

CII – iPATE 2.0 (2021)

Computer Based PAN India Examination

Category: GRADUATE ENGINEER (ENTRY LEVEL)

Engineering Discipline: ELECTRONICS & COMMUNICATION
ENGINEERING

Questions & Answers

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Paper Structure

Question Nos.	Sections & Topics		Marks
1 to 20	Section I : Cognitive Abilities	<ul style="list-style-type: none">Quantitative AptitudeAnalytical ReasoningData InterpretationEnglish Communication	20
21 to 40	Section II : Professional Abilities	<ul style="list-style-type: none">Project ManagementHealth, Safety & Risk ManagementEnvironmental LawsSocial Responsibility & EthicsFinance & AccountsLegal, Contracts & Arbitration	20
41 to 50	Section III (A) : Technical Abilities	Physics & Chemistry (10+2 level)	10
51 to 100	Section III (B) : Technical Abilities	Engineering Discipline	50
TOTAL			100

NOTE:

- Exam Duration: 3 Hours
- Total 100 no. of Questions of 1 Mark each with Negative Marking of ½ Mark for every wrong answer
- Questions (Section wise) and respective Answer Options shuffled at Candidates' terminal

Question No. 1	Discriminant of a second-degree polynomial with integer coefficients cannot be:			
Answer Options	A)	B)	C)	D)
	43	33	68	25
Right Answer	A			

Question No. 2	How many subsets A of {1, 2, 3, 4, 5, 6, 7, 8, 9, and 10} have the property that no two elements of A sum to 11?			
Answer Options	A)	B)	C)	D)
	1024	512	343	243
Right Answer	C			

Question No. 3	Virus and Aarti started a car journey from Chandigarh to Delhi, which are 288 km apart. Virus took 12 hours more than Aarti to complete the journey. Had Virus travelled at double his actual speed, he would have taken 4 hours less than Aarti to complete the journey. Find the respective speeds (in km/hr) at which Virus and Aarti travelled.			
Answer Options	A)	B)	C)	D)
	14.4 and 9	14.5 and 28.5	9 and 14.4	15 and 20
Right Answer	C			

Question No. 4	The height of a trapezoid whose diagonals are mutually perpendicular is equal to 4. Find the area of the trapezoid if it is known that the length of one of its diagonals is equal to 5.			
Answer Options	A)	B)	C)	D)
	50/3 square units	100/3 square units	16/6 square units	None of these
Right Answer	A			

Question No. 5	A polyhedron has faces that are all either triangles or squares. No two square-faces share an edge, and no two triangular-faces share an edge. What is the ratio of triangular-faces to the number of square-faces?			
Answer Options	A)	B)	C)	D)
	03:04	04:03	01:02	04:05
Right Answer	B			

Question No. 6	Your mind likes reading and it actually has a number of important health affects you can't get in any other way. Reading gives you a unique "pause button" for comprehension. Typically, when you read, you have more time to think. When you watch a film or listen to a tape, you don't press that pause button. Reading requires a great deal of concentration, which calls your intelligence to action. The author of this passage would agree that:			
Answer Options	A)	B)	C)	D)
	Reading is a good way to relax, since it doesn't require that much thinking.	Watching a movie has the same effect on the intelligence as reading.	Reading develops your intelligence.	Both A and C
Right Answer	C			

Question No. 7	Read the following information carefully and answer the question given below. P stands 5m west of R. T stands 5m south of Q. T stands 6m east of U. V stands 2m west of Q. A stands 2m south of U. V stands 3m north of R. If G stands 7m east of P, then in which direction does G stands with respect to T?			
Answer Options	A)	B)	C)	D)
	West	East	South	North
Right Answer	D			

Question No. 8	The French Revolution began in 1789 and ended in the late 1790s with the ascent of Napoleon Bonaparte. During this period, French citizens razed and redesigned their country's political landscape, uprooting centuries-old institutions such as absolute monarchy and the feudal system. Like the American Revolution before it, the French Revolution was influenced by Enlightenment ideals, particularly the concepts of popular sovereignty and inalienable rights. From this passage it can be concluded that:			
Answer Options	A)	B)	C)	D)
	The French revolution began before the Russian Revolution.	In the French Revolution their monarch was killed.	The American Revolution happened before the French Revolution.	Napoleon initiated the French Revolution.
Right Answer	C			

Question No. 9	A, B, C, D and E are sitting on a bench. A is sitting next to B, C is sitting next to D, D is not sitting with E who is on the left end of the bench. C is on the second position from the right. A is to the right of B and E. A and C are sitting together. In which position A is sitting?			
Answer Options	A)	B)	C)	D)
	Between B and C	Between E and D	Between B and D	Between C and E
Right Answer	A			

Question No. 10	A, P, R, X, S and Z are sitting in a row. S and Z are in the centre. A and P are at the ends. R is sitting to the left of A. Who is to the right of P?			
Answer Options	A)	B)	C)	D)
	X	Z	S	A
Right Answer	A			

Question No. 11	In the following question choose the word which is the exact OPPOSITE of the given word. STRINGENT			
Answer Options	A)	B)	C)	D)
	Magnanimous	Vehement	General	Lenient
Right Answer	D			

Question No. 12	Some proverbs/idioms are given below together with their meanings. Choose the correct meaning of proverb/idiom. To catch a tartar			
Answer Options	A)	B)	C)	D)
	To trap wanted criminal with great difficulty	To catch a dangerous person	To meet with disaster	To deal with a person who is more than one's match
Right Answer	B			

Question No. 13	Which of the phrases A), B), C) and D) given below each sentence should replace the word/phrase printed in bold in the sentence to make it grammatically correct? If the sentence is correct as it is given and no correction is required, mark (E) as the answer. Since the girl did not want to be disturbed while studying, she left the phone off hooks.			
Answer Options	A)	B)	C)	D)
	of hook	for the hook	off hooking	off the hook
Right Answer	D			

Question No. 14	In the following question choose the word which is the exact OPPOSITE of the given word. FICKLE			
Answer Options	A)	B)	C)	D)
	Courageous	Sincere	Steadfast	Humble
Right Answer	C			

Question No. 15	<p>In question below, the passage consists of six sentences. The first and sixth sentence are given in the correct places. The middle four sentences in each have been removed and jumbled up. These are labelled as P, Q, R and S. Find out the proper order for the four sentences.</p> <p>S1: In the middle of one side of the square sits the Chairman of the committee, the most important person in the room.</p> <p>P: For a committee is not just a mere collection of individuals.</p> <p>Q: On him rests much of the responsibility for the success or failure of the committee.</p> <p>R: While this is happening, we have an opportunity to get the 'feel' of this committee.</p> <p>S: As the meeting opens, he runs briskly through a number of formalities.</p> <p>S6: From the moment its members meet, it begins to have a sort nebulous life of its own.</p> <p>The Proper sequence should be:</p>			
Answer Options	A)	B)	C)	D)
	RSQP	QSRP	SQPR	PQRS
Right Answer	B			

Question No. 16

Question nos. 16 to 20:

Following bar chart represents the number of people in 6 different villages (A, B, C, D, E and F) and the tabular column depicts the ratio of literate to illiterate people and percentage of male living in those villages.



If 40% of the female from village B is literate, then what is the percentage of male, who is illiterate from village B?

Answer Options	A) 38%	B) 35%	C) 37%	D) cannot be determined
Right Answer	C			

Question No. 17

What is the percentage of literate people in all the six villages together?

Answer Options	A) 55%	B) 53%	C) 51%	D) cannot be determined
Right Answer	B			

Question No. 18

What is the ratio between numbers of illiterate people from villages B, C & D to number of females from villages A, E & F?

Answer Options	A) 320:527	B) 527:330	C) 330:527	D) 527:320
Right Answer	C			

Question No. 19

If 3% of female from village D & 5% of female from village E are literate then what is the total number of literate males from D & F together?

Answer Options	A) 1823	B) 1723	C) 1623	D) cannot be determined
Right Answer	D			

Question No. 20

The number of females from villages A & C is how much percentage more or less than number of females from villages D & F?

Answer Options	A) 25.72%	B) 25.76%	C) 24.76%	D) 24.72%
Right Answer	C			

Question No. 21	A project plan results in a project schedule seems to be too long. If the project network diagram cannot change but extra personnel resources is available, what is the best thing to do?			
Answer Options	A)	B)	C)	D)
	Fast track the project	Level the resources	Crash the project	Any other option
Right Answer	C			

Question No. 22	Which of the following is not Project Management's goal			
Answer Options	A)	B)	C)	D)
	Keeping overall cost within the budget	Delivering the project/goods to the client at agreed time	Maintaining a satisfactory and well-functioning development	Avoiding customer/client complaints
Right Answer	D			

Question No. 23	You have recently been named as Project Manager of a new project under a Contract. The Project Management Unit (PMU) gave you the contract signed by the Customer and a Statement of Work and asked you to go on with initiation. Which document should you develop next?			
Answer Options	A)	B)	C)	D)
	Project Manager Plan	Milestone Schedule	Project Charter	Scope Statement
Right Answer	C			

Question No. 24	The analysis tool for a quality problem that involves selecting the problem, identifying major categories of potential causes and associating likely specific causes is			
Answer Options	A)	B)	C)	D)
	Pareto chart	Fishbone diagram	Scatter diagram	Check list
Right Answer	B			

Question No. 25	The Occupational Safety & Health Administration requires employers to have Hearing Conservation Plans if the average 8-hour noise exposure is more than			
Answer Options	A)	B)	C)	D)
	1000 dB	500 dB	105 dB	85 dB
Right Answer	D			

Question No. 26	Ammonia becomes an immediate danger to your life and health when it is present at the following level or greater			
Answer Options	A)	B)	C)	D)
	10 ppm	30 ppm	300 ppm	1000 ppm
Right Answer	C			

Question No. 27	Exposure to high levels of noise can lead to which of the following:			
Answer Options	A)	B)	C)	D)
	High blood pressure	Gastrointestinal problems	Chronic fatigue	All of the above
Right Answer	D			

Question No. 28	Which type of fire extinguishing system is most commonly used to protect areas containing valuable equipment such as data processing rooms, telecommunications switches, and process control rooms?			
Answer Options	A)	B)	C)	D)
	Fixed extinguishing systems	Portable extinguishing systems	Hose extinguishing systems	It's up to the discretion the employer
Right Answer	A			

Question No. 29	If you need to wear glasses with your eye or face protection, which of the following options is acceptable			
Answer Options	A)	B)	C)	D)
	Wearing prescription spectacles with side shields and protective lenses that meet safety requirements and also correct your vision	Wearing goggles that fit comfortably over your glasses	Wearing goggles that have corrective lenses mounted behind the protective lenses	All of the above
Right Answer	D			

Question No. 30	Under which Section of Environment Pollution Act, the CPCB can issue the directions directly to industries			
Answer Options	A)	B)	C)	D)
	Section 16	Section 18	Section 11	Section 5
Right Answer	D			

Question No. 31	Which of these divisions of Pollution Control Implementation deals with Air Polluting Industries			
Answer Options	A)	B)	C)	D)
	PCI - I	PCI - II	PCI - III	SSI & Law
Right Answer	B			

Question No. 32	The Kyoto Protocol is an international treaty which extends the United Nations Framework Convention on Climate Change (UNFCCC). In which year the convention held?			
Answer Options	A)	B)	C)	D)
	1987	1995	1992	1997
Right Answer	C			

Question No. 33	What is the harm from manipulation of Earth's Ozone layer?			
Answer Options	A)	B)	C)	D)
	The average temperature of Earth's surface will increase gradually	The Oxygen content of the atmosphere will decrease	Increased amount of Ultraviolet radiation will reach earth's surface	Sea level will rise as the polar ice caps will gradually melt
Right Answer	C			

Question No. 34	Which of the following would not represent the cash outflows for the business?			
Answer Options	A)	B)	C)	D)
	Purchase of building for cash	The sale of land for cash	Retirement of long-term debt	The payment of cash for dividends
Right Answer	B			

Question No. 35	Which one of the following tangible fixed assets would not normally be depreciated?			
Answer Options	A)	B)	C)	D)
	Buildings	Machinery	Land	Equipment
Right Answer	C			

Question No. 36	A Profit is earned if?			
Answer Options	A)	B)	C)	D)
	Assets exceed Expenditure	Income exceeds Expenditure	Cash Inflow exceeds Cash Outflow	Income exceeds Liabilities
Right Answer	B			

Question No. 37	Which of the following budgets is normally prepared first?			
Answer Options	A)	B)	C)	D)
	Cash budget	Sales budget	Merchandise purchases budget	Selling expense budget
Right Answer	B			

Question No. 38	What is the correct sequence in the formation of a contract?			
Answer Options	A)	B)	C)	D)
	Offer, acceptance, agreement, consideration.	Agreement, consideration, offer, acceptance.	Offer, agreement, consideration, acceptance.	Offer, acceptance, consideration, agreement.
Right Answer	D			

Question No. 39	Which of the following answers is most accurate description of arbitration?			
Answer Options	A)	B)	C)	D)
	An informal meeting between the parties involving a discussion to sort out the dispute	An adjudicative process where the parties submit their disputes for a binding decision to an impartial tribunal	A meeting between the parties where an impartial third party gives decision	An impartial umpire selected to decide after hearing the dispute from parties
Right Answer	B			

Question No. 40	Which of the following answers is not type of alternative dispute resolution?			
Answer Options	A)	B)	C)	D)
	Arbitration	Court proceedings	Conciliation	Mediation
Right Answer	B			

Question No. 41	The equation of state for n moles of an ideal gas is $PV = nRT$, where R is the universal gas constant and all other quantities have their usual meanings. What are the dimensions of R?			
Answer Options	A)	B)	C)	D)
	$M^0L^{-2}K^{-1}mol^{-1}$	$M^0L^2T^{-2}K^{-1}mol^{-1}$	$ML^2T^{-2}K^{-1}mol^{-1}$	$ML^{-2}T^{-2}K^{-1}mol^{-1}$
Right Answer	C			

Question No. 42	A cylindrical tube open at both ends has fundamental frequency n. If one of the ends is closed, the fundamental frequency will become			
Answer Options	A)	B)	C)	D)
	$n/2$	$2n$	$4n$	n
Right Answer	A			

Question No. 43	The speed of sound in a gas is V and the root mean square speed of the gas molecules is V_{rms} . If the ratio of the specific heats of the gas is 1.5, then the ratio of V: V_{rms} will be			
Answer Options	A)	B)	C)	D)
	1:2	1:3	$1:\sqrt{2}$	$1:\sqrt{3}$
Right Answer	C			

Question No. 44	Which of the following phenomena gives evidence of the molecular structure of the matter?			
Answer Options	A)	B)	C)	D)
	Brownian motion	Diffusion	Evaporation	All of these
Right Answer	D			

Question No. 45	Starting with the same initial conditions, an ideal gas expands from volume V_1 to V_2 in three different ways. The work done by the gas is W_1 if the process is purely isobaric, W_2 if the process is purely isochoric and W_3 if the process is purely adiabatic. Then			
Answer Options	A) $W_1 > W_2 > W_3$	B) $W_2 > W_1 > W_3$	C) $W_1 > W_3 > W_2$	D) $W_3 > W_1 > W_2$
Right Answer	A			

Question No. 46	A vessel contains a mixture of 1 mole of oxygen and two moles of nitrogen at 300K. The ratio of the rotational kinetic energy per O_2 molecule to that per N_2 molecule is			
Answer Options	A) 1:1	B) 1:2	C) 2:1	D) Depends on the moment of inertia of the two molecules
Right Answer	A			

Question No. 47	In a test experiment on a model aeroplane in a wind tunnel, the flow speeds on the lower and upper surfaces of the wing are v and $\sqrt{2}v$ respectively. If the density of air is ρ and the surface area of the wing is A , the dynamic lift on the wing is given by			
Answer Options	A) $(\rho v^2 A)/\sqrt{2}$	B) $(\rho v^2 A)/2$	C) $2\rho v^2 A$	D) $\sqrt{2}\rho v^2 A$
Right Answer	B			

Question No. 48	A boy whirls a stone in a horizontal circle 2m above the ground by means of a string 1.25m long. The string breaks and the stone flies off horizontally, striking the ground 10m away. What is the magnitude of the centripetal acceleration during circular motion? (Take $g=10\text{m/s}^2$)			
Answer Options	A) 400m/s^2	B) 300m/s^2	C) 200m/s^2	D) 100m/s^2
Right Answer	C			

Question No. 49	Radium (with Atomic no. = 87, Mass No. = 221) undergoes radioactive decay with a half-life of 4 days. The probability that a Ra nucleus will disintegrate in 8 days is			
Answer Options	A) 1/4	B) 3/4	C) 1/2	D) 1
Right Answer	B			

Question No. 50	A tunnel is dug along the diameter of the earth. An object is held in the tunnel at a distance x from the centre of the earth. The magnitude of the gravitational force on the object is proportional to			
Answer Options	A) $1/x$	B) $1/x^2$	C) x	D) x^2
Right Answer	C			

Question No. 51	Which one is a causal system?			
Answer Options	A)	B)	C)	D)
	$y(n)=3x(n)-2x(n-1)$	$y(n)=3x(n)+2x(n+1)$	$y(n)=3x(n+1)+2x(n-1)$	$y(n)=3x(n+1)+2x(n-1)+x(n)$
Right Answer	A			

Question No. 52	The Freewheel diode is used in a DC Full wave Full Control Thyristor bridge circuit for			
Answer Options	A)	B)	C)	D)
	Resistive load	Inductive load	Capacitive Load	Does not depend on load
Right Answer	B			

Question No. 53	The particular Micro-controller selection depends on the			
Answer Options	A)	B)	C)	D)
	Processing Power, HW interfaces memory needs, power efficiency and Cost requirement	Processing Speed, and Cost requirement only	HW interfaces and Cost requirement only	Cost requirement only
Right Answer	A			

Question No. 54	The average power delivered to an impedance $(4+3j)$ by a current $5\cos(100\pi t)$ Amp is			
Answer Options	A)	B)	C)	D)
	44.2 Watt	50 Watt	62.5 Watt	125 Watt
Right Answer	C			

Question No. 55	The crossover distortion is predominant in			
Answer Options	A)	B)	C)	D)
	Class B Push Pull Amplifier.	Class A Push Pull Amplifier	Class AB Push Pull Amplifier	Any Push Pull Amplifier
Right Answer	A			

Question No. 56	A Schottky diode is commonly used in integrated circuits to reduce			
Answer Options	A)	B)	C)	D)
	Over-current protection threshold	Over voltage breakdown threshold	Propagation delay caused by saturation in transistors	Input current requirement
Right Answer	C			

Question No. 57	Consider a signal $f(t)=3t^2+2t+1$ which is multiplied by 2 units delayed version of impulse and integrated over period $-a$ to a , the resultant is given by			
Answer Options	A)	B)	C)	D)
	1	6	17	16
Right Answer	C			

Question No. 58	In a transistor circuit, it is necessary to maintain the operating point stable with constant collector current and constant collector-emitter voltage. This may be ensured by			
Answer Options	A)	B)	C)	D)
	Bias compensation, Quiescent collector current compensation, Use of Thermistors or Sensistors and Heat shield.	Bias compensation, Quiescent collector current compensation and Heat shield.	Bias compensation, Use of Thermistors or Sensistors and Heat shield.	Quiescent collector current compensation, Use of Thermistors or Sensistors and Heat shield.
Right Answer	A			

Question No. 59	Fourier transform of the signal $x(t)=e^{-4 t }$ is			
Answer Options	A)	B)	C)	D)
	$8/(16+\omega^2)$	$-4/(16+\omega^2)$	$4/(16+\omega^2)$	$-8/(16+\omega^2)$
Right Answer	A			

Question No. 60	Which of the following are data and physical layer protocols for inter-system communications? 1) HTTPS 2) SNMP 3) POP3 4) DHCP 5) TCP 6) UDP 7) ZigBee 8) Bluetooth 9) Ethernet			
Answer Options	A)	B)	C)	D)
	1-2-4-7-8 & 9	7-8 & 9	2-5-6-8 & 9	8 & 9
Right Answer	B			

Question No. 61	A sine wave voltage is applied across a capacitor, when the frequency of the voltage is increased, the current through capacitor			
Answer Options	A)	B)	C)	D)
	increases	decreases	remains the same	is zero
Right Answer	A			

Question No. 62	During an analog-to-digital conversion process, in order to reduce Quantizing errors arising out of large amplitude fluctuations in the analog input signal, the technique used is			
Answer Options	A)	B)	C)	D)
	Band-pass Filtering	Comanding	Compressing	Clamping
Right Answer	B			

Question No. 63	An ideal amplifier that does not add any Noise to the amplified output signal has a Noise Figure (NF) of:			
Answer Options	A)	B)	C)	D)
	0 dB	1 dB	3 dB	6 dB
Right Answer	A			

Question No. 64	For a series RLC circuit driven by an AC source, which of the following is/are true when resonance occurs? 1) Inductive reactance and Capacitive reactance cancel each other out. 2) The frequency of resonance solely depends on the values of the inductance and capacitance in the circuit. 3) The Quality factor Q of a RF coil gives the ratio of its bandwidth and its resonant frequency. 4) Q gives the ratio of the Energy stored in the circuit divided by the energy dissipated per cycle. 5) The total stored energy in the circuit does not change with time in a resonant circuit. 6) The external circuit does not supply any energy to the inductance or the capacitance in the resonant circuit.			
Answer Options	A)	B)	C)	D)
	1 , 2 , 3 and 4	1, 3 and 4	All except 5	All the Six
Right Answer	D			

Question No. 65	The application comparison between FPGA and DSP are			
Answer Options	A)	B)	C)	D)
	DSP consumes more Power and can handle higher nos. of Instruction per second	FPGA consumes more Power and can handle higher nos. of Instruction per second	DSP consumes more Power and FPGA can handle higher nos. of Instruction per second	FPGA consumes more Power and DSP can handle higher nos. of Instruction per second
Right Answer	B			

Question No. 66	The reliability of a semiconductor component in an application finally depends on			
Answer Options	A)	B)	C)	D)
	Operating Current	Operating Voltage	Junction temperature rise	Operating range of temperature
Right Answer	C			

Question No. 67	A passive 2-port network is in a steady-state. Compared to its input, the steady state output can never offer			
Answer Options	A)	B)	C)	D)
	higher voltage	lower impedance	greater power	better regulation
Right Answer	C			

Question No. 68	The CSMA/CD protocol used in			
Answer Options	A)	B)	C)	D)
	Physical Layer	Data Link Layer	Physical and Data Link Layer	Network Layer
Right Answer	C			

Question No. 69	As basic rules for design using RTOS, which of the following Statements is Not True? 1) The ISR should only post (send) messages for RTOS and task parameters to RTOS. 2) ISR may use mutex locks or pending functions for the IPCs. 3) ISR codes may wait for actions by RTOS and tasks. 4) RTOS provides for nesting of interrupts with due regard to the priority of the interrupts and the masks. 5) A task can wait and take messages for inter-process communication and post messages using system calls. 6) A task may directly call another task or ISR.			
Answer Options	A)	B)	C)	D)
	1 and 2	3 and 6	2, 3 and 6	5 and 6
Right Answer	C			

Question No. 70	The relation between Sensitivity, Resolution and Accuracy of a meter			
Answer Options	A)	B)	C)	D)
	All are different	Sensitivity and Resolution are same but Accuracy is different	Sensitivity and Accuracy are same but Resolution is different	All are same
Right Answer	A			

Question No. 71	What is the major factor for determining, whether a medium is free space, lossless dielectric, lossy dielectric or good conductor			
Answer Options	A)	B)	C)	D)
	Reflection coefficient	Attenuation constant	Loss tangent	Constitutive parameters
Right Answer	C			

Question No. 72	Protection of fully populated PCB from high humidity is done by			
Answer Options	A)	B)	C)	D)
	Conformal Coating	Air drying	Water tight Sealing	None of these
Right Answer	A			

Question No. 73	An integration of any vector around closed path is always equal to the integration of the curl of that vector throughout the surface enclosed by that path. The above statement is known as			
Answer Options	A)	B)	C)	D)
	Ampere's law	Stoke's theorem	Biot-Savart's law	Physical interpretations of curl
Right Answer	B			

Question No. 74	The stability of frequency with respect to life and temperature of a Quartz Crystal is			
Answer Options	A)	B)	C)	D)
	Better with High value of Q factor	Better with Low value of Q factor	Does not depend on Q factor	Depends on associated circuits
Right Answer	A			

Question No. 75	The highest Priority interrupt for 8085 microprocessor is			
Answer Options	A)	B)	C)	D)
	TRAP	RST7,5	INTR	RST5.5
Right Answer	A			

Question No. 76	For half wave rectifier with capacitor input filter what will be the maximum voltage that will appear across the diode of an input AC of 10V?			
Answer Options	A)	B)	C)	D)
	10V	14V	28V	1.5V
Right Answer	C			

Question No. 77	The open loop transfer function of a unity gain feedback control system is given by $G(s)=K/(s+1)(s+2)$ The gain margin of the system in Db is given by			
Answer Options	A)	B)	C)	D)
	zero	1	20	infinity
Right Answer	D			

Question No. 78	In a Yagi construction Antenna, the Reflector and Director size with respect to Driven (Dipole) element are			
Answer Options	A)	B)	C)	D)
	Director > Driven Element	Director = Driven Element	Reflector > Driven Element	Reflector = Driven Element
Right Answer	C			

Question No. 79	In a Feedback loop control system, there are two characteristics a) Total Phase Lag around the loop b) Loop Gain Instability occurs in Feedback loop due to			
Answer Options	A)	B)	C)	D)
	a) Total Phase Lag = 0 deg b) Low Loop Gain	a) Total Phase Lag = 0 deg b) High Loop Gain	a) Total Phase Lag ≥ 180 deg b) Low Loop Gain	a) Total Phase Lag ≥ 180 deg b) High Loop Gain
Right Answer	D			

Question No. 80	There are two methods of display of an object on a screen. Raster and Stroke Display. The picture characteristics of each are			
Answer Options	A)	B)	C)	D)
	a) Raster: – High resolution b) Raster: – Many colours can be produced	a) Stroke – High Resolution b) Stroke – it draws in wire frame	a) Stroke – Low Resolution b) Stroke – it draws in wire frame	Raster – High Resolution b) Stroke – it draws in wire frame
Right Answer	B			

Question No. 81	The backlighting technique for LCD, LED and OLED monitors are as follows			
Answer Options	A)	B)	C)	D)
	a) LCD monitor has Fluorescent Back Lighting layer b) LED monitor has LED Backlighting layer. c) OLED monitor has OLED Backlighting	a) LCD monitor has Fluorescent Back Lighting layer. b) LED monitor has no Backlighting layer. c) OLED monitor has OLED Back Lighting layer	a) LCD monitor has no Back- Lighting layer. b) LED has LED Back Lighting layer. c) OLED monitor has OLED Backlighting layer	a) LCD monitor has Fluorescent Back Lighting b) LED monitor has LED Backlighting layer. c) OLED monitor has no separate Back Lighting layer
Right Answer	D			

Question No. 82	Transmitting an unmodulated voice signal have following disadvantages:			
Answer Options	A)	B)	C)	D)
	a) Size of Antenna too big. b) Very low power transmission	a) Size of Antenna too small. b) Very low power transmission	a) Size of Antenna too big. b) Very high-power transmission	a) Size of Antenna too small. b) Very high-power transmission
Right Answer	A			

Question No. 83	In an Amplitude modulation with Modulating Signal $30 \sin(2\pi 1000t)$ and the Carrier Signal is $60 \sin(2\pi 10000t)$. The modulated signal frequency response will have			
Answer Options	A)	B)	C)	D)
	a) Upper Side band -Frequency = 11KHz -Amplitude = 120 b) Lower Side Band -Frequency = 9KHz -Amplitude = 120	a) Upper Side band -Frequency = 11KHz -Amplitude = 15 b) Lower Side Band - Frequency = 9KHz -Amplitude = 15	a) Upper Side Band -Frequency= 9KHz -Amplitude = 30 b) Lower Side Band -Frequency = 11KHz -Amplitude = 30	a) Upper Side band -Frequency= 10KHz -Amplitude = 30 b) Lower Side Band -Frequency = 10KHz -Amplitude = 30
Right Answer	B			

