



	Ju	unior Engineer Civil Mechanical and Electr	ical Examination 2023 Paper I
Exan	n Date	09/10/2023	
Exan	n Time	1:00 PM - 3:00 PM	
Subje	ect	Junior Engineer 2023 Mechanical Paper I	
Sectio	on : General	Intelligence and Reasoning	
01	Soloot the	set in which the numbers are related in the same upp as are th	a number of
96.1	the follow	ing set.	e numbers of
	(NOTE: C the numb adding/su and then	Deperations should be performed on the whole numbers, without hers into its constituent digits. E.g., 13 – Operations on 13 such a btracting/multiplying etc. to 13 can be performed. Breaking dow performing mathematical operations on 1 and 3 is not allowed)	reaking down s n 13 into 1 and 3
	(5, 2, 121)		
	(4, 3, 55)		
Ans	🕜 1. (4,	2,60)	
	X 2. (6,	8, 91)	
	X 3. (2,	8, 67)	
	X 4. (3,	1,9)	
Q.2	Six studer neighbour an immedi	ts E,F,G,H,I and J are sitting around a circular table facing the centre. I of both E and G. I is sitting third to the left of G. E is sittin <mark>g sec</mark> ond to th ate neighbour of both F and G. Who is immediate neigh <mark>bour o</mark> f both G a	I is an immediate e right of F. J is nd F?
Ans	🥜 1. J	Ů	
	🗙 2. H		
	× 3.1		
	∧		
Q.3	Select the balance th 17 * 7 * 12	correct combination of mathematical signs to sequentially replace the given equation. * 6 * 2 = 119	a* signs and
Ans	× 1.−×	++	
	★ 2.+÷	×-	
	∧ =		
	✓ 4.×-		247
Q.4	lf '×' mean the followi 375 - 25 ÷	s '-', '+' means '+', '-' means '+', '+' means '×', then what will be the co ng relation? 3 + 5 - 5 × 2 = ?	rrect answer of
Ans	🗙 1. 15		
	X 2.20		
	3 . 16		
	X 4. 18		
	• `		

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Q.5 Select the option figure which is embedded in the given figure as its part (rotation is NOT allowed).













 Q.15 Select the set in which the numbers are related in the same way as are the numbers of the given set. (NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. Eg. 13 – Operations on 13 such as adding/subtracting /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.) (361, 49, 266) (225, 36, 180) 	
Ans ★ 1. (49, 620, 300) ✓ 2. (289, 16, 136) ★ 3. (12, 36, 48) ★ 4. (256, 64, 160)	
Q.16 Select the Venn diagram that best illustrates the relationship between the following classes.	
Tables, Cupboards, Furniture	
Ans 1.	
× F c T	
2. T	
×	
3.	
4.	
Q.17 Seven people, A, B, C, D, E, F and G, are sitting in a straight row, facing north. Only 1 person sits to the left of D. A is an immediate neighbour of D. Only 2 people sit between F and D. Only 3 people sit between C and G. B is not an immediate neighbour of G. Only 2 people sit between E and A.	
Who sits to the immediate right of F?	
× 2.A	
X 3. E	
✓ 4. B	

















Q.24	Select the word-pair that best represents a similar relationship to the one expressed in the pair of words given below. (The words must be considered as meaningful English words and must not be related to each other based on the number of letters/number of consonants/ vowels in the word.)
Ane	Denver : Colorado
AIIS	
	2. Lucknow : Ottar Pradesh
	X 3. Mysore : Karnataka
	X 4. Delhi : India
Q.25	Each of the seven friends, Kirti, Siya, Amita, Preeti, Deepika, Jeet and Pari, has scored different marks in an exam. Pari has scored more than Kirti but less than Siya. Deepika has scored less than Preeti but more than Amita. Kirti has scored more than Preeti but less than Pari. Siya is not the highest scorer.
	Who has scored the least marks?
Ans	X 1. Jeet
	🗙 2. Siya
	🛹 3. Amita
	🗙 4. Pari
Q.26	Two statements are given followed by two conclusions numbered I and II. Assuming the statements to be true, even if they seem to be at variance with commonly known facts, decide which of the conclusions logically follow(s) from the statements.
	All novels are textbooks. No newspaper is a textbook.
	Conclusions: I. No novel is a newspaper. II. At least some fextbooks are povels
Ans	× 1. Only conclusion follows
	\times 2 Only conclusion II follows
	× 3 Noither conclusion I nor II follows
	4. Both conclusions I and II follow
Q.27	Select the correct mirror image of the given combination when the mirror is placed at line MN as shown.
Ans	56fgWRS ¹ 201dMB2 ² ×
	× 3. SAWBIDS
	56fqWRS .4 ×
Q.28	Select the set in which the numbers are related in the same way as are the numbers of the following set. (NOTE: Operations should be performed on the whole numbers, without breaking down the numbers into its constituent digits. Eg., 13 Operations on 13 such as adding/subtraction/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)
	(8, 4, 6)
	(13, 9, 10)
Ans	★ 1. (6, 42, 4)
	X 2. (2, 10, 1)
	X 3. (3, 11, 2)
	✓ 4. (7, 4, 5)





