



## SURA COLLEGE OF COMPETITION

**CHENNAI** 

Answers

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SSC Multi Tasking Staff (Non-Technical) & Havaldar (CBIC & CBN)

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## SURA COLLEGE OF COMPETITION

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## CONTENTS

	<u>Page</u>
Scheme of Examination	iv
SSC MTS (Non-Technical) and Havaldar Exam. Q.Paper - 2022	
SSC Multi-Tasking (Non-Technical) Staff Exam. Q.Paper - 2021	1 - 12
SSC Multi-Tasking (Non-Technical) Staff Exam. Q.Paper - 2019	
SSC Multi-Tasking (Non-Technical) Staff Exam. Q.Paper - 2017	24 - 37
SSC Multi-Tasking (Non-Technical) Staff Exam. Q.Paper - 2016	
SESSION - I	
Numerical and Mathematical Ability	1 - 80
Reasoning - General Intelligence	1 - 128
SESSION - II	
General Awareness	1 - 112
English Language	1 - 80
<ul><li>Current Events</li></ul>	
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## **Government of India - Staff Selection Commission**

Multi-Tasking (Non-Technical) Staff, and Havaldar (CBIC & CBN) Examination

Age	:	The age limits for the posts as per the Recruitment Rules of various User Departments are:
		<b>18-25 years</b> for MTS and Havaldar in CBN (Department of Revenue).
		<b>18-27 years</b> for Havaldar in CBIC (Department of Revenue) and few posts of MTS.
Educational Qualification	:	The candidates must have passed Matriculation Examination or equivalent from a recognized Board.
Reservation	:	Reservation is applicable for SC, ST, OBC, Ex-S, PH as per Govt. Instructions.
SCHEME OF EXAMINA	TIC	ON :

### SCHEME OF EXAMINATION

#### **Computer Based Examination:**

Part	Subject	Number of Questions/ Maximum Marks	Time Duration (For all four Parts)		
Session-I			45 Minutes (60 Minutes for		
Ι	Numerical and Mathematical Ability	20/60	candidates eligible for scribes		
II	Reasoning Ability and Problem Solving	20/60			
Session-II		P	45 Minutes (60 Minutes for		
Ι	General Awareness	25/75	candidates eligible for scribes		
II	English Language and Comprehension	25/75			

Computer Based Examination will consist of Objective Type, Multiple choice questions. The questions will be set in English, Hindi, and in 13 regional languages (as per details in Annexure-XV) for Session-I and the General Awareness Section of Session-II.

There will be no negative marking in Session-I. In Session-II, there will be negative marking of one mark for each wrong answer. Candidates are, therefore, advised to keep this in mind while answering the questions.

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SSC Multi-Tasking Staff (Non-Technical) and Havaldar Exam.

**Marks** : 100

**Duration**: 90 minutes

Solved Original Question Paper – 2022

Held on : 6.07.2022

## PART I : GENERAL ENGLISH

(7)

1. Select the option that corrects the misspelt words in the given sentence :

#### I can't pitcure him fighting

- A) I can't picture him fighting or picking on anyone.
- B) I can't pitcure him fiting or piking on anyone.
- **C)** I can't pitcure him fighting or pekking on anyone.
- **D)** I can't pictre him fighting or pickning on anyone.
  - Ans : (A)
- 2. Select the most appropriate option to fill in the blank.

The boys were tired, but not too tired to examine the little hut \_\_\_\_\_.

A)	weirdly	B)	weakly	
C)	thoroughly	D)	sluggishly	Ans : (C)
	_			

3. Select the most appropriate option to fill in the blank.

It is better to be prompt and organised than to be

••••	• • • • • • •		
A)	provident	B)	meaningless
C)	efficient	D)	reckless

Ans : (D)

4. Select the option that will improve the underlined part of the sentence. In case no improvement is needed, select 'No improvement required'.

Why doesn't you try calling your family again?

- A) you don't tries
- B) doesn't you tried
- C) don't you try
- D) No improvement required Ans : (C)
- 5. Parts of the following sentence have been given as options. One of them may contain an error. Select the part that contains the error from the given options. If you don't find any error, mark 'No error' as your answer.

The telecom growth story is a important component of the broader story of India.

- A) No error
- **B)** The telecom growth story is
- **C)** the broader story of India
- D) a important component of Ans : (D)
- 6. Select the most appropriate ANTONYM of the underlined word. Their reverence reaches its zenith here at the

birthplace of the country's founder. A) crest B) Nadir

C) horizon D) pinnacle

Ans : (B)

Select the option that will improve the underlined part of the given sentence. In case no improvement is needed, select 'No improvement required'.

His mouth left open as he realise the truth.

- A) fell open as he perceived
- **B)** felt opened as he perceive
- **C)** was felt opened as he realise
- D) No improvement required Ans : (A)
- 8. The following sentence has been divided into parts. One of them may contain an error. Select the part that contains the error from the given options. If you don't find any error, mark 'No error' as your answer.

Solar storms can / impact Earth-dwellers / in significantly ways.

- A) Solar storms can B) impact Earth-dwellers
- C) No error D) in significantly ways
  - Ans : (D)
- 9. Select the option that will improve the underlined part of the given sentence. In case no improvement is needed, select 'No improvement required'. I noticed some strawberries grown in which of the
  - gardens.A) growing in which of
  - **B)** grows upon one of
  - **C)** No improvement required
  - D) growing in one of Ans : (D)
- 10. Select the most appropriate synonym of the given

#### Random

word.

11.

A) Definite
B) Continuous
C) Systematic
D) Chance
Ans :

C) Systematic D) Chance Ans : (D) Select the option that can be used as a one-word

substitute for the given group of words.

Deliberately and maliciously set something (buildings usually) on fire

- A) AgrarianB) ArsonC) AmbushD) ApexAns : (B)
- 12. Select the option that will improve the underlined part of the sentence. In case no improvement is needed, select 'No improvement required'.

He stood  $\underline{up}\ from\ their}$  chair to signal the end of the meeting.

- A) up from his
- **B)** upon of his

**D)** below in their

C) No improvement required

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#### SURA'S • SSC Multi-Tasking Staff (Non-Technical) and Havaldar Exam - Solved Original Question Paper - 2022

5. Which countries hosted the matches played in the	Explanation Ans : (D)
2021 ICC Men's T20 World Cup?	Jagananna Smart Township Scheme has been launched by
A) Egypt and Ethiopia	the Government of Andhra Pradesh. The Chief Minister
<b>B)</b> India and Bangladesh	of the State Y.S. Jagan Mohan Reddy started this scheme.
C) United Arab Emirates and Oman	Through this scheme, residential plots will be allotted to
<b>D)</b> Bangladesh and Sri Lanka	middle-income group families at affordable prices.
xplanation Ans : (C)	97. As of April 2022, what is the capital of India's
he 2021 ICC Men's T20 world cup was the seventh ICC	neighbouring country Bhutan?
ien's T20 World Cup Tournament, with the matches	A) Thimphu B) Dhaka
Dayed in the United Arab Emirates and Oman from	C) Beijing D) Paro
17" October to 14" November 2021. The final match was	Explanation Ans : (A)
Diayed between New Zealand and Australia. Australia	Bhutan is situated to the north of India. Bhutan shares
70n the match by 8 wickets.	a border with the Indian States of Arunachal Pradesh,
94. Which of the following rivers of India drains into	Sikkim, Assam and West Bengal. It is the smallest
the Bay of Bengal?	neighboring country of India. The capital of Bhutan is
A) Tapi	Thimphu.
B) Godavari	98. Which of the following glands/organs in human body
C) Narmada	secretes bile juice?
D) Mahi	A) Pancreas B) Liver
xplanation Ans : (B)	C) Pituitary D) Pineal
he Indian rivers that flow into the Bay of Bengal include	Explanation Ans : (B)
rishna, Godavari, Kaveri, Ganga and Brahmaputra.	Bile juice is secreted from the liver and stored in the
he Indian rivers that flow into the Arabian sea include	call bladder It's main function is in direction and
api, Narmadha, Sindhu, Purna and Sabarmathi.	emulsification of fats. Bile juice helps in the digestion of
5. Who among the following Indian dancers was the	fats due to presence of Bile salts. They also help us to
first woman in Indian history to be nominated as a	absorb fat soluble vitamins like A, D, E and K.
member of the Rajya Sabha?	00 Bonaly is a Hindy fostival colobrated to worship
A) Rukmini Devi Arundale	Goddess Mahakali in which of the following states?
B) Madhuri Dixit	A) Telangana B) Assam
C) Mallika Sarabhai	C) Kerala D) Madhya Pradesh
D) Saroj Khan	$\mathbf{F}_{\mathbf{v}}$
xplanation Ans : (A)	Penalu is a traditional falk fastival colobrated every year
Rukmani Devi Arundale was an Indian theosophist,	in the Tolugu month of Ashadham (Juno/July) in the twin
dancer and choreographer of the Indian Classical	cities of Hyderabad and Secunderabad and some other
dance form of Bharatanatyam and an activist for	parts of Telangana State Bonalu is a Hindu festival where
animal welfare. She was the first woman in Indian	Goddess Mahakali is worshipped
history to be nominated as a member of the Rajya	
Sabha, the upper house of the parliament of India in	100. The steep rocky coast rising almost vertically above
April 1952 and re-nominated in 1956.	A) see cause <b>B</b> ) see cliff
▶ In January 1936, Rukmani and her husband	A) sea caves B) sea Cilli () son arches D) or how lake
established an academy of dance and music called	<b>Explanation</b> $D$ Sea atometer $D$ ox-DOW lake
Kalakshetra at Adyar near Chennai.	The steen realize exact rising almost vertically shares
6. The Jagananna Smart Township scheme was	sea water is called sea cliff
launched by which state government of India?	Mhon a goa ways atrikes the surface of reak facing the
A) Madhya Pradesh	vitient a sea wave suffices the sufface of rock facing the
B) Punjab	it yory charp and stoop towards the side of the sec
C) Odisha	These landforms are referred as see cliffs
D) Andhra Pradesh	These failutorins are referred as sea chills.
	NAXA:
The second se	oldoldo
(d)(d)(d)	වරවර්ව

## MATHEMATICS

- I. Highest Common Factor (H.C.F) And Least Common Multiple (L.C.M)
- 2. Square Root
- 3. Cube Root & Surds
- 4. Rationalization of Surds
- 5. Fractions and Decimal Numbers
- 6. Ratio and Proportion
- 7. Average
- 8. Time and Work
- 9. Direct Proportion
- **10.** Inverse Proportion
- II. Percentage
- 12. Profit and Loss, Calculation of Sales Tax
- 13. Discount
- 14. Simple Interest, Compound Interest
- 15. Algebra
- 16. Equations
- 17. Mensuration
  - $\star$  Volume and Surface Area of Cube and Cuboid
  - $\star$  Volume and Surface Area of Cylinder and Cone
  - $\star$  Volume and Surface Area of Sphere and Hemisphere
  - $\star$  Perimeter and Area
  - $\star$  Area of Shaded Portion
- 18. Speed, Distance and Time
- 19. Geometry
- 20. Applications of Pythagoras Theorem
- 21. Statistics
- 22. Number Series
- 23. Heights and Distance
- 24. Base Numeral System
- 25. Trigonometry
- 26. Problems on Numbers
- 27. Problems on Age

