

SSSC MATHEMALICS CHAPTERWISE & TYPEWISE

1999-

Chapterwise Compilation of Previous Years' Solved Papers of Exams Conducted by SSC Graduate Level (CGL Tier-I & II), CPO, DP SI & Constable, 10+2 (CHSL), Stenographer 'C' & 'D', Matric Level (MTS & Constable GD), FCI, etc.

With Test Yourself Questions

Objective Questions

with Detailed Explanations & Latest Trendy Solutions



SSC MATHEMATICS Chapterwise & Typewise SOLVED PAPERS 11000+ Questions (BOOK + ONLINE) PRACTICE ONLINE ALL 23 CHAPTER QUESTIONS

Online Test Series will cover Questions For the Following Exams



SSC CONSTABLE SSC STENOGRAPHER

www.kicx.in

A COMPREHENSIVE GUIDE TO CLOZE TEST

About the Book

The book Titled "**Cloze Test** अब मुद्दी में" has been written with a view to making the insurmountable task of solving Cloze tameable.

You must also remember that the methods suggested for solving Cloze Tests will work wonder when integrated with practice.

When we speak of confidence as human quality, it is practice which awakens the lethargic potential and Induces Confidence. So it is this practice which gives birth to Confidence.

Therefore, you must give stress to practice and try to solve as many Cloze Tests as possible with step by step analysis.

Remember : "Challenges can be stepping stones or stumbling blocks but it is just a matter of how you win them".

Highlights of the Book

This book includes both parts of the English language, namely :

- (a) Core Part : This part includes Grammar (Parts of Speech, Tense, Active and Passive, Direct and Indirect, Inversion, etc.) and Vocabulary (one-word substitution, Idioms and Phrases, Antonyms and Synonyms, Foreign words, Confusing Words etc.) Wherever there is a scope of confusion, I have given Expert Advice which should be very helpful for the better understanding of the rules from their practical application point of view. Never miss to read my opinion (Expert Advice).
- (b) Application part: This consists of, Error detection, Cloze Test, Sentence Improvement (sentence Correction), Sentence Arrangement (Para-jumbles), Passage Comprehension, etc.

I have tried my best to explain this part too in an interesting manner. You are, therefore, suggested to read the explanations very carefully.

- Friends, learning English may seem difficult but it is not impossible to learn. It can be learnt. What you really need is that you should motivate yourself by telling, "I am a creation of God, so I am unique. I have the potential to do anything. English which seems to be difficult for others, is very simple for me as I am a wonderful creation of the Almighty, God." Just repeat these words daily and keep practising; I am sure you'll see the miracle happening.
- All the questions of the exercises are from the previous year papers; therefore, you need to believe that the questions are relevant and important for the examination you are going to appear at. The questions are taken, especially from SSC (CGL & 10+2, stenographer, railways), IBPS Bank Exams (Clerk & P.O.), NDA, CDS, Air Force, etc.





Code 2166

Rs. 95/-





K





MATHEMATICS CHAPTERWISE SOLUTION SOLUTION 1999-till date

CHAPTERWISE COMPILATION OF PREVIOUS YEARS' SOLVED PAPERS OF EXAMS CONDUCTED BY SSC

- SSC Graduate Level Exams— Combined Graduate Level Pre. Exams, CPO Sub-Inspector, Section Officer (Audit), Tax Assiatant (Income Tax & Central Excise), Section Officer (Commercial Audit), Statistical Investigators, Combined Graduate Level Tier-I, Tier-II, SAS, CISF ASI, CPO ASI & Intelligence officer, FCI, Delhi Police SI Exams etc.
- SSC 10+2 Level Exams— Data Entry Operator & LDC and PA / SA Exam.
- SSC Combined Matric Level Exam Combined Matric Level Pre-Exam, Multitasking (Non-Technical) Staff, CISF Constable (GD), Constable (GD) & Riflemen (GD) and Other Competitive Exams.

12900+ Objective Questions With Tricky Solutions





© KIRAN INSTITUTE OF CAREER HXCELLENCE PNT. LID. (KICX) NEW EDITION

The copyright of this book is entirely with the Kiran Institute of Career Excellence Pvt. Ltd. The reproduction of this book or a part of this will be punishable under the Copyright Act. All disputes subject to Delhi jurisdiction.

Every possible effort has been made to ensure that the information contained in this book is accurate at the time of going to press, and the publishers and authors cannot accept responsibility for any errors or omissions, however caused. No responsibility for loss or damage occasioned to any person acting, or refraining from action, as a result of the material in this publication can be accepted by the editor, the publisher organy of the authors.



About the Book.....