Q.29	Pointing towards a person in the photograph, Kamla said, "He is the daughter's brother of my husband's father Ashok. Ashok has only two children. How is the person in the photograph related to Kamla?
Ans	1. Husband
	X 2. Sister's husband
	X 3. Husband's brother
	X 4. Husband's sister's son
Q.30	Select the combination of letters that when sequentially placed in the blanks of the given series, will complete the series.
	L_M_NL_N_M_L_M_NL
Ans	VI. NMLMNLMLNM
	X 2. NMLMLNMLNL
	X 3. NMMLNLLMNM
	X 4. MNLMNLMLNM
Q.31	Which of the following terms will replace the question mark (?) in the given series? XYZV, STUQ, ?, IJKG, DEFB
Ans	X 1. NOPM
	2. NOPL
	X 3. NOPQ
	X 4. NOPO
Q.32	Which of the following numbers will replace the question mark (?) in the given series? 212, 213, 215, 219, ?, 243, 275
Ans	✓ 1.227
	× 2.235
	X 3.225
	× 4.237
Q.33	Select the option that represents the correct order of the given words as they would appear in an English dictionary. 1. Recession 2. Rebuke 3. Recognize 4. Receive 5. Recover
Ans	✓ 1.2,4,1,3,5
Ans	 ✓ 1. 2, 4, 1, 3, 5 X 2. 3, 2, 1, 5, 4
Ans	 ✓ 1. 2, 4, 1, 3, 5 X 2. 3, 2, 1, 5, 4 X 3. 3, 4, 1, 5, 2
Ans	 1.2,4,1,3,5 × 2.3,2,1,5,4 × 3.3,4,1,5,2 × 4.5,4,1,3,2
Ans Q.34	 1.2,4,1,3,5 2.3,2,1,5,4 3.3,4,1,5,2 4.5,4,1,3,2 Select the correct mirror image of the given combination when the mirror is placed at MN as shown below.
Ans Q.34	1.2,4,1,3,5 2.3,2,1,5,4 X 3.3,4,1,5,2 X 4.5,4,1,3,2 Select the correct mirror image of the given combination when the mirror is placed at MN as shown below. 9 E 6 F C Z R G
Ans Q.34	1.2,4,1,3,5 2.3,2,1,5,4 X 3.3,4,1,5,2 X 4.5,4,1,3,2 Select the correct mirror image of the given combination when the mirror is placed at MN as shown below. 9 E 6 F C Z R G N
Ans Q.34 Ans	$\begin{array}{c} 1.2,4,1,3,5\\ \times 2.3,2,1,5,4\\ \times 3.3,4,1,5,2\\ \times 4.5,4,1,3,2 \end{array}$ Select the correct mirror image of the given combination when the mirror is placed at MN as shown below. $\begin{array}{c} \textbf{9} \ \textbf{E} \ \textbf{6} \ \textbf{F} \ \textbf{C} \ \textbf{Z} \ \textbf{R} \ \textbf{G} \ \textbf{M} \\ \textbf{N} \end{array}$
Ans Q.34 Ans	$\begin{array}{c} 1.2, 4, 1, 3, 5 \\ \times 2.3, 2, 1, 5, 4 \\ \times 3.3, 4, 1, 5, 2 \\ \times 4.5, 4, 1, 3, 2 \end{array}$ Select the correct mirror image of the given combination when the mirror is placed at MN as shown below. $9 \ E \ 6 \ F \ C \ Z \ R \ G \ N \\ N \\ \times \ ^{1} \ \partial \ E \ S \ D \ A \ S \ D \ A \ S \ D \ A \ S \ D \ A \ S \ D \ A \ S \ D \ A \ S \ D \ A \ S \ D \ A \ S \ D \ A \ S \ D \ A \ S \ D \ A \ S \ D \ A \ S \ D \ A \ S \ B \ A \ S \ B \ A \ S \ B \ A \ S \ B \ A \ S \ B \ A \ S \ B \ A \ S \ B \ A \ S \ B \ A \ S \ B \ A \ S \ B \ A \ S \ B \ A \ S \ B \ A \ S \ B \ A \ S \ B \ A \ S \ B \ A \ S \ B \ B \ B \ B \ B \ B \ B \ B \ B$
Ans Q.34 Ans	$\begin{array}{c} 1.2,4,1,3,5\\ \times 2.3,2,1,5,4\\ \times 3.3,4,1,5,2\\ \times 4.5,4,1,3,2 \end{array}$ Select the correct mirror image of the given combination when the mirror is placed at MN as shown below. $9 \ E \ 6 \ F \ C \ Z \ R \ G \ N \\ \times \ ^{1} \ \partial \ K \ S \ C \ J \ \partial \ J \ B \ C \ C \ C \ C \ B \ S \\ \times \ ^{2} \ \partial \ S \ S \ S \ C \ C \ C \ C \ B \ S \\ \times \ ^{2} \ \partial \ S \ S \ S \ C \ C \ C \ B \ S \\ \times \ ^{3} \ \partial \ S \ S \ S \ C \ C \ C \ B \ S \\ \times \ ^{3} \ \partial \ S \ S \ S \ C \ C \ C \ B \ S \\ \times \ ^{3} \ \partial \ S \ S \ S \ S \ S \ S \ S \ S \ S$
Ans Q.34 Ans	$\begin{array}{c} 1.2,4,1,3,5\\ \times 2.3,2,1,5,4\\ \times 3.3,4,1,5,2\\ \times 4.5,4,1,3,2 \end{array}$ Select the correct mirror image of the given combination when the mirror is placed at MN as shown below. 9 E 6 F C Z R G \int_{N}^{M} \times^{1} B K S D F A B E Q F C Z R G \times^{2} B R S D E A B E Q \times^{3} B R S D E A B E Q F C Z R C D E Q E Q E Q E Q E Q E Q E Q E Q E Q E
Ans Q.34 Ans	$\begin{array}{c} 1.2,4,1,3,5\\ \times 2.3,2,1,5,4\\ \times 3.3,4,1,5,2\\ \times 4.5,4,1,3,2 \end{array}$ Select the correct mirror image of the given combination when the mirror is placed at MN as shown below. $\begin{array}{c} 9 \ E \ 6 \ F \ C \ Z \ R \ G \\ N \\ \times \ ^{2} \ \ D \ R \ S \ D \ F \ C \ Z \ R \ G \\ \times \ ^{2} \ \ D \ R \ S \ S \ D \ R \ S \ D \ R \ G \ B \ G \ F \ C \ Z \ R \ G \\ \times \ ^{3} \ D \ R \ S \ D \ R \ S \ D \ R \ G \ B \ G \ F \ C \ Z \ R \ G \\ \times \ ^{3} \ D \ R \ S \ S \ D \ R \ S \ D \ R \ G \ B \ C \ R \ G \ R \ G \ R \ S \ R \ S \ R \ S \ R \ S \ R \ S \ R \ S \ R \ S \ R \ S \ R \ S \ R \ S \ R \ S \ R \ S \ R \ S \ R \ S \ R \ S \ R \ S \ R \ S \ S$











Q.41 Select the option in which the given figure is embedded (rotation is NOT allowed).







Q.45 Select the word-pair that best represents a similar relationship to the one expressed in the pair of words given below. (The words must be considered as meaningful English words and must not be related to each other based on the number of letters/numbers of consonants/vowels in the word) Chaos : Peace Ans 🗙 1. Deep : Intense X 2. Mourn : Deplore 🛷 3. Gradual : Abrupt X 4. Generate : Produce Q.46 Select the option that is related to the third word in the same way as the second word is related to the first word. (The words must be considered as meaningful English words and must not be related to each other based on the number of letters/number of consonants/vowels in the word) Binocular : View :: Spoon : ? Ans 🧹 1. Feed X 2. Food X 3. Fork 🗙 4. Utensil Q.47 In a certain code language, "SPYH" is coded as "1714236" and "CFOG" is coded as "14135". How will "QTNP" be coded in that language? 🕜 1. 15181214 Ans 🗙 2. 14191314 🗙 3. 13191314 🗙 4. 15171114 Q.48 Select the correct option that indicates the arrangement of the following words in a logical and meaningful order. 1. Bicycle 2. Car 3. Train 4. Auto-rickshaw 5. Bus Ans **X** 1. 4, 1, 2, 3, 5 2. 1, 4, 2, 5, 3 🗙 3. 4, 2, 3, 5, 1 🗙 4. 4, 5, 2, 3, 1 Q.49 Which letter-cluster will replace the question mark (?) to complete the given series? AYIN, BWLM, DUOL, ?, KQUJ X 1. HSQM Ans J2. GSRK 🗙 3. HTSL 🗙 4. GTRL Q.50 Select the option that is related to the third term in the same way as the second term is related to the first term and the sixth term is related to the fifth term. 23:536:21:?:18:331 Ans X 1.488 X 2.444 **3.448** X 4. 484 Section : General Awareness Q.1 Pandit Shambhu Maharaj is a renowned ____ _dancer. Ans 🛛 🗙 1. Kuchipudi 🗙 2. Sattriya 🥜 3. Kathak 🗙 4. Odissi