## **MATHEMATICS**



## HIGHEST COMMON FACTOR (H.C.F) AND LEAST COMMON MULTIPLE (L.C.M)

Examples         1. Find the H.C.F of 189, 297 and 405.         Solution :         3       189, 297, 405         3       63, 99, 135         3       21, 33, 45         7, 11, 15         3 × 3 × 3 = 27         Exercise         Solution :         0, 56       D) 280         Solution :         0, 56       D) 280         Solution :       Ans : (A)         960 and 432.         A) 960       B) 432         C) 4d 980.         7       504 and 980.         7       504, 980         4       72, 140         18, 35       Ans : (A)         960 and 432         8       960, 432         (20, 9 $\therefore$ H.C.F = 28         2. Find the L.C.M of 26 and 91.         A) 91       B) 182         C) 52       D) 78         Solution :       Ans : (B)         105 tand 120	<ul> <li>The H.C.F of two or more numbers is the biggest factor of the two numbers.</li> <li>The L.C.M of two or more numbers is the smallest number which can be completely divided by any of the given number.</li> <li>In general given two numbers p and q with L.C.M and H.C.F, L.C.M × H.C.F = p × q.</li> <li>If the GCD of any two numbers is 1 they are said to be relatively prime numbers. GCD or GCF or HCF are same.</li> <li>Formulae to determine L.C.M and H.C.F of fractions</li> <li>L.C.M of fractions = L.C.M of the numerator numbers</li> <li>H.C.F of the denominator numbers</li> <li>H.C.F of fractions = H.C.F of the numerator numbers</li> </ul>				
1. Find the H.C.F of 189, 297 and 405.         Solution :         3       189, 297, 405         3       63, 99, 135         3       21, 33, 45         7, 11, 15 $3 \times 3 \times 3 = 27$ <b>Exercise</b> 1. Find the H.C.F of 504 and 980.         A) 28       B) 504         C) 56       D) 280         Solution :         1. Find the H.C.F of 504 and 980.         A) 28       B) 504         C) 56       D) 280         Solution :         1. Find the H.C.F of 504 and 980.         A) 28       B) 504         C) 56       D) 280         Ans : (A) 960         Solution :         Ans : (A) 960         B) 432       C) 48         D) None of these         Solution :         M. C.F = 28         2. Find the L.C.M of 26 and 91.         A) 91       B) 182         C) 52       D) 78         Solution :       Ans : (B)         Solution :       Ans : (B)		Examples			
Solution : 3 $189, 297, 405$ 3 $63, 99, 135$ 3 $21, 33, 45$ 7, 11, 15 $3 \times 3 \times 3 = 27$ 1. Find the H.C.F of 504 and 980. A) 28 B) 504 C) 56 D) 280 Solution : 5 $125, 500, 625$ 5 $5, 20, 25$ 5 $1, 4, 5$ 4 $1, 4, 1$ 1, 1, 1 L.C.M is $5 \times 5 \times 5 \times 5 \times 4 = 2500$ <b>Exercise</b> 3. Find the H.C.F of 960 and 432. A) 960 B) 432 C) 56 D) 280 Solution : 504 and 980. 7 $504, 980$ 4 $72, 140$ 18, 35 7 $\times 4 = 28$ $\therefore$ H.C.F = 28 2. Find the L.C.M of 26 and 91. A) 91 B) 182 C) 52 D) 78 Solution : Solution : Ans : (B) Solution : Ans : (B)	1. Find the H.C.F of 189, 297 and 40!	2. Find the L.C.M of 125, 500 and 625.			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Solution :	Solution : $151125500625$			
3       63, 99, 135         3       21, 33, 45         7, 11, 15 $3 \times 3 \times 3 = 27$ 1. Find the H.C.F of 504 and 980. $1, 4, 5$ A) 28       B) 504         C) 56       D) 280         Solution :       Ans : (A)         504 and 980. $\frac{7}{72, 140}$ 18, 35 $7 \times 4 = 28$ $\therefore$ H.C.F = 28         2. Find the LC.M of 26 and 91.         A) 91       B) 182         C) 52       D) 78         Solution :       Ans : (B)	3 189, 297, 405	5 25 100 125			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	3 <u>63, 99, 135</u>	5 5 20 25			
7, 11, 15 $3 \times 3 \times 3 = 27$ <b>1.</b> Find the H.C.F of 504 and 980.         A) 28       B) 504         C) 56       D) 280         Solution :       Ans : (A)         504 and 980. $7 \times 4 = 28$ $\therefore$ H.C.F = 28         2. Find the L.C.M of 26 and 91.         A) 91       B) 182         C) 52       D) 78         Solution :       Ans : (B)	3 21, 33, 45				
$3 \times 3 \times 3 = 27$ <b>Exercise 1.</b> Find the H.C.F of 504 and 980. A) 28 B) 504 C) 56 D) 280 <b>Exercise 3.</b> Find the H.C.F of 960 and 432. A) 960 B) 432 C) 48 D) None of these <b>Solution</b> : <b>5.04</b> and 980. 7 $\frac{504}{18}$ , 35 <b>5.04</b> and 980. 7 $\frac{504}{18}$ , 35 <b>5.05 Ans</b> : (A) <b>5.06</b> and 980. 7 $\frac{504}{18}$ , 35 <b>5.07 Ans</b> : (A) <b>5.08 Ans</b> : (A) <b>5.09 Ans</b> : (A) <b>5.09 Ans</b> : (A) <b>5.09 Ans</b> : (A) <b>5.01 Ans</b> : (A) <b>5.01 Ans</b> : (A) <b>5.02 Ans</b> : (A) <b>5.02 Ans</b> : (A) <b>5.03 Ans</b> : (A) <b>5.04 Ans</b> : (A) <b>5.04 Ans</b> : (A) <b>5.05 Ans</b> : (A) <b>5.05 Ans</b> : (A) <b>5.05 Ans</b> : (A) <b>5.06 Ans</b> : (A) <b>5.07 Ans</b> : (B) <b>5.01 </b>	7, 11, 15				
1 $V = 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1$	$3 \times 3 \times 3 = 27$				
Exercise         1. Find the H.C.F of 504 and 980.         A) 28       B) 504         C) 56       D) 280         Solution :       Ans : (A) $504$ and 980.         7 $504$ , 980         4 $72$ , 140         18, 35 $7 \times 4 = 28$ $\therefore$ H.C.F = 28         2. Find the L.C.M of 26 and 91.         A) 91       B) 182         C) 52       D) 78         Solution :       Ans : (B)		L.C.M is 5×5×5×	$\times 4 = 2500$		
1. Find the H.C.F of 504 and 980.       A) 28       B) 504         A) 28       B) 504         C) 56       D) 280         Solution :       Ans : (A) $504$ and 980.       Ans : (A) $7 = 504, 980$ Ans : (A) $4 = 72, 140$ B) 600, 432 $4 = 72, 140$ B) 600, 432 $4 = 72, 140$ B) 182 $7 \times 4 = 28$ C) 52 $\therefore$ H.C.F = 28       H.C.F = 28         2. Find the L.C.M of 26 and 91.       Ans : (B)         A) 91       B) 182         C) 52       D) 78         Solution :       Ans : (B)         Solution :       Ans : (B)		Exercise			
A) 28B) 504A) 900B) 432C) 56D) 280Ans : (A)Ans : (A)Solution :Ans : (A) $360$ B) 432C) 48D) None of theseSolution :Ans : (A) $7 4 = 28$ $60, 27$ $\therefore$ H.C.F = 28 $60, 27$ 2. Find the L.C.M of 26 and 91. $60, 27$ A) 91B) 182C) 52D) 78Solution :Ans : (B)Solution :Ans : (B)					
C) 56D) 280C) 48D) None of theseSolution :Ans : (A) $504 \text{ and } 980.$ $960 \text{ and } 432$ 7 $504, 980$ $960, 432$ $960, 432$ 4 $72, 140$ $18, 35$ $2120, 54$ 7 × 4 = 28 $120, 54$ $60, 27$ $8 \times 2 \times 3 = 48$ $\therefore$ H.C.F = 28 $20, 9$ $\therefore$ H.C.F = 482. Find the L.C.M of 26 and 91.Ans : (B) $Ans : (B)$ A) 91B) 182 $D)$ None of theseC) 52D) 78Ans : (B)	1. Find the H.C.F of 504 and 980.	3. Find the H.C.F of 960 and 432.			
Solution :       Ans : (A)       Solution :       Ans : (C) $504$ and 980.       960 and 432       960 and 432 $7   \frac{504, 980}{18, 35}$ $2   \frac{120, 54}{18, 35}$ $8 \times 2 \times 3 = 48$ $7 \times 4 = 28$ $2   \frac{60, 27}{20, 9} : H.C.F = 48$ $8 \times 2 \times 3 = 48$ $\therefore$ H.C.F = 28 $2   0, 9 : H.C.F = 48$ $A = 15, 840$ $A = 15, 120$ $B = 15, 840$ $B = 15, 840$ $A = 28$ $B = 182$ $B = 15, 840$ $A = 28$ $B = 182$ $B = 15, 840$ $A = 28$ $B = 182$ $B = 15, 840$ $B = 182$ $B = 182$ $B = 15, 840$ $C = 52$ $D = 78$ $A = 120$ Solution : $A = 120$ $A = 120$	1. Find the H.C.F of 504 and 980.           A) 28         B) 504	3. Find the H.C.F of 960 and 432.           A) 960         B) 432			
$504 \text{ and } 980.$ 960 and $432$ $7   504, 980$ $8   960, 432$ $4   72, 140$ $120, 54$ $18, 35$ $60, 27$ $7 \times 4 = 28$ $60, 27$ $20, 9$ $\therefore$ H.C.F = 48 $\therefore$ H.C.F = 28 $4.$ Find the H.C.F and L.C.M of 105 and 120. $A) 91$ $B) 182$ $C) 52$ $D) 78$ Solution :       Ans : (B) $105$ and 120	1. Find the H.C.F of 504 and 980.         A) 28       B) 504         C) 56       D) 280	3. Find the H.C.F of 960 and 432.           A) 960         B) 432           C) 48         D) None of the	e		
$72, 140$ $18, 35$ $7 \times 4 = 28$ $\therefore$ H.C.F = 28 <b>2.</b> Find the L.C.M of 26 and 91.         A) 91       B) 182         C) 52       D) 78         Solution :       Ans : (B)         105 and 120	1. Find the H.C.F of 504 and 980.         A) 28       B) 504         C) 56       D) 280         Solution :         504 and 000	3. Find the H.C.F of 960 and 432.         A) 960       B) 432         C) 48       D) None of the         Solution :       000 and 432	e Ans : (C)		
$18, 35$ $7 \times 4 = 28$ $\therefore$ H.C.F = 28         2. Find the L.C.M of 26 and 91.         A) 91       B) 182         C) 52       D) 78         Solution :       Ans : (B)	<ol> <li>Find the H.C.F of 504 and 980.         <ul> <li>A) 28</li> <li>B) 504</li> <li>C) 56</li> <li>D) 280</li> </ul> </li> <li>Solution :         <ul> <li>504 and 980.</li> <li>71504 980</li> </ul> </li> </ol>	3. Find the H.C.F of 960 and 432.         A) 960       B) 432         C) 48       D) None of the         Solution :       960 and 432         8 1960 432	e Ans : (C)		
$7 \times 4 = 28$ $20, 9 \therefore H.C.F = 48$ $4. Find the H.C.F and L.C.M of 105 and 120.         A) 15, 120 B) 15, 840 C) 52 D) 78         Solution :       Ans : (B)         105 and 120 $	<ol> <li>Find the H.C.F of 504 and 980.         <ul> <li>A) 28</li> <li>B) 504</li> <li>C) 56</li> <li>D) 280</li> </ul> </li> <li>Solution :         <ul> <li>504 and 980.</li> <li>7 504, 980</li> <li>7 72, 140</li> </ul> </li> </ol>	3. Find the H.C.F of 960 and 432.         A) 960       B) 432         C) 48       D) None of the         Solution :       960 and 432         8       960, 432         2       120	e Ans : (C)		
<ul> <li>∴ H.C.F = 28</li> <li>2. Find the L.C.M of 26 and 91.</li> <li>A) 91</li> <li>B) 182</li> <li>C) 52</li> <li>D) 78</li> <li>Solution :</li> <li>Ans : (B)</li> </ul>	1. Find the H.C.F of 504 and 980.         A) 28       B) 504         C) 56       D) 280         Solution :         504 and 980.         7       504, 980         4       72, 140         18, 35	3. Find the H.C.F of 960 and 432.         A) 960       B) 432         C) 48       D) None of the         Solution :         960 and 432         8       960, 432         2       120, 54         3       60, 27       8 × 2 × 3 = 48	e Ans : (C)		
2. Find the L.C.M of 26 and 91.       A) 15, 120       B) 15, 840         A) 91       B) 182       C) 56, 120       D) 120, 840         C) 52       D) 78       Solution :       Ans : (B)         Solution :       Ans : (B)       105 and 120	1. Find the H.C.F of 504 and 980.         A) 28       B) 504         C) 56       D) 280         Solution : $504$ and 980.         7 $504$ , 980         4 $72$ , 140         18, 35         7 × 4 = 28	<b>3.</b> Find the H.C.F of 960 and 432. A) 960 <b>A)</b> 960 <b>B)</b> 432 <b>C)</b> 48 <b>D)</b> None of the Solution : 960 and 432 $960, 432$ $2$ $120, 54$ $3$ $60, 27$ $8 \times 2 \times 3 = 48$ $\therefore$ H.C.F = 48	e Ans : (C)		
A) 91     B) 182     C) 56, 120     D) 120, 840       C) 52     D) 78     Solution :     Ans : (B)       Solution :     Ans : (B)     105 and 120	1. Find the H.C.F of 504 and 980. A) 28 B) 504 C) 56 D) 280 Solution : 504 and 980. 7 504, 980 4 72, 140 18, 35 7 × 4 = 28 ∴ H.C.F = 28	<b>3.</b> Find the H.C.F of 960 and 432. A) 960 C) 48 <b>B)</b> 432 D) None of the <b>Ans : (A)Solution :</b> 960 and 432 $8   960, 432  $ $2   120, 54  $ $3   60, 27  $ $8 \times 2 \times 3 = 48  $ $20, 9 : H.C.F = 48  $ <b>4.</b> Find the H C F and L C M of 105 and 12 $105  $	e Ans : (C)		
C) 52         D) 78         Solution :         Ans : (B)           Solution :         Ans : (B)         105 and 120         Ans : (B)	1. Find the H.C.F of 504 and 980. A) 28 B) 504 C) 56 D) 280 Solution : 504  and  980. 7 504, 980 4 72, 140 18, 35 7 × 4 = 28 ∴ H.C.F = 28 2. Find the L.C.M of 26 and 91.	<b>3.</b> Find the H.C.F of 960 and 432. A) 960 C) 48 <b>B)</b> 432 D) None of the Solution : 960 and 432 $8$ $960, 432$ $2$ $120, 54$ $3$ $60, 27$ $20, 9$ <b>B</b> ) 432 D) None of the Solution : $960$ and 432 $8$ $960, 432$ $2$ $120, 54$ $3$ $60, 27$ $8 \times 2 \times 3 = 48$ $20, 9$ $\therefore$ H.C.F = 48 <b>4.</b> Find the H.C.F and L.C.M of 105 and 12 A) 15, 120 <b>B)</b> 15, 840	e Ans : (C) ).		
Alls: (b) 105 and 120	1. Find the H.C.F of 504 and 980.         A) 28       B) 504         C) 56       D) 280         Solution : $504$ and 980.         7 $504$ , 980         4 $72$ , 140         18, 35         7 × 4 = 28 $\therefore$ H.C.F = 28         2. Find the L.C.M of 26 and 91.         A) 91       B) 182	<b>3.</b> Find the H.C.F of 960 and 432. A) 960 C) 48 <b>B)</b> 432 D) None of the Solution : 960 and 432 $8   960, 432   120, 54   120, 54   120, 54   120, 54   120, 54   120, 9 : H.C.F = 48   15, 120   15, 120   15, 840   15, 120   15, 840   15, 120   120, 840   120,$	e Ans : (C) ).		
$26 \text{ and } 91$ $106 - 7 \times 16$ $120 - 8 \times 16$	1. Find the H.C.F of 504 and 980. A) 28 B) 504 C) 56 D) 280 Solution : 504  and  980. 7 504, 980 4 72, 140 18, 35 7 × 4 = 28 $\therefore$ H.C.F = 28 2. Find the L.C.M of 26 and 91. A) 91 B) 182 C) 52 D) 78	Ans: (A)3. Find the H.C.F of 960 and 432. A) 960 C) 48B) 432 C) 48Ans: (A)Solution : 960 and 432 $2$ 960, 432 $120, 54$ 2120, 54 $3, 60, 27$ $20, 9$ $8 \times 2 \times 3 = 48$ $\therefore$ H.C.F = 484. Find the H.C.F and L.C.M of 105 and 12 A) 15, 120 C) 56, 120B) 15, 840 D) 120, 840Amet (B) $156 + 120$	e Ans : (C) ). Ans : (B)		
$105 = 7 \times 15$ 105 = 7 × 15 120 = 8 × 15 H C F of 105 and 120 is 15 and L C M is	1. Find the H.C.F of 504 and 980. A) 28 B) 504 C) 56 D) 280 Solution : 504  and  980. 7 504, 980 4 72, 140 18, 35 7 $\times 4 = 28$ $\therefore$ H.C.F = 28 2. Find the L.C.M of 26 and 91. A) 91 B) 182 C) 52 D) 78 Solution : 26 and 91	Ans : (A)3. Find the H.C.F of 960 and 432. A) 960B) 432 B) 432 C) 48Ans : (A)Solution : 960 and 432 $8$ 960, 432 $2$ 2120, 54 $60, 27$ $8 \times 2 \times 3 = 48$ $20, 9$ 360, 27 $60, 27$ $8 \times 2 \times 3 = 48$ $20, 9$ 4.Find the H.C.F and L.C.M of 105 and 12 A) 15, 120 C) 56, 120B) 15, 840 D) 120, 840Ans : (B)105 and 120 $105 = 7.7 \times 15$ 120 = $8 \times 15$	e Ans : (C) ). Ans : (B)		
$2 \ 2, 7$ $7 \times 8 \times 15 = 840$	1. Find the H.C.F of 504 and 980. A) 28 B) 504 C) 56 D) 280 Solution : 504 and 980. 7 504, 980 4 72, 140 18, 35 7 × 4 = 28 ∴ H.C.F = 28 2. Find the L.C.M of 26 and 91. A) 91 B) 182 C) 52 D) 78 Solution : 26 and 91. [13] 26, 91	Ans : (A)3. Find the H.C.F of 960 and 432. A) 960 C) 48B) 432 C) 48Ans : (A)Solution : 960 and 432 $8   960, 432  $ $2   120, 54  $ $3   60, 27  $ $8 \times 2 \times 3 = 48  $ $20, 9 : H.C.F = 48  $ Ans : (B)Ans : (B)Ans : 105 and 120   105 = 7 $\times$ 15   $105 and 120  $ $105 = 7 \times 15  $ $120 = 8 \times 15  $ H C.F of 105 and 120 is 15 and I.C.M is	e Ans : (C) ). Ans : (B)		
7 1, 7 5 1 105, 120	1. Find the H.C.F of 504 and 980. A) 28 B) 504 C) 56 D) 280 Solution : 504  and  980. 7 504, 980 4 72, 140 18, 35 7 × 4 = 28 ∴ H.C.F = 28 2. Find the L.C.M of 26 and 91. A) 91 B) 182 C) 52 D) 78 Solution : 26 and 91. 13 26, 91 2 2, 7	Ans : (A)3. Find the H.C.F of 960 and 432. A) 960 B) 432 C) 48 B) None of the Bolution : 960 and 432 $\frac{960, 432}{2}$ $\frac{120, 54}{3}$ $\frac{60, 27}{2}$ $\frac{8 \times 2 \times 3 = 48}{20, 9}$ $\therefore$ H.C.F = 48 H.C.F = 48Ans : (B)Ans : (B)Ans : 105 and 120 105 = 7 × 15 H.C.F of 105 and 120 is 15 and L.C.M is $7 \times 8 \times 15 = 840$	e Ans : (C) ). Ans : (B)		
1, 1 $3$ $21, 24$ HCF = 5 × 3 = 15	1. Find the H.C.F of 504 and 980. A) 28 B) 504 C) 56 D) 280 Solution : 504 and 980. 7 $504$ , 980 4 $72$ , 140 18, 35 7 $\times 4 = 28$ $\therefore$ H.C.F = 28 2. Find the L.C.M of 26 and 91. A) 91 B) 182 C) 52 D) 78 Solution : 26 and 91. 13 26, 91 2 $2, 7$ 7 $1, 7$	Ans : (A)3. Find the H.C.F of 960 and 432. A) 960 C) 48 B) 432 C) 48 D) None of the Solution : 960 and 432 $\frac{960, 432}{2}$ $\frac{20, 54}{2}$ $\frac{20, 54}{2}$ $\frac{20, 9}{2}$ H.C.F = 48 A. Find the H.C.F and L.C.M of 105 and 12 A) 15, 120 B) 15, 840 C) 56, 120 D) 120, 840 Solution : 105 and 120 105 = 7 × 15 H.C.F of 105 and 120 is 15 and L.C.M is $7 × 8 × 15 = 840$ $5   105, 120$	e Ans : (C) ). Ans : (B)		
$\therefore \text{ L.C.M} = 13 \times 2 \times 7 = 182$	1. Find the H.C.F of 504 and 980. A) 28 B) 504 C) 56 D) 280 Solution : 504  and  980. 7 504, 980 4 72, 140 18, 35 7 × 4 = 28 $\therefore$ H.C.F = 28 2. Find the L.C.M of 26 and 91. A) 91 B) 182 C) 52 D) 78 Solution : 26 and 91. 13 26, 91 2 2, 7 7 1, 7 1, 1	Ans : (A)3. Find the H.C.F of 960 and 432. A) 960 B) 432 C) 48 B) None of the Solution : 960 and 432 $\frac{960, 432}{2}$ $\frac{120, 54}{3}$ $\frac{60, 27}{2}$ $\frac{8 \times 2 \times 3 = 48}{20, 9}$ $\therefore$ H.C.F = 48 A. Find the H.C.F and L.C.M of 105 and 12 A) 15, 120 B) 15, 840 C) 56, 120 D) 120, 840 Solution : 105 and 120 105 = 7 × 15 H.C.F of 105 and 120 is 15 and L.C.M is $7 \times 8 \times 15 = 840$ $5 \frac{105, 120}{21, 24}$ HCF = 5 × 3 = 15	e Ans : (C) ). Ans : (B)		

