



रेल भर्ती बोर्ड / RAILWAY RECRUITMENT BOARDS



सी ई एन आर आर बी - ०२/२०२४ - CEN RRB - 02/2024

Test Date	20/12/2024
Test Time	9:00 AM - 10:30 AM
Subject	RRB Technicians Grade I

* Note
Correct Answer will carry 1 mark per Question.
Incorrect Answer will carry 1/3 Negative mark per Question.

1. Options shown in green color with a tick icon are correct.
2. Chosen option on the right of the question indicates the option selected by the candidate.

Section : RRB Technicians Grade I

Q.1	Calculate the maximum velocity of the beam of electrons in a CRT having a cathode anode voltage of 182 V. Assume that the electrons to leave the cathode with zero velocity. (Charge of electron = 1.6×10^{-19} C and mass of electron = 9.1×10^{-31} kg)	
Ans	☒ 1. 4×10^6 m/s	
	☒ 2. 8×10^6 m/s	
	☒ 3. 2×10^6 m/s	
	☒ 4. 1×10^6 m/s	
Q.2	In a parallel circuit, if one of the resistors R1 is removed, the total resistance of the circuit will ____.	
Ans	☒ 1. decrease	
	☒ 2. be zero	
	☒ 3. increase	
	☒ 4. remain the same	
Q.3	In a survey of 260 students in a school, 100 were listed as taking apple juice, 150 as taking orange juice and 75 were listed as taking both apple as well as orange juice. Find how many students were taking neither apple juice nor orange juice.	
Ans	☒ 1. 75	
	☒ 2. 85	
	☒ 3. 65	
	☒ 4. 95	
Q.4	What is the power factor for a purely inductive or purely capacitive AC circuit?	
Ans	☒ 1. 0	
	☒ 2. 1	
	☒ 3. 0.5	
	☒ 4. -1	

Q.5	A bag contains balls numbered from 1 to 42. One ball is drawn at random from these balls. The probability that its number is a multiple of 7 or 8 is:	
Ans	✖ 1. $\frac{22}{42}$	
	✖ 2. $\frac{13}{22}$	
	✖ 3. $\frac{11}{22}$	
	✔ 4. $\frac{11}{42}$	

Q.6	In Microprocessor 8085 Address/Data buffer is a/an _____ buffer.	
Ans	✖ 1. 16 bit and unidirectional	
	✔ 2. 8 bit and bi-directional	
	✖ 3. 16 bit and bi-directional	
	✖ 4. 8 bit and unidirectional	

Q.7	A statement is given followed by two arguments. Decide which of the arguments is/are strong with respect to the statement. Statement: A minister of country X said, “Shifting to clean sources of energy has become an obvious choice in recent times.” Arguments: I. Every year, country X has been witnessing more and more air pollution. II. The prices for coal and natural gasses have increased significantly over the past years.	
Ans	✔ 1. Both I and II strengthen the statement.	
	✖ 2. Both I and II weaken the statement.	
	✖ 3. II weakens while I strengthens the statement.	
	✖ 4. I weakens while II strengthens the statement.	

Q.8	If C = { 2, 4, 6, 8, 10, 12, 14, 16 }, and D = {5, 10, 15, 20 }, then the number of elements in the set D - C is:	
Ans	✔ 1. 3	
	✖ 2. 4	
	✖ 3. 7	
	✖ 4. 8	

Q.9	Microprocessor 8085 operates on clock cycle with _____ duty cycle.	
Ans	✖ 1. 25%	
	✔ 2. 50%	
	✖ 3. 10%	
	✖ 4. 75%	

Q.10	By default, if you're in a business environment, everyone within your organisation can edit the linked file. To change these permissions, click on the arrow at the right of the attachment name to display a drop-down menu with a variety of permission options. Which of the following is NOT a permission option?	
Ans	✔ 1. Can ReView	
	✖ 2. Can Delete	
	✖ 3. Can View	
	✖ 4. Can Edit	