Q.2	Which of the following iten	ns may NOT be treated as an intermediary good?	
Ans	X 1. Maida produced in a flour mill		
	2. Maida used in a ho	use to make paratha	
	X 3. Maida used to produ	uce bread in a bakery	
	\mathbf{X} 4. Maida used in a bis	cuit factory	
Q.3	In which year was the Tele	evision (TV) service started in India?	
Ans	X 1. 1975		
	× 2. 1968		
	X 3. 1986		
	4 . 1959		
Q.4	According to the Global Mu	ultidimensional Poverty Index 2022, aroundpeople in India	
	climbed out of poverty betw	ween 2005-06 and 2019-21.	
Ans	X 1.500 million		
	🛹 2. 415 million		
	🗙 3. 450 million		
	🗙 4. 315 million		
Q.5	Name the project which was North-Eastern states.	as launched for tackling the increasing HIV prevalence in the eight	
Ans	X 1. Mission Aware		
	🗙 2. Mission Sampark		
	🛷 3. Project Sunrise		
	X 4. Project Empower		
06	The first Bose Einstein Co	ndonsate (PEC) made of which atom was reported by the team of Frie	
Q.0	Cornell and Carl Wieman in	n 1995?	
Ans	X ^{1.90} Sr		
	🖌 ^{2. 87} Rb		
	X ^{3. 228} Ra		
	× 4. ¹³⁷ Cs		
07			
Q.7 Ans	• • • • • • • • • • • • • • • • • • •	ever some comparable to the Grand Canyon	
	\sim 2. It is a mountain with		
	2. Those are lowision	de found is the transiest eccentre eccentricities of early reafe	
	5. These are low island		
08		amount.	
4.0	Match the followin	g columns.	
	Column-A	Сониш-в	
	i. Fat	a. Sugar	
	ii. Protein	b. Calcium and sodium	
	iii. Carbohydrate	c. Amino acid	
	iv. Minerals	d. Glycerol and fatty acid	
Ans	🗙 1. i-a, ii-b, iii-c, iv-d		
	🗙 2. i-c, ii-d, iii-a, iv-b		
	🛷 3. i-d, ii-c, iii-a, iv-b		
	🗙 4. i-b, ii-a, iii-d, iv-c		
	 • • 		





Q.9	Match the column-A with column-B	le l
	Column-A (Block Periodic Table)	Column-B (Elements)
	a s-block	i La
	b. p-block	ii. Cu
	c. d-block	iii. Al
	d. f-block	iv. Na
Ans	🗙 1. a-i, b-ii, c-iii, d-iv	
	🗙 2. a-i, b-iii, c-ii, d-iv	
	🗙 3. a-iii, b-iv, c-ii, d-i	
	✔ 4. a-iv, b-iii, c-ii, d-i	
Q.10	Who was the Governor-General during the Anglo-	Nepal war?
Ans	🗙 1. Lord Auckland	
	X 2. Lord Hardinge	
	🛹 3. Lord Hastings	
	X 4. Lord Wellesley	
Q.11	Which of the following adulterants is mixed with s	sunflower oil and sesame oil to increase their
Ans	x 1. Mustard oil	
	2. Argemone oil	
	x 3. Rhodamine	
	★ 4. Lentil oil	
Q 12	What is the total outlay for extended period of Co	morebensive Handicrafts Cluster Development
	Scheme, which has been extended till FY 2026?	
Ans	X 1.₹140 crore	
	X 2. ₹120 crore	
	X 4. ₹100 crore	
Q.13	Where was India House founded in the UK?	
Ans	X 1. Bristol	
	X 2. Manchester	
	✓ 3. London	
	X 4. Edinburgh	
Q.14	Which of the following is a type of shield volcano to km across) but NOT steep (usually 2° to 10°) and	that is large (up to several 1,000 m high and 200 their magma is almost always mafic?
Ans	χ 1. Mount Etna, Sicily	
	🗙 2. Mount Fuji, Japan	
	🛷 3. Kilauea volcano, Hawaii	
	X 4. Aguilera, Chile	
Q.15	In June 2022, who became the first Indian to be re Development Goal (SDG) Pioneer for water stewa	ecognised as the Global Sustainable rdship by the United Nations Global Compact
Ans	X 1. Rajendra Singh	
-	🗙 2. Ayyappa Masagi	
	★ 3. Amla Ruia	
	🖌 4. Ramkrishna Mukkavilli	
0.16	Which of the following is the largest phylum of an	imalia?
Ans	 Chordata 	ii i ana :
	★ 2. Annelida	
	✗ 3. Mollusca	
	4. Arthropoda	





Q.17	When did Bhagat Singh and Batukeshwar Dutt throw the bombs inside the Central Assembly in
Ans	1.8 April 1929
	× 2.8 March 1929
	★ 3.8 January 1929
	★ 4.8 May 1929
Q.18	In which city will the 2024 Summer Olympic Games be held?
Ans	
	2. Pans
	X 3. Brisbane
	X 4. Berlin
Q.19	How are resources divided on the basis of status of development?
Ans	1. Potential, developed stock and reserves
	X 2. Renewable and non-renewable
	X 3. Biotic and abiotic
	X 4. Individual, community, national and international
Q.20	एक तालाब पारितंत्र के क्षेत्रों का नीचे से ऊपर की ओर सही क्रम क्या है?
Ans	🗙 1. हाइपोलिमनियन-थर्मोकलाइन-लाइटोरल
	🗙 2. लाइटोरल-थर्मोकलाइन-एपीलिमनियन
	🛹 3. हाइपोलिमनियन-थर्मोकलाइन-एपीलिमनियन
	🗙 4. एपीलिमनियन-हाइपोलिमनियन-थर्मोकलाइन
0.04	Destrie field een he defined een
Q.21	Electric field can be defined as:
	S. torce per unit charge
	X 4. torce per unit current
Q.22	The Manusmrti, one of the best-known legal texts of early India, is written in
Ans	X 1. Prakrit
	2. Sanskrit
	X 3. Pali
	X 4. Hindi
Q.23	Which of the following Buddhist sites is NOT found in the Vengi region of Andhra Pradesh?
Ans	🛹 1. Chaukhandi
	🗙 2. Nagarjunkonda
	🗙 3. Amaravati
	🗙 4. Jagayyapetta
Q.24	Which of the following Acts is regarded as the precursor to the Indian Constitution?
Ans	X 1. Government of India Act of 1909
	2. Government of India Act of 1935
	X 3. Government of India Act of 1945
	X 4. Government of India Act of 1919
Q.25	Select the correct pair of Indian classical dancers of Odissi style.
Ans	X 1. Meenakshi Sundaram Pillai and Savitha Sastry
	X 2. Mallika Sarabhai and Shobha Naidu
	X 3. Amala Shankar and Singhajit Singh
	n A O fata Maharanta and Madhad
	A 4. Sulata ivonadatra and ivadnavi ivuddal