The significance of past never diminishes, either in effect or substance. To forget this moot point becomes suicidal sometimes. A minute observation of the past and accumulated experiences help us in shaping our present. The positive and compendious conclusions drawn from the past become our pioneer in charting new ways and teach us to rectify our remedies. Our present is, thus, beautified. Where there is beauty, attraction cannot be negated. It is in this way that the foundation of a concrete future is further solidified. Aspirations turn into realities. This is a realistic reflection. If the past is forgotten by marginalizing this realism, the truth of past surfaces as a path strewn with pebbles. If we preserve and cherish these pebbles of the past and make correct use of them, they become the linchpin of an edifice called success. Thus, the intricacies of our path become effortless and our destination gets more and more intelligible.

Kiran Prakashan Pvt. Ltd., which has been at your service for decades and helping you with the multitude of relevant offerings, has made a meaningful effort to put together these invaluable and very useful pebbles in the form of a book, titled **Kiran's SSC Mathematics Chapterwise Solved Papers**.

It is an undeniable truth that the continuous motion of the past gives birth to change. Change gets inevitability. These changes bring coherence to the changed circumstances and fulfil the exact needs of the present. We reach our destinations only by striking coordination with these changes, lest we should find ourselves at the last row in this age of competition. The destination will be left as something impertinent. Our esteemed readers must be well aware of the changes introduced by the Staff Selection Commission (SSC) in the selection process for different posts. **Kiran Prakashan** has been keeping you updated with all the relevant information related to these very changes. According to Students, Teachers and Coaching Directors' demand this book has been changed and arranged by Topicwise/Typewise. The latest edition of **Kiran's SSC Mathematics Chapterwise Solved Papers** which is revised, enlarged and updated is another example of our sincere commitment to our readers, imparting completeness in their search for a better and secure future. We have updated each chapter with concise study material and tricky solutions have been provided wherever needed.

The book before you, **Kiran's SSC Mathematics Chapterwise Solved Papers**, has been based on the questions of Quantitative Aptitude/ Numerical ability that have been asked in the various competitive examinations at the **CGL (Tier I & II), CHSL (10+2) and Matric levels**. This book has been conceived as a holistic treatment and single solution to all the difficulties that a candidate encounters while appearing for the SSC exams. The **Think-Tank of Kiran Prakasham** has taken into account the needs and difficulties of candidates and made an attempt to simplify the subject matter by de-constructing every thread and each pattern. The questions asked in the different examinations conducted by the SSC have been not only compiled at one place, but also compartmentalized topicwise/typewise to grasp and digest easily with the help of comprehensive explanations and tricky solutions. This is a rare collection of **more than 12900 questions** and their respective explanations. It wouldn't be bragging if we say, do master these questions and their explanation questions. In other words, master this book sincerely; success will itself become the mistress.

This edition of **Kiran's SSC Mathematics Chapterwise Solved Papers** has been parceled out into **23 chapters**, each dealing with study materials, Topicwise and comprising bulk of questions and explanations. The chapters are : **Number System**, **LCM and HCF**, **Simplification**, **Power**, **Indices and Surds**, **Average**, **Ratio and Proportion**, **Alligation or Mixture Percentage**, **Profit and Loss**, **Discount**, **Simple Interest**, **Compound Interest**, **Time and Work**, **Pipe and Cistern**, **Time and Distance**, **Boat and Streams**, **Sequence and Series**, **Algebra**, **Trigonometry**, **Geometry**, **Mensuration**, **Statistics and Data Interpretation and Miscellaneous**.

Explanations to the questions serve in some way as highly directed study material. We have ensured not to bombard you with bulky study materials which sometimes prove futile if a candidate is facing severe crunch of time.

Johann Wolfgang von Goethe, considered the supreme genius of modern German literature, said once: "What is not started today is never finished tomorrow."

Relating to what Goethe had to say, we are proud to have made the beginning of a start. And, that start is **Kiran's SSC Mathematics Chapterwise Solved Papers**, where facts have been consolidated and refined and presented in the easy-to-digest objective question format which have actually been already asked in the different levels and formats of competitive examinations. Scientifically it has been proved that you tend to remember anything for long if that has been asked from you and you found yourself in a testing situation.

So, this book has been scientifically weaved on the principle of 'Test to Prepare and Success.'

As our experience suggests, SSC, to a great extent, follows the pattern of questions asked in previous examinations. But the scope has been enlarged now. Earlier syllabus was of Arithmetic alone, now it is syllabus of Mathematics. New syllabus has some new topics such as, Trigonometry, Geometry and Algebra with Co-ordinate Geometry. The new syllabus has been given in the introduction.

Last, but not the least, there is no shortcut to success. Only hard work and perseverance pays rich dividends in the long term. So, it is desirