

Test Booklet No. _____

This booklet consists of 150 questions and pages.

RGUPET/2025/1004/104

RGUPET 2025
Common Entrance Test, 2025
DOCTOR OF PHILOSOPHY IN ELECTRONICS AND COMMUNICATION
ENGINEERING

Full Marks: 150

Time: 3 Hours

Roll No.

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Day and Date of Examination: _____

Signature of Invigilator(s) _____

Signature of Candidate _____

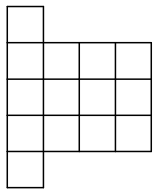
General Instructions:

PLEASE READ ALL THE INSTRUCTIONS CAREFULLY BEFORE MAKING ANY ENTRY.

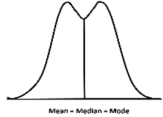
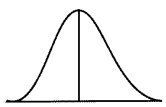
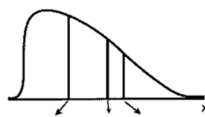
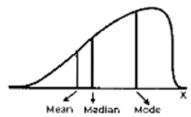
1. DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE TOLD TO DO SO.
2. Candidate must write his/her Roll Number on the space provided.
3. This Test Booklet contains 150 Multiple Choice Questions (MCQs) from the concerned subject. Each question carries 1 mark.
4. Please check the Test Booklet to verify that 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	The “Mission Sudarshan Chakra”, recently launched by the Prime Minister of India, primarily relates to				development of a multilayered air and missile defence system
	a) a national renewable energy mission	b) a national digital currency mission	c) development of a multilayered air and missile defence system	d) a national mission to modernise Indian Railways	(c)
2	“Pushpak”- a national mission being implemented by the Indian Institute of Technology, Bombay is related to the development of				Drone technology
	a) Helicopters	b) Dairy technology	c) Drone technology	d) Artificial intelligence	(c)
3	North East India’s first underwater tunnel project, announced in 2024, is proposed to connect				Numaligarh and Gohpur
	a) Dibrugarh and Dhemaji	b) Jorhat and Majuli	c) Numaligarh and Gohpur	d) Guwahati and North Guwahati	(c)
4	Which of the following statements are correct? A. Canada hosted the 51 st G7 summit in 2025. B. Four players were honoured with the Khel Ratna Award 2025. C. Sweden was ranked first in Global Innovation Index 2024. D. Operation Sindoor was Launched by India to attack terrorist bases in Pakistan on 7 th May 2025.				(a)
	a) A, B and D	b) A,B and C	c) Only A	d) All of the above	A, B and D
5	Which of the followings are correct? A. Lip Butan has been appointed as the new CEO of Intel in March 2025 B. Shri C P Radhakrishnan has been appointed as the Vice President of India C. India’s rank in the Human Development Index 2025 released by UNDP is 99 D. India has become the 2 nd largest road network in the World.				(d)
	a) A and B only	b) A, B and C only	c) A, C and D only	d) A, B, D only	A, B, D only
6	Which of the following sentences is false? A. Palk Strait joins India and Sri Lanka B. The Radcliffe Line is between India and Bangladesh C. The MacMohan Line separates India and China D. The Durand Line is between Iran and Afghanistan.				
	a) A, B	b) B, C	c) C, D	d) B, D	(d)

7	Assertion (A): Eclipses do not occur on all full moon and new moon days. Reason (R): The moon revolves round the earth in an elliptical orbit.				A and R are true but R doesnot explain A								
	a) A and R are true and R correctly explains A.	b) A and R are true but R does not explain A.	c) A is true R is false	d) R is true but A is false	(b)								
8	Right to equality is a-				Fundamental right								
	a) fundamental right	b) social right	c) cultural right	d) legal right	(a)								
9	The author of the book “Midnight’s Children” is-				Salman Rushdie								
	a) Shakespeare	b) Leo Tolostoy	c) Salman Rushdie	d) R K Narayan	(c)								
10	Match the organizations with their headquarters: <table border="1"><tr><td>A. UNESCO</td><td>1. New York</td></tr><tr><td>B. WHO</td><td>2. Paris</td></tr><tr><td>C. UNICEF</td><td>3. Geneva</td></tr><tr><td>D. IMF</td><td>4. Washington D.C.</td></tr></table>				A. UNESCO	1. New York	B. WHO	2. Paris	C. UNICEF	3. Geneva	D. IMF	4. Washington D.C.	
A. UNESCO	1. New York												
B. WHO	2. Paris												
C. UNICEF	3. Geneva												
D. IMF	4. Washington D.C.												
	a) A–3, B–2, C–4, D–1	b) A–2, B–3, C–1, D–4	c) A–2, B–4, C–3, D–1	d) A–1, B–3, C–2, D–4	(b)								
11	He said, “Happy new year!” The correct indirect speech of the above is-				He wished me a happy new year.								
	a) He said the new year was happy.	b) He wished me a happy new year.	c) He said to me that happy new year.	d) I was wished a happy new year.	(b)								
12	Identify the correct sentence(s) from the following. A. One of my friends is a doctor. B. I don’t know nothing about her. C. It is a two-hour journey. D. We will be definitely there at the yesterday’s programme.												
	a) A, B	b) B, C	c) A, C	d) C, D	(c)								
13	“She drank the _____ milk that was there in the flask.” The appropriate quantifier to fill in the blank is-				little								
	a) all	b) little	c) sour	d) few	(b)								
14	“a/ great /and/ reality/their/ theory/in/there/ disparity/is” The correct reordered meaningful sentence with the above jumbled words/phrases is- P. There is a great theory and their reality in disparity. Q. There is a great disparity in their theory and reality. R. Their great disparity is in a theory and reality there.				There is a great disparity in their theory and reality.								

