000 Ω | d) 4 Ω | a |
| 51 | The function $f(x - v_{ot})$ represents which of the following? | | | | A wave motion in forward direction |
| | a) A stationary wave | b) A wave motion in forward direction | c) A wave motion in reverse direction | d) None of the above | b |
| 52 | A broadside array operating at 100 cm wavelength consist of 4 half-wave dipoles spaced 50 cm apart. Each element carries radio frequency current in the same phase and of magnitude 0.5 A. The radiated power will be | | | | 196 W |
| | a) 196 W | b) 73 W | c) 36.5 W | d) 18.25 W | a |
| 53 | A material has conductivity of 10^{-2} mho/m and a relative permittivity of 4. The frequency at which conduction current in the medium is equal to displacement current is | | | | 45 MHz |
| | a) 45 MHz | b) 90 MHz | c) 450 MHz | d) 900 MHz | a |
| 54 | A transmission line is feeding 1 watt of power to a horn antenna having a gain of 10 dB. The antenna is matched to the transmission line. The total power radiated by the horn antenna into the free space is | | | | 10 watt |
| | a) 10 watt | b) 1 watt | c) 0.1 watt | d) 0.01 watt | a |
| 55 | Poynting vector is associated with which of the following? | | | | Power flow in electromagnetic field |
| | a) Power flow in electromagnetic field | b) Flux in magnetic | c) Charge in electrostatic field | d) Current in electrostatic field | a |
| 56 | Match the following: List I A. Multiplexer B. De-multiplexer C. Shift register D. Encoder List II 1. Sequential memory 2. Converts decimal number to binary 3. Data selector 4. Routes single input to many outputs | | | | A-3, B-4, C-1, D-2 |

| | | | | | |
|----|--|---|---|---|--|
| | a) A-3, B-4, C-1, D-2 | b) A-4, B-3, C-1, D-2 | c) A-3, B-4, C-2, D-1 | d) A-1, B-2, C-3, D-4 | a |
| 57 | In the circuit shown, in switch S is open for a long time and is closed at $t = 0$. The current $i(t)$ for $t \geq 0^+$ is  | | | | $i(t) = 0.5 - 0.125e^{-1000t} \text{ A}$ |
| | a) $i(t) = 0.5 - 0.125e^{-1000t} \text{ A}$ | b) $i(t) = 1.5 - 0.125e^{-1000t} \text{ A}$ | c) $i(t) = 0.5 - 0.5e^{-1000t} \text{ A}$ | d) $i(t) = 0.375e^{-1000t} \text{ A}$ | a |
| 58 | In Fermi-Dirac statistics, the probability of electron occupation of an energy level equal to Fermi level is | | | | 0.5 |
| | a) 0 | b) 0.25 | c) 0.5 | d) 1 | c |
| 59 | A dc circuit breaker must use | | | | forced commutation |
| | a) natural commutation | b) forced commutation | c) both natural and forced commutation | d) either natural or forced commutation | b |
| 60 | An RC snubber circuit is used to protect a thyristor against : | | | | switching transients |
| | a>false triggering | b) failure to turn on | c)switching transients | d) failure to commute | c |
| 61 | A single phase semiconverter has a freewheeling diode. If the firing angle is α and the load is purely resistive, the periods of conduction and freewheeling respectively are | | | | $\pi - \alpha$ and 0 |
| | a) $\pi - \alpha$ and 0 | b) $\pi - \alpha$ | c) $\pi + \alpha$ and 0 | d) $\pi + \alpha$ and α | a |
| 62 | A single phase full wave regulator feeds R-L load. The best gating signal is | | | | pulse train |
| | a)short duration pulses | b)long duration pulses | c) pulse train | d) either (a) or (b) | c |
| 63 | Match the following: List I List II A. FM 1. slope-overload B. DM 2. μ law C. PSK 3. Envelope detector D. PCM 4. Capture effect 5. Hilbert transform | | | | A-4, B-1, C-6, D-2 |