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#### SURA'S ★◆ MATHEMATICS

Thus, we have  $\frac{1}{3}\pi r^2h=4928$ 

$$\Rightarrow \frac{1}{3} \times \frac{22}{7} \times r^2 \times 24 = 4928$$
$$\Rightarrow r^2 = \frac{4928 \times 3 \times 7}{22 \times 24} = 196.$$

Thus, the base radius of the cone,  $r = \sqrt{196} = 14$  cm.

10. If the volume of a sphere is  $7241\frac{1}{7}$  cu.cm, then find its radius. (Take  $\pi = \frac{22}{7}$ )

Solution:



Let  $\boldsymbol{r}$  and  $\boldsymbol{V}$  be the radius and volume of the sphere respectively.

Given that  $V = 7241\frac{1}{7}$  cu.cm  $\Rightarrow \frac{4}{3}\pi r^{3} = \frac{50688}{7}$   $\Rightarrow \frac{4}{3} \times \frac{22}{7} \times r^{3} = \frac{50688}{7}$   $r^{3} = \frac{50688}{7} \times \frac{3 \times 7}{4 \times 22}$ 

 $= 1728 = 4^3 \times 3^3$ 

Thus, the radius of the sphere, r = 12 cm.

11. The radii of two right circular cylinders are in the ratio 2 : 3. Find the ratio of their volumes if their heights are in the ratio 5 : 3.

Solution:

Ratio of radii  $r_1: r_2=2:3$ 

Ratio of heights  $h_1: h_2 = 5:3$ 

Ratio of volumes =  $\pi r_1^2 h_1 : \pi r_2^2 h_2$ 

$$= 2^{2} \times 5 : 3^{2} \times 3 = 4 \times 5 : 9 \times 3$$
$$V_{1} : V_{2} = 20 : 27$$

12. The volume of a cone with circular base is  $216\pi$  cu. cm. If the base radius is 9 cm, then find the height of the cone.

Solution:

Volume of the cone =  $216\pi$  cu.cm, r = 9 cm

$$\frac{1}{3} \times \pi \times \overset{\mathfrak{Z}}{\cancel{9}} \times \cancel{9} \times h = \overset{\mathfrak{Z}}{\cancel{216}} \pi \quad \mathbf{h} = 8 \mathrm{cm}.$$

13. The volume of a hemisphere is  $1152\pi\ cu.cm.$  Find its curved surface area.

Solution:

Vol. of a hemisphere = $1152\pi$ cu.cm.	3 576
⊿ 576	3 192
$\frac{2}{\pi}\pi r^3 = 1152\pi = 3 \times 3 \times 4 \times 4 \times 4$	464
3	416
$r^{3} = 3 \times 3 \times 3 \times 4 \times 4 \times 4 \Rightarrow r = 3 \times 4 = 12$	4
C. S. A. = $2\pi r^2 = 2 \times \pi \times 12 \times 12 =$	$288\pi \text{ cm}^3$

14. A solid wooden toy is in the form of a cone surmounted on a hemisphere. If the radii of the hemisphere and the base of the cone are 3.5 cm each and the total height of the toy is 17.5 cm, then find the volume of

wood used in the toy. (Take  $\pi = \frac{22}{7}$ ) Solution:

Hemispherical portion : Radius, r = 3.5 cm Conical portion : Radius, r = 3.5 cm

Height, 
$$h = 17.5 - 3.5 = 14$$
 cm

Volume of the wood = Volume of the hemisphere + Volume of the cone.

$$= \frac{2}{3}\pi r^{3} + \frac{1}{3}\pi r^{2}h = \frac{\pi r^{2}}{3}(2r+h)$$
$$= \frac{22}{7} \times \frac{3.5 \times 3.5}{3} \times (2 \times 3.5 + 14) = 269.5$$

Hence, the volume of the wood used in the toy = 269.5 cu.cm.

15. Spherical shaped marbles of diameter 1.4 cm each, are dropped into a cylindrical beaker of diameter 7 cm containing some water. Find the number of marbles that should be dropped into the beaker so that the water level rises by 5.6 cm.

Solution:

Rad

Let n be the number of marbles needed. Let  $r_1$  and  $r_2$  be the radii of the marbles and cylindrical beaker respectively. Marbles Cylindrical Beaker

Diameter,  $2r_1 = 1.4$  cm Diameter,  $2r_2 = 7$  cm

ius 
$$r_1 = 0.7$$
 cm Radius,  $r_2 = \frac{7}{2}$  cm

Let h be the height of the water level raised. Then, h = 5.6 cm

After the marbles are dropped into the beaker, Volume of water raised = Volume of n marbles

$$\Rightarrow \pi r_2^2 h = n \times \frac{4}{3} \pi r_1^3$$

Thus, 
$$n = \frac{3r_2^2 h}{4r_1^3}$$
  
 $n = \frac{3 \times \frac{7}{2} \times \frac{7}{2} \times 5.6}{4 \times \frac{7}{10} \times \frac{7}{10} \times \frac{7}{10}} = 150.$ 

.: The number of marbles needed is 150.

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#### SURA'S ★◆ MATHEMATICS

#### Exercise



**★★** 40 **★♦** 

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#### **SURA'S ★** ★ MATHEMATICS

7. If the curved surface area of a sphere is $98.56 \text{ cm}^2$ ,	$h = 64 \times 2 \times 100 \times 100 \text{ cm}.$	
then find the radius of the sphere.	128×10 0 × 100	
<b>A)</b> 2.4 cm <b>B)</b> 2 cm	$=\frac{128\times10.0\times100}{10.00\times100}=12.8$ km	
<b>C)</b> 2.8 cm <b>D)</b> 4.8 cm	10,0,0 × 100	
Solution: Ans : C	10. Through a cylindrical pipe of internal radius 7 cm,	
C.S.A. of a sphere = $98.56 \text{ cm}^2$	water flows out at the rate of 5 cm/sec. Calculate the	
$4\pi r^2 = 98.56$	volume of water (in litres) discharged through the	
1.12	pipe in half an hour.	
4.48	A) 1386 l         B) 1342 l	
98.56	<b>C)</b> 1364 / <b>D)</b> 1384 /	
$\therefore r^2 = \frac{9000}{4} \times 7 = 7.84 \implies r = 2.8 \text{ cm}.$	Solution: Ans : A	
	Volume of water discharged in 1 sec. = $\pi r^2 \times$ speed	
8. Radii of two solid hemispheres are in the ratio 3 25.	22 /	
Find the ratio of their curved surface areas and the	$=\frac{1}{7} \times 7 \times 7 \times 5 \text{cc}$	
ratio of their total surface areas.	/ 20 )	
A) 2:4 B) 1:1	$\frac{1}{2}$ an hour = $\left(\frac{1}{2} \times 60 \times 60\right)$ seconds	
$\mathbf{C} = \mathbf{D} + \mathbf{C} + \mathbf{D} + \mathbf{C} + \mathbf{C} + \mathbf{D} + \mathbf{C} + $	$2 \left( \frac{1}{2} \right)^{-1}$	
Solution: Ans : D	Vol. of water (in litres) discharged	
Ratio of radii $(r_1 : r_2) = 3 : 5$ Hint	11 7	
Ratio of C.S.A = $C_1 : C_2$ C S A = $2\pi r^2$	$22 \times 35 \times 30 \times 60$ -128 Glitters	
$= 3^{2}: 5^{2} = 9: 25$ $\begin{bmatrix} 0.5.11 - 2.17\\ TSA = 3\pi r^{2} \end{bmatrix}$	$10 \ \text{p} \ \text{p}$	
Ratio of T.S.A = $T_1 : T_2 = 9 : 25$	Ź	
9. The radius of a solid sphere is 24 cm. It is melted and	11. A hollow cylindrical pipe is of length 40 cm. Its	
drawn into a long wire of uniform cross section. Find	internal and external radii are 4 cm and 12 cm	
the length of the wire if its radius is 1.2 mm.	respectively. It is melted and cast into a solid cylinder	
<b>A)</b> 6.4 km <b>B)</b> 6.2 km	of length 20 cm. Find the radius of the new solid.	
<b>C)</b> 12.2 km <b>D)</b> 12.8 km	<b>A)</b> 8 cm <b>B)</b> 12 cm	
Solution: Ans : D	<b>C)</b> 16 cm <b>D)</b> 10 cm	
Radius of cylinder = 1.2mm	Solution : Ans : C	
$=\frac{12}{12}$ mm $=\frac{12}{12}$ cm	Volume of hollow cylinder	
10 100 100	$= \pi h(R^3 - r^3) = \pi \times 40(12^2 - 4^2)$	
Volume of cylindrical wire = Volume of sphere	Volume of new solid cylinder made = $\pi \times 20 \times r^2$	
$(12)(12)(12) + \frac{2}{2} + \frac{2}{8}$		
$\pi \times \frac{1}{100} \left  \frac{1}{100} \right  \times h = \frac{1}{7} \pi (24)(24)(24)$	$\Rightarrow \pi \times 20 \times r^{-} = \pi \times 40 \times 128 = 2 \times 2 \times 4 \times 4 \times 4$	
	$\therefore$ r = 2 × 2 × 4 = 16cm.	

## **VOLUME AND SURFACE AREA OF CUBE AND CUBOID**

- 1. Volume of a cube with side 'a' units =  $a^3$  cubic units.
- **2.** Surface Area of a cube with side 'a' units =  $6a^2$  sq. units.
- **3.** Volume of a cuboid = lbh cubic units.
- **4.** Surface Area of a cuboid = 2(lb + bh + lh) sq. units.
- **5.** Length of diagonal of a cube with side 'a' units is  $a\sqrt{3}$  units.
- 6. Length of diagonal of a cuboid =  $\sqrt{a^2 + b^2 + c^2}$  where a,b,c are the adjacent edges of a cuboid.