	S. Their great theory is a reality and in disparity there.				
	a) P	b) Q	c) R	d) S	(b)
15	The correct match of synonyms and antonyms is:				A-ii, B-iii, C-i, D-iv
	A. Futile		i. Help		
	B. Generic		ii. Effective		
	C. Hinder		iii. Individual		
	D. Inception		iv. Termination		
	a) A-i, B-ii, C-iii, D-iv	b) A-iii, B-ii, C-iv, D-iii	c) A-iv, B-iii, C-i, D-ii	d) A-ii, B-iii, C-i, D-iv	(d)
16	The total number of squares in the following figure is:				22
					
	a) 24	b) 20	c) 22	d) 18	(c)
17	Fill in the blank in the following pattern. ELFY GLHX ILJW ----- MLNU				KLLV
	a) KLLV	b) KLMX	c) JLLV	d) JLMX	a)
18	Raghav introduces Vineet as the only son of the only brother of his father's wife. How Raghav and Vineet are related?				cousin
	a) brother	b) cousin	c) uncle	d) son-in-law	(b)
19	Which two numbers should be interchanged to make the given equation mathematically correct? $3 \times 6 + 72 \div 8 - 24 = 12$				6, 8
	a) 6, 8	b) 6, 24	c) 3, 8	d) None	(a)
20	If BANKER is coded as CAOKFR, then how would LAWYER be coded?				MAXYFR
	a) LBWZES	b) LBWYFR	c) MAXYFR	d) MAXZES	c)
21	Same error occurs at the same size in every measurement, and such errors can only be eliminated either by thinking through the sources of problems and removing them. This type of error is termed as:				
	a) Random errors	b) Systematic errors	c) Cascading errors	d) Perpetual errors	b

22	Hypothesis-driven research begins with a hypothesis. A hypothesis is a statement about the world that can be true or false, and whose truth is being tested.														
	a) A valid hypothesis is based on ‘that exists’	b) A hypothesis is a positive conclusion	c) A hypothesis can never be tested	d) A valid hypothesis must be falsifiable	d										
23	Which of the following statements that could be considered as valid scientific hypotheses? A. Eating two ounces of olive oil a day decreases the odds of contracting heart disease. B. What is the best fertilizer to use to get large and tasty tomatoes? C. Macs are better than PCs. D. Briar’s Aspirin cures headaches faster than RCS Aspirin.				Answer										
	a) A, B	b) A, B, C	c) A, D	d) B, C	c										
24	Relate the ‘function or relationship’ (A) and ‘comment’ (B) and select the appropriate answer A: Find how the speed of sound in air at fixed pressure depends upon air temperature. B: The control variable is temperature, and the response variable is sound speed.				Answer										
	a) Functional relationship is correct and the comment is true for the relationship	b) Functional relationship is incorrect but the comment is true for the relationship	c) Functional relationship is correct but the comment is false for the relationship	d) Neither the functional relationship is correct nor the comment is true	a										
25	Relate ‘sampling design’ and its ‘method’ <table><tr><td>Sampling Design</td><td>Method</td></tr><tr><td>A. Deliberate</td><td>i. Sample collected as information received and survey progresses</td></tr><tr><td>B. Simple random</td><td>ii. sample drawn from a heterogeneous group</td></tr><tr><td>C. Stratified</td><td>iii purposive selection of particular units</td></tr><tr><td>D. Sequential</td><td>iv. every item in the population has an equal chance of inclusion</td></tr></table>				Sampling Design	Method	A. Deliberate	i. Sample collected as information received and survey progresses	B. Simple random	ii. sample drawn from a heterogeneous group	C. Stratified	iii purposive selection of particular units	D. Sequential	iv. every item in the population has an equal chance of inclusion	Answer
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	a) A-iii, B-iv, C-ii, D-i	b) A-ii, B-iv, C-iii, D-i	c) A-i, B-iii, C-ii, D-iv	d) A-iii, B-ii, C-iv, D-i	a										
26	Number of observations in a normal distribution is 1000. How many observations will be there between $\mu+1\sigma$ and $\mu-1\sigma$				Answer										
	a) 500	b) 680	c) 720	d) 950	b										

27	Which of the following are reasons for citing a paper?				Answer
A. use its ideas, definitions, terms in a Research B. provides upcoming facts regarding undergoing Research Question. C. to adopt part/full methodology it adopted for a certain task. D. to refer to data also used in Current Research.					
	a) A, B, C	b) B, C, D	c) A, C, D	d) A, B, D	c
28	Scholars who wish to meet publication expectations mostly resort to a variety of techniques to increase their output and crank up their citation ranking, which are not considered ethical. Identify these techniques: A. Gift authorship B. Extensive experiments C. Salami Slicing D. Extensive referencing				Answer
	a)A, B, C	b) A, B, D	c) B, C, D	d) A, C, D	
29	Match the references (APA 7 style):				Answer
A. Journal Article		i. Edwards, A. A., Steacy, L. M., Siegelman, N., Rigobon, V. M., Kearns, D. M., Rueckl, J. G., & Compton, D. L. (2022). Unpacking the unique relationship between set for variability and word reading development: Examining word- and child-level predictors of performance. <i>Journal of Educational Psychology</i> , 114(6), 1242–1256. https://doi.org/10.1037/edu0000696			
B. Authored Book		ii. Levenson, H., Jinich, S., Vaz, A., & Rousmaniere, T. (2025). <i>Deliberate practice in emotionally focused couple therapy</i> . American Psychological Association. https://doi.org/10.1037/0000436-000			
C. Webpage		iii. Zeleke, W. A., Hughes, T. L., & Drozda, N. (2020). Home–school collaboration to promote mind–body health. In C. Maykel & M. A. Bray (Eds.), <i>Promoting mind–body health in schools: Interventions for mental health professionals</i> (pp. 11–26). American Psychological Association. https://doi.org/10.1037/0000157-002			
D. Edited Book Chapter		iv. Taras, Z. (2024, May 30). <i>Situational irony can be funny, tragic or even terrifying</i> . howstuffworks. https://entertainment.howstuffworks.com/arts/literature/situational-irony.htm			
	a) A-i, B-ii, C-iv, D-iii	b) A-ii, B-iii, C-iv, D-i	c) A-iii, B-ii, C-i, D-iv	d) A-i, B-ii, C-iii, D-iv	a
30	Which one of the following refers to positive skewness?				
a)		b)		c)	
d)					c