| | | | | | |
|----|---|---|-----------------------------------|--|--|
| | 6. Matched filter. | | | | |
| | a) A-5, B-1, C-6, D-4 | b) A-4, B-6, C-1, D-5 | c) A-4, B-1, C-6, D-2 | d) A-6, B-3, C-4, D-2 | c |
| 64 | A single phase half wave rectifier circuit has a free wheeling diode. The free wheeling diode will conduct only if | | | | load is purely inductive or combination of R and L |
| | a)load is purely resistive | b)load is purely inductive | c) load is combination of R and L | d)load is purely inductive or combination of R and L | d |
| 65 | McMurray Bedford full bridge inverter uses | | | | complementary commutation |
| | a)natural commutation | b)auxiliary commutation | c)complementary commutation | d) any of the above | c |
| 66 | An n pulse rectifier is fed by a source having an inductance L. If load current is I_0 , the voltage drop due to overlap is | | | | $\frac{n \omega L}{2\pi} I_0$ |
| | a) $\frac{n \omega L}{2\pi} I_0$ | b) $\frac{n \omega L}{\pi} I_0$ | c) $\frac{n^2 \omega L}{\pi} I_0$ | d) $\frac{n \omega L}{3\pi} I_0$ | a |
| 67 | For the system in the given figure the characteristic equation is | | | | $1 + \frac{K(s+1)(s+3)}{s(s+2)} = 0$ |
| |  | | | | |
| | a) $1 + \frac{K(s+1)(s+3)}{s(s+2)} = 0$ | b) $1 + \frac{K(s-1)(s-3)}{s(s-2)} = 0$ | c) $K(s+1)(s+3) = 0$ | d) $s(s+2) = 0$ | a |
| 68 | For the system in the given figure. The transfer function $C(s)/R(s)$ is | | | | $\frac{G_1 G_2 + G_2 + 1}{G_1 G_2 + G_2 + 1}$ |
| |  | | | | |
| | a) $G_1 + G_2 + 1$ | b) $G_1 G_2 + 1$ | c) $G_1 G_2 + G_2 + 1$ | d) $G_1 G_2 + G_1 + 1$ | c |
| 69 | Match the following: | | | | A-3, B-4, C-2, D-1 |
| | List I (F.T and F.S) | | List II (Properties) | | |
| | A. Fourier Series | | 1. Discrete, Periodic | | |

| | | | | | |
|----|---|---|---------------------------------------|---------------------------------------|--|
| | B. Fourier Transform 2. Continuous, Periodic C. Discrete Time Fourier 3. Discrete aperiodic D. Discrete Fourier Transform 4. Continuous, aperiodic | | | | |
| | a) A-3, B-4, C-2, D-1 | b) A-1, B-2, C-4, D-3 | c) A-3, B-2, C-4, D-1 | d) A-1, B-4, C-2, D-3 | a |
| 70 | For the system of the given figure, the damping ratio of closed loop poles is  | | | | 0.5 |
| | a) 1.5 | b) 1 | c) 0.5 | d) 0.25 | c |
| 71 | In Bode diagram (log magnitude plot) the factor $(j\omega)^n$ in the transfer function gives a line having slope | | | | 20n dB/decade |
| | a) 20 dB/decade | b) 20n dB/decade | c) $\frac{20}{n}$ dB/decade | d) -20n dB/decade | b |
| 72 | The gain margin for a stable system | | | | has a positive decibel value |
| | a) has a positive decibel value | b) has a negative decibel value | c) has a large negative decibel value | d) has a large negative decibel value | a |
| 73 | The polar plot of the given figure is for the term  | | | | $\frac{1}{(j\omega)^2}$ |
| | a) $(j\omega)^2$ | b) $1 + (j\omega)^2$ | c) $\frac{1}{(j\omega)^2}$ | d) $\frac{1}{(1 + j\omega)}$ | c |
| 74 | Assertion (A): A PROM is a user programmable ROM. Reason (R): After programming PROM behaves like ROM. | | | | Both A and R are correct but R is not correct explanation of A |
| | a) Both A and R are correct and R is correct explanation of A | b) Both A and R are correct but R is not correct explanation of A | c) A is correct R is wrong | d) A is wrong R is correct | b |

| | | | | | |
|----|---|------------------------|------------------------|------------------------|---------------------|
| 75 | Read the following statements as regards register pairs in microprocessor 8085 1.B represents B, C pair with B as high order register and C as low order register. 2.D represents D, E pair with D as high order register and E as low order register. 3.H represents H, L pair with H as high order register and L as low order register. Which of the above statements are correct? | | | | All |
| | a) All | b) 1 and 3 | c) 1 and 2 | d) 2 and 3 only | a |
| 76 | At room temperature the current in an intrinsic semiconductor is due to | | | | holes and electrons |
| | a) holes | b) electrons | c) ions | d) holes and electrons | d |
| 77 | In which of these is reverse recovery time nearly zero? | | | | Schottky diode |
| | a) Zener diode | b) Tunnel diode | c) Schottky diode | d) PIN diode | c |
| 78 | A transistor has a current gain of 0.99 in the CB mode. Its current gain in the CC mode is | | | | 0.99 |
| | a) 100 | b) 0.99 | c) 1.01 | d) 0.99 | a |
| 79 | In $p-n-p$ transistor the current I_E has two components viz. I_{Ep} due to injection of holes from p -region to n -region and I_{En} due to injection of electrons from n -region to p -region. Then | | | | $I_{Ep} \gg I_{En}$ |
| | a) I_{Ep} and I_{En} are almost equal | b) $I_{Ep} \gg I_{En}$ | c) $I_{En} \gg I_{Ep}$ | d) either (a) or (c) | b |
| 80 | In the given figure assume that initially $Q = 1$ with Clock Pulses being given, the subsequent states of Q will be  | | | | 1, 1, 1, 1, 1..... |
| | a) 1, 0, 1, 0, 1..... | b) 0, 0, 0, 0, 0..... | c) 1, 1, 1, 1, 1..... | d) 0, 1, 0, 1, 0..... | c |
| 81 | Which of the following device has characteristic close to that of an ideal voltage source? | | | | Zener diode |
| | a) Zener diode | b) Vacuum diode | c) Crystal diode | d) All of the above | (a) |
| 82 | Which of the following material finds application in light emitting diodes? | | | | Gallium phosphide |
| | a) Silicon | b) Phosphorous | c) Sulphur | d) Gallium | d) |