Q.11	Which of the following materials are generally used for electrical transmission lines due to their low resistivity?
Ans	✗ 1. Gold and silver
	✗ 2. Lead and tin
	✗ 3. Tungsten and iron
	✓ 4. Copper and aluminium
Q.12	What can be inferred about the magnetic field lines within a solenoid?
Ans	✗ 1. They are in random directions
	✗ 2. They are circular
	✓ 3. They are in the form of parallel straight lines
	✗ 4. They are diverging
Q.13	When does the force acting on a current-carrying conductor placed in a magnetic field become the largest?
Ans	✗ 1. When the direction of the current is opposite to the magnetic field
	✗ 2. When the direction of the current is parallel to the magnetic field
	✓ 3. When the direction of the current is at right angles to the magnetic field
	✗ 4. When the conductor is not moving
Q.14	Which tab would you use to add a new slide to your MS PowerPoint presentation?
Ans	✗ 1. Insert
	✗ 2. Design
	✗ 3. Transitions
	✓ 4. Home
Q.15	<i>Evaluate:</i> $\frac{1}{\left(\frac{3}{4}\right) + \left(\frac{4}{6}\right)} \div \frac{2}{15}$
Ans	✓ 1. $5\frac{5}{17}$
	✗ 2. $5\frac{4}{17}$
	✗ 3. $5\frac{2}{17}$
	✗ 4. $5\frac{6}{17}$
Q.16	A mass of 0.005 kg is measured using a scale with an uncertainty of 0.0001 kg. If the mass is used in a calculation where the uncertainty in derived quantity needs to be calculated, what is the maximum possible percentage uncertainty in the derived quantity if the quantity is proportional to m ² ?
Ans	✗ 1. 10%
	✗ 2. 0.1%
	✗ 3. 2%
	✓ 4. 4%

Q.17	Refer to the following word series and answer the question that follows. CAB BIT YET AFT In each of the words, each vowel is changed to the second letter following it in the English alphabetical order and each consonant is changed to the letter immediately preceding it in the English alphabetical order. In how many letter-clusters thus formed will NO vowel appear?	
Ans	✗ 1. Four	
	✗ 2. Three	
	✗ 3. Two	
	✓ 4. One	
Q.18	Which of the following is NOT a type of system software?	
Ans	✗ 1. Operating system	
	✓ 2. Microsoft Office	
	✗ 3. Utility software	
	✗ 4. Firmware software	
Q.19	When p-n junction diode is biased, which of the following statements is correct?	
Ans	✓ 1. Depletion layer gets wider when it is reverse biased.	
	✗ 2. Depletion layer gets narrower only when diode is forward biased and remains constant when it is reverse biased.	
	✗ 3. Depletion layer gets narrower when it is reverse biased.	
	✗ 4. Depletion layer gets wider only when diode is forward biased and remains constant when it is reverse biased.	
Q.20	P is the brother of Q. Q is the daughter of R. R is the husband of S. S is the sister of T. How is P related to T?	
Ans	✗ 1. Brother's son	
	✗ 2. Brother	
	✗ 3. Son	
	✓ 4. Sister's son	
Q.21	If 'A + B' means 'A is the brother of B' 'A – B' means 'A is the sister of B' 'A × B' means 'A is the wife of B' 'A ÷ B' means 'A is the father of B' 'A @ B' means 'A is the son of B' If, $K + M @ A \div F \times P \div L - T$, then how is K related to T?	
Ans	✗ 1. Mother's sister	
	✗ 2. Sister's mother	
	✗ 3. Mother's father	
	✓ 4. Mother's brother	
Q.22	A car of mass m accelerates uniformly from rest under a constant force F. After traveling a distance d, what is the kinetic energy of the car?	
Ans	✗ 1. $(F \times d)/2$	
	✓ 2. $F \times d$	
	✗ 3. $2 \times F \times d$	
	✗ 4. $(F \times d)/m$	

Q.23	In an intrinsic semiconductor, fermi energy level ____.	
Ans	✖ 1. lies above the conduction band	
	✖ 2. lies below the valance band	
	✖ 3. in the middle of the conduction band	
	✔ 4. lies mid-way between the conduction band and valance band	
Q.24	The mode and median of a data is 26.7 and 71, respectively. What is the mean of the data? (Use empirical formula.)	
Ans	✖ 1. 95.1	
	✔ 2. 93.2	
	✖ 3. 94.6	
	✖ 4. 94.3	
Q.25	The area of a quadrilateral whose vertices are (3, 0), (4, 5), (-1, 4) and (-2,-1) taken in order, is:	
Ans	✖ 1. 48 sq.units	
	✖ 2. 30 sq.units	
	✔ 3. 24 sq.units	
	✖ 4. 12 sq.units	
Q.26	In August 2024, Indian Council of Medical Research (ICMR) and Panacea Biotec announced the initiation of the first-ever Phase 3 clinical trial for which of the following vaccines in India?	
Ans	✔ 1. Dengue	
	✖ 2. Malaria	
	✖ 3. Typhoid	
	✖ 4. Hepatitis	
Q.27	What does PCB stand for?	
Ans	✖ 1. Processor Control Board	
	✔ 2. Printed Circuit Board	
	✖ 3. Primary Circuit Board	
	✖ 4. Power Control Board	
Q.28	What should come in place of the question mark (?) in the given series? 708 718 729 741 754 ?	
Ans	✖ 1. 767	
	✖ 2. 765	
	✖ 3. 766	
	✔ 4. 768	