Q.26	Vinich of the following is NOT included in fundamental duties ? 1. Respect the national flag and the national anthem
715	\sim 2. To unhold and protect the sovereighty unity and integrity of India
	\sim 2. To up not and protect the sovereignty, unity and integrity of india
	 X 3. To value and preserve the normentage of our composite culture 4. Focus on non-non-linear and individual activities only.
	4. Focus on personal development and individual activities only
Q.27	Protection of is the fundamental duty of an Indian citizen.
Ans	X 1. children and old people
	X 2. villages
	X 3. holy scriptures
	🛹 4. wildlife
Q.28	Which of the following is associated with Atoll?
Ans	🗙 1. Ocean basins with gently sloping terrain
	$oldsymbol{\chi}$ 2. It is made up of two mountain chains separated by a large depression
	imes 3. It is a seamount with a flat top
	✓ 4. Low islands found in the tropical oceans consisting of coral reefs
Q.29	To which of the following gharanas of music did Ustad Amir Khan, a renowned vocalist, belong?
Ans	🗙 1. Jaipur-Atrauli
	X 2. Rangeela
	🗙 3. Agra
	4. Indore
030	Patavat Sahu, who was conferred the Padma Shri in the year 2023 by the President of India for his
Q.00	significant contribution in the field of medicinal plants in agriculture, is from
Ans	X 1. West Bengal
	🖌 2. Odisha
	X 3. Chhattisgarh
	X 4. Jharkhand
Q.31	According to the Centre for Monitoring Indian Economy (CMIE), in which state of India was the
A	unemployment rate recorded as 0.1% as of September 2022?
Ans	
	X 3. Madhya Pradesh
	4. Chhattisgarh
Q.32	What is the primary objective of cybersecurity?
Ans	X 1. To enhance internet connectivity
	X 2. To create new software applications
	X 3. To protect computers from physical damage
	✓ 4. To prevent unauthorised access and data breaches
Q.33	Which of the following energy resources is also known as Liquid Gold?
Ans	🛹 1. Petroleum
	🗙 2. Natural Gas
	🗙 3. Uranium
	X 4. Coal
Q.34	Which of the following factors is a geographical factor that affects the distribution of the
Δne	v 1 Industrialisation
7113	
	* 2. Climate
	3. Climate





Q.35	In October 2021, MUDRA Toolbox was launched by the in five Indian languages.
Ans	X 1. Indian Agricultural Research Institute (ICAR)
	$m{\chi}$ 2. Indian Council of Historical Research (ICHR)
	$oldsymbol{\chi}$ 3. Indian Council of Social Science Research (ICSSR)
	🛹 4. Indian Council of Medical Research (ICMR)
Q.36	Who among the following is NOT part of the Goods and Services Tax Council of India?
Ans	X 1. Union Finance Mnister
	2. Lieutenant Governors of Union Territories
	imes 3. Union Minister of State in charge of Revenue or Finance
	imes 4. The Mnister in-charge of Finance of each state or any other minister nominated by state
	government
Q.37	Which of the following measures of money supply is considered most liquid?
Ans	🥪 1. M1
	× 2. M4
	× 3. M2
	× 4. M3
Q.38	The boundary line separating one drainage basin from another is called
Ans	× 1. terrace
	2. watershed
	X 3. peneplain
	× 4. flood plain
0.20	
Q.39	or aromatic group?
Ans	X 1. Secondary amine
	2. Primary amine
	X 3. Ketone body
	X 4. Carboxylic acid
Q.40	Which of the following is an example of a homeothermic animal?
Ans	1. Penguin
	X 2. Salamander
	X 3. Cobra
	X 4. Tortoise
041	Which of the following is an intermediate goods industry?
Ans	 X 1. Manufacturing of plants and machineries
	× 2. Manufacturing of refrigerators
	× 3. Manufacturing of Cars
	4. Manufacturing of tools
0.42	According to the Canada of India 2014 what is the case ratio of Demon and Div?
Ans	× 1.518
	× 2.718
	× 3.818
	4.618
Q.43 Ane	Central Administrative Tribunal benches exist all over India, as of December 2022.
	✓ 1.10 ✓ 2.16
	▲ 10 ★ 3.18
	V # 11





Q.44	Who among the following attacked Gujarat and plundered the Somnath Temple in the 11th century?
Ans	1. Nahmud of Ghazni
	X 2. Qutubuddin Aibak
	🗙 3. Muhammad Bin Qasim
	🗙 4. Ahmad Shah Abdali
0.45	The Sangeet Natak Akademi gives followships to eminent artists. Cenika Varma received it for
Q.+J	Mohiniyattam which is a dance form of which state?
Ans	X 1. Andhra Pradesh
	🗙 2. Kamataka
	🗙 3. Tamil Nadu
	🛹 4. Kerala
Q.46	In which of the following games is the term 'header' associated?
Ans	X 1. Hockey
	X 2. Cricket
	X 3. Badminton
	🛹 4. Football
Q.47	According to the Ministry of Textile, Government of India (2022-23), which fibre crop is majorly produced in Guiarat. Maharashtra and Telangana?
Ans	✓ 1. Cotton
	× 2. Jute
	x 3. Natural silk
	× 4. Hemp
0.40	
Q.48 Ans	A 1 Moisture and humidity that can allow microbial growth
	\sim 2 High temperature and pressure
	× 3 Low temperature and very high pressure
	A High salt and spice content
Q.49	What does the 'Print Range' option allow you to do when printing a document?
AUS	X 1. Adjust the size of the printed document to in on a specific number of pages
	2. Onlosse the specific pages of hange of pages to be printed asses
	X 3. Add header and lobter information to the printed pages
	X 4. Phint the document with different ionts and styles
Q.50	President of India, Droupadi Murmu met President of Republic of Suriname,on the sidelines of the 17th Pravasi Bharatiya Divas Convention at Indore, Madhya Pradesh on 10
Ans	X 1. Desi Bouterse
	🗙 2. Johan Kraag
	3. Chandrikaprasad Santokhi
	X 4. Ronald Venitiaan
Carthe	
	If the lower temperature fixed by the refrigeration application is birth the COP of the Cornet
ω. I	refrigerator will be
Ans	X 1. veryless
	X 2. the same
	🛷 3. high
	★ 4. less











	X 2. Diesel cycle
	X 3. Normal Stirling cycle
	X 4. Otto cycle
2.9	Scavenging phenomenon occurred in Two-stroke IC engine when
Ins	χ 1. Both inlet and outlet Valve are opened for a while simultaneously
	2. Both transfer Port and exhaust port are opened for a while simultaneously
	X 3. Both inlet and outlet Valve are fully closed
	X 4. Both transfer port and exhaust port are fully closed
.10	In the boiler mountings, the blow-off cock is fitted at
ns	χ 1. the top of the boiler shell
	✓ 2. the bottom of the boiler shell
	χ 3. the middle of the boiler shell
	X 4. near the steam supply line
2.11	In the Bell-Coleman refrigeration cycle, the temperature of the refrigerant is maximum at the:
ns	X 1. end of isentropic expansion
	2. end of isentropic compression
	X 3. end of constant pressure cooling process
	X 4. start of isentropic compression
12	Which of the following is the advantage of avial flow pump?
Ans	★ 1. High head
	× 2. Low volumetric discharge
	3 High volumetric discharge
	× 4 Medium discharge pressure
2.13	The unit of density in FPS (Foot Pound System) is given by:
Ans	× [⊥] lb/ft ¹
	\times ² . lb/ft ²
	3. IL /03
	\times ^{4.} Lb ² /ft ³
.14	Which of the following statements is INCORRECT about the Benson boiler?
Ins	$m{\chi}$ 1. The average operating pressure for the Benson boiler is higher than 200 bar.
	χ 2. Benson boilers can be switched on very quickly.
	✓ 3. The Benson boiler is heavier than other boilers.
	X 4. In Benson boilers, drums are not used.
2.15	Ann Arr
	The continuity equation $\frac{\partial u}{\partial x} + \frac{\partial v}{\partial y} = 0$ is valid for a
Ans	1. steady, 2D, incompressible flow
	× 2. unsteady, 2D, compressible flow
	★ 3. steady. 2D. compressible flow
	× 4. unsteady. 2D. incompressible flow
1.16	surface is called
Ans	X 1. centre of mass
	X 2. centre of gravity
	✓ 3. centre of pressure