## Examples

 Given the side of a circle as 20 m. Find the length of the diagonal, volume and total surface area of the cube.
 Solution :

Given : a = 20 m

Diagonal =  $a\sqrt{3} = 20\sqrt{3}$  m Volume =  $a^3 = 20 \times 20 \times 20$ =  $8000 \text{ m}^2$ Total surface area =  $6a^2$ =  $6 \times 20 \times 20 = 2400 \text{ m}^2$ 

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### **SURA'S ★**♦ MATHEMATICS

<ol> <li>If the volume of a cube is 2197 cm<sup>3</sup>. Fine the total surface area of the cube.</li> </ol>	4. The volume of a cuboid is $87,480 \text{ cm}^3$ . If the dimensions are in the ratio $5:4:6$ then find the		
Solution :	surface area of the cuboid.		
Let the side of the cube = $x \text{ cm}$	Solution :		
Volume = $x^3 \text{ cm}^3 = 2197 \text{ cm}^3$ (given)	Let $l = 5x$ , $b = 4x$ and $h = 5x$		
i.e., $x^3 = 13^3 \Rightarrow x = 13 \text{ cm}$	$Volume = 5x \times 4x \times 6x = 120x^{2} = 87480 \text{ cm}^{2}$		
Total surface area = $6x^2 = 6 \times 13 \times 13 = 1014 \text{ cm}^2$	$\Rightarrow x^3 = \frac{87480}{10} = 729 = 9^3 \Rightarrow x = 9 \text{ cm}$		
3. If the dimensions of a cuboid are 20 cm, 25 cm and	120		
28 cm. Find the volume and surface area.	$l = 5 \times 9 = 45 \text{ cm},$		
Solution : Circon $l = 20$ cm $h = 25$ cm $h = 28$ cm	$b = 4 \times 9 = 36$ cm and		
Given $i = 20$ cm, $b = 25$ cm, $n = 26$ cm Volume $= lhh = 20 \times 25 \times 28 = 14000$ cm <sup>3</sup>	$h = 6 \times 9 = 54 \text{ cm}$		
Surface area = $2(lb + bb + lb)$	Surface area = 2 $(lb + bh + lh)$		
$= 2 (20 \times 25 + 25 \times 28 + 28 \times 20) = 3520 \text{ cm}^2$	= 2 ( $45 \times 36 + 36 \times 54 + 54 \times 45$ ) = 11,988 cm <sup>3</sup>		
Ехе	rcise		
1. If the surface area of a cube is $864 \text{ m}^2$ find its volume.	l = 2(6) = 12m $b = 3(6) = 18 m$ and $h = 4(6) = 24 m$		
<b>A)</b> 1728 m <sup>3</sup> <b>B)</b> 1278 m <sup>3</sup>	Surface area = 2 $(lb + bh + lh)$		
<b>C)</b> 1872 m <sup>3</sup> <b>D)</b> 1827 m <sup>3</sup>	$= 2 (12 \times 18 + 18 \times 24 + 12 \times 24) = 1872 \text{ m}^2$		
Solution : Ans : A	5. If the length of the diagonal of a cube is $7\sqrt{3}$ cm		
Surface area of a cube = $6a^2 = 864 \text{ m}^2$	Find the volume and total surface area of the cube.		
$\Rightarrow a^2 = \frac{864}{c} = 144 \Rightarrow a = 12 m$	<b>A)</b> $284 \text{ cm}^2$ <b>B)</b> $294 \text{ cm}^2$		
$V_{0} = 2^{3} - 12^{3} - 1728 m^{3}$	<b>C)</b> 248 cm <sup>2</sup> <b>D)</b> 249 cm <sup>2</sup>		
2. If the values of a cube is $2744 \text{ m}^3$ find its total	Solution : Ans : B		
surface area. Also find the diagonal.	Length of the diagonal = $a\sqrt{3} = 7\sqrt{3}$ cm $\Rightarrow a = 7$ cm		
$\mathbf{A} \mathbf{A} \mathbf{A} \mathbf{a} \mathbf{m} \mathbf{B} \mathbf{A} \mathbf{A} \mathbf{a} \mathbf{m}$	Volume $= a^3 = 7^3 = 343 \text{ cm}^3$		
	Surface area = $6a^2 = 6 \times 7 \times 7 = 294 \text{ cm}^2$		
C) $12\sqrt{3}$ m D) $14\sqrt{2}$ m	6. If the surface area of a cube is 1350 cm <sup>2</sup> . Find its		
Solution : Ans : B Volume of a subs = $a^3 = 2744 \Rightarrow a = 3\sqrt{2}$	volume.		
Volume of a cube $-a = 2744 \Rightarrow a = \sqrt[3]{2744} = 14 \text{ m}$	<b>A)</b> $15 \text{ cm}^3$ <b>B)</b> $225 \text{ cm}^3$		
$101a1 \text{ surface area} = 6a^2 = 6 \times 14 \times 14 = 1176 \text{ m}^2$	C) $3325 \text{ cm}^3$ D) $3375 \text{ cm}^3$		
diagonal = $a\sqrt{3}$ = $14\sqrt{3}$ m.	Solution : Alls : D Surface area = $6a^2 = 12E0$ are <sup>2</sup>		
3. If the dimensions of a cuboid are 12 cm, 15 cm and	Surface area = $6a^2 = 1350$ cm <sup>2</sup>		
<b>A)</b> $3240 \text{ cm}^3$ <b>B)</b> $3420 \text{ cm}^3$	$\Rightarrow a^2 = \frac{1550}{6} = 225 \Rightarrow a = 15 \text{ cm}.$		
<b>C)</b> $3402 \text{ cm}^3$ <b>D)</b> $3842 \text{ cm}^3$	$V_{0}$		
Solution : Ans : A	Volume $-a = 15 \times 15 \times 15 = 5575$ cm		
l = 12  cm, b = 15  cm  and  h = 18  cm	7. If the surface area of a cubold is $550 \text{ cm}^2$ and the edges are in the ratio $1 \cdot 2 \cdot 3$ . Find the volume of the		
Volume = $1 b h = 12 \times 15 \times 18 = 3240 \text{ cm}^3$	cuboid.		
4. If the volume of a cuboid is 5184 m <sup>3</sup> and the adjacent	<b>A)</b> 250 cm <sup>3</sup> <b>B)</b> 450 cm <sup>3</sup>		
edges are in the ratio 2 : 3 : 4. Find the surface area	<b>C)</b> $550 \text{ cm}^3$ <b>D)</b> $750 \text{ cm}^3$		
of the cuboid.	Solution : Ans : D		
<b>A)</b> $1872 \text{ cm}^2$ <b>B)</b> $1827 \text{ cm}^2$	Edges of a cuboid are in the ratio 1 : 2 : 3 (given)		
Solution : $D$ 1402 cm Ans : A	$\Rightarrow l = x, b = 2x \text{ and } h = 3x$		
Since the edges are in the ratio $2:3:4$	Surface area = $2(lb + bh + lh)$		
let $l = 2x$ , $b = 3x$ and $h = 4x$	$= 2 (x \times 2x + 2x \times 3x + 3x \times x)$		
Volume = $l b h$ = (2x) (3x) (4x) = $24x^3$ = 5184 m <sup>3</sup>	$= 2 (2x^{a} + 6x^{c} + 3x^{c}) = 22x^{c} = 550 \text{ cm}^{2} \text{ (given)}$		
$\Rightarrow x^3 = \frac{5184}{24} = 216$	$\Rightarrow x^2 = \frac{550}{22} = 25 \Rightarrow x = 5 \text{ cm}$		
$r = \frac{3}{210} = 6 \text{ m}$	So, $l = 5$ cm, $b = 10$ cm and $h = 15$ cm Volume = $l h h = 5 \times 10 \times 15 = 750$ cm <sup>3</sup>		
$x = \sqrt{210} = 0.00$	$volume = i 0 n = 3 \land 10 \land 13 = 750 \text{ cm}$		

**★★** 42 **★♦** 

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#### SURA'S ★◆ MATHEMATICS



**\*\***79 **\*\*** 

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#### **SURA'S ★** ★ MATHEMATICS

10. I was $x$ year old, six year	ears ago. How old sh	all I be	$\therefore$ Age of elder person = $x + 16$ years.	
eight years hence?			Given, 3 $(x - 6) = (x + 16 - 6) \Rightarrow 3x - 18 =$	= x + 10
<b>A)</b> $x - 2$	<b>B)</b> x + 14		$2x = 28 \Rightarrow x = 14$	
<b>C)</b> $x + 6$	<b>D)</b> $x + 2$	4 D	∴ Age of younger one = 14 years.	
Solution :		Ans : B	15. My brother is 3 years elder to me. I	My father was
At present, my age = $x + 6$			28 years of age when my sister was h	orn, while my
8 years hence, my age = $x$ +	-6+8 = x + 14		mother was 26 years of age, when I w	vas born. If my
11. Rahul is half his father'	s age now. Fifteen ye	ars ago,	sister was 4 years of age when my bro	ther was born,
he was one-third of his	s father's age. How o	old will	then, what was the age of my fathe	er and mother
Rahul be after 5 years?	<b>D)</b> 20 monto		respectively when my brother was bo	rn?
$\begin{array}{c} \textbf{A}  \textbf{35 years} \\ \textbf{C}  \textbf{25 years} \end{array}$	<b>B)</b> $30$ years	GV)	A) 32 yrs, 23 yrs B) 32 yrs, 29	yrs
Solution :	<b>DJ</b> 40 years	Ans	<b>C)</b> 35 yrs, 29 yrs <b>D)</b> 35 yrs, 33	yrs
Let the present age of Bab	ul and his Father he r	and 2r	Solution :	Ans : A
respectively			My brother was born 3 years before I was be	orn and 4 years
			Eather's age when brother was horn $= 28$	$\pm 4 = 32$ woars
15 years ago, $\frac{1}{2}(2x - 15) = \frac{3}{3}$	<i>∙ x</i> – 15		Mother's age when brother was born $= 26$	-3 = 23 years
$\Rightarrow 2x - 15 = 3x - 45 \Rightarrow x =$	: 30		16. If 6 years are subtracted from the j	present age of
After 5 years, Rahul's age =	= 30 + 5 = 35 years		Gagan and the remainder is divided	d by 18, then
12. Dipa is seven years old	er than Shikha. Fiftee	en vears	the present age of his grandson Anu	ip is obtained.
ago, Shika's age was t	hree quarters of Dip	a's age.	If Anup is 2 years younger to Madan	whose age is 5
Find the age of Dipa no	w.	-	A) 48 years (B) 60 years	ye:
A) 36 years	<b>B)</b> 43 years		<b>C)</b> 84 years <b>D)</b> 96 years	
<b>C)</b> 41 years	<b>D)</b> 42 years		Solution :	Ans : B
Solution :		Ans : B	Anup's age $= 5 - 2 = 3$ years and let Gagan	's age = $x$ years
Let shika's age = $x$ years an	Id Dipa's age = $x + 7$		Then, $\frac{x-6}{x-6} = 3 \Rightarrow x-6 = 54 \Rightarrow x = 60$	
Fifteen years ago, $x - 15 = \frac{1}{2}$	$\frac{3}{4}$ (x+ 7- 15)		18	
$4x - 60 = 3x - 24 \Rightarrow x = 36$	3		Gagan's age = 60 years.	
Dipa's age = $x + 7 = 36 + 10^{-10}$	7 = 43 years		17. A man got a child when he was 30 ye	ears. At which
13 The product of the ages	of Ankit and Nikita is	240 If	age, his age will be $2 \frac{1}{2}$ times that of	his child?
twice the age of Nikita	is more than Ankit's	age by	$\begin{array}{c} 2 \\ \mathbf{A}  70 \text{ wears} \qquad \mathbf{B}  60 \text{ wears} \end{array}$	
4 years, what is Nikita's	s age?	-31	<b>C)</b> 50 years <b>D)</b> 40 years	
A) 12 years	<b>B)</b> 13 years	× ·	Solution :	Ans : C
<b>C)</b> 14 years	<b>D)</b> 15 years		Let after <i>x</i> years after the Son has born, th	e age of Father
Solution :	240	Ans : A	1	0
Let Ankit's age $= x$ and Nik	ita's age = $\frac{240}{x}$		be $2 - \frac{1}{2}$ times that of his child.	
Given $20 \times \frac{240}{10} = r + 4$			Given, $30 + x = \frac{5}{2}x$	
$\frac{1}{x}$			31 20	
$\Rightarrow 480 = x^2 + 4x$			$\Rightarrow - = 30 \Rightarrow x = 20$	
$\Rightarrow x^2 + 4x - 480 = 0$		. 1112	After 20 years the man's age = $30 + 20 =$	= 50 vears.
$\therefore (x+24) (x-20) = 0$		(CV)	18 The sum of the ages of 2 brothers is	50 Ten vears
$\Rightarrow x = -24, 20 \Rightarrow x = 20$		$\mathcal{N}/\mathcal{A}$	ago the elder brother was twice t	he age of the
240			vounger. What is the present age of th	ne elder?
Nikita's age = $\frac{110}{20}$ = 12 y	ears.		A) 30 years B) 35 years	
14. The ages of two persons	differ by 16 years If	6 vears	<b>C)</b> 20 years <b>D)</b> 25 years	
ago, the elder one is 3	times as old as the v	vounaer	Solution :	Ans : A
one, find the age of you	nger one.	· 9	Let the ages of 2 brothers be x and $50 - x$	
<b>A)</b> 14 years	<b>B)</b> 30 years		1en years ago $x - 10 = 2 (50 - x - 10)$	
<b>C)</b> 15 years	<b>D)</b> 18 years		$\Rightarrow 3r = 90 \Rightarrow r = 30$	
Solution :		Ans : A	Age of the elder brother = 30 years	
Let the age of the younger p	person be $x$ years.			
		-		

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**\*\*** 80 **\*\*** 

4

# GENERAL INTELLIGENCE AND REASONING

- 1. Coding Decoding
- 2. Analogy
- 3. Odd One Out
- 4. Series
- 5. Missing Numbers
- 6. Arrangement of Words
- 7. Word Formation
- 8. Seating Arrangement
- 9. Ranking
- **10.** Counting of Figures
- 11. Analytical Ability
- 12. Mathematical Symbol Operation
- **13. Directions Sense Ability**
- 14. Blood Relations
- 15. Syllogism
- 16. Venn Diagram
- **17.** Dice
- 18. Non Verbal
- 19. Miscellaneous

#### SURA'S 💐 GENERAL INTELLIGENCE AND REASONING



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#### 8. I. Forbes II. Forest Choose the correct option : A) I. V. IV. III. II B) IV, V, III, I, II **III.** Forensic **IV.** Formation C) I. II. V. IV. III D) I. III. V. IV. II Choose the correct answer : A) III, II, IV, I **Explanation** : Ans : (C) B) IV, III, II, I Arrangement of words as per dictionary order C) I, II, III, IV D) I, III, II, IV Rangle $\rightarrow I$ **Explanation** : Ans : (D) Arrangement of words as per order in the dictionary. Forbes $\rightarrow I$ Regal $\rightarrow$ II $\downarrow$ Forensic $\rightarrow III$ Rested $\rightarrow V$ $\downarrow$ $\downarrow$ Room $\rightarrow IV$ Forest $\rightarrow$ II $\downarrow$ $\downarrow$ Royal $\rightarrow$ III Formation $\rightarrow$ IV 12. I. Soul II. Strain a I. Ale II. Align IV. Sand III. Syrup **III.** Amend **IV.** Anatomy V. Alpine V. Strained Choose the correct option : Choose the correct option : A) V, I, III, IV, II B) III, V, IV, I, II A) IV, I, II, V, III B) IV, II, I, V, III **C)** I, II, III, V, IV **D)** I, II, V, III, IV **C)** V, IV, III, I, II **D)** IV, V, III, I, II **Explanation** : Ans : (D) **Explanation** : Ans : (A) Arrangement of words as per order in the dictionary. Arrangement of words of per dictionary order. $\rightarrow$ I Ale Sand $\rightarrow IV$ $\downarrow$ Align $\rightarrow$ II Soul $\rightarrow I$ $\downarrow$ Alpine $\rightarrow V$ Strain $\rightarrow$ II $\downarrow$ Strained $\rightarrow V$ $\rightarrow$ III Amend $\downarrow$ Ţ Syrup $\rightarrow$ III Anatomy $\rightarrow IV$ 13. I. Yielded II. Yelp 10. I. Den II. Dragon III. Yeast IV. Yogurt III. Drop IV. Desk Choose the correct option : V. Doom A) II, III, IV, I B) III, II, I, IV Choose the correct option C) IV, I, II, III D) I, II, III, IV B) I, IV, V, II, III A) V, IV, III, I, II C) III, I, II, IV, V D) I, III, II, IV, V **Explanation** : Ans : (B) **Explanation** : Ans : (B) Arrangement of words as per dictionary order. Arrangement of words as per order in the dictionary. Yeast $\rightarrow$ III Arrangement of words as per order in the dictionary. Den $\rightarrow I$ Yelp $\rightarrow II$ 1 Desk $\rightarrow IV$ Yielded $\rightarrow I$ $\downarrow$ $\downarrow$ $\rightarrow V$ Doom Yogurt $\rightarrow \mathrm{IV}$ Dragon $\rightarrow$ II 14. I. Nested II. Nation III. Nippon **IV.** Niger Drop $\rightarrow$ III V. Nappy 11. I. Rangle II. Regal Choose the correct option : III. Royal IV. Room A) V,II,I,IV,III B) V,II,IV,I,III V. Rested C) II, I, V, IV, III D) II, V, I, III, IV