Q.29	In this question, a question is followed by two statements numbered (I) and (II). You have to decide whether the data provided in the statements are sufficient to answer the question. Read both the statements and decide the appropriate answer. Question: Five people A, B, C, D and E are sitting in a straight row, facing north. Who sits second to the right of A? Statement (I): The number of people sitting to the right of A is equal to the number of people sitting to the left of A. One person sits between A and B. D sits to the immediate left of B. Statement (II): E sits at the extreme left end of the row. Only one person sits between E and A. B sits to the immediate right of D.	
Ans	1. Data in statements I and II together are sufficient to answer the question.	
	2. Data in Statement I alone is sufficient to answer the question while data in statement II is not.	
	3. Data in Statement II alone is sufficient to answer the question while data in statement I is not.	
	4. Data in either statement I alone or statement II alone are sufficient to answer the question.	
Q.30	From where was the concept of directive principles borrowed in the Constitution of India?	
Ans	1. Irish Constitution	
	2. Australian Constitution	
	3. US Constitution	
	4. French Constitution	
Q.31	Match the following social networking sites from Group A to the allowed characters in Group B. Group A Group B I. Facebook A. Allowed up to 255 characters in the 'About' or bio field II. Instagram B. Allowed up to 150 characters in your bio field. III. Linkedin C. Allowed up to 3,000 characters in your bio field. IV. Twitter D. It has a 160-character limit for the bio field.	
Ans	1. I-C, II-D, III-A, IV-B	
	2. I-B, II-A, III-D, IV-C	
	3. I-A, II-B, III-C, IV-D	
	4. I-D, II-C, III-B, IV-A	
Q.32	Which of the following actions will NOT help in reducing random errors?	
Ans	1. Calibrating the instrument	
	2. Increasing the number of observations	
	3. Taking readings under controlled conditions	
	4. Averaging multiple readings	
Q.33	Which of the following is an example of high precision but low accuracy?	
Ans	1. Hitting different points on a target but near the centre	
	2. Hitting the centre of a target multiple times	
	3. Scoring randomly on different parts of the target	
	4. Hitting the same point far from the centre repeatedly	
Q.34	What does real-time protection in antivirus software do?	
Ans	1. Continuously monitors and scans files for malware	
	2. Provides updates for new antivirus versions	
	3. Scans files only when manually initiated	
	4. Creates a backup of important files	

Q.35	Which factor does NOT affect the magnitude of motional EMF in a conductor?	
Ans	✗ 1. The speed of the conductor	
	✗ 2. The length of the conductor	
	✓ 3. The resistance of the conductor	
	✗ 4. The angle between the conductor's velocity and the magnetic field	
Q.36	The area of the four walls of a room is 780 m ² and its length is twice its breadth. If the height of the room is 13m, then the area of its floor is equal to:	
Ans	✗ 1. 295 m²	
	✗ 2. 150 m²	
	✗ 3. 315 m²	
	✓ 4. 200 m²	
Q.37	Which of the following malware symptoms indicate that your computer may be infected? I. Slow computer performance II. Erratic computer behaviour III. Unexplained data loss IV. Frequent computer crashes	
Ans	✓ 1. I, II, III, and IV	
	✗ 2. III and IV only	
	✗ 3. II, III and IV only	
	✗ 4. I and II only	
Q.38	A copper ring is dropped into a region with a constant magnetic field directed upwards. What happens to the ring according to Lenz's law?	
Ans	✗ 1. Its motion remains unaffected by the magnetic field.	
	✓ 2. It slows down as it falls.	
	✗ 3. It is pushed upwards by the magnetic field.	
	✗ 4. It accelerates downwards faster than in free fall.	
Q.39	Select the most appropriate option to fill in the blanks. A thermistor can have region of _____ determined by the construction material or the temperature of the material. The change in temperature can be due to internal effects such as current through the thermistor or due to external effects of _____.	
Ans	✗ 1. positive temperature coefficients; heating only	
	✓ 2. positive or negative temperature coefficients; heating or cooling	
	✗ 3. negative temperature coefficients; cooling only	
	✗ 4. positive or negative temperature coefficients; heating only	
Q.40	India's latitudinal extent is:	
Ans	✗ 1. 8°4' South to 37°6' South latitudes	
	✗ 2. 4°8' South to 63°7' South latitudes	
	✗ 3. 4°8' North to 63°7' North latitudes	
	✓ 4. 8°4' North to 37°6' North latitudes	