31	How much is the degree of freedom for the following data table?				Answer																																								
<table><tr><th>S. No.</th><th>X_i</th><th>Hypothesised mean $m_{H_0} = 578 \text{ kg.}$</th><th>$D_i = (X_i - \mu_{H_0})$</th><th>$D_i^2$</th></tr><tr><td>5</td><td>572</td><td>578</td><td>-6</td><td>36</td></tr><tr><td>6</td><td>578</td><td>578</td><td>0</td><td>0</td></tr><tr><td>7</td><td>570</td><td>578</td><td>-8</td><td>64</td></tr><tr><td>8</td><td>572</td><td>578</td><td>-6</td><td>36</td></tr><tr><td>9</td><td>596</td><td>578</td><td>18</td><td>324</td></tr><tr><td>10</td><td>544</td><td>578</td><td>-34</td><td>1156</td></tr><tr><td>$n=10$</td><td colspan="2"></td><td>$\sum D_i = -60$</td><td>$\sum D_i^2 = 1816$</td></tr></table>						S. No.	X_i	Hypothesised mean $m_{H_0} = 578 \text{ kg.}$	$D_i = (X_i - \mu_{H_0})$	D_i^2	5	572	578	-6	36	6	578	578	0	0	7	570	578	-8	64	8	572	578	-6	36	9	596	578	18	324	10	544	578	-34	1156	$n=10$			$\sum D_i = -60$	$\sum D_i^2 = 1816$
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32	Find out the Null hypothesis for the given table				Answer																																								
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a) $\mu_{H_0} = 578\text{kg.}$		b) $\mu_{H_0} \neq 578\text{kg.}$		c) $\mu_{H_0} = -578\text{kg.}$	d) $\mu_{H_0} = \pm 578\text{kg.}$																																								
33	What will be sum of the deviations of observations from the regression line?				Answer																																								
a) $-\infty$		b) 0		c) $+\infty$	d) undefined																																								
34	Derive from the following diagram				Answer																																								
Assertion: In this normal distribution 5 percent of the sample are rejected.																																													
Justification: It shows a two tailed hypothesis test model at 90 percent confidence level																																													
a) Assertion is true and justification explains the Assertion		b) Assertion is false but justification explains the Assertion		c) Assertion is true and justification is true but does not explain the Assertion		d) Assertion is true and justification for the Assertion is incorrect																																							
35	Match into pairs for the Statistical method with appropriate details mentioned:				Answer																																								
Statistical method		Details																																											
A. Correlation		i. Order 2, 3, 4,																																											
B. Polynomial regression		ii. More than two population on same characteristics																																											
C. ANOVA		iii. Test of homogeneity																																											
D. Chi square		iv. Requires only two variables																																											

	a) A-i, B-ii, C-iii, D-iv	b) A-iv, B-i, C-ii, D-iii	c) A-iv, B-ii, C-i, D-iii	d) A-iii, B-i, C-ii, D-iv	b								
36	Match the following and give the correct answer: A. Nature of Interaction holding atom B. Rate of Chemical Reaction C. Increase the rate of reaction D. hydrocarbon chain insoluble in water i Kinetics ii Bond iii Lipid iv catalyst				Answer								
	a) A(i), B(ii), C(iii), D(iv)	b) A(ii), B(i), C(iv), D(iii)	c) A(iii), B(ii), C(i), D(iv)	d) A(ii), B(iii), C(i), D(iv)	(b)								
37	In a simple harmonic motion, the velocity of a particle is maximum at:				Answer								
	a) Mean position	b) Extreme position	c) Halfway between mean and extreme	d) At all positions	(a)								
38	In a double-slit experiment, if the distance between slits is doubled, what happens to the fringe spacing on the screen?				Answer								
	a) Fringe spacing halves	a) Fringe spacing doubles	c)Fringe spacing remains the same	d)Fringe spacing quadruples	(a)								
39	A block slides down a frictionless inclined plane. Which of the following statements is true?				Answer								
	a) Mechanical energy is not conserved	b) Potential energy decreases, kinetic energy increases	c) Kinetic energy decreases	d)Acceleration is zero	(b)								
40	Which of the following is true for a photon in a vacuum?				Answer								
	a) It has mass but no energy	b) It has energy but no rest mass	c) It has rest mass and energy	d) It can be accelerated by a force	(b)								
41	Which of the following is diamagnetic?				Answer								
	a) CO ₂	b) O ₂	c) NO	d) O ₂ ⁻	(a)								
42	Match the following ligands with their denticity: <table border="1"><tr><td>A. NH₃</td><td>i. Quadridentate</td></tr><tr><td>B. EDTA</td><td>ii. Monodentate</td></tr><tr><td>C. Oxalate</td><td>iii. Hexadentate</td></tr><tr><td>D. Porphyrin</td><td>iv. Bidentate</td></tr></table>				A. NH ₃	i. Quadridentate	B. EDTA	ii. Monodentate	C. Oxalate	iii. Hexadentate	D. Porphyrin	iv. Bidentate	Answer
A. NH ₃	i. Quadridentate												
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	a) A-ii, B-iii, C-iv, D-i	b) A-ii, B-iii, C-i, D-iv	c) A-iv, B-iii, C-ii, D-i.	d) A-ii, B-i, C-iv, D-iii	(a)								