Q.17	The dimensional formula for specific gravity is given by:
Ans	\times ¹ . M ¹ L ¹ T ⁰
	$\sim 2. M^0 L^0 T^0$
	\times ^{3.} M ¹ L ⁰ T ¹
	\times ^{4.} M ⁰ L ¹ T ¹
0.18	In Bell-Coleman Cycle, the pressure at the end of isentronic compression is same as:
Ans	✓ 1. the pressure at the start of isentropic expansion
	\mathbf{x} 2. the pressure at the end of isentropic expansion
	X 3. the pressure at the start of isentropic compression
	X 4. the pressure in constant pressure expansion
0.10	Which of the following types of simple menometers measures the gauge procesure of only
Q.19	incompressible fluids?
Ans	🗙 1. Single column manometer
	X 2. U-tube manometer
	V 3. Piezometer
	🗙 4. Differential U-tube manometer
Q.20	If difference of axial components of velocity at inlet and outlet of a de-Laval turbine is found to be 120 m/s and mass flow rate of steam is 7 kg/s then axial thrust on the rotor is
Ans	× 1.7 N
	× 2.17.14 N
	3. 840 N
	× 4. 120 N
0.24	The best title of a Daumdan title successing gauge will share its share when averaged to
Q.2 I	variations of
Ans	X 1. displacement
	2. pressure
	X 3. voltage
	X 4. resistance
Q.22	In the given T-S diagram of Otto cycle, which of the following processes is a heat addition process?
	Leiberature Leiberature
Ans	× 1.4-1
	× 2.34
	3.2-3
	X 4.1-2
Q.23	The pressure intensity at a point in a fluid is given as 3.924 Ncm ² . What will be the corresponding
•	height of fluid when the fluid is water?
Ans	
	X 2.2.5 m of water
	X 3.0 m or water
	X 4. 5.5 III 0I Water





U.24	The direction of the friction force is:
Ans	 ★ 1 in the direction of motion of the body
710	\sim 2 in the inclined direction of the motion of the body
	2. In the encoded direction of the fination of the body ar in the encoded direction of the tendency te.
	w 3. In the opposite direction of motion of the body of in the opposite direction of the tendency to move
	\mathbf{X} 4. in the perpendicular direction of the motion of the body
Q 25	Which of the following statements is correct about water-tube and fire-tube boilers?
Ans	\mathbf{x} 1. In case of water-tube boilers, hot gases flow in the tubes.
	× 2. In case of fire-tube boilers, hot gases are surrounded over the tubes.
	3. In case of fire-tube boilers, hot gases flow in the tubes.
	★ 4. In case of fire-tube boilers, water flows in the tubes.
Q.26	Which of the following statements is true about hot working process?
A115	
	X 2. It is a process of working above room temperature.
	X 3. Hot working process of tim is also a cold working process.
	X 4. All hot working processes must be done above local environment temperature.
Q.27	Heat addition during the constant pressure process is equal to
Ans	X 1. change in entropy
	X 2. change in internal energy
	✓ 3. change in enthalpy
	X 4. specific heat
Q.28	Which fluid is used to increase the rate of evaporation of the liquid ammonia passing through the
	evaporator in domestic Electrolux refrigeration system?
Ans	× 1. Water
	X 2. Ammonia
	3. Hydrogen
	 3. Hydrogen 4. Mercury
Q.29	 3. Hydrogen 4. Mercury What will be the ratio of the pressure intensities of two fluids, one with a liquid column of 0.4 m of
Q.29	 3. Hydrogen 4. Mercury What will be the ratio of the pressure intensities of two fluids, one with a liquid column of 0.4 m of water and the other with a liquid column of 0.2 m of an oil of specific gravity 0.8?
Q.29 Ans	 3. Hydrogen 4. Mercury What will be the ratio of the pressure intensities of two fluids, one with a liquid column of 0.4 m of water and the other with a liquid column of 0.2 m of an oil of specific gravity 0.8? 1. 7
Q.29 Ans	
Q.29 Ans	3. Hydrogen \swarrow 4. Mercury What will be the ratio of the pressure intensities of two fluids, one with a liquid column of 0.4 m of water and the other with a liquid column of 0.2 m of an oil of specific gravity 0.8? $1. \frac{7}{2}$ 2. 5
Q.29 Ans	
Q.29 Ans	x 3. Hydrogen x 4. Mercury What will be the ratio of the pressure intensities of two fluids, one with a liquid column of 0.4 m of water and the other with a liquid column of 0.2 m of an oil of specific gravity 0.8? 1. $\frac{7}{2}$ 2. $\frac{5}{2}$ x 3. 2
Q.29 Ans	 3. Hydrogen ★ 4. Mercury What will be the ratio of the pressure intensities of two fluids, one with a liquid column of 0.4 m of water and the other with a liquid column of 0.2 m of an oil of specific gravity 0.8? 1. 7/2 2. 5/2 3. 2
Q.29 Ans	 3. Hydrogen ★ 4. Mercury What will be the ratio of the pressure intensities of two fluids, one with a liquid column of 0.4 m of water and the other with a liquid column of 0.2 m of an oil of specific gravity 0.8? 1. 7/2 2. 5/2 3. 2 4. 3/2
Q.29 Ans	
Q.29 Ans	 3. Hydrogen ★ 4. Mercury What will be the ratio of the pressure intensities of two fluids, one with a liquid column of 0.4 m of water and the other with a liquid column of 0.2 m of an oil of specific gravity 0.8? 1. 7/2 2. 5/2 3. 2 4. 3/2 If the manometric efficiency and mechanical efficiency of a centrifugal pump are 70% and 80%.
Q.29 Ans Q.30	 3. Hydrogen ★ 4. Mercury What will be the ratio of the pressure intensities of two fluids, one with a liquid column of 0.4 m of water and the other with a liquid column of 0.2 m of an oil of specific gravity 0.8? * 1. 7/2 2. 5/2 3. 2 4. 3/2 If the manometric efficiency and mechanical efficiency of a centrifugal pump are 70% and 80% respectively, then the overall efficiency will be:
Q.29 Ans Q.30 Ans	 3. Hydrogen ★ 4. Mercury What will be the ratio of the pressure intensities of two fluids, one with a liquid column of 0.4 m of water and the other with a liquid column of 0.2 m of an oil of specific gravity 0.8? 1. 7/2 2. 5/2 3. 2 4. 3/2 What the manometric efficiency and mechanical efficiency of a centrifugal pump are 70% and 80% respectively, then the overall efficiency will be: ★ 1.80%
Q.29 Ans Q.30 Ans	 3. Hydrogen ▲ A Mercury What will be the ratio of the pressure intensities of two fluids, one with a liquid column of 0.4 m of water and the other with a liquid column of 0.2 m of an oil of specific gravity 0.8? 1. 7/2 2. 5/2 3. 2 4. 3/2 If the manometric efficiency and mechanical efficiency of a centrifugal pump are 70% and 80% respectively, then the overall efficiency will be: × 1. 80% × 2.75%
Q.29 Ans Q.30 Ans	 3. Hydrogen 4. Mercury What will be the ratio of the pressure intensities of two fluids, one with a liquid column of 0.4 m of water and the other with a liquid column of 0.2 m of an oil of specific gravity 0.8? 1. 7/2 2. 5/2 3. 2 4. 3/2 If the manometric efficiency and mechanical efficiency of a centrifugal pump are 70% and 80% respectively, then the overall efficiency will be: × 1. 80% × 2. 75% • 3. 56%
Q.29 Ans Q.30 Ans	 3. Hydrogen ▲ 1. Mercury Whater and the other with a liquid column of 0.2 m of an oil of specific gravity 0.8? 1. 7/2 2. 5/2 3. 2 4. 3/2 If the manometric efficiency and mechanical efficiency of a centrifugal pump are 70% and 80% respectively, then the overall efficiency will be: 1. 80% 2. 75% 3. 56% 4. 40%
Q.29 Ans Q.30 Ans	 A. Hydrogen ★ 4. Mercury What will be the ratio of the pressure intensities of two fluids, one with a liquid column of 0.4 m of water and the other with a liquid column of 0.2 m of an oil of specific gravity 0.8? 1 7 2 5 2 3 2 4 3 2 1. 80% 2. 75% 3. 56% 4. 40% Which of the following is a forced circulation type of boiler?
Q.29 Ans Q.30 Ans Q.31 Ans	 A. Hydrogen ★ 4. Mercury What will be the ratio of the pressure intensities of two fluids, one with a liquid column of 0.4 m of water and the other with a liquid column of 0.2 m of an oil of specific gravity 0.8? * 1 2 5 2 5 3 2 4 3 2 1. 80% 2. 75% 3. 56% 4. 40% Which of the following is a forced circulation type of boiler? Y 1. Lancashire boiler
Q.29 Ans Q.30 Ans Q.31 Ans	> 3. Hydrogen × 4. Mercury What will be the ratio of the pressure intensities of two fluids, one with a liquid column of 0.4 m of water and the other with a liquid column of 0.2 m of an oil of specific gravity 0.8? * 1 7 2 2 5 × 3. 2 4 3 If the manometric efficiency and mechanical efficiency of a centrifugal pump are 70% and 80% respectively, then the overall efficiency will be: × 1.80% × 2.75% • 3.5% × 4.0% Which of the following is a forced circulation type of bolier? • 1.Lancashire bolier • 2. Labort bolier
Q.29 Ans Q.30 Ans Q.31 Ans	• 3. Hydrogen • 4. Mercury What will be the ratio of the pressure intensities of two fluids, one with a liquid column of 0.4 m of water and the other with a liquid column of 0.2 m of an oil of specific gravity 0.8? • 1 7 2 • 2 5 2 • 3 2 • 4 3 2 • 1 Efficiency and mechanical efficiency of a centrifugal pump are 70% and 80% • 2 1.80% • 1.80% • 2.75% • 1.Lancashire boiler • 1.Lancashire boiler • 1.Lancashire boiler • 2.LaWort boiler • 2.LaWort boiler • 3.Bebcock & Wilcoxboiler
Q.29 Ans Q.30 Ans Q.31 Ans	 A Hydrogen A Mercury What will be the ratio of the pressure intensities of two fluids, one with a liquid column of 0.4 m of water and the other with a liquid column of 0.2 m of an oil of specific gravity 0.8? 1 2 5 2 5 3 2 4 3 2 1 Encoshire boiler 2 Labot boiler 3 Escock & Wilcoxboiler 3 Escock & Wilcoxboiler 4 Cochran boiler
Q.29 Ans Q.30 Ans Q.31 Ans	 A. Hydrogen A. Mercury What will be the ratio of the pressure intensities of two fluids, one with a liquid column of 0.4 m of water and the other with a liquid column of 0.2 m of an oil of specific gravity 0.8? ¹ ⁷ ² ⁵ ² ⁵ ³ ¹ ² ⁵ ³ ² ⁴ ³ ¹ <i>1</i> <i>1</i> <i>2</i> <i>5</i> <i>2</i> <i>5</i> <i>3</i> <i>2</i> <i>4</i> <i>3</i> ¹ <i>1</i> <i>1</i>





15	X 1. Converging part
	🛹 2. Float
	X 3. Diverging part
	🗙 4. Throat
1.33	Which of the following statements related to rope drives is INCORRECT?
Ins	X 1. Rope drives have high mechanical efficiency.
	X 2. Shafts do not require exact alignment.
	✓ 3. It is used to transmit power only for shorter distances.
	X 4. It has good crushing resistance.
0.34	What will be the specific weight of one litre of petrol of specific gravity 0.7? (Take $g = 9.81$ m/sec ²)
ns	★ 1.6256 N/m ³
	✓ 2. 7286 N/m ³
	3 6867 N/m3
	- 4 E426 N/m3
	X 4. 0400 IVIII 9
.35	An impulse turbine is running at 1000 rpm with a net head 600 m. If the discharge through the nozzle is 0.1 m ³ /s, then what will be the power available at the nozzle? Take $g = 10 \text{ m/s}^2$.
ns	★ 1.700 kW
	✓ 2. 600 Kw
	★ 3. 525 kW
	★ 4. 450 kW
.36	Which of the following is NOT a type of steam separator?
ns	✓ 1. Reciprocating type
	X 2. Impact or baffle type
	X 3. Centrifugal type
	X 4. Reverse current type
0.37	If the temperature of 'A' is equal to the temperature of 'B' and 'C', then the temperature of 'B' will
	be equal to the temperature of 'C'. This is known as:
Ans	1. law of thermal equilibrium
	X 2. law of equality of temperature
	X 3. Joule's law
	4. zeroth law of thermodynamics
2.38	In the context of work done of turbine, the power developed by the runner depends on which of the following parameters?
Ins	✓ 1. Whirl and blade velocities
	X 2. Whirl velocity only
	X 3. Blade velocity
	X 4. Velocity at the exit of draft tube
.39	If the cutter and workpiece movements are in opposite directions, the milling process is known
ns	X 1. Side milling
	2. Up milling
	X 3. Face milling
	X 4. Down milling
10	Ammonia is NOT used in domestic refrigeration and comfert air conditioning because
.40 Mns	X 1. its heat transfer coefficient is very low
	× 2. lubricating oil is not soluble in ammonia at all
	★ 3 it is not soluble in water











Q.46 For a laminar flow through a circular pipe, the wall shear stress across a section is a function of
Ans \times^{1} the pressure gradient $\frac{dp}{dz}$ and the radial coordinate r
\checkmark^{2} the pressure gradient $\frac{dp}{dz}$ and the radius R
\times ^{3.} only the pressure gradient $\frac{dp}{dz}$
\times^{4} the pressure gradient $\frac{dp}{dz}$ and the axial velocity V_z
Q.47 Which of the following is NOT an example of brittle material?
Ans v 1. Auminium
X 2. Ceramic materials
X 3. High carbon steel
X 4. Cast iron
Q.48 If the line of stroke of a follower passes through the centre of rotation of a cam, then the cam is called
Ans X 1. globoidal cam
 2. radial cam
X 3. offset cam
X 4. oscillating cam and follower
Q.49 Which of the following is NOT a merit of dead weight safety valve?
Ans X 1. Simplicity of design
2. Suitable for high pressure boiler
X 3. It is a good choice for low-pressure vessels
× 4. Gives satisfactory performance during operation
Q 50. What pressure head of kerosene of specific gravity 0.8 will be equivalent to a pressure head of
100 m of water?
Ans 🗙 1. 100 m
X 2.110 m
✓ 3. 125 m
X 4. 120 m
Q.51 A workpiece is taper turned using lathe, where large diameter of workpiece is D and small diameter d. If the length of this workpiece is L, then half angle α is given by:
Ans \times^{1} tan $\alpha = \frac{(D-d)}{3L}$
\sim^{2} (D-d)
$\sim \tan \alpha = \frac{1}{L}$
$\frac{3}{2}$ top $\alpha = \frac{(D-d)}{2}$
$r \tan \alpha = \frac{1}{4L}$
$\frac{4}{1}$ tan $\alpha = \frac{(D-d)}{1}$
Q.52 Which of the following is the correct item for Double Volute in centrifugal pumps?
Ans 🞻 1. Flow is separated into two equal streams by two-cut waters that are 180° apart
X 2. Flow separation does not take place
χ 3. Flow is separated into two equal streams by two-cut waters that are 90° apart
χ 4. Flow is separated into two unequal streams by two-cut waters that are 90° apart
Q.53 In which of the following cycles does heat addition NOT take place at constant volume?
Ans 🗙 1. Otto cycle
🗙 2. Lenoir cycle
X 3. Dual cycle
✓ 4. Diesel cycle





Q 54	Which of the following equations is used to calculate major losses in pipes?
Ans	X 1. Reynolds's equation
	× 2. Momentum equation
	3. Darcy-Weisbach equation
	× 4. Continuity equation
Q.55	What will be the atmospheric pressure at a location where the barometric reading is 750 mm Hg and the gravitational acceleration is $g = 9.81 \text{ m/s}^2$? Assume the density of mercury to be 13,600 kg/m ³ .
Ans	★ 1.10.006 kPa
	X 2. 1000.6 Pa
	✓ 3. 100.06 kPa
	× 4. 100.06 Pa
0.56	Which of the following is an isochoric process?
Ans	 X 1. Heat supplied is zero.
	× 2 Heating of steam in a cylinder containing a sliding piston
	× 3 Heat is supplied during evaporation
	4. Heating of steam in a closed rigid vessel
Q.57	Functionality of nozzle is that,
Ans	X 1. It produces steam at very low velocity
	2. It produces steam jet at very high velocity
	X 3. It produces steam at very low pressure
	✓ 4. It produces steam jet at very high pressure.
Q.58	The velocity of flow between two adjacent streamlines is inversely proportional to the:
Ans	X 1. volume flow rate
	X 2. circulation
	3. spacing of the streamlines
	X 4. specific weight
Q.59	Match the types of refrigerants with their representations.
	Type of Refrigerant Representation
	1. CFC refrigerants a. R-22
	2. HFC refrigerants b. R-11
	3. HC refrigerants c. R-134a
	4. HCFC refrigerants d. R-290
A	
Ans	× 1. 1-a, 2-d, 3-b, 4-c
	2. 1-D; 2-C; 3-d; 4-a
	× 3. 1-a; 2-c; 3-d; 4-b
	X 4. 1-0; 2-0; 3-0; 4-a
Q.60	On the stress-strain diagram, the material obeys Hooke's law till:
Ans	X 1. upper yield point
	X 2. point of ultimate stress
	🛷 3. elastic limit
	X 4. lower yield point
Q.61	According to, the intensity of pressure in a liquid at rest is constant in all directions.
Ans	🗙 1. Boyle's law
	X 2. hydrostatic law
	X 3. Newton's law
	🛹 4. Pascal's law





Q.62	If the C.O.P. of 1 TR ammonia-water absorption refrigeration plant is 0.5, then the heat supplied in the generator is (1 TR = 3.51 kw)
Ans	🗙 1. 10.5 kW
	🗙 2. 3.5 kW
	🛷 3.7 kW
	X 4. 1.5 kW
2.6 3	Which of the following is a suitable unit for measuring the capacity of refrigeration?
Ans	🗙 1. kJ
	🖌 2. TR
	🗙 3. Kw/kg
	★ ^{4.} kg
2.64	Which one of the following is correct statement about Blade cross sectional fluid flow area from inlet to outlet of a turbine?
Ans	1. Constant for impulse turbine and converging for reaction turbine
	imes 2. Constant for reaction turbine and diverging for impulse turbine
	\mathbf{X} 3. Constant for reaction turbine and converging for impulse turbine
	X 4. Constant for impulse turbine and diverging for reaction turbine
2.65	The ratio of the actual mass flow rate to that due to isentropic expansion in the steam nozzle is
Ans	× 1 Mach number
	2 coefficient of discharge
	× 3 nozde efficiency
2.66	If the pressure intensity at a point in a fluid is given as 2.7 N/cm ² , then what will be the pressure head of oil of specific gravity 0.9 at that point? Take $g = 10 m/s^2$.
Ans	★ 1.3 cm of oil
	🗙 2. 30 cm of oil
	3.3 m of oil
	X 4.3 mm of oil
Q.67	If head imparted by impeller to water is equal to manometric head, then the manometric
Δns	✓ 1 75%
	× 2 0%
	× 3 50%
	4 100%
	4.10070
2.68	What is the value of the density of water at 4°C?
Ans	X ^{-1.1000} gm/cm ³
	X ^{2.100} gm/cm ³
	✓ 3. 1 gm/cm ³
	× ^{4. 10} gm/cm ³
2.69	A thermometer works on the principle of
Ans	X 1. 3 rd law of thermodynamics
	🛹 2. Zeroth law of thermodynamics
	X 3. Joule's law