Q.41	Based on the English alphabetical order, three of the following four letter-clusters are alike in a certain way and thus form a group. Which letter-cluster DOES NOT belong to that group? (Note: The odd one out is not based on the number of consonants/vowels or their position in the letter-cluster.)
Ans	✖ 1. UXEK
	✖ 2. JMTZ
	✖ 3. CFMS
	✔ 4. QXEG
Q.42	What type of chart is used to compare parts of a whole in MS-Excel?
Ans	✔ 1. Pie Chart
	✖ 2. Line Chart
	✖ 3. Histogram
	✖ 4. Column Chart
Q.43	At 25°C, the barrier potential for germanium is approximately equal to:
Ans	✔ 1. 0.3 V
	✖ 2. 0.7 V
	✖ 3. 0.1 V
	✖ 4. 1.1 V
Q.44	The minimum value of $8x + 14 + 3x^2$ is:
Ans	✔ 1. $8\frac{2}{3}$
	✖ 2. $-\frac{28}{3}$
	✖ 3. $-8\frac{2}{3}$
	✖ 4. $\frac{28}{3}$
Q.45	Which of the following is NOT the member of microcontroller Intel 8051 series?
Ans	✖ 1. 80C31BH
	✔ 2. 8044AH
	✖ 3. 80C51BH
	✖ 4. 87C51
Q.46	Which of the following statements is true regarding Lenz's Law?
Ans	✔ 1. The induced current always opposes the change in magnetic flux that produced it.
	✖ 2. The induced current always assists the change in magnetic flux that produced it.
	✖ 3. Lenz's Law does not relate to electromagnetic induction.
	✖ 4. The direction of the induced current depends on the amount of magnetic flux.
Q.47	Which of the following file formats can be used while saving a workbook in MS Excel 2019 that is compatible with all other spreadsheet software programs?
Ans	✖ 1. Portable Document Format (.pdf)
	✖ 2. Microsoft Excel Spreadsheet XML (.xlsx)
	✖ 3. Microsoft Excel Spreadsheet Beta (.xlsb)
	✔ 4. Comma-separated values (.csv)

Q.48	What happens if you enter a date that MS-Excel does NOT recognise?	
Ans	✔ 1. MS-Excel treats it as a text.	
	✘ 2. MS-Excel displays an error message.	
	✘ 3. MS-Excel automatically corrects the format.	
	✘ 4. MS-Excel deletes the content.	

Q.49	Uday starts from Point Y and drives 16 km towards the North. He then takes a right turn, drives 28 km, turns right and drives 31 km. He then takes a right turn and drives 13 km. He takes a right turn and drives 41 km. He then turns left, drives 15 km, turns right and drives 8 km to stop at Point Z. How far (shortest distance) and towards which direction should he drive in order to reach Point Y again? (All turns are 90 degrees turns only unless specified)	
Ans	✔ 1. 34 km towards South	
	✘ 2. 47 km towards North	
	✘ 3. 49 km towards East	
	✘ 4. 25 km towards South	

Q.50	Which of the following terms will replace the question mark (?) in the given series to make it logically complete? IO19 KQ30 MS41 OU52 ?	
Ans	✘ 1. QX64	
	✔ 2. QW63	
	✘ 3. QX63	
	✘ 4. QW64	

Q.51	Which of the following statements correctly describes the energy band diagram for conductors, semiconductors, and insulators?	
Ans	✘ 1. Conductors have a wide forbidden gap, semiconductors have a narrow-forbidden gap, and insulators have no forbidden gap.	
	✔ 2. Conductors have no forbidden gap, semiconductors have a narrow-forbidden gap, and insulators have a wide forbidden gap.	
	✘ 3. Conductors have a narrow-forbidden gap, semiconductors have no forbidden gap, and insulators have a wide forbidden gap.	
	✘ 4. Conductors have a wide forbidden gap, semiconductors have no forbidden gap, and insulators have a narrow-forbidden gap.	