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**X** 41 **X** 

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## **SURA'S \$**

Explanation :	Ans : (A)	<b>17.</b> I. Trea	admill	II. Treason	
Arrangement of words of per	r dictionary order.	III. Trea	acherous	IV. Tread	
Nappy $\rightarrow V$		Choose	the correct ar	nswer :	
$\downarrow$		<b>A)</b> II, I	II, IV, I	<b>B)</b> III, IV, II, I	
Nation $\rightarrow$ II		<b>C)</b> III,	IV, I, II	<b>D)</b> I, II, III, IV	
$\downarrow$		Explanation	:		Ans : (C)
Nested $\rightarrow I$		Arrangemen	t of words as p	per dictionary order	
$\downarrow$		Treacherous	- III		
Niger $\rightarrow$ IV					
$\downarrow$	S	Tread	- IV		
Nippon $\rightarrow$ III	"//	$\downarrow$			
15. I. Opperate	II. Oyster	Treadmill	- I		
III. Oracle	IV. Otis	$\downarrow$			
<b>V.</b> Official		Treason	- II		
Choose the correct opti	on :	18. I. Prol	bation	II. Selection	
		III. App	olication	IV. Confirmation	
$\mathbf{C}  \mathbf{V} = \mathbf{U} \mathbf{V} \mathbf{U} \mathbf{U} \mathbf{U} \mathbf{U} \mathbf{U}$		V. App	ointment		
Evaluation :	Ans : (D)		the correct ar	nswer:	
Arrangement of words of per	dictionary order	<b>C)</b> IV, I	. III, II, V	<b>D)</b> III, II, V, IV, I	
	dictionaly ofder.	Explanation	:		Ans : (A)
		Logical mean	ningful order o	f words.	
$\mathbf{v}$		Applications	- III		
Opperate $\rightarrow 1$			**		
$\checkmark$		Selection	- 11		
Oracle $\rightarrow$ III		Appointmon	t 17		
$\downarrow$			- V		
Otis $\rightarrow$ IV		Probation	- I		
$\downarrow$		$\downarrow$			
Oyster $\rightarrow$ II		Confirmation	n - IV		
16 I Storm	II Strop	19. I. Slee	qe	II. Cold	
III Strangle	II. Strap	III. Blar	nket	IV. Winter	
	IV. Stamped	V. War	m	VI. Shop	
Chaosa the correct and		Choose	the correct ar	iswer :	
		B) IV, I	II, VI, III, V, I II, VI, II, I, V		
A) V, I, IV, III, II	<b>B)</b> V, I, III, IV, II	C) VI,	III, II, I, IV, V		
<b>C)</b> V, IV, I, III, II	<b>D)</b> V, III, IV, I, II	<b>D)</b> IV, I	II, II, VI, I, V		
Explanation :	Ans : (C)	Explanation	:		Ans : (A)
Arrangement of words as per	r dictionary order.	Logical and i	meaningful oro	ler of words.	
Satire - V					
$\downarrow$		Cold - I	II		
Stamped - IV		$\downarrow$			
+		Shop -	IVI		
Storm – I					
$\rightarrow$		Bianket - J	111		
Strangle - III		Warm -	V		
$\downarrow$		$\downarrow$	-		
Strap - II		Sleep - I	ſ		

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## SURA'S 💐 GENERAL INTELLIGENCE AND REASONING

No advocate is hardworking $\rightarrow$ (E-type)	Combining I & II we get,
'	Glasses
$\checkmark$	
Some hardworking are beautiful $\rightarrow$ (I-type)	
$E + I \rightarrow O$ - type of conclusion. "Some booutiful are not advocates" Hence the	/ Pens
conclusion III follows "Some beautiful are not advocates	
$\rightarrow$ conversion into "Some advocates are not beautiful".	
Hence, the conclusion II follows.	Some pens are glasses'. Hence the conclusion II follows.
	Chantermanning i
12. Statements :	14. Statements :
I. Some autnors are teachers.	I. No cities are countries.
Conclusions :	II. No countries are vinages
I. Some teachers are not ladies	L Some countries are sities
II. Some ladies are not teachers	I. No will agon in gity
Select the correct answer :	<b>II.</b> No vinages is city
A) Conclusion I follows	Select the correct answer :
B) Conclusion II follows	A) Only Conclusion 1 follows
C) Neither I nor II follows	B) Only Conclusion II follows
<b>D)</b> Both I and II follow	C) Both Conclusions follows
Explanation : Ans : (C)	D) Neither Conclusions I nor Conclusions II follows
Some authors are teachers $\rightarrow$ (I - type)	Explanation : Ans : (D)
	Both the premises are Universal Negative (E-type). No
	conclusion follows from the Negative premises.
No teacher is a lady $\rightarrow$ (E - type)	15. Statements :
$I + E \Rightarrow O$ - type of conclusion	I. All cups are vegetables
"Some authors are not ladies"	II. All vegetables are pens
Hence the neither conclusions I nor II follow.	Conclusions :
13 Statements :	I. Some pens are vegetables
I. All cups are glasses	II. Some pens are cups
II. Some cups are pens	Select the correct answer :
Conclusions:	A) Only Conclusion I follows
I. Some pens are cups	B) Only Conclusion II follows
II. Some pens are glasses	<b>C)</b> Both Conclusions follow
III. Some pens are not cups	D) Neither Conclusions I nor Conclusions II follows
Select the correct answer :	Explanation : Ans : (C)
A) Only Conclusion I and III follow	All vegetables are pens $\rightarrow$ conversion into `Some pens
<b>B)</b> Only Conclusion II and III follow	are vegetables'
<b>D)</b> All Conclusions follow	Pens
Exploration :	
Some cups are pens $\rightarrow$ conversion into "Some pens are	
cups".	Vegetables
Cups Pens	
	Hence the conclusion I follows.
Hence the conclusion I follows. All the cups are glasses.	All cups are vegetables $\Rightarrow$ A - type
Classes	
$\left( \begin{array}{c} 7 \\ - \end{array} \right) \right)$	
( Cups ) II	
Cups II	All vegetables are pens $\Rightarrow$ A - type
Cups	All vegetables are pens $\Rightarrow$ A - type A+A $\Rightarrow$ A - type of conclusion. All cups are pens $\Rightarrow$ conversion into "some pens are cups"

#### SURA'S 💐 GENERAL INTELLIGENCE AND REASONING



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#### SURA'S 💐 GENERAL INTELLIGENCE AND REASONING

#### **Conclusions** :

- I. Interest in debating can be created by force.
- **II.** Some students eventually will develop interest in debating.

#### Select the correct answer :

- A) Only Conclusion I follows
- B) Only Conclusion II follows
- C) Both I and II follow
- $\boldsymbol{D}\boldsymbol{)}$  Neither I nor II follows

#### **Explanation** :

Any effect is made assuming that it will have some positive effect on some persons. Therefore, only conclusion II follows.

121. Pointing to a man in a photograph. Rani said "His mother's only daughter is my mother". How is Rani related to that man ?

B) Sister

**D)** Nephew

A) Wife

C) Niece

**Explanation** :

Ans: (C)

Ans: (B)



The man is maternal uncle to Rani. Hence Rani is niece of that man.

## Directions (Qns. 122-124) : Study the following information and select the correct answer

Five boys are sitting on a bench to be photographed. Sachin is to the left of Ram and to the right of Bin. Monty is to the right of Ram. Rony is between Ram and Monty.

#### 122. Who is second from the right in the photograph?

A)	Monty	<b>B)</b> Ram
C)	Rony	D) Bin

#### 123. Who is in the middle of the photograph?

- A) BinB) RamC) RonyD) Sachin
- 124. Who is second from the left in the photograph?

A)	Rony		<b>B)</b> Monty
C)	Bin		<b>D)</b> Sachin







- **123. B)** Ram is in the middle of the photograph.
- **124. D)** Sachin is second from the left in the photograph.

125. Answer the question based on the information given below : If +' is  $\times'$ , -' is +',  $\times'$ , is  $\div'$  and  $\div'$  is -' then  $9 \div 5 + 4 - 3 \times 2 = ?$ **A)** 2 **B)** – 9 **C)** – 3 **D)** - 9.5 **Explanation** : Ans: (D)  $+ \Rightarrow \times$  $- \rightarrow +$  $\rightarrow$  .  $9 \div 5 + 4 - 3 \times 2 = ?$  $9-5 \times 4 + 3 \div 2 = ?$  $\Rightarrow 9-5\times4+\frac{3}{2}$  $\Rightarrow 9 - 20 +$ 21 - 4018 - 40 + 32 2

$$\Rightarrow \frac{-19}{2} = -9.5$$

- 126. Ram said, "This girl is the wife of the grandson of my mother".
  - Who is Ram to the girl?
  - A) Husband
  - **B)** Father
  - C) Father-in-Law
  - **D)** Grandfather

#### Explanation :

Ans: (C)

Grandson of Ram's mother is son of Ram. Hence Ram is father in-law of that girl.

## 127. Read the statements and select a Conclusion from the given alternatives.

#### Statements :

Sukhvinder emphasized the need to replace the present training programme by other methods which will bring out the real merit of the candidates.

#### **Conclusions** :

- I. It is bit important to bring out the real merit of the candidates.
- **II.** The present training programme does not bring out the real merit of the candidates.

#### Select the correct answer :

- A) Only Conclusion I follows
- **B)** Only Conclusion II follows
- C) Both I and II follow
- D) Neither I nor II follows. Ans: (B)

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# General Awareness / Knowledge

- General Science
- ✤ History
- Geography
- Polity
- Economics
- Science & Technology
- UNO, Other International & National Organisation
- Computer & IT
- Awards
- Sports
- Important Days
  - Important Years Declared by the UNO
  - Books and Authors

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## **GENERAL SCIENCE**

**Explanation** :

#### 1. Who invented Helicopter ?

A) Copernicus B) Sikorsky C) Cockrell **Explanation** :

**D)** Drinker Ans : (B)

Attempts to create helicopters can be traced back to Leonardo da Vinci, but the first working prototype helicopter, the VS-300, was invented by Igor Sikorsky in 1939. The next model he designed was the R-4 in 1942, which was the world's first mass produced helicopter.

- 2 The disease Beri Beri is caused due to the deficiency of which of the following?
  - A) Vitamin B2 C) Vitamin B12

B) Vitamin B1 **D)** Vitamin E

#### **Explanation** :

Ans : (B)

Beri Beri is a disease caused by a Vitamin B1 (thiamine) deficiency. There are two types of the disease: wet beri beri and dry beri beri. Wet beri beri affects the heart and circulatory system. In extreme cases, wet beri beri can cause heart failure. Dry beri beri damages the nerves and can lead to a loss of muscle strength and eventually, muscle paralysis.

#### Chlorophyll was first isolated and named by 3. A) Caventou B) Pelletier

**C)** Chlorophyll

### **D)** Caventou and Pelletier

**Explanation** : Ans : (D) Chlorophyll was first isolated and named by Joseph Bienaime Caventou and Pierre Joseph Pelletier in 1817. It is a chemical found in the chloroplasts of plants that allows the plant to absorb light. Energy from the light is used in photosynthesis to make glucose.

Which of the following organisms does not fit into 4 the Cell Theory?

A)	Bacteria	B)	Virus
C)	Fungi	D)	Plants

**Explanation** :

#### Ans : (B)

The Cell Theory states that all living things are made of cells, cells are the basic units of structure and function of living things, and that all cells come from other cells. Since viruses are not made of cells, and do not use cells in any of their processes, they are not related to the cell theory.

#### Which among the following is not a characteristic of 5.

- transition metals ?
- A) Tendency to gain electrons
- **B)** Low electronegativity
- C) Low ionization energy
- **D)** Malleability

#### **Explanation** :

#### Ans : (A)

The transition metals have a tendency to lose electrons. Since the electrons in the highest energy level are actually on a lower principal energy number than the ones before them, this makes it relatively easy to lose some or all of their electrons to land in stable state. When these metals form ions, the 4s electrons are always lost first; so, they form only cations (positive ions).

6. Ethylene is a ..... molecule. A) polar B) ionic C) covalent

D) nonpolar

Ans : (D)

Ethylene  $(C_2H_4)$  is a non-polar molecule. This is because, unlike a polar molecule, it has an even distribution of electrical charges. Since, the double bond is between two carbon atoms, there is no difference in the electronegativity. This is why, the shared pair of electrons can lie in between those to carbon atoms. As a result, ethylene is a non-polar and linear molecule.

- 7. If water smells bad, then that odour can be removed by adding B) bleach A) alum

**C)** activated carbon

**D)** deactivated nitrogen

**Explanation** : Ans : (C) Adding powdered activated carbon to water or using of granular activated carbon (GAC) in the water filter can remove bad taste and foul smell. Powdered activated carbon (PAC) is the preferred method when the taste and odour is moderate and infrequent. Activated carbon works by a phenomenon called "Adsorption", which is where the odour compound is trapped inside the activated carbon and retained, but the material doing the adsorption does not change size.

#### Acceleration is 8.

- A) Inversely proportional to force
- **B)** Inversely proportional to mass
- C) Directly proportional to mass
- D) Directly proportional to force

#### **Explanation** :

Acceleration, in physics, is the rate of change of velocity of an object with respect to time. An object's acceleration is the net result of any and all forces acting on the object, as described by Newton's Second Law. Newton's Second Law of motion states that acceleration is directly proportional to net force when mass is constant.

#### If ice floating on water in a vessel melts, the water Alevel in the vessel ......

- A) increases
- B) does not change
- C) first increases before decreasing
- D) decreases

#### **Explanation** :

#### Ans : (B)

When ice floating on water in a vessel melts, the water level in the vessel does not change. This is because when floating, the ice displaced and amount of water equal to its mass, and when melted, it becomes an amount of water equal to its mass. It is in accordance with Archimedes Principle, which states that the mass of the liquid displaced by a floating object is equivalent to the mass of the object.

10. Which is not a natural fibre ?

A) Linen	B) Silk
C) Jute	D) Nylon

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#### Ans : (D)

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#### 28. Tha Pallava dynasty had their capital at:

A) Kancheepuram **B)** Thanjavur C) Madurai D) Vengi

#### **Explanation** :

Ans : (A)

Kancheepuram was the capital of the Pallava dynasty, who ruled most of present day Tamil Nadu from the 4<sup>th</sup> to 9<sup>th</sup> centuries. AD. Huien Tsang visited this city and wrote about its glorious culture. The Pallavas were the first well-known dynasty in the history of South India after the fall of the Satavahanas.

#### 29. Who convened the 'Congress of Vienna', 1815?

- A) Nepoleon Bonaparte
  - **B)** Mussolini
  - C) Metternich
  - **D)** Bismarck

#### **Explanation** :

#### Ans : (C)

The Congress of Vienna was convened in 1815 by the four European powers which had defeated Napoleon. It was a meeting of ambassadors of European states chaired by Austrian statesman Klemens von Metternich, and held in Vienna from November 1814 to June 1815. Metternich convened the Congress to provide a long-term peace plan for Europe.

- 30. Stories of Buddha's birth and his previous lives are contained in:
  - A) Tripitakas B) Triratnas
  - C) Panchatantra tales D) Jataka-tales

#### **Explanation** :

Ans : (D)

The Jataka-tales are a voluminous body of literature on the previous births of Gautama Buddha in both human and animal form. Part of the canon of sacred Buddhist literature, it consists of some 550 anecdotes and fables that depict earlier incarnations of the Buddha. Most of the Jataka tales date to the 4<sup>th</sup> century B.C.

#### 31. The term Renaissance means:

- **A)** The Era of Religious Reforms
- B) The Golden Age
- C) The Dark Age
- **D)** The Age of Reason, Enlightenment and Discoveries

#### **Explanation** :

Ans : (D)

Renaissance refers to the period in European Civilization immediately following the Middle Ages that was characterized by a surge of interest in classical learning and values. It led to enlightenment in knowledge and precipitated the 'Age of Reason' where logic and science was applied to test the validity of theory. The Renaissance also witnessed the discovery and exploration of new continents, the decline of the feudal system and the growth of commerce, and the invention of powerful innovations as paper, printing, the mariner's compass, and gunpowder.

- 32. Which of the following sultans adopted Persian customs and manners in court:
  - A) Alauddin Khilji
  - B) Jalaluddin Khilji
  - C) Iltutmish
  - **D)** Balban

#### **Explanation** :

Ans : (D) Balban was convinced that the glory of Kingship was possible only by following the Persian traditions and he very carefully followed these traditions in his personal and public life. He introduced in his court the Persian etiquette and adopted the Persian customs and manners. He did so in order to gain legitimacy for his rule.

#### 33. In Akbar's regime, ..... was the military head.

- **A)** Sultan Ahmed Fawad
- B) Suri Moja
- C) Mir Khaas
- **D)** Mir Bakshi

#### **Explanation** :

During Akbar's period, the head of military was called the Mir Bakshi who was appointed from among the leading nobles of the court. He was in charge of intelligence gathering, and also made recommendations to the emperor for military appointments and promotions.

34. Who pioneered the guerrilla warfare methods?

A) Babur C) Shivaji **B**) Akbar D) Bajirao Peshwa Ans : (C)

**Explanation** : Chatrapati Shivaji Maharaj is assumed to be first to use guerrilla warfare in India that included tactics like ambushes, sabotage, raids and hit-and-run. He started guerrilla warfare against the Mughals and other powers in 1645 leading to establishment of the Maratha state in 1674, sowing seeds of what would become the Maratha empire.

35. In which year East India Company was ceased to work and India was completely undertaken by **British Government?** 

<b>A)</b> 1838	<b>B)</b> 1919
<b>C)</b> 1858	<b>D)</b> 1898
Explanation :	

Ans : (C)

The rule of East India Company (EIC) in India began in 1757 and lasted until 1858, following the Indian Rebellion of 1857, the Government of India Act 1858 led to the British Crown's assuming direct control of India. Under the Government of India Act 1858, the Crown took over its Indian possessions, administrative powers, and its armed forces.

36. At which location, a sculptor of chariot of Harappan time was found ?

A) Lothal **B)** Banawali **C)** Daimabad

**D)** Kalibangan

**Explanation** : Ans : (C) Daimabad in Ahmednagar district of Mahrasthtra has a sculpture of a chariot belonging to the Harappan time. The chariot is 45 cm long and 16 cm wide, yoked to two oxen, driven by a man 16 cm high standing on it. The site is famous for the recovery of many bronze goods influenced by the Harappan culture.

- 37. First Satyagrah started from Champaran for opposing the cultivation of .....
  - A) Cotton **B)** Indigo C) Silk
    - D) Kesar

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#### Ans : (D)

SURA'S → General Awareness / Knowledge

**Explanation** : Ans : (B) Gandhi started The Champaran Satyagrah in 1917 to better the lot of Indigo planters. The movement revolved around the peasants (Bhumihars) of the Champaran and other areas of North Bihar who had to grow Indigo under the Tinkathia system. Champaran was the first of three movements during 1917-18 that marked the entry of Gandhi in Indian politics.

#### 38. Who was the founder of 'Vikramshila University' ?

A) Vijay sen	<b>B)</b> Atisa
C) Dharampal	<b>D)</b> Ballal Sen

#### **Explanation** :

The Vikramshila University was established by Pala ruler Dharampal (783 to 820) near Bhagalpur in Bihar as a seat of learning. It was one of the two most important centres of Buddhist learning during the Pala Empire, along with Nalanda University. It lasted four centuries before being destroyed during an attack by Bakhitiyar Khilji of the Delhi Sultanate.

#### 39. When India got Independence, who was the Prime **Minister of England ?**

- A) William Bentick
- **B)** Warren Hasting
- **C)** Margaret Thatcher
- D) Clement Atlee

#### **Explanation** :

#### Ans : (D)

Ans : (C)

Clement Atlee was the Prime Minister of England during 26 July, 1945-26 October, 1951 when India attained independence. He supervised the process by which India was partitioned into India and Pakistan in 1947. He also arranged the independence of Burma (Myanmar,) and Ceylon (Sri Lanka)

#### 40. Which among the following was one of the discoverers of Indus Valley Civilization?

- A) Lord Wooley
- B) Daya Ram Sahni
- C) V.S. Agarwal

## D) A.L. Basham

#### **Explanation** :

#### Ans : (B)

Daya Ram Sahni was an Indian archaeologist who supervised the excavation of the Indus Valley site at Harappa in 1921-22. A protege of John Marshall, Sahni became the first Indian to be appointed Director-General of the Archaeological Survey of India (ASI) in 1931, a position he held till 1935.

#### 41. When was Delhi declared as the capital of India?

<b>A)</b> 1901	B)	1911
<b>C)</b> 1913	D)	1921

#### **Explanation** :

Ans : (B) In 1911, it was announced that the capital of British held territories in India was to be transferred from Calcutta to Delhi. The name "New Delhi" was given in 1927, and the new capital was inaugurated on 13 February, 1931.

#### 42. Magical charms and spells are given in which of the following Vedas ?

A)	Rig Veda	B) Sama Veda
C)	Yajurveda Veda	<b>D)</b> Atharva Veda

#### **Explanation** :

#### Ans : (D)

The Atharva Veda, also known as "Veda of magical formulas", consists of rituals, magical charms to address superstitious anxiety, spells to remove maladies believed to be caused by demons, and herbs and nature-derived potions as medicine. It represents a developing 2nd millennium BCE tradition of magico-religious rites.

#### 43. In Indus Valley Civilization, Dholavira is famous for We which of the following ?

- A) Rock cut architecture
- **B)** Sea port
- C) Water Conservation
- **D)** Pottery

#### **Explanation** :

Ans : (C)

The Indus site of Dholavira is notable for its futuristic water-harvesting techniques. It has given ample evidence of rainwater harvesting network, a system of tanks and ponds that suppled water and even a sewage system way advanced for its times. Water conservation of Dholavira speaks volume about their advanced hydraulic engineering.

#### 44. Who was the founder of Arya Samaj?

- A) Mula Shankar
- B) Bal Gangadhar Tilak
- C) Swami Dayanand Saraswati D) Rabindra Nath Tagore

#### **Explanation** :

Ans : (C)

The Arya Samaj was founded by Dayanand Saraswati in Bombay on 7 April, 1875. Dayanand was a Hindu regligious leader and a renowned scholar of the Vedic lore and Sanskrit language. He was the first to give the call for Swaraj as "India for Indians" in 1876, a call later taken up by Lokmanya Tilak.

45. The famous 'Hawa Mahal' is in which city of **Rajasthan**? A) Ajmer B) Jodhpur

C) Jaipur D) Kota

**Explanation** :

Ans : (C) Hawa Mahal is a palace in Jaipur, Rajasthan. It is so named because it was essentially a high screen wall built so the women of the royal household could observe street festivals while unseen from the outside. The structure was built in 1799 by Maharaja Sawai Pratap Singh

#### 46. Where is Pushkar Fair held ?

- A) Bihar
- **B)** Uttar Pradesh
- C) Madhya Pradesh

**D)** Rajasthan

Ans : (D)

#### **Explanation** : The Pushkar Fair is an annual five-day camel and livestock fair held in the town of Pushkar in Rajasthan. It is one of the world's largest camel fairs that is held on the banks of the Pushkar lake. It is celebrated for five days from the Kartik ekadashi to Kartik Poornima, the full moon day of Kartik in Hindu calendar.

#### 47. Who was the last Mughal emperor?

A) Babar	<b>B)</b> Noor Jehan
C) Akbar	<b>D)</b> Bahadur shah II

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SURA'S → General Av	vareness / Knowledge
<ul> <li>consumers and various forms of market participants with business. Companies normally avoid ethics for the sake of business enhancement and profit marking.</li> <li>11. Select the correct option about Corporate Social Responsibility (CSR) <ol> <li>It is important for a company to maintain a strong competitive position.</li> <li>It is an economic component.</li> </ol> </li> <li>II. It is important for a company to perform in a manner consistent with expectations of Government and Law.</li> <li>Select the correct answer: <ol> <li>Both I and II correct B) Both I and II incorrect</li> <li>II only correct D) I only correct</li> </ol> </li> <li>Explanation: <ol> <li>Ans : (A)</li> <li>According to Carroll, CSR is a multi-layer concept consisting of four inter-related aspects of responsibility includes:</li> <li>It is important to perform in a manner consistent with maximizing earnings per share.</li> </ol> </li> </ul>	Explanation :       Ans : (B)         Balance of Trade (BOT) is the difference between a country's imports and its exports for a given time period. It is the largest component of the country's balance of payments. If a country's exports are of greater value than it imports, it is called a trade surplus, and conversely, if a country imports are of greater value than its exports, it is called a trade deficit or "trade gap".         14. An economy in which there are no flows of labour, goods or money to and from other nations is a/an         A) slow economy       B) mixed economy         C) closed economy       D) open economy         Explanation :       Ans : (C)         An economy that does not interact with the economy of any other country is known as closed economy. A closed economy is self-sufficient, meaning no imports are brought in and no exports are sent out. It is the opposite of an open economy, in which a country conducts trade with outside regions.         15. Elasticity of demand is the degree of responsiveness of demand of a commodity to a         A) change in consumers' wealth         B) change in the price of substitutes         C) change in consumers' tastes
<ul> <li>It is important to maintain a high level of operating efficiency. The legal responsibility of business corporations demands that business abide by the law of land and play by the rule of the game. Abiding by laws is the prerequisite for any corporation to be socially responsible. In other words, legal responsibility is about maximizing one's profit while obeying the rules and regulations that is set by the government.</li> <li>12 Match the characteristics with their modest</li> </ul>	D) change in its price Explanation : Ans : (D) The elasticity of demand, also known as price elasticity of demand, is the degree of responsiveness of demand to change in price. Its measure depends upon comparing the percentage change in the price with the resultant percentage change in the quantity demanded. Thus, elasticity of demand is the ratio of percentage change in amount demanded to a percentage change in price.
<ul> <li>12. Match the characteristics with their market structure:</li> <li>a) MC=Price</li> <li>b) Firm will tend to set output so that it earns maximum profits.</li> <li>Codes : <ul> <li>a)</li> <li>b)</li> </ul> </li> <li>A) Pure Competition Pure Monopoly</li> <li>B) Pure Monopoly Monopolistic Competition</li> <li>C) Oligopoly Monopolistic Competition</li> <li>D) Pure Competition Oligopoly</li> </ul> <li>Explanation : <ul> <li>Ans : (A)</li> </ul> </li> <li>Equilibrium exists when the D and S functions are equal, i.e. D = S</li>	16. The price of a commodity is the same as A) Average revenue B) Total cost C) Average cost D) Total revenue Explanation : Ans : (A) Average Revenue refers to revenue received per unit of output sold. It is the same as Price of the commodity. Average revenue can be obtained by dividing the total revenue by the number of units sold, Thus, Average Revenue (AR) = Total Revenue (TR)/Quantity sold (Q) When we take the case of a single commodity, TR=P×Q So, AR = $\frac{P \times Q}{Q}$ = P, where P= Price of the commodity.
<ul> <li>According to the question,</li> <li>80200 - 13P = 6200 + 12P Or, 7400 = 25P</li> <li>So, P = ₹ 2,960</li> <li>Putting the value of P in any of the demand or supply values,</li> <li>we get 80200 -(13×2960)=80200-38480=41720 units.</li> <li><b>13. Balance of Trade is the difference between</b> <ul> <li>A) Country's Income and Expense</li> <li>B) Country's Exports and Imports</li> <li>C) Country's Tax Revenue and Expense</li> <li>D) Country's capital inflow and outflow</li> </ul> </li> </ul>	<ul> <li>17. Which one of the following is not a feature of monopoly?</li> <li>A) Single seller of the product</li> <li>B) Heavy selling costs</li> <li>C) Barriers to entry of new firms</li> <li>D) Price discriminations</li> <li>Explanation : Ans : (B)</li> <li>Heavy selling costs is one of the defining features of an oligopoly. Firms resort to heavy selling cost to attract customers. Under this market form, the firms have to compete to promote their sale by largely homogeneous</li> </ul>
	0.)

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products, differentiated mainly by heavy advertising and promotional expenditure that ultimately adds to the total selling cost.

#### 18. The supply of labour in the market depends on

- A) The proportion of the population in the labour force
- **B)** the number of person hours put in by each person
- **C)** the size of population
- D) All the above.

**Explanation** :

**Explanation** :

#### Ans : (D)

Supply of labour in an economy depends upon both economic as well as non-economic factors. It depends upon the size of population, the number of workers available for work, out of a given population, the number of hours worked, the intensity of work, the skills of workers their willingness to work and the mobility of labour.

## 19. Over the years, birth rate in India has ...... and death rate has ......

A)	risen, fallen	B)	risen, risen
C)	fallen, risen	D)	fallen, fallen

Ans : (D)

Both birth rate and death rate show a falling trend in India. Recent data shows that birth rate has gradually decreased in the past decade except during the years 2005 and 2007. Death rate has also fallen consistently due to drastic improvement in provision and access to better health services and living conditions. India is, at present, in late third stage of demographic transition that is marked by declining birth rate and low death rate.

- 20. Which one of the following has not been launched during the tenure of the NDA Government at the Centre ?
  - A) Pradhan Mantri Jan Dhan Yojana
  - **B)** MGNREGA Programme
  - C) Swachh Bharat Abhiyan
  - **D)** Ujjwala Yojana

#### **Explanation** :

#### Ans : (B)

Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) is a labour law and social security measure that was enacted as National Rural Employment Guarantee Act on 25 August 2005. It was launched by Prime Minister Manmohan Singh on 2 February 2006. It is the largest and most ambitious social security and public works Programme in the world.

21. Which one of the following organisations is a financial institution ?A) KVICB) IFCO

A) KVIC	
C) SEBI	
<b>Explanation</b> :	

#### Ans : (D)

ICICI (Industrial Credit and Investment Corporation of India) Bank is an Indian multinational banking and financial services company headquartered in Mumbai, Maharashtra. It is the largest private sector bank and overall the second largest bank in India after State Bank of India

D) ICICI

22. What was the period of 5th Five Year Plan in India ?
 A) 1974 to 1979
 B) 1969 to 1974

A)	1974 to 1979	В)	1969 to	1974
C)	1985 to 1990	D)	1980 to	1985

## **Explanation :**

#### Ans : (A)

Ans : (A)

The duration of the Fifth Five-Year Plan was 1974-79. It laid stress on employment, poverty alleviation (Garibi Hatao), and justice. The plan also focused on self-reliance in agricultural production and defence.