.70	The correct expression for the dimensional formula of volumetric discharge in the fluid equations is given by
ns	\times ¹ . L ³ T ⁻³
	× ^{2.} I ² T-1
	× ³ . I ³ T-2
	4 - 2 - 1
	$\sim L^3T^{-1}$
2 .71	The reversible adiabatic process in Mollier chart is represented by
Ans	X 1. a line parallel to the saturated water line
	2. a line parallel to the saturated vapour line
	3. a vertical line
Q.72	In two-stroke petrol engine, the air Fuel mixture is prepared
Ans	X 1. Inside the Transfer Port
	X 2. Inside the Crank case chamber
	 A Inside the carburetor but outside the cylinder
2.73 Anc	Which of the following about work transfer is NOT correct?
Ans	X 1. Work transfer is a boundary phenomenon.
	\sim 3. Work is given by the area under the curve on p-V/diagram in case of non-flow process
	4. Work transfer is a thermodynamic property.
Q .74	Which of the following pressure measurement devices consists of a hollow metal tube bent like a hook whose end is closed and connected to a dial indicator needle?
Ans	X 1. Piezoelectric transducers
	X 2. Pressure transducers
	3. Bourdon tube
	X 4. Strain-gauge pressure transducers
2.75	Which of the following statements is correct about the forced-draught fan used in steam boilers?
Ans	imes 1. The power required by an induced-draught fan is equal to that required by a forced-draught fan
	for the same amount of draught.
	2. The power required by an induced-draught fan is greater than that required by a forced- draught fan for the same amount of draught
	X 3. The power required by an induced-draught fan is less than that required by a forced-draught
	fan for the same amount of draught.
	X 4. The power required by an induced-draught fan may be greater than or less than that required
2.76	and high temperature cascade condenser temperature and high temperature cascade evaporator temperature is called
Ans	X 1. average temperature
	2. temperature overlap
	X 3. degree of superheat
	X 4. degree of subcooling
2.77	What is the unit of measurement of actual evaporation in steam boilers?
Ans	X 1. kg fuel burnt / kg water evaporated
	🗙 2. kg
	3. kg water evaporated / kg fuel burnt





10	
	X 2. Isobaric process
	X 4. Isothermal process
79	Which of the following statements is correct regarding governor?
ns	χ 1. It is not a compulsory device of the prime mover.
	χ 2. It controls the temperature of the prime mover.
	\mathbf{X} 3. It controls acceleration of the prime mover.
	✓ 4. It controls the mean speed of the prime mover.
0.80	Which among the following options has same thermal efficiency under ideal conditions (Operate within the same temperature)?
Ans	X 1. Carnot cycle and Otto cycle
	X 2. Carnot and dual cycle
	X 3. Carnot cycle and Brayton cycle
	✓ 4. Carnot cycle and Stirling cycle
Q. 81	Water is flowing steadily at a velocity of 20 m/s through a pipe of diameter 0.2
	m. The pressure and elevation at point X are 400 kN/m ² and 32 m, respectively,
	while those at another point Y are 300 kN/m ² and 34 m, respectively. What will
	be the head loss between the points X and Y?
	Take $g = 10 \text{ m/s}^2$.
Ans	× 1.10 m
	2.8 m
	x 3.4 m
	x 4.6m
1.82	carburettor in a mist lubricating system?
Ans	✓ 1. 3% to 6%
	X 2. Zero
	× 3. 30% to 40%
	× 4.40% to 50%
2.83	Latent heat of vaporisation is NOT the
Ans	✓ 1. heat required for complete conversion of ice into water
	X 2. heat added at constant temperature of 100°C to convert water into steam
	X 3. heat required for complete conversion of saturated liquid into dry saturated vapour
	\times 4. sum of internal latent heat and external work of evaporation
784	Which of the following evaporators are also known as prime-surface evaporators?
Ans	 X 1. Plate evaporators
	★ 2. Shell-and-tube evaporators
	3 Bare-tube coil evaporators
	 ✓ 4 Finned-tube evaporators
Q.85	In aqua-ammonia absorption refrigeration system, incomplete rectification leads to accumulation of water in:
Ans	X 1. heat exchanger
	2. condenser
	X 3. absorber





Q.86	In the refrigeration system, heat rejection factor is the ratio of
Ans	✓ 1. heat rejected to the refrigeration capacity
	\mathbf{x} 2. refrigeration capacity to the work done by compressor
	X 3. work done by compressor to the refrigeration capacity
	★ 4. load on the condenser to the COP
Q.87	In actual air-conditioning applications for R-12 and R-22 refrigerant and operating at a condenser temperature of 40°C and an evaporator temperature of 5°C, the heat rejection factor is about:
Ans	X 1.2.15
	✓ 2. 1.25
	X 3.1
	X 4.5.12
0.88	The amount of water striking the runner of the reaction turbine is controlled by
Ans	1. guide mechanism
	× 2 draft tube
	× 3 spear arrangement
Q.89	Which of the following statements holds true, according to Kelvin Planck's statement?
Ans	χ 1. It restricts the engine to have mechanical efficiency lesser than unity.
	2. Perpetual motion machine of the 2nd kind is impossible.
	imes 3. Some amount of heat taken from a source must be rejected to a higher temperature sink.
	X 4. A heat engine must exchange heat from a single heat reservoir.
Q.90	Which of the following point angles of a twist drill is used for general purpose work?
Ans	✓ 1. 118°
	★ 2. 138°
	★ 3. 108°
	★ 4. 128°
Q.91	The evaporation of feedwater at 100°C into dry and saturated steam at 100°C at atmospheric
Δns	pressure is known as
	× 2 actual evaporation
	× 3 holler horsepower
Q.92	A Kaplan turbine has an outside diameter of runner and hub diameter as 4 m and 2 m, respectively. If the velocity of flow at inlet is 8 m/s, then what will be the discharge passing through the turbine?
Ans	\times ¹ .6.8 m ³ /s
	× ^{2.} 7.536 m ³ /s
	✓ ^{3.} 75.36 m ³ /s
	\times ⁴ .68 m ³ /s
Q.93	Which of the following is the correct expression for pressure intensity?
Ans	\times ¹ . P = 1.5 ρ gh
	\times ² . P = 0.5 ρ gh
	\times ^{3.} P = 2 ρ gh
	\checkmark ⁴ . P = ρ gh





Q.94	A closed system undergoes a process in which the work done by the system is 100 J and the internal energy decreases by 50 J. According to the first law of thermodynamics, what is the amount of heat transferred into or out of the system?
Ans	X 1. −50 J
	🛹 2. 50 J
	🗙 3. –150 J
	🗙 4. 150 J
Q.95	Which of the following statements about equilibrium is correct?
Ans	X 1. Summation of all the forces acting in all the possible directions must be non-zero.
	X 2. Summation of all the forces acting in one direction must not be zero.
	3. Summation of all the forces acting in all the possible directions must be zero.
	\mathbf{X} 4. Summation of all the forces acting in one direction must be zero.
Q.96	What is the main function of the condenser in a Rankine cycle power plant?
Ans	1. To condense the steam till it transforms into saturated liquid
	imes 2. To increase the temperature of the cooling water
	imes 3. To decrease the efficiency of the cycle
	X 4. To increase the pressure of the steam
Q.97	A circular opening, 3 m diameter, in a vertical side of a tank is closed by a disc of 3 m diameter which can rotate about a horizontal diameter and depth of centre of gravity from free surface is 4 m. What will be the total pressure on the disc?
Ans	✓ 1. 277.4 kN
	× 2. 175.7 kN
	🗙 3. 100 kN
	★ 4. 234.89 kN
Q.98	The SI unit of specific heat is:
Ans	X 1. Jkg/K
	2. J/kg.K
	X 3. JK/kg
	🗙 4. J/kg
Q.99	Which of the following turbine has 50% degree of reaction?
Ans	X 1. Curtis turbine
	2. Parson's turbine
	X 3. Hero's Turbine
	X 4. Rateau turbine
Q.100	If 5 litres of a certain oil weighs 30 N, then what will be the specific weight of that oil?
Ans	× 1.300 N/m ³
	× 2. 3000 N/m ³
	× 3. 600 N/m ³
	4. 6000 N/m ³