Question No. 84	Which is a Current-sensitive device?			
Answer Options	A)	B)	C)	D)
	Op-Amp	MOSFET	IGBT	BJT
Right Answer	D			

Question No. 85	Inside a hollow conducting sphere			
Answer Options	A)	B)	C)	D)
	electric field is zero	electric field is a non-zero constant	electric field changes with the magnitude of the charge given to the conductor	electric field changes with distance from the centre of the sphere
Right Answer	A			

Question No. 86	A parallel resonant circuit has a resistance of 2k ohm and half power frequencies of 80 KHz and 90KHz. The quality factor is			
Answer Options	A)	B)	C)	D)
	8.5	10	48	20
Right Answer	A			

Question No. 87	The RMS value of the voltage $u(t)=3+4\cos(3t)$ is			
Answer Options	A)	B)	C)	D)
	$\sqrt{17}$ V	5 V	7 V	$(3+2\sqrt{2})$ V
Right Answer	A			

Question No. 88	A monopole consists of			
Answer Options	A)	B)	C)	D)
	a single charge	Two positive and two negative charges	Two positive and one negative charges	one positive and two negative charges
Right Answer	A			

Question No. 89	In a uniform electric field, field lines and equipotential			
Answer Options	A)	B)	C)	D)
	are parallel to one another	intersect at 45 degree	intersect at 30 degree	are orthogonal
Right Answer	D			

Question No. 90	Which one is most appropriate dynamic system out of the following			
Answer Options	A)	B)	C)	D)
	$y(n)=y(n-1)+y(n+1)$	$y(n)=y(n-1)$	$y(n)=y(n)$	$y(n)+y(n+1)+y(n+3)=0$
Right Answer	A			

Question No. 91	An LTI system is completely characterized by its			
Answer Options	A)	B)	C)	D)
	unit impulse response	time shifted impulses	unit step response	response to any signal (bounded)
Right Answer	A			

Question No. 92	Which type of signal is ramp signal?			
Answer Options	A)	B)	C)	D)
	energy signal	power signal	both energy and power signal	neither energy nor power signal
Right Answer	D			

Question No. 93	For a particular signal, average power in its six harmonic components as 10mW each and fundamental component also has 10mV power. Then, average power in the periodic signal will be			
Answer Options	A)	B)	C)	D)
	70	60	10	5
Right Answer	B			

Question No. 94	A linear second order system with the transfer function: $G(s)=49/s^2+8s+49$ is initially at rest and is subject of the system will exhibit a peak overshoot of			
Answer Options	A)	B)	C)	D)
	16%	9%	2%	zero
Right Answer	C			

Question No. 95	The feedback system with characteristic equation $s^4+20ks^3+5s^2+10s+15=0$			
Answer Options	A)	B)	C)	D)
	stable for all values of k	stable for positive value of k	stable for $a>k>7.0$	unstable for any value of k
Right Answer	D			

Question No. 96	If the system has multiple poles on the Y-axis, the system is			
Answer Options	A)	B)	C)	D)
	stable	unstable	marginally stable	conditionally stable
Right Answer	B			

Question No. 97	A lead compensator is a			
Answer Options	A)	B)	C)	D)
	low pass filter	high pass filter	band pass filter	band stop filter
Right Answer	B			

Question No. 98	The depletion region or space charge region or transition region in a semiconductor p-n junction diode has			
Answer Options	A)	B)	C)	D)
	electrons and holes	positives ions and electrons	negative ions and holes	no ions, electrons, holes
Right Answer	C			

Question No. 99	A three phase fully controlled converter is feeding power into a DC load at a constant current of 150A. The RMS current through each thyristor of the converter is			
Answer Options	A)	B)	C)	D)
	50 A	100 A	$150\sqrt{2}/\sqrt{3}$ A	$150/\sqrt{3}$ A
Right Answer	D			

Question No. 100	The colour code of 1K ohm resistance is			
Answer Options	A)	B)	C)	D)
	black, brown and red	red, brown and brown	brown, black and red	black, black and red
Right Answer	C			