43	In which of the following compounds is the metal-metal bonding present?				Answer								
	a) NaCl	b) ZnO	c) Al ₂ O ₃	d) Cr ₂ Cl ₆	(d)								
44	A solution contains 0.1 mol of a non-volatile solute in 1 L of water at 298 K. Calculate the osmotic pressure:				Answer								
	a) 2.44 atm	b) 1.33 atm	c) 0.22 atm	d) 0.11 atm	(a)								
45	According to Henry's law, the solubility of a gas in a liquid is:				Answer								
	a) Independent of pressure.	b) Directly proportional to pressure.	c) Inversely proportional to pressure.	d) Exponential with pressure.	(b)								
46	If $f(x) = \begin{cases} \{ x - 2 \}/(x - 2), & x \neq 0 \\ 0, & otherwise \end{cases}$				Answer								
	a) -1	b) 1	c) 0	d) does not exist	d								
47	If $y = x^5 - 5x^4 + 5x^3 - 1$, then the value of $\frac{d^6y}{dx^6}$ is				Answer								
	a) $120x - 120$	b) 120	c) 0	d) cannot be evaluated.	c								
48	Which of the following is/are not true for a function f defined on closed interval $[a, b]$ to satisfy Rolle's theorem? A. f is continuous on closed interval $[a, b]$. B. f is differentiable on the open interval (a, b) C. $f(a) = f(b)$ D. $f(k) = 0$ for at least one $k \in [a, b]$.				Answer								
	a) A and B	b) only D	c) B and C	d) Only C	b								
49	A group which satisfies commutatively property is known a												
	a) Abelian group	b) Quotient group	c) Coset group	d) Normal group	a								
50	Let M^T denotes transpose matrix of M and I is identity matrix. Match the following:				Answer								
	<table><tr><td>A. M is idempotent</td><td>i. $M = M^T$</td></tr><tr><td>B. M is symmetric</td><td>ii. $M = -M^T$</td></tr><tr><td>C. M is skew-symmetric</td><td>iii. $M^2 = I$</td></tr><tr><td>D. M is involution</td><td>iv. $M^2 = M$</td></tr></table>				A. M is idempotent	i. $M = M^T$	B. M is symmetric	ii. $M = -M^T$	C. M is skew-symmetric	iii. $M^2 = I$	D. M is involution	iv. $M^2 = M$	
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	a) A-iv, B-i, C-iii, D-ii	b) A-i, B-iv, C-ii, D-iii	c) A-iv, B-i, C-ii, D-iii	d) A-iv, B-ii, C-i, D-iii	c								

51	Which one of the following statements are true: 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.				Answer								
	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) 4								
52	Relate the Assertion and Reason thereof: 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.				Answer								
	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								
53	Type Questions here for matching pairs: <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	Answer
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								
54	Which one of the following statements is true? Statement1: The intersection of two disjoint sets is the empty set. Statement2: Disjoint sets have common elements.				Answer								
	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								
55	Relate the Assertion and Reason thereof: 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.				Answer								
	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								

56	Type Questions here for matching pairs:				Answer
A. Tunnel Diode		1.			
B. Junction Diode		2.			
C. Schottky Diode		3.			
D. Zener Diode		4.			
	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
57	Which of the following according to KCL must be zero?				
	a) Algebraic sum of currents in a node.	b) Algebraic sum of power in a node	c) Algebraic sum of losses in a closed loop	d) Algebraic sum of voltages in closed-loop	a)
58	Which of the following is not an expression power?				
	a) $P=VI$	b) $P=I^2R$	c) $P=V^2/R$	d) $P=I/R$	d)
59	Match the following pairs:				
A. Inductance		i. Active Sensor			
B. Piezoelectric		ii. Passive Sensor			
C. Transformer		iii. Transducer			
	a) A-i, B-ii, C-iii	b) A-ii, B-i, C-iii	c) A-iii, B-ii, C-i	d) A-i, B-iii, C-ii	b)
60	Match the following pairs:				
A. Decoder		i. Gate			
B. Counter		ii. Sequential			
C. EXOR		iii. Combination			
	a) A-i, B-ii, C-iii	b) A-ii, B-i, C-iii	c) A-iii, B-ii, C-i	d) A-i, B-iii, C-ii	c)
61	Match the following pairs:				
A. Cosine		i. Odd			
B. Sine		ii. Even			
C. 34		iii. Constant			
	a) A-i, B-ii, C-iii	b) A-ii, B-i, C-iii	c) A-iii, B-ii, C-i	d) A-i, B-iii, C-ii	b)
62	Match the following pairs:				
A. stdio.h		i. data type			
B. integer		ii. library			
C. main ()		iii. function			
	a) A-i, B-ii, C-iii	b) A-ii, B-i, C-iii	c) A-iii, B-ii, C-i	d) A-i, B-iii, C-ii	b)

63	Match the following pairs:				
	A. LPF	i. Passes high-frequency signals and blocks low-frequency signals.			
	B. HPF	ii. Passes signals within a specific frequency range only.			
	C. BPF	iii. Passes low-frequency signals and blocks high-frequency signals.			
	a) A-i, B-ii, C-iii	b) A-ii, B-i, C-iii	c) A-iii, B-i, C-ii	d) A-i, B-iii, C-ii	c)
64	State True or false 1. 8-bit ADC has 128 resolutions. 2. 10-bit ADC has 2048 resolutions.				
	a) 1 is true	b) 2 is true	c) both are true	d) both are false	a)
65	Which of the following statements are true? a) TV remote control used infrared ray b) TV remote control used ultraviolet ray				
	a) a only	b) b only	c) both are true	d) both are false	c)
66	A: The speed of radio waves in free space is 300×10^6 m/s. B: In a vacuum, all electromagnetic waves travel at the speed of light				
	a) A is true and B is the correct justification of A	b) A is true and B is true but not the correct justification of B	c) A is True and B is False	d) A is False and B is True	a)
67	A: If the frequency is increased, the resistance of a wire will also increase. B: As frequency increases, the skin effect becomes more significant.				
	a) A is true and B is the correct justification of A	b) A is true and B is true but not the correct justification of B	c) A is True and B is False	d) A is False and B is True	a
68	A: A system which is linear is said to obey the rules of both scaling and additivity. B: Scalability is the system's response to a scaled input is equal to the scaled response of the original input.				b)
	a) A is true and B is the correct justification of A	b) A is true and B is true but not the correct justification of B	c) A is True and B is False	d) A is False and B is True	b)
69	A: All real-time systems concerned with the concept of causality are causal. B: A non-causal system is one where the output at any given time depends only on present and past inputs, not future inputs.				
	a) A is true and B is the correct justification of A	b) A is true and B is true but not the correct justification of B	c) A is True and B is False	d) A is False and B is True	c)