| | | | | | |
|----|---|--------------------------------------|---------------------|------------------------------|----------------------------------|
| | | | | phosphide | |
| 83 | A full wave rectifier circuit using centre tapped transformer and a bridge rectifier are fed at 100 V, 50 Hz. The frequencies of outputs in these two rectifiers are | | | | 100 Hz each |
| | a)100 Hz each | b)50 Hz each | c)100 Hz and 50 Hz | d)50 Hz and 100 Hz | a) |
| 84 | When the AC base voltage in a CE amplifier circuit is too high, the AC emitter current is | | | | distorted |
| | a)zero | b)constant | c)alternating | d)distorted | d) |
| 85 | Whether a linear system is stable or unstable that it | | | | is a property of the system only |
| | a)is a property of the system only | b)depends on the input function only | c)both (a) and (b) | d)either (a) or (b) | a) |
| 86 | If a system is to follow arbitrary inputs accurately the bandwidth should be | | | | large |
| | a)small | b)large | c)very small | d)neither small nor large | b) |
| 87 | A system has its two poles on the negative real axis and one pair of poles lies on $j\omega$ axis. The system is | | | | limitedly stable |
| | a)stable | b)unstable | c)limitedly stable | d)either (a) or (c) | c) |
| 88 | A lag compensator is essentially a | | | | low pass filter |
| | a) low pass filter | b) high pass filter | c) band pass filter | d) either (a) or (b) | a) |
| 89 | For a transmission line open circuit and short circuit impedances are $20\ \Omega$ and $5\ \Omega$. Then characteristic impedance is | | | | $10\ \Omega$ |
| | a) $100\ \Omega$ | b) $50\ \Omega$ | c) $25\ \Omega$ | d) $10\ \Omega$ | d) |
| 90 | Which of the following pairs are correctly matched? 1. Brune's realization :realisation with ideal transformer. 2. Cauer realization :ladder realization. 3. Bott Duffin realization : with non-ideal transformer. Select the answer using the following codes: | | | | 1 and 2 |
| | a) 1, 2 and 3 | b) 2 and 3 | c) 1 and 2 | d) 1 and 3 | c) |
| 91 | A 3 phase balanced supply feeds 3 phase unbalanced load. Power supplied to the load can be measured by using 1. 2 wattmeter 2. one wattmeter 3. 3 wattmeter Which of the above statements is correct? | | | | 1 and 3 |
| | a) 1 and 2 | b) 1 and 3 | c) 2 and 3 | d) 3 alone | b) |
| 92 | The condition $AD - BC = 1$ for two port network implies that the network is a | | | | reciprocal |
| | a) reciprocal | b)lumped element network | c)lossless network | d)unilateral element network | a) |

| | | | | | | | | | | | | | |
|--------------|--|---|---|--|--|---|-------------|---|-------------|--|--------------|--|--------------------|
| 93 | A: Assertion: Potentiometers cannot be used as error detectors in position control systems. B: Justification: The resolution of a potentiometer places an upper limit on its accuracy | | | | B is correct but A is wrong | | | | | | | | |
| | a)Both A and B are correct and B is correct explanation of A | b)Both A and B are correct but B is not correct explanation of A | c)A is correct but B is wrong | d) B is correct but A is wrong | d) | | | | | | | | |
| 94 | Which statement is true for an AC circuit? | | | | Active power cannot be more than apparent power | | | | | | | | |
| | a) Active power is always less than apparent power | b) Active power cannot be more than apparent power | c)Active power is always more than reactive power | d) Active power cannot be more than reactive power | b) | | | | | | | | |
| 95 | A: Assertion: The inductance of an iron cored solenoid is not constant. B: Justification: BH curve of an iron specimen is non-linear. | | | | Both A and B are correct and B is correct explanation of A | | | | | | | | |
| | a) Both A and B are correct and B is correct explanation of A | b) Both A and B are correct but B is not correct explanation of A | c) A is correct but B is wrong | d) B is correct but A is wrong | a) | | | | | | | | |
| 96 | Match the following: <table><tr><td>A) Cauer I</td><td>1. L in series arm and C in shunt arm of ladder</td></tr><tr><td>B) Cauer II</td><td>2. C in series arm and L in shunt arm of ladder</td></tr><tr><td>C) Foster I</td><td>3. Series combination of L and C in parallel D</td></tr><tr><td>D) Foster II</td><td>4. Parallel combination of L and C in series</td></tr></table> | | | | A) Cauer I | 1. L in series arm and C in shunt arm of ladder | B) Cauer II | 2. C in series arm and L in shunt arm of ladder | C) Foster I | 3. Series combination of L and C in parallel D | D) Foster II | 4. Parallel combination of L and C in series | A-1, B-2, C-3, D-4 |
| A) Cauer I | 1. L in series arm and C in shunt arm of ladder | | | | | | | | | | | | |
| B) Cauer II | 2. C in series arm and L in shunt arm of ladder | | | | | | | | | | | | |
| C) Foster I | 3. Series combination of L and C in parallel D | | | | | | | | | | | | |
| D) Foster II | 4. Parallel combination of L and C in series | | | | | | | | | | | | |
| | a) A-1, B-2, C-3, D-4 | b) A-1, B-2, C-4, D-3 | c) A-2, B-1, C-4, D-3 | d) A-2, B-1, C-3, D-4 | a) | | | | | | | | |
| 97 | Match the following: <table><tr><td>A) TTL</td><td>1.Maximum power Consumption</td></tr><tr><td>B) ECL</td><td>2. Highest Packing Density</td></tr><tr><td>C) NMOS</td><td>3. Least Power Consumption</td></tr><tr><td>D) CMOS</td><td>4. Saturated Logic</td></tr></table> | | | | A) TTL | 1.Maximum power Consumption | B) ECL | 2. Highest Packing Density | C) NMOS | 3. Least Power Consumption | D) CMOS | 4. Saturated Logic | A-4, B-1, C-2, D-3 |
| A) TTL | 1.Maximum power Consumption | | | | | | | | | | | | |
| B) ECL | 2. Highest Packing Density | | | | | | | | | | | | |
| C) NMOS | 3. Least Power Consumption | | | | | | | | | | | | |
| D) CMOS | 4. Saturated Logic | | | | | | | | | | | | |

| | | | | | | | | | | | | | |
|-----------------------------------|--|-----------------------|-----------------------|-----------------------|--|--------|------------------------------|--------|-----------------------------------|--------|--------------------------------|-----------------|--------------------|
| | a) A-1, B-4, C-2, D-3 | b) A-1, B-4, C-3, D-2 | c) A-4, B-1, C-2, D-3 | d) A-4, B-1, C-3, D-2 | c) | | | | | | | | |
| 98 | Which of the following statement is true about Feedback control system? A) Equally sensitive to forward feedback path parameter changes B) Insensitive to both forward and feedback path parameter changes C) Less sensitive to feedback path parameter changes than to forward path parameter changes D) Less sensitive to forward path parameter changes than to feedback path parameter changes | | | | Less sensitive to forward path parameter changes than to feedback path parameter changes | | | | | | | | |
| | a) A and B | b) B only | c) C only | d) D only | d) | | | | | | | | |
| 99 | Match the following: <table><tr><td>A) Voltage controlled device</td><td>1. BJT</td></tr><tr><td>B) Current controlled device</td><td>2. UJT</td></tr><tr><td>C) Conductivity modulation device</td><td>3. FET</td></tr><tr><td>D) Negative conductance device</td><td>4. Impatt diode</td></tr></table> | | | | A) Voltage controlled device | 1. BJT | B) Current controlled device | 2. UJT | C) Conductivity modulation device | 3. FET | D) Negative conductance device | 4. Impatt diode | A-3, B-1, C-4, D-2 |
| A) Voltage controlled device | 1. BJT | | | | | | | | | | | | |
| B) Current controlled device | 2. UJT | | | | | | | | | | | | |
| C) Conductivity modulation device | 3. FET | | | | | | | | | | | | |
| D) Negative conductance device | 4. Impatt diode | | | | | | | | | | | | |
| | a) A-2, B-3, C-1, D-1 | b) A-2, B-3, C-4, D-1 | c) A-3, B-1, C-2, D-4 | d) A-3, B-1, C-4, D-2 | d) | | | | | | | | |
| 100 | Which of the following quantities give a measure of the transient characteristics of a control system, when subjected to unit step excitation. 1. Maximum overshoot 2. Maximum undershoot 3. Overall gain 4. Delay time 5. Rise time 6. Fall time | | | | 1,4 and 5 | | | | | | | | |
| | a) 1,3 and 5 | b) 2, 4 and 5 | c) 2,4 and 6 | d) 1,4 and 5 | d) | | | | | | | | |