## 23. Who proposed Gandhian Plan (Economic policy) in 1944?

- **A)** Mannarayan
- **B** M.N. Roy
- C) Jaiprakash
- **D)** Amartya sen

#### **Explanation** :

In 1944, the Gandhian Plan was put forward by Shriman Narayan Aggarwal who was principal of Wardha Commercial College. Its basic elements followed the Gandhian principle and was a modest kind of plan. It is known as Gandhian Plan, as it was based upon Gandhian philosophy

- 24. If initiatives have been taken for environmentefficiency and recycle and reuse of materials in a corporation, then under which kind of responsibility does it come ?
  - A) Financial responsibility
  - B) Environmental responsibility
  - **C)** Economic and social responsibility
  - **D)** Social responsibility

#### **Explanation** :

#### Ans : (B)

Environmental responsibility refers to an organization/ company's duties to abstain from damaging natural environments in which it operates. It includes covering the implications of the operations for the environment; adopting recycle and reuse policy to reduce and eliminate waste; maximizing the efficiency and productivity of resources and minimizing activities that influence the enjoyment of the resources by future generations.

- 25. Suppose the equilibrium price for sugar is ₹ 50/kg. If the government sets a price floor of ₹ 70/kg then ......
  - **A)** quantity of sugar demanded will be greater than the quantity demanded at equilibrium price
  - **B)** there will be a shortage of sugar in the market
  - **C)** there will be a surplus of sugar in the market

() quantity of sugar supplied will be less than what was supplied at the equilibrium price

**Explanation :** Ans : (C) The equilibrium price is the market price where the quantity of goods supplied is equal to the quantity of goods demanded. This is the point at which the demand and supply curves in the market intersect. If a price floor is set above the free-market equilibrium price (as shown where the supply and demand curves intersect), the result will be surplus of the goods in the market. A price floor will also lead to a more inefficient market and a decreased total economic surplus.

- 26. Area which supports the economy and export trade of a seaport is called its :
  - A) export basin B) hinterland
  - C) economic zone D) umland

11

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SURA'S → General A	wareness / Knowledge
<b>Explanation :</b> Ans. (C) The World Trade Organization (WTO) is an organization that intends to supervise and liberalize international trade. The organization officially commenced on January 1, 1995 under the Marrakesh Agreement, replacing the General Agreement on Tariffs and Trade (GATT), which commenced in 1948.	<ul> <li>Thus SDRs act both as an international unit of account and a means of payment. All transactions by the Fund in the form of loans and their repayments, its liquid reserves, its capital, etc., are expressed in the SDR.</li> <li>The achievements of the fund can be summed up in the words of Haien that 'Fund is like an International Reserve Bank.'</li> </ul>
<ul> <li>9. Who were made the permanent members of the U.N. Security- Council ?</li> <li>A) One representative from each continent</li> <li>B) Five major powers of the Allied Forces in the Second World War</li> <li>C) Five members elected by the U.N. General Assembly at the initial Constitution</li> <li>D) Funding members of the U.N.</li> <li>Explanation : Ans. (B)</li> <li>The permanent members of the United Nations Security Council, also known as the Permanent Five, Big Five, or P5, include the following five governments: China, France,</li> </ul>	<ul> <li>12. The headquarters of UNESCO is in <ul> <li>A) New York</li> <li>B) The Hague</li> <li>C) Paris</li> <li>D) Moscow</li> </ul> </li> <li>Explanation : <ul> <li>Ans. (C)</li> </ul> </li> <li>The United Nations Educational, Scientific and Cultural Organization is a specialized agency of the United Nations (UN). Its purpose is to contribute peace and security by promoting international collaboration through education, science, and culture in order to further universal respect for justice, the rule of law, and human rights along with fundamental freedom proclaimed in the UN Charter. The headquarters of UNESCO is in Paris.</li> </ul>
Russia, the United Kingdom, and the United States. They are also the only countries officially recognized as "nuclear-weapon states" under the Nuclear Non- Proliferation Treaty (NPT)	<ul> <li>13. The UN Secretary-General holds office for a period of</li> <li>A) 3 years</li> <li>B) 4 years</li> <li>C) 5 years</li> <li>D) 6 years</li> </ul>
<ul> <li>10. According to the UN Convention on the Rights of the Child which of the following is not a right?</li> <li>A) Safe drinking water</li> <li>B) Adequate standard of living</li> <li>C) Employment</li> <li>D) Protection from exploitation</li> </ul>	<b>Explanation : Ans. (C)</b> The Secretary-General of the United Nations is the head of the United Nations Secretariat, one of the principal organs of the United Nations. The Secretary-General also acts as the de facto spokesperson and leader of the United Nations. The United Nations Charter provides for
<b>Explanation :</b> Ans. (A) The United Nations Convention on the Rights of the Child (UNCRC) is a human rights treaty setting out the civil, political, economic, social, health and cultural	the Secretary-General to be appointed by the General Assembly upon the recommendation of the Security Council. 14. In which year did the UN General-Assembly adopt
Convention and opened it for signature on 20 November, 1989 (the 30 <sup>th</sup> anniversary of its Declaration of the Rights of the Child). It came into force on 2 September, 1990.	the Universal Declaration of Human Rights?A) 1945B) 1948C) 1952D) 1955Explanation :Ans. (B)
The Convention deals with the child-specific needs and rights.	The text was drafted in 1947, when the Commission

#### 11. Special Drawing Rights (SDR) facility is available at

- A) International Monetary Fund (IMF)
- B) World Bank (IBRD)
- **C)** International Development Association (IDA)
- D) Organisation of Economic Cooperation and Development (OECD)

**Explanation**:

#### Special Drawing Rights (SDRs)

♦ The IMF has succeeded in establishing a scheme of Special Drawing Rights (SDRs) which is otherwise called 'Paper Gold'. They are form of international reserves created by the IMF in 1969 to solve the problem of international liquidity. They are allocated to the IMF members in proportion to their Fund quotas. SDRs are used as a means of payment by Fund members to meet balance of payments deficits and their total reserve position with the Fund.

on Human Rights first met to prepare an International Bill of Human Rights, and December 1948, when the General Assembly adopted the Universal Declaration. The Universal Declaration of Human Rights, though not legally binding, was adopted by the General Assembly in 1948 as a common standard of achievement for all. The Assembly regularly takes up human rights issues.

15. Which of the following is not associated with the **UN organisation ?** A) ILO

B)	WHO
D)	ASEAN

#### **Explanation** :

C) FAO

Ans. (D)

#### **Association of South East Asian Nations (ASEAN)**

ASEAN was established on 8 August 1967 in Bangkok by the five original member countries: Indonesia, Malaysia, Philippines, Singapore and Thailand. Later Brunei Darussalam, Vietnam, Laos and Myanmar and Cambodia joined. Besides ten members of the ASEAN, there are six

Ans. (A)

"dialogue partners" which have been participating in its deliberations. They are China, Japan, India, South Korea	Explanation : Ans. A)
New Zealand and Australia.	The number of International Monstern Fund is to
16. The International Criminal Police Organisation (INTERPOL) has its headquarters at	secure and promote economic and financial cooperation among member countries.
A) LondonB) ParisC) BonnD) Montreal	<ul> <li>The IMF was established to assist the member nations to tide over the Balance of Payments disequilibrium in</li> </ul>
Explanation : Ans. (B) The International Criminal Police Organization (ICPO), widely because as INTERPOL is an internet sector.	the short term. At present, the IMF has 189 member countries with Republic of Nauru joined in 2016.
organization facilitating international police cooperation It was established as the International Criminal Police	21. The International Court of Justice sits inA) GenevaB) HagueC) ViennaD) Rome
Commission (ICPC) in 1923 and adopted its telegraphic	Explanation :
address as its common name in 1956. Its headquarters is	The International Court of Justice (commonly referred to
located in Lyon, Paris.	as the World Court or ICJ) is the primary judicial organ of
17. Once elected for a full term, a judge serves on the	the United Nations. It is based in the Peace Palace in The
International Court of Justice for $(A)$ , five years $(B)$ , give years	Hague, the Netherlands.
C) nine years D) ten years	22. Which institution is known as 'soft loan window' of
Evolution:	the World Bank ?
The International Court of Justice is the primary judicial	A) International Finance Corporation
organ of the United Nations. It is based in the Peace Palace	<b>B)</b> International Development Agency
in The Hague, the Netherlands. The ICJ is composed	C) International Monetary Fund
of fifteen judges elected to nine year terms by the UN	D) Indian Development Forum
General Assembly and the UN Security Council from a	Explanation : Ans. (B)
list of persons nominated by the national groups in the	The IDA lends to countries with the aim to finance projects
Permanent Court of Arbitration.	balthcare, access to clean water and sanitation facilities
18. The UN flag was adopted by the General Assembly	and environmental responsibility. It is considered to be
<b>on</b> (A) Optober 20, $1047$ (B) January 1, $1052$	the soft lending window of the World Bank, while the
<b>C)</b> June 24, 1973 <b>D)</b> August 15, 1982	IBRD is considered to be the hard lending window.
Explanation : Ans. (A)	23. The headquarters of World Health Organisation (WHO) is at
20, 1047 and consists of the official omblom of the United	A) London B) Geneva
Nations in white on a blue background.	C) Paris D) Washington
10 Where is headquarters of European Union located 2	Explanation : Ans. (B)
A) London B) Paris	The World Health Organization (WHO) is a specialized
C) Brussels D) Bonn	agency of the United Nations (UN) that is concerned with
Explanation : Ans. (C)	international public health. It was established on 7 April
The European Union (EU) is an economic and political	1948, with headquarters in Geneva, Switzerland, and is a
union of 27 member states which are located primarily	I member of the United Nations Development Group.
in Europe. Important institutions of the EU include the	24. Which one country is not a permanent member of
European Commission, the Council of the European	the Security Council of the United Nations ?
Union, the European Council, the Court of Justice of the	A) France
European Union, and the European Central Bank. The	<b>C)</b> Bussia
citizens	<b>D)</b> United States of America
20 IME was established to most which of the following	Explanation : Ans. (B)
objectives?	The Security Council is made up of 15 member states.
1) Promoting International Monetary Cooperation	consisting of 5 permanent members–China, France,
2) Expanding International trade	Russia, the United Kingdom and the United States-and
3) Lessening the disequilibrium in balance of trade	10 non-permanent members, currently (2022) Albania,
<b>4)</b> Avoiding competitive exchange depreciations	India, Brazil, Gabon, Ghana, Ireland, Kenya, Mexico,
Select the correct answer :	Norway, and UAE.
A)       (1), (2) and (3)       B)       (1), (3) and (4)         C)       (2) and (4)       D)       (1), (2), (3) and (4)	It has six official languages: Arabic, Chinese, English, French, Russian, and Spanish.

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**SURA'S** → General Awareness / Knowledge

BOOKS	AUTHORS		BOOKS	AUTHORS
One World to Share	Sridath Ramphal		Rang-e-Shairi	Raghupati Sahai 'Firaq' Gorakhpuri
Story	Lt-Gen K S Brar		Ratnavali	Harsha Vardhan
Our Films, Their Films	Satyajit Ray	11	Ravi Paar (Across the Ravi)	Gulzar
Our India	Minoo Masani	<b>i</b>	Rediscovering Gandhi	Yogesh Chadha
Out of Dust	F D Karaka		Reminiscences of the Nehru	M O Mathai
Padmavati	Malik Mohammed Jayasi	6	Age	
Painter of Signs	R K Narayan	1	Return of the Aryans	Bhagwan S Gidwani
Pakistan in the 20 <sup>th</sup> Century	Lawrence Ziring		Returning to the Source	Acharya Rajneesh
Pakistan Papers	Mani Shankar Aiyer		Revenue Stamp	Amrita Pritam
Panchagram	Tarashankar		Rich Like Us	Nayantara Sehgal
	Bandopadhyaya		Ritu Ka Pehla Phool	Vijendra
Panchtantra	Vishnu Sharma		Ritu Samhara	Kalidas
Pakistan Cut to Size	D R Mankekar		River Sutra	Gita Mehta
Passage to England	Nirad C. Chaudhuri		Road to Freedom	K K Khullar
Past Forward	G R Narayanan		Rukh Te Rishi	Harbhajan Singh
Pather Panchali	Bibhuti Bhushan		Sader-i-Riyasat	Karan Singh
Piniar	Bandyopadhyaya Amrita Pritam		Sardar Patel and Indian Muslims	Rafiq Zakaria
Plans for Departure	Navantara Sehgal		Sakharam Binder	Vijay Tendulkar
Portrait of India	Ved Mehta		Saket	Maithili Sharan Gupta
Post Office	Rabindranath Tagore		Satyartha Prakash	Swami Dayanand
Prathama Pratishruti	Ashapurna Devi		Satanic Verses	Salman Rushdie
Prem Pachisi	Prem Chand		Savitri	Aurobindo Ghosh
Premonitions	P N Haksar	11	Sceptred Flute	Sarojini Naidu
Price of Partition	Rafiq Zakaria	i	Scholar Extraordinary	Nirad C Chaudhuri
Prison and Chocolate Cake	Nayantara Sehgal	11	Scope of Happiness	Vijayalakshmi Pandit
Prison Diary	Jayaprakash Narayan		Search for Home	Sasthi Brata
Prisoner's Scrapbook	L K Advani		Sense of Time	S H Vatsyayan
Prithviraj Raso	Chand Bardai		Seven Summers	Mulk Raj Anand
Profiles & Letters	K Natwar Singh		Tamas	Bhisham Sahni
Punjab, The Knights of	K P S Gill	6	Tarkash	Javed Akhtar
Falsehood		1	Tehriq-e-Mujahideen	Dr Sadiq Hussain
Quest for Conscience	Madhu Dandavate	1	The Assassination	K Mohandas
Radharani	Bankim Chandra Chatterjee		The Betrayal of East Pakistan	Lt Gen A A K
Raghuvamsa	Kalidas		The Calcutta Chromosome	Amitav Ghosh
Rajtarangini	Kalhana		The Career & Legend of	Sanjay Subramanyam
Ram Charit Manas	Tulsidas		Vasco de Gama	
Ramayana	Maharishi Valmiki (in Sanskrit)		The Chinese Betrayal	B N Mullick
Ramavana Dharshanam	K V Puttappa		The Congress Splits	R P Rao
Rangbhoomi	Prem Chand		The Defeat or Distant Drumbeats	Bhaskar Roy
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**SURA'S** → General Awareness / Knowledge