70	A memory connected to a microprocessor has 20 address lines and 8 data lines. What will be the memory capacity?				
	a) 8 KB	b) 1 MB	c) 16 MB	d) 64 KB	b)
71	What will the value of AH register after this instruction? MOV AX, 2006H				
	a) 20H	b) 06H	c) 00H	d) 26H	a)
72	How many address lines are required to connect a 4 KB RAM to a microprocessor?				
	a) 10	b) 16	c) 12	d) 20	c)
73	Find out the minimum sampling frequency of $x(t)=A\sin(100\pi t)$ signal.				
	a) 20	b) 50	c) 80	d) 100	d)
74	Find the Z-transform of $\delta(n+3)$				z^3
	a) z	b) z^2	c) 1	d) z^3	d)
75	How many NAND gates are used to form an AND gate?				2
	a) 1	b) 2	c) 3	d) 4	b)
76	The inverter can be produced with how many NOR gates?				1
	a) 1	b) 2	c) 3	d) 4	a)
77	For the system, $y(t) = u\{x(t)\}$ which of the following holds true?				System is time-invariant, causal and stable
	a) System is Linear, time-invariant, causal and stable	b) System is time-invariant, causal and stable	c) System is causal and stable	d) System is stable	b)
78	What is the process of reducing the sampling rate by a factor D?				Decimation
	a) Sampling rate conversion	b) Decimation	c) Interpolation	d) None of the mentioned	b)
79	If source impedance is complex, then maximum power transfer occurs when the load impedance is _____ the source impedance.				complex conjugate of
	a) equal to	b) negative of	c) negative of complex conjugate of	d) complex conjugate of	d)
80	In a counter, maximum number of states possible with 4 flip flops is				16
	a) 15	b) 16	c) 4	d) 3	b)

81	Match the following:				A-2, B-3, C-4, D-1
	A. Universal gate		1. NOT gate		
	B. Exclusive gate		2. NAND, NOR		
	C. Buffer		3. XOR, XNOR		
	D. Inverter		4. No inversion, unity gain		
	a) A-3, B-4, C-1, D-2	b) A-3, B-2, C-1, D-4	c) A-2, B-3, C-1, D-4	d) A-2, B-3, C-4, D-1	d)
82	Match the following:				A-3, B-1, C-2, D-4
	A) Output of signal generator		1. Modulated		
	B) Error signal from a synchro		2. Digital		
	C) Output of a JK flip flop		3. Analog		
	D) Signal received by radar		4. Stochastic		
	a) A-1, B-3, C-2, D-4	b) A-3, B-1, C-2, D-4	c) A-3, B-1, C-4, D-2	d) A-1, B-3, C-4, D-2	b)
83	Match the following:				A-4, B-1, C-2, D-3
	A) PIN diode		1. Microwave amplification		
	B) GaAs MOSFET		2. Low noise microwave generation		
	C) Transferred electron device		3. Electronic tuning of MW oscillator		
	D) Varactor diode		4. Light wave detection		
	a) A-1, B-2, C-4, D-3	b) A-4, B-1, C-2, D-3	c) A-2, B-3, C-1, D-4	d) A-3, B-4, C-2, D-1	b)
84	Match the following:				A-4, B-3, C-1, D-2
	A) Silicon		1. trivalent		
	B) Arsenic		2. rarely used as semiconductor		
	C) Indium		3. pentavalent		
	D) Germanium		4. intrinsic semiconductor		
	a) A-1, B-2, C-3, D-4	b) A-4, B-3, C-2, D-1	c) A-4, B-3, C-1, D-2	d) A-2, B-1, C-3, D-4	c)
85	Match the following:				A-4, B-3, C-1, D-2
	A) Detection of a periodic signal in noise		1. Increase in bandwidth		
	B) Recovery of a band limited signal from its uniformly sampled values		2. Slope overload error		
	C) Finer quantization of signal		3. Nyquist rate		
	D)Delta modulation		4. Cross correlation		

	a) A-4, B-3, C-1, D-2	b) A-3, B-4, C-2, D-1	c) A-4, B-3, C-2, D-1	d) A-4, B-2, C-1, D-3	a)
86	Match the following:				A-2, B-1, C-3, D-4
	A) Electroencephalograph	1. Diagnostic tool for heart ailment			
	B) Electrocardiograph	2. Diagnostic tool for brain ailment			
	C) Sphygmomanometer	3. used for measuring BP			
	D) Stethoscope	4. used to heart pulse/ heart beat			
	a) A-2, B-1, C-3, D-4	b) A-3, B-1, C-2, D-4	c) A-2, B-1, C-4, D-3	d) A-1, B-2, C-3, D-4	a)
87	Match the following:				A-4, B-2, C-1, D-3
	A) Direct addressing	1. MOV A, M			
	B) Register addressing	2. MOV C, A			
	C) Register indirect addressing	3. LDI 70H			
	D) Immediate addressing	4. STA 3000H			
	a) A-1, B-2, C-3, D-4	b) A-4, B-2, C-1, D-3	c) A-2, B-3, C-4, D-1	d) A-3, B-2, C-1, D-4	b)
88	Match the following:				A-2, B-1, C-3, D-4
	A. Type-0 system	1. Zero steady-state error for ramp input			
	B. Type-1 system	2. Non-zero steady-state error for step input			
	C. Type-2 system	3. Zero steady-state error for parabolic input			
	D. Higher-order system	4. Overshoot & oscillations possible			
	a) A-2, B-1, C-3, D-4	b) A-2, B-4, C-3, D-2	c) A-1, B-2, C-4, D-3	d) A-1, B-3, C-4, D-2	a)
89	Match the following:				A-1, B-2, C-4, D-3
	A. Time scaling	1. $x(at)$			
	B. Time shifting	2. $x(t-T)$			
	C. Amplitude scaling	3. $x(-t)$			
	D. Time reversal	4. $Ax(t)$			
	a) A-1, B-2, C-3, D-4	b) A-2, B-1, C-3, D-4	c) A-1, B-2, C-4, D-3	d) A-2, B-1, C-4, D-3	c)
90	Match the following:				A-4, B-3, C-2, D-1
	A. Band-limited signal	1. Overlapping spectra			
	B. Nyquist rate	2. $1/2f_m$			
	C. Nyquist interval	3. $2f_m$			

	D. Aliasing		4. Max frequency $\leq f_m$											
	a) A-4, B-2, C-3, D-1	b) A-1, B-3, C-2, D-4	c) A-4, B-3, C-2, D-1	d) A-1, B-3, C-4, D-2	c)									
91	Match the following: <table><tr><td>A. Low-pass filter</td><td>1. Passes low frequency</td></tr><tr><td>B. High-pass filter</td><td>2. Rejects a specific frequency band</td></tr><tr><td>C. Band-pass filter</td><td>3. Passes high frequency</td></tr><tr><td>D. Band-stop filter</td><td>4. Passes a range of frequencies</td></tr></table>				A. Low-pass filter	1. Passes low frequency	B. High-pass filter	2. Rejects a specific frequency band	C. Band-pass filter	3. Passes high frequency	D. Band-stop filter	4. Passes a range of frequencies	A-1, B-3, C-4, D-2	
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92	Match the following: <table><tr><td>A. Zener diode</td><td>1. Light detection</td></tr><tr><td>B. LED</td><td>2. Fast switching</td></tr><tr><td>C. Schottky diode</td><td>3. Light emission</td></tr><tr><td>D. Photodiode</td><td>4. Voltage regulation</td></tr></table>				A. Zener diode	1. Light detection	B. LED	2. Fast switching	C. Schottky diode	3. Light emission	D. Photodiode	4. Voltage regulation	A-4, B-3, C-2, D-1	
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93	Match the following: <table><tr><td>A. Silicon (Si)</td><td>1. Band gap ≈ 1.43 eV</td></tr><tr><td>B. Germanium (Ge)</td><td>2. Band gap ≈ 9 eV</td></tr><tr><td>C. Gallium Arsenide (GaAs)</td><td>3. Band gap ≈ 1.1 eV</td></tr><tr><td>D. Insulator (SiO₂)</td><td>4. Band gap ≈ 0.67 eV</td></tr></table>				A. Silicon (Si)	1. Band gap ≈ 1.43 eV	B. Germanium (Ge)	2. Band gap ≈ 9 eV	C. Gallium Arsenide (GaAs)	3. Band gap ≈ 1.1 eV	D. Insulator (SiO ₂)	4. Band gap ≈ 0.67 eV	A-3, B-4, C-1, D-2	
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	a) A-3, B-4, C-1, D-2	b) A-4, B-3, C-2, D-1	c) A-4, B-3, C-1, D-2	d) A-3, B-4, C-2, D-1	a)									
94	Which one of the following statements are true: A. Silicon diode forward drop is ~ 0.7 V. B. Zener diode is always used in forward bias. C. Schottky diode is slower than PN diode. D. Photodiode detects light.				A and D									
	a) A only	b) D only	c) A and D	d) B and C	c)									
95	Which one of the following statements are true: A. AND gate output is 1 only when all inputs are 1. B. OR gate output is 0 when all inputs are 0. C. XOR output is 1 when inputs are equal. D. NAND is not a universal gate.				A and B									

	a) A only	b) B only	c) C and D	d) A and B	d)
96	Which of the following quantities give a measure of the transient characteristics of a control system, when subjected to unit step excitation. - Maximum overshoot - Maximum undershoot - Overall gain - Delay time - Rise time - 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)
97	Which one of the following statements are true: - Binary has digits 0 and 1. - Decimal has digits 0–10. - Octal has digits 0–7. - Hexadecimal has digits 0–9 and A–F.				A and C
	a) A only	b) A and C	c) B and D	d) B and C	b)
98	Which one of the following statements are true: - SR flip-flop has invalid state at $S=R=1$. - D flip-flop removes the invalid state problem. - JK flip-flop toggles at $J=K=1$. - T flip-flop is derived from SR flip-flop.				A and B
	a) A only	b) B only	c) A and B	d) B and C	c)
99	Which one of the following statements are true: - Multiplexer selects 1 of many inputs. - Demultiplexer routes 1 input to many outputs. - Decoder converts binary to one-hot output. - Encoder converts decimal to binary.				A and B
	a) A only	b) A and B	c) A and C	d) B and D	b)
100	Which one of the following statements are true: - Ideal op-amp has infinite input resistance. - Ideal op-amp has zero output resistance. - Ideal op-amp has infinite open-loop gain. - Ideal op-amp has zero bandwidth.				A, B, and C
	a) A and B	b) A and C	c) A, B, and C	d) A, B, C, and D	c)
101	Assertion (A): Silicon has a higher band gap than Germanium. Justification (B): Larger band gap improves thermal stability.				Both A and B are true and B is the correct explanation of A

	a) Both A and B are true and B is the correct explanation of A	b) Both A and B are true but B is not the correct explanation of A	c) A is true but B is false	d) A is false but B is true	a)
102	Assertion (A): Photodiode is generally operated in reverse bias. Justification (B): Reverse bias widens the depletion region, improving sensitivity.				Both A and B are true and B is the correct explanation of A
	a) Both A and B are true and B is the correct explanation of A	b) Both A and B are true but B is not the correct explanation of A	c) A is true but B is false	d) A is false but B is true	a)
103	Assertion (A): MOSFET has very high input resistance. Justification (B): The gate is insulated from channel by a thin oxide layer.				Both A and B are true and B is the correct
	a) Both A and B are true and B is the correct explanation of A	b) Both A and B are true but B is not the correct explanation of A	c) A is true but B is false	d) A is false but B is true	a)
104	Assertion (A): Zener diodes regulate voltage in forward bias. Justification (B): Voltage regulation is achieved in reverse breakdown.				A is false but B is true
	a) Both A and B are true and B is the correct explanation of A	b) Both A and B are true but B is not the correct explanation of A	c) A is true but B is false	d) A is false but B is true	d)
105	Assertion (A): Doping pentavalent impurities produces p-type semiconductor. Justification (B): Pentavalent impurities donate electrons				A is false but B is true
	a) Both A and B are true and B is the correct explanation of A	b) Both A and B are true but B is not the correct explanation of A	c) A is true but B is false	d) A is false but B is true	d)
106	Assertion (A): Doping trivalent impurities produces p-type semiconductor. Justification (B): Trivalent impurities donate electrons.				A is true but B is false
	a) Both A and B are true and B is the correct explanation of A	b) Both A and B are true but B is not the correct explanation of A	c) A is true but B is false	d) A is false but B is true	c)
107	Assertion (A): Intrinsic carrier concentration increases with temperature. Justification (B): Mobility of carriers decreases with temperature.				Both A and B are true but B is not the correct explanation of A

	a) Both A and B are true and B is the correct explanation of A	b) Both A and B are true but B is not the correct explanation of A	c) A is true but B is false	d) A is false but B is true	b)
108	Assertion (A): Zener diodes regulate voltage in reverse breakdown. Justification (B): Heavy doping leads to sharp breakdown at a specific voltage.				Both A and B are true and B is the correct explanation of A
	a) Both A and B are true and B is the correct explanation of A	b) Both A and B are true but B is not the correct explanation of A	c) A is true but B is false	d) A is false but B is true	a)
109	Assertion (A): BJT is a current-controlled device. Justification (B): Collector current mainly depends on base current.				Both A and B are true and B is the correct explanation of A
	a) Both A and B are true and B is the correct explanation of A	b) Both A and B are true but B is not the correct explanation of A	c) A is true but B is false	d) A is false but B is true	a)
110	Assertion (A): Hall effect can measure carrier concentration. Justification (B): Hall voltage is independent of magnetic field.				A is true but B is false
	a) Both A and B are true and B is the correct explanation of A	b) Both A and B are true but B is not the correct explanation of A	c) A is true but B is false	d) A is false but B is true	c)
111	Assertion (A): Tunnel diode exhibits negative resistance in its V–I characteristics. Justification (B): Tunnel diodes are widely used as microwave oscillators.				Both A and B are true but B is not the correct explanation of A
	a) Both A and B are true and B is the correct explanation of A	b) Both A and B are true but B is not the correct explanation of A	c) A is true but B is false	d) A is false but B is true	b)
112	The interface between an analog signal and a digital processor is				A/D converter
	a) D/A converter	b) A/D converter	c) Modulator	d) Demodulator	b)
113	Which of the following is not a combinational circuit?				All of above
	a) Flip Flop	b) Shift Register	c) Counter	d) All of above	d)

114	A basic S-R flip-flop can be constructed by cross-coupling which basic logic gates?				NOR or NAND gates
	a) XOR or XNOR gates	b) AND or OR gates	c) AND or NOR gates	d) NOR or NAND gates	d)
115	Which of the following is a asynchronous counter?				Ripple Counter
	a) Ripple Counter	b) Johnson counter	c) Ring Counter	d) None of Above	a)
116	A 32:1 Multiplexer will have how many select lines?				5
	a) 3	b) 4	c) 5	d) 32	c)
117	The process of converting the analog sample into discrete form is called				Quantization
	a) Modulation	b) Multiplexing	c) Quantization	d) Sampling	c)
118	One of the disadvantages of PCM is				It requires large bandwidth
	a) It requires large bandwidth	b) Very high noise	c) Cannot be decoded easily	d) All of the above	a)
119	A 4-bit synchronous counter has a clock frequency of 1 MHz. What is the frequency of the output at the MSB (Q3) ?				125 kHz
	a)250 kHz	b)125 kHz	c)500 kHz	d) 62.5 kHz	b)
120	An AM signal has a carrier power of 100 W and modulation index = 0.5. What is the total transmitted power ?				112.5 W
	a)88.5 W	b) 100 W	c) 112.5 W	d) 125 W	c)
121	In a CE amplifier, input resistance is 1 k Ω and current gain $\beta = 100$. If base current is 50 μ A, what is the collector current ?				5 mA
	a)2.5 mA	b) 5mA	c) 10 mA	d) 50 mA	b)
122	A digital voltmeter has a range of 0–10 V and resolution of 1 mV. What is the percentage resolution ?				0.01%
	a) 0.001%	b) 0.01%	c) 0.1%	d) 1%	b)
123	In FM, the frequency deviation = 50 kHz and maximum modulating frequency = 10 kHz. What is the modulation index ?				5
	a)2	b) 5	c) 10	d) 20	b)
124	A channel has bandwidth 4 kHz and SNR = 30 dB. What is the Shannon capacity ?				40 kbps
	a) 40 kbps	b) 60 kbps	c) 100 kbps	d) 140 kbps	a)
125	A baseband signal has maximum frequency 4 kHz. What is the Nyquist sampling rate ?				8kHz
	a)2 kHz	b) 4 kHz	c) 6 kHz	d) 8 kHz	d)

126	In a series RLC circuit, $R=5\ \Omega$, $L=1\text{ H}$, $C=1\text{ F}$. What is the resonant frequency?				1 rad/s
	a) 0.5 rad/s	b) 1 rad/s	c) 2 rad/s	d) 5 rad/s	b)
127	A moving-coil meter has full-scale deflection at 1 mA. What is the required series resistance to use it as 100 V voltmeter?				100 k Ω
	a) 100 k Ω	b) 10 k Ω	c) 1 k Ω	d) 1 M Ω	a)
128	A lossless transmission line has $Z_0=75\ \Omega$. If it is terminated with a short circuit, the VSWR is:				Infinite
	a)0	b) 1	c) infinite	d) 2	c)
129	The number of complex multiplications involved in the direct computation of 8-point DFT is				64
	a) 8	b) 64	c) 16	d) 56	b)
130	The DFT $X(k)$ of a 2 sample sequence $x(n) = \{4, 2\}$ is				$\{6, 2\}$
	a) $\{6, 2\}$	b) $\{4, 2\}$	c) $\{8, 4\}$	d) $\{2, 1\}$	a)
131	The cross correlation of $x(n) = \{1, 2, 1\}$ and $h(n) = \{1, 2\}$ is				$\{2,5,4,1\}$
	a) $\{1,4,5,2\}$	b) $\{2,5,4,1\}$	c) $\{1,2,1,1,2\}$	d) $\{1,3,5,2\}$	b)
132	The autocorrelation of $x(n) = \{2, 1\}$ is				$\{2,5,2\}$
	a) $\{2,5,2\}$	b) $\{4,4,1\}$	c) $\{2,5,5\}$	d) $\{4,1,4\}$	a)
133	Anti-aliasing filter is to be kept				before down sampler
	a) before down sampler	b) after down sampler	c) before up sampler	d) after up sampler	a)
134	Anti-imaging filter is to be kept				after up sampler
	a) before down sampler	b) after down sampler	c) before up sampler	d) after up sampler	d)
135	Match the theorems with their applications:				A- 4, B-3, C-2, D-1
	A. Thevenin theorem		1. To find conditions for maximum power delivery to the load		
	B. Norton theorem		2. To calculate the response in one element by considering each source separately		
	C. Superposition theorem		3. To simplify linear networks to a single current source and resistance		
	D. Maximum power transfer theorem		4. To simplify linear networks to a single voltage source and resistance		
	a) A- 4, B-3, C-2, D-1	b) A- 4, B-2, C-3, D-1	c) A- 2, B-1, C-3, D-4	d) A- 2, B-3, C-2, D-1	a)
136	Match Modulation Types with their characteristic:				A-1, B-3, C-2, D-4
	A. AM (Amplitude Modulation)		1. Wide bandwidth, less noise immune		
	B. FM (Frequency Modulation)		2. Similar bandwidth and noise immunity to FM		