Q.52	Write the correct order of steps to print a webpage from your android phone. 1. On your Android device, open the Chrome app 2. Tap Print 3. At the top right, tap More Share. 4. Open the page, image, or file you want to print. 5. Select Print . 6. To change any print settings, tap the Down arrow 7. At the top, select a printer.	
Ans	✘ 1. 1, 2, 3, 4, 5, 6, 7	
	✘ 2. 2, 4, 6, 1, 3, 5, 7	
	✔ 3. 1, 4, 3, 5, 7, 6, 2	
	✘ 4. 7, 6, 5, 4, 3, 2, 1	

Q.53	Study the given table and answer the question that follows. The given table depicts the percentage of marks scored by Mary and Perul in History and Physics (out of 75 each).		
	Name	History	Physics
	Mary	60	64
	Perul	54	70
	How many marks did Mary score in History?		
Ans	✔ 1. 45		
	✘ 2. 53		
	✘ 3. 37		
	✘ 4. 47		

Q.54	EMF of a thermocouple is approximately a _____ function of the temperature difference between the junctions.		
Ans	✘ 1. parabolic		
	✘ 2. hyperbolic		
	✘ 3. exponential		
	✔ 4. linear		

Q.55	Let C_1 and C_2 be two circles which do not externally touch and intersect each other and O_1 , and O_2 be the centers of the circles, respectively. Let AB be the common transverse tangent to the circles such that P, Q are the points of tangency respectively to C_1 , C_2 . Let R be the point of intersection of $O_1 O_2$ and AB. If $\angle PO_1R = 60^\circ$, find $\angle QO_2R$ and $\angle QRO_2$, respectively.		
Ans	✘ 1. 45° and 45°		
	✘ 2. 20° and 70°		
	✘ 3. 40° and 50°		
	✔ 4. 60° and 30°		

Q.56	Which state of India is at bottom according to Sustainable Development Goals (SDG) India Index, published by NITI Aayog in July 2024?		
Ans	✔ 1. Bihar		
	✘ 2. Tamil Nadu		
	✘ 3. Haryana		
	✘ 4. Kerala		

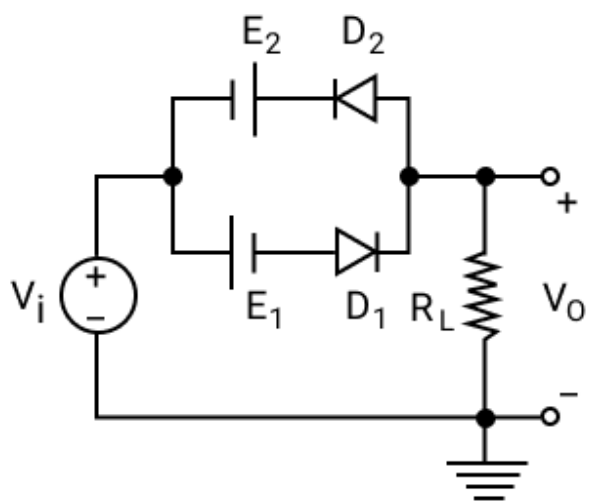
Q.57	The magnetic field inside a long straight solenoid carrying current is _____.		
Ans	✘ 1. strongest at the ends		
	✔ 2. uniform		
	✘ 3. non-uniform		
	✘ 4. zero		

Q.58	Which feature in MS PowerPoint allows you to apply visual effects to slides or objects?		
Ans	✘ 1. Layouts		
	✘ 2. Designs		
	✔ 3. Animations		
	✘ 4. Transitions		

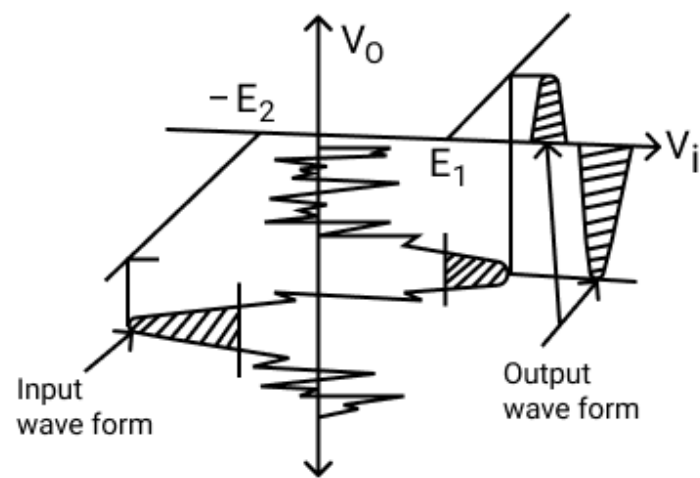
Q.59	In Faraday's experiment, if the magnetic flux through a loop increases linearly with time, the induced EMF is _____.	
Ans	☒ 1. constant	
	☐ 2. proportional to the square of time	
	☐ 3. inversely proportional to time	
	☐ 4. zero	
Q.60	Rishika accidentally presses CTRL + H in MS Word, and a dialog box is displayed. Which dialog box is it?	
Ans	☐ 1. The Header and Footer dialog box	
	☐ 2. The Language dialog box	
	☐ 3. The Bullets and Numbering dialog box	
	☒ 4. The Find and Replace dialog box	
Q.61	The INF file processing functions provide setup and installation functionality that includes which of the following actions? 1. Opening and closing an INF file 2. Retrieving information about an INF file 3. Retrieving information about source files and target directories for copy operations 4. Performing the installation actions specified in an INF file section	
Ans	☐ 1. 1 and 2 only	
	☒ 2. 1, 2, 3, and 4	
	☐ 3. 1, 2 and 3 only	
	☐ 4. 3 and 4 only	
Q.62	If α and β are the roots of the equation $x^2 - 11x + 24 = 0$, then what is the value of $(\alpha^2 + \beta^2)$?	
Ans	☐ 1. 64	
	☐ 2. 75	
	☐ 3. 80	
	☒ 4. 73	
Q.63	Who among the following won the Vigyan Shri Award 2024?	
Ans	☐ 1. Bappi Paul	
	☐ 2. Vivek Polshettiwar	
	☐ 3. Purabi Saikia	
	☒ 4. Rohit Srivastava	
Q.64	A particle of mass m starts from rest and moves with a constant acceleration a along a straight line. What is the relationship between the distance travelled x and the kinetic energy K of the particle?	
Ans	☐ 1. $K \propto \sqrt{x}$	
	☐ 2. $K \propto x^2$	
	☒ 3. $K \propto x$	
	☐ 4. $K \propto x^3$	
Q.65	Performance Grading Index, which is designed to catalyse transformational change in the field of school education, comprises of ____ indicators.	
Ans	☐ 1. 100	
	☒ 2. 70	
	☐ 3. 90	
	☐ 4. 50	

Q.66	Select the correct order of steps to add a textbox without using a mouse. i) When you are finished typing and want to switch back to editing text in your document, press Esc. ii) Press the arrow keys to select the text box that you want, and then press Enter. iii) Press and release Alt, N, and then press X. iv) Type the text that you want.	
Ans	 1. ii, iii, i, iv	
	 2. iv, iii, ii, i	
	 3. i, ii, iii, iv	
	 4. iii, ii, iv, i	
Q.67	Which of the following combinations represents a derived unit?	
Ans	 1. Metre, Kilogram, Ampere	
	 2. Kelvin, Mole, Ampere	
	 3. Metre, Second, Kilogram	
	 4. Volt, Newton, Joule	
Q.68	The first and last terms of an A.P. are 18 and 48. If the sum of its terms is 396, then the number of terms will be?	
Ans	 1. 10	
	 2. 15	
	 3. 9	
	 4. 12	
Q.69	EDSP is related to NMBY in a certain way based on the English alphabetical order. In the same way, ONCZ is related to XWLI. To which of the following options is PODA related, following the same logic?	
Ans	 1. YXMK	
	 2. YUIJ	
	 3. YXMJ	
	 4. YUTR	
Q.70	The smallest natural number which is divisible by 24, 6, 36 and 13 is:	
Ans	 1. 1011	
	 2. 943	
	 3. 936	
	 4. 1008	

Q.71 In the given circuit, if the input voltage lies between $+E_1$ and $-E_2$, then output is zero.



Input and output characteristics are shown below.



The region between $+E_1$ and $-E_2$ is known as ____.

- Ans
- ☒ 1. active zone
 - ☒ 2. cut off zone
 - ☒ 3. saturation zone
 - ☒ 4. dead zone

Q.72 The range of electrostatic voltmeter can be extended with the help of:

- Ans
- ☒ 1. Resistance Potential Divider
 - ☒ 2. Register
 - ☒ 3. Capacitance Potential Divider
 - ☒ 4. Capacitor

Q.73 _____ is the latest version of Windows Operating System.

- Ans
- ☒ 1. Windows 12
 - ☒ 2. Windows Vista
 - ☒ 3. Windows 10
 - ☒ 4. Windows 11

Q.74	Select the set in which the numbers are related in the same way as are the numbers of the following sets. (NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. E.g., 13 – Operations on 13 such as adding/deleting/multiplying etc. to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed) (19, 6, 17) (79, 11, 42)
Ans	✖ 1. (2, 6, 5)
	✖ 2. (15, 5, 6)
	✖ 3. (13, 49, 2)
	✔ 4. (14, 4, 2)
Q.75	In the following number-pairs, the second number is obtained by applying certain mathematical operations to the first number. Which numbers should replace X and Y so that the pattern followed by the two numbers on the left side of :: is same as that on the right side of ::? (NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into their constituent digits. E.g. 13 – Operations on 13 such as adding/subtracting/multiplying to 13 can be performed. Breaking down 13 into 1 and 3 and then performing mathematical operations on 1 and 3 is not allowed.) X : 130 :: 34 : Y
Ans	✔ 1. X=26, Y=170
	✖ 2. X=24, Y=160
	✖ 3. X=29, Y=185
	✖ 4. X=28, Y=190
Q.76	Which of the following statements for Piezoelectric transducer is correct?
Ans	✖ 1. Piezoelectric transducer can be used for the measurement of static displacement only.
	✔ 2. Piezoelectric transducer can be used for the measurement of dynamic displacement only.
	✖ 3. Piezoelectric transducer can be used for the measurement of both static and dynamic displacement.
	✖ 4. Piezoelectric transducer cannot be used for the measurement of both static and dynamic displacement.
Q.77	A machine performs work W in time t, and its power output is P. If the machine's power output is doubled, how much time will it take to perform the same amount of work?
Ans	✔ 1. t/2
	✖ 2. t/4
	✖ 3. 2t
	✖ 4. t
Q.78	In which year and city/cities India hosted the FIH Men's World Cup?
Ans	✖ 1. 2024 Mumbai
	✖ 2. 2022 Lucknow
	✖ 3. 2022 New Delhi
	✔ 4. 2023 Bhubaneswar and Rourkela
Q.79	Which factor does NOT affect the resistivity of a material?
Ans	✖ 1. Atomic structure
	✖ 2. Material type
	✔ 3. Length of the conductor
	✖ 4. Temperature

Q.80	If a body falls freely under gravity from rest, what fraction of its initial potential energy has been converted into kinetic energy when it has fallen to half of its initial height?
Ans	✓ 1. $\frac{1}{2}$
	✗ 2. $\frac{7}{8}$
	✗ 3. $\frac{1}{4}$
	✗ 4. $\frac{3}{4}$
Q.81	A solid metallic sphere of radius 4 cm is melted and recast into 64 identical spheres. What is the ratio of the surface area of the original sphere to the total surface area of 5 smaller spheres so formed?
Ans	✗ 1. 32 : 3
	✗ 2. 14 : 5
	✗ 3. 16 : 15
	✓ 4. 16 : 5
Q.82	If 23rd and 24th terms of an A.P. be 42 and 312 respectively, then its 37th term is:
Ans	✗ 1. 3821
	✗ 2. 3820
	✗ 3. 3823
	✓ 4. 3822
Q.83	The value of $\sqrt{144} + \sqrt{0.0324} - \sqrt{6.76} =$
Ans	✗ 1. 8.53
	✓ 2. 9.58
	✗ 3. 14.76
	✗ 4. 2.7
Q.84	Each of members , P, Q, R, S, T, U and V, of a certain department has to attend a seminar on different days of the same week starting from Monday to Sunday. T has to attend the seminar immediately before P. Q has to attend the seminar on Tuesday. V has to attend the seminar on Sunday. Only U has to attend the seminar between P and R. S has to attend the seminar on one of the days before Q. Who has to attend the seminar on Monday?
Ans	✓ 1. S
	✗ 2. T
	✗ 3. R
	✗ 4. P
Q.85	Which of the following is the correct equation for power (P) in terms of energy (E) and time (t)?
Ans	✓ 1. $P = E/t$
	✗ 2. $P = E/t^2$
	✗ 3. $P = E + t$
	✗ 4. $P = E \times t$
Q.86	Two similar triangles are $\triangle ABC$ and $\triangle LMN$. If the area of $\triangle ABC = 25\text{ cm}^2$, area of $\triangle LMN = 36\text{ cm}^2$ and $BC = 2.5\text{ cm}$, then the measure of MN (in cm) is:
Ans	✗ 1. 1
	✗ 2. 4
	✓ 3. 3
	✗ 4. 2