BOOKS	AUTHORS		BOOKS	AUTHORS	
Unhappy India	Lala Lajpat Rai		Zulfikar Ali Bhutto &	Rafi Raza	
Until Darkness	Parvin Ghaffari		Pakistan		
Utouchable	Mulk Raj Anand		From dependence to Self	Economist Dr Bimal Jalan	
Urvashi	Ramdhari Singh 'Dinkar'		Rise as a Global Superpower		
Uttar Ramcharita	Bhava Bhuti		'A confused Mind story'	Mr. Sahil Seth	
Untold Story	Gen B M Kaul	6	Indian Revenue Service (IRS)		
Vanity Fair	Thackeray	2	Joint Commissioner GST		
Vendor of Sweets	R K Narayan		MBBS Course books in Hindi	Launched by Home Minister Amit Shah	
Venisamhara	Narayana Bhatt 🛛 🥢		'Pandemic Disruptions	Dr Amar Patnaik	
Village by the Sea	Anita Desai		and Odisha's Lessons in		
Village	Mulk Raj Anand		Governance'		
Vinay Patrika	Tulsidas		"The Philosophy of Modern Song"	Bob Dylan	
Virangana	Maithili Sharan Gupta		Ambedkar and Modi	Beleased by Former	
Vish Vriksha	Bankim Chandra Chatterjee		Reformer's Ideas Performer's	President Ram Nath Kovind	
Voice of Conscience	V V Giri		Implementation	and compiled by Bluekraf	
Voice of Freedom	Nayantara Sehgal		NDaiini'a Mantraa, Lifa	Digital Foundation.	
Waiting for the Mahatma	R K Narayan		lessons from India's most-		
Walls of Glass	K A Abbas		loved Superstar"		
War and No Peace Over Kashmir	Maroof Raza		"Will Power: The Inside Story of the Incredible Turnaround	Sjoerd Marijne	
War of Indian Independence	Vir Savarkar		in Indian Women's Hockey		
We, Indians	Khushwant Singh		Namaskar	Dr Kalubhai	
We, the People	N A Palkhivala		The Hero of Tiger Hill	Subedar Major Yadav	
Widening Divide	Rafiq Zakaria		Indian Banking in Retrospect	Dr Ashutosh Raravikar	
Wings of fire, an Autobiography	Dr A P J Abdul Kalam & A. Tiwari		- 75 years of Independence	Pulanro Balakrishnan	
Witness to History	Prem Bhatia		to Modi		
Without Fear or Favour	Neelam Sanjiva Reddy		Rusty Skies and Golden	Sannidhya Sharma	
Women and Men in My Life	Khushwant Singh		Winds'		
Worshipping False Gods	Arun Shourie		Lion of the Skies	Stephen Barker	
Wreck	Rabindra Nath Tagore		Dangerous Earth	Marine biologist Ellen	
Yajnaseni	Dr Pratibha Roy	2		Prager	
Yama	Mahadevi Verma 🔗	1	Dilia Kanana Ia tha Chadaan	Sanjukta Dasn	
Yashodhara	Maithili Sharan Gupta		of a Legend	Faisal Farooqui	
Yayati	V S Khandekar		Beyond the Misty Veil	Ms Aradhana Johri	
Year of the Vulture	Amita Malik			(Senior IAS)	
Years of Pilgrimage	Dr Raja Ramanna		The India Story	Bimal Jala	
Yesterday and Today	K P S Menon		Ashtang Yoga	Dr Sonu Phogat	

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# ENGLISH LANGUAGE

- 1. English Grammar (Descriptive)
- 2. Spot the error
- 3. Fill in the blanks
- 4. Synonyms & Antonyms
- 5. Misspelled words
- 6. Idioms & Phrases
- 7. One word substitution
- 8. Improvement of sentences
- 9. Active / Passive voice
- 10. Conversion of direct / indirect speech
- 11. Shuffling of sentences in a passage
- 12. Cloze Test
- 13. Comprehension
- 14. Miscellaneous

## **ENGLISH GRAMMAR (DESCRIPTIVE)**

## SINGULAR & PLURAL FORMS

I. Simple rules for plurals		
a) add `-s' words ending in consonants boy - boys desk - desks book - books cow - cows	<ul> <li>b) add -es'</li> <li>words ending in -s, -sh, -ch, -x</li> <li>class - classes</li> <li>brush - brushes</li> <li>tax - taxes</li> <li>dish - dishes</li> </ul>	c) add '-es' words ending in vowels buffalo - buffaloes negro - negroes hero - heroes echo - echoes
d) add '-s' words ending in vowels - exceptions dynamo - dynamos piano - pianos kilo - kilos ratio - ratios	e) Change 'y' into 'ies' baby - babies army - armies city - cities story - stories	f) Change of inside vowel man - men woman - women mouse - mice goose - geese tooth - teeth
I. Other Plurals :		
1. No Change : apparatus / apparatuses chassis, poultry, cattle headquarters, people, shorts aircraft, trousers, jeans	2. sis - ses, xis - xes analysis - analyses basis - bases; crisis - crises diagnosis - diagnoses; thesis - theses synopsis - synopses hypothesis - hypotheses axis - axes	3. us - i fungus - fungi stimulus - stimuli radius - radii alumnus - alumni cactus - cacti / cactuses terminus - termini / terminuses syllabus - syllabi
<ol> <li>on - a criterion - criteria phenomenon - phenomena memorandum - memoranda</li> </ol>	5. lum - la, tum - ta curriculum - curricula; erratum - errata	6. us - ora, era corpus - corpora; genus - genera
7. eau - eaux beau - beaux; bureau - bureaux / bureaus	8. la - lae, bra - brae formula - formulae vertebra - vertebrae	9. ex - ices / exes apex - apices / apexes index - indices / indexes
10. ix - ices / ixes appendix - appendices / appendixes	11. cus - ci focus - foci / focuses	<b>12. Nouns take 's'</b> commander-in-chief : commanders-in-chief
<b>13.</b> chief - chiefs gulf - gulfs proof - proofs	14. dwarf - dwarfs, dwarves hoof - hoofs, hooves scarf - scarfs, scarves	son-in-law : Sons-in-law on-looker : on-lookers step-son : step - sons maid-servant : maid-servants
handkerchief – handkerchiefs	15. ox - oxen child - children	passer-by : passers-by man servant : men servants

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Singular	Plural		Singular	Plural
aircraft	aircraft		cactus	cacti
analysis	analyses		cat	cats
baby	babies		child	children
boat	boats		city	cities
box	boxes		crisis	crises
bus	buses		criterion	criteria

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Exp	anation :		Ans : (C)	Expl	anation :		Ans : (A)
At is	s used to show place.			Abou	<b>ut</b> is used to show co	nnection	
17.	`The burglar said, `	"Your life your	gold. You	Abou	$\mathbf{ut} = \mathbf{on}$ the subject of $\mathbf{u}$	of something	
	decide". Use the rig	ht conjunction.		25.	The mob was very	y much agitated. Wh	at type of
	A) who	B) or D) except			A) Proper noun	B) Pronoun	
Fyn	anation .	<b>D</b> ) except	Ans $\cdot$ (B)		<b>C)</b> Collective	<b>D)</b> Abstract	
Alto	rnative is evident		АПЗ . (Д)	Expl	anation :		Ans : (C)
10	Find a bottor organize	alont for 'lively child'	from the	Mob	$\Rightarrow$ group of agitators	s/people	
10.	aiven words'	alent for lively clinic	ITOIII tile	26.	She cut the ribbon	with a knife.	
	A) active	<b>B)</b> cheerful		S	Identify the preposi	ition in the sentence.	
	C) sad	<b>D)</b> pessimistic	(LV)	1	A) the	B) with	
Expl	anation :		Ans : (A)	E-ml	C) a	D) she	$Amc + (\mathbf{P})$
Live	<b>ly</b> = active			With	anation: $\rightarrow$ using something		Ans: (B)
19.	The youth in our co	untry is vibrant.		27	The homomorphic are alr	nost ring to be esten	
	`The youth' in the s	entence is a nou	ın.	67.	Identify the adverb	in the sentence	
	A) Abstract	B) Collective			A) eaten	B) ripe	
	C) Common	<b>D)</b> Uncountable			C) bananas	D) almost	
Exp	anation :		Ans : (B)	Expl	anation :		Ans : (D)
The	youth $\Rightarrow$ young peop	le		Almo	ost modifies adjective	e ripe	
20.	She sat her d	lesk all the evening w	riting the	28.	The army fought br	avely in the war.	
	letter. Complete the	e sentence.			Identify the adverb	in the sentence.	
	A) under	B) on			A) bravely	B) army	
Erml	C) at	D) above			C) war	<b>D)</b> fought	A (A)
	anation:	omehody/something is	Alls : (C)	Expl	anation : why modified work <b>fo</b> r	vah+	Ans : (A)
21	Fill in the blank usi	an the right article		Diav	The invite tion come	ugnit	
<b>2</b> 1.	There is a concert of	f choir music at	university	29.	'at' refers to :	e at an early date.	
	to-night.		university		A) place	B) time	
	A) no article can be	used here			C) manner	<b>D)</b> measure	
	<b>B)</b> a			Expl	anation :		Ans : (B)
	<b>C)</b> the			Here	e, <b>at</b> refers to <b>time</b>		
	D) an			30.	Fill with the right p	preposition.	
Exp	anation :		Ans : (C)		"The bull was hit	the whip"	
Plac	e is definite				A) using	B) by	
22.	A. I am going for th	ie cinema			C) with	D) at	
	B. Are you ? I thoug	gnt		Expl	anation :		Ans : (C)
	A) you were going f	for the cinema		Appr	opriate preposition v	will be `with`	
	<b>B)</b> you are going for	the cinema		31.	`It was you who sar	ıg`. `it` is a	
	C) you were not goi	ng for the cinema		MC	A) Adverb	B) Verb	
	D) you are not going	g for the cinema			C) Pronoun	D) Noun	
Exp	anation :		Ans : (C)	Expl	anation :		Ans : (C)
Que	stion tag (are you?)	is affirmative. Theref	ore, main	It co	mes for a noun. <b>It</b> is	a pronoun	
sent	ence will be in negat	ive.	7)//	32.	Identify the phrasal	preposition in the se	entence.
23.	'The river in the mo	orning was pleasantly	cool'.		"By virtue of her be	ing the minister, she l	hoisted the
	Identify the adverb	in the sentence.			flag"	D) Doing	
	A) cool	<b>B)</b> pleasantly			C) Virtue	<b>D</b> ) By wirtue of	
Fyn	c) morning	D) river	$\Delta ns \cdot (B)$	Expl	anation ·	<b>Dj</b> Dy virtue of	Ans · (D)
Plea	santly modifies adject	tive <b>cool</b>	лиз . (D)	By w	irtue of = because of	r as a result of on acc	count of
24	What are you talking	a about ?		32	Fill in the blank use	ng the right pronoun	
64.	Identify the preposi	tion in the sentence		33.	'The students enjoy	red	•
	A) about	B) what			A) herself	B) themselves	
	C) talking	<b>D)</b> you			C) ourselves	D) himself	
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\*\* 79 \*\*

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4

SURA'S \*\* ENGLISH LANGUAGE

<b>Exp</b> Stud	<b>lanation :</b> lents $\Rightarrow$ Plural. Its	pronoun should be	Ans : (B) they/ them/	44.	He saw a vast gree ridges moving over	en sea beneath him, . r it.	little
ther	nselves. Its reflexive	pronoun is themselv	es		A) with	B) over	Ame ( ( ) )
34.	'My daughter follo	ws me wherever I go	).	45		D) Dut	Alls . (A)
	What type of adver	b has been used in th	e sentence?	45.	It was now	two o'clock of a moor	nless night.
	C) Frequency	<b>D)</b> Place			C) without	<b>D)</b> beside	$Ans \cdot (A)$
Exp	lanation ·		Ans · (A)	100	C) without	D) beside	
Adv	erb of manner is u	used to tell us the w	vav or how	40.	It was some time	mother got	through to
som	ething is done.	isou to ton us the .	ing of non	6	A) before	<b>P</b> ) about	
35	Which is the correc	t spelling of the adject	tive 'anor	)(('))	C) across	<b>D)</b> against	Ans:(A)
55.	when it becomes a	n adverb ?	tive angly	47		<b>D</b> ) against	
	A) angrier	B) angry	S	47.	the six member	their record cotting of	oke many
	<b>C)</b> angrily	<b>D)</b> angriest	Ans : (C)		A) about	B) out	all.
36.	The plural of "ox"	is			C) during	D) but	Ans : (C)
50.	A) Oxes	B) Oxen		10	Put we clowly but	ilt upon it through t	three weeks
	C) Oxies	<b>D)</b> Ox	Ans : (B)	40.	training	in upon it through	unee years
37	Name of the kind o	of gender of "Doctor"			A) as	B) for	
57.	A) Masculine gend	er			C) from	$\mathbf{D}$ ) of	Ans : (D)
	<b>B)</b> Feminine gende	er		10	We were beginning		
	<b>C)</b> Neuter gender			49.	A) about	B) until	
	D) Common gende	r			C) without	D) over	Ans : (C)
Exp	lanation :		Ans : (D)	50	What a thur develop	z, over	
A n	oun that denotes eit	ther a male or a fem	ale is called	50.	<b>A)</b> to	p these words were B) with	me!
com	mon gender				$(\mathbf{C})$ of	<b>D)</b> but	Ans $\cdot$ (A)
38.	An action undertak	ken long before and v	vhich is still	E1	Very surfill memory de	bine to some and not	1113 . (11)
	going on is said to	be of tense.		51.	You will persuade	him to come and ret	turn
	A) Present indefini	te			nim.	D) from	
	<b>B)</b> Present perfect				C) during	<b>D)</b> for	Ans $\cdot$ (A)
	<b>C)</b> Past continuous						
	<b>D)</b> Present perfect	continuous	Ans : (D)	Com	plete the following se	ntence using the most	appropriate
39.	Past participle of "	Sow" is		tens	e form of the verb give	en below :	
	A) Sew	B) Sown		52.	He the heat	because he had not	eaten since
	C) Sowed	D) Sewn			the previous night	all.	
Exp	lanation :		Ans : (B)		A) lelt	<b>B)</b> head fait	Ame ( ( ) )
Sow	$\Rightarrow$ Sowed $\Rightarrow$ Sown	(past participle)		-	C) has left	D) had left	Alis : (A)
The	fields around had be	een sown with wheat.		53.	His mother	up a piece of fish and	l was flying
Fill i	n the blank with the	most appropriate prep	osition given		A) has picked	IL. <b>D)</b> picks	
belo	w:				<b>C)</b> had nicked	<b>D)</b> has been nicking	$Ans \cdot (C)$
40.	The young seagull	was alone his	ledge.	EN		<b>D</b> has been picking	· · · · · · · ·
	A) on	<b>B)</b> to		1 84	He screamed with	fright and to r	ise again.
	<b>C)</b> up	D) but	Ans : (A)		A) is attempting	<b>B)</b> attempted	Ame (D)
41.	His two brothers a	and his sister had all	ready flown	$\sum$	C) attempt	D) has attempted	Alls : (b)
	away the day		(U)	55.	I supposed at first	t that it was my fai	ther or my
	A) about	B) before	21		A) good		
	C) without	D) over	Ans : (B)		<b>n</b> yours	<b>D</b> ) had gong	$\Delta ns \cdot (D)$
42.	He had been afraid	l to fly them.		50	J have yolle		Alls . (D)
	A) but	B) next		50.	we saw nothing co	ming; we only	the steps.
	C) during	D) with	Ans : (D)		<b>C)</b> hears	<b>D</b> ) are hearing	$\Delta ns \cdot (P)$
43.	He was near the s	ea now, flying straig	htit,			are nearing	Alls . (D)
	facing out over the	e ocean.		57.	nerman rushed to h	us room and th	1e aoor.
	A) over	B) out			<b>A</b> Statilined	D) has slammed	$\Delta ns \cdot (\Delta)$
	C) during	שט (ע) but	Ans : (A)	I			ліз. (A)

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