	C. PM (Phase Modulation)		3. Narrow bandwidth, more noise immune										
	D. PCM (Pulse Code Modulation)		4. Converting analog signals into digital signals										
	a) A-1, B-2, C-3, D-4	b) A-1, B-3, C-2, D-4	c) A-2, B-1, C-3, D-4	d) A-2, B-3, C-1, D-4	b)								
137	Match the following op-amp circuits with their functions: <table><tr><td>A. Differentiator (op-amp circuit)</td><td>1. Generates output proportional to rate of change of input</td></tr><tr><td>B. Integrator (op-amp circuit)</td><td>2. Generates output proportional to integral of input</td></tr><tr><td>C. Comparator (op-amp circuit)</td><td>3. Compares two voltages and outputs high/low accordingly</td></tr><tr><td>D. Voltage follower (op-amp circuit)</td><td>4. Output voltage equals input voltage (buffer)</td></tr></table>				A. Differentiator (op-amp circuit)	1. Generates output proportional to rate of change of input	B. Integrator (op-amp circuit)	2. Generates output proportional to integral of input	C. Comparator (op-amp circuit)	3. Compares two voltages and outputs high/low accordingly	D. Voltage follower (op-amp circuit)	4. Output voltage equals input voltage (buffer)	A-1, B-2, C-3, D-4
A. Differentiator (op-amp circuit)	1. Generates output proportional to rate of change of input												
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	a) A-1, B-2, C-3, D-4	b) A-1, B-3, C-2, D-4	c) A-2, B-1, C-3, D-4	d) A-2, B-3, C-1, D-4	a)								
138	Which statements are true? A. CMOS gates have higher noise immunity than TTL gates. B. Early CMOS families had higher delay than TTL. C. Modern CMOS is faster than TTL. D. CMOS consumes more static power than TTL.				A, B, C								
	a) A only	b) A, B, C only	c) A, B only	d) A, B, C, D	b)								
139	Which statements are true? A. AM bandwidth = $2f_m$. B. FM bandwidth = $2(\Delta f + f_m)$ C. FM bandwidth depends on modulation index. D. AM bandwidth depends on modulation index.				A, B, and C								
	a)A only	b) B only	c) A and B only	d) A, B, and C	d)								
140	Assertion (A): CMOS logic gates have very low static power dissipation. Justification (B): In CMOS, either the pull-up or pull-down network is OFF in steady states.				Both A and B are true and B is the correct explanation of A								
	a) Both A and B are true and B is the correct explanation of A	b) Both A and B are true but B is not the correct explanation of A	c) A is true but B is false	d) A is false but B is true	a)								

141	A transmission line of length $3\lambda/4$ and having a characteristic impedance of $50\ \Omega$ is terminated with a load of $400\ \Omega$. The impedance (rounded off to two decimal places) seen at the input end of the transmission line is _____ Ω .				6.25
	a) 2.25	b) 4.25	c) 6.25	d) 8.25	c)
142	A 10-bit D/A converter is calibrated over the full range from 0 to 10 V. If the input to the D/A converter is 13A (in hex), the output (rounded off to three decimal places) is _____ V				3.07
	a) 1.50	b) 1.60	c) 2.70	d) 3.07	d)
143	The loop transfer function of a negative feedback system is $G(s)H(s) = \frac{K(s + 11)}{s(s + 2)(s + 8)}$ The value of K, for which the system is marginally stable, is				160
	a) 40	b) 80	c) 120	d) 160	d)
144	A: All causal systems must have the component of memory. B: A causal system is one where the output at any given time depends only on present and past inputs, not future inputs.				
	a) A is true and B is the correct justification of A	b) A is true and B is true but not the correct justification of B	c) A is True and B is False	d) A is False and B is True	a)
145	A: The unit of power rating of a transistor is expressed in Watts. B: The power rating of a transistor indicates the maximum amount of power it can safely dissipate as heat without being damaged.				
	a) A is true and B is the correct justification of A	b) A is true and B is true but not the correct justification of B	c) A is True and B is False	d) A is False and B is True	a)
146	A: The purpose of a transistor in electronic circuits is to amplify or switch electronic signals. B: A transistor is a semiconductor device.				
	a) A is true and B is the correct justification of A	b) A is true and B is true but not the correct justification of B	c) A is True and B is False	d) A is False and B is True	b)
147	A: The semiconductor device that acts as a one-way valve for electric current is a diode. B: A diode is a three-terminal semiconductor device.				
	a) A is true and B is the correct justification of A	b) A is true and B is true but not the correct justification of B	c) A is True and B is False	d) A is False and B is True	c)

148	A: The function of an inductor is to oppose the change in current. B: An inductor is a passive electronic component typically made by winding a wire into a coil.				
	a) A is true and B is the correct justification of A	b) A is true and B is true but not the correct justification of B	c) A is True and B is False	d) A is False and B is True	b)
149	What is the process of increasing the sampling rate by a factor I?				Interpolation
	a) Interpolation	b) Decimation	c) Sampling rate conversion	d) None of the mentioned	a)
150	A basic S-R flip-flop can be constructed by cross-coupling which basic logic gates?				NOR or NAND gates
	a) XOR or XNOR gates	b) AND or OR gates	c) AND or NOR gates	d) NOR or NAND gates	d)