Q.87	Simplify ($\frac{1}{\sin^2 A} - 1$), where $0 < A \leq 90^\circ$.
Ans	☒ 1. $\cot^2 A$
	☒ 2. $\sec^2 A$
	☒ 3. $\tan^2 A$
	☒ 4. $\cos^2 A$
Q.88	When did the British Navy take over Rangoon in British India?
Ans	☒ 1. February 1813
	☒ 2. February 1826
	☒ 3. May 1824
	☒ 4. May 1822
Q.89	A disturbance from the equilibrium exchange rate gives rise to automatic forces that push the exchange rate back towards the equilibrium level is known as the:
Ans	☒ 1. stable foreign exchange market
	☒ 2. elastic foreign exchange market
	☒ 3. unstable foreign exchange market
	☒ 4. fixed foreign exchange market
Q.90	In MS Word, which of the following is NOT an option provided in paragraph spacing of a document?
Ans	☒ 1. Compact
	☒ 2. Open
	☒ 3. No paragraph space
	☒ 4. Compatible Spacing
Q.91	Which of the following is the most widely used search engine globally?
Ans	☒ 1. DuckDuckGo
	☒ 2. Yahoo
	☒ 3. Google
	☒ 4. Bing
Q.92	From which tab of Task Manager can you end a non-responding application?
Ans	☒ 1. Services
	☒ 2. Processes
	☒ 3. Startup
	☒ 4. Details
Q.93	The Gita is incorporated in the Mahabharata primarily to give an integrated view of _____.
Ans	☒ 1. Moksha
	☒ 2. universe
	☒ 3. Dharma
	☒ 4. happiness

Q.94	The coordinates of a point A, where AB is the diameter of a circle whose centre is (2, – 3) and B is (1, 4) is:	
Ans	 1. (-2, 10)	
	 2. (2, -10)	
	 3. (3, -10)	
	 4. (-3, 10)	
Q.95	Convert decimal number 26.85 into binary equivalent.	
Ans	 1. 11001.110110	
	 2. 1001.111010	
	 3. 11010.101010	
	 4. 11010.110110	
Q.96	Two resistors, R ₁ and R ₂ , are connected in series across a voltage source. If the power dissipated by R ₁ is 4 times the power dissipated by R ₂ , what is the ratio of their resistances R ₁ : R ₂ ?	
Ans	 1. 1 : 4	
	 2. 16 : 1	
	 3. 1 : 16	
	 4. 4 : 1	
Q.97	Which type of network topology is commonly used in Wide Area Networks (WANs)?	
Ans	 1. Bus	
	 2. Ring	
	 3. Star	
	 4. Mesh	
Q.98	If $\tan \theta = \frac{8}{15}$, then the value of $\frac{\sqrt{1 - \sin \theta}}{\sqrt{1 + \sin \theta}}$ is:	
Ans	 1. $\frac{3}{5}$	
	 2. $\frac{3}{4}$	
	 3. $\frac{5}{7}$	
	 4. $\frac{3}{7}$	
Q.99	If 'A' stands for '÷', 'B' stands for '×', 'C' stands for '+' and 'D' stands for '–', then what will come in place of the question mark (?) in the following equation? 45 C 30 A 10 D 7 B 2 = ?	
Ans	 1. 32	
	 2. 31	
	 3. 33	
	 4. 34	

Q.100	If three cards are drawn one by one randomly from a pack of 52 cards, then what is the probability that three of them are jack?	
Ans	✖ 1. $\frac{3}{5525}$	
	✔ 2. $\frac{1}{5525}$	
	✖ 3. $\frac{4}{555}$	
	✖ 4. $\frac{3}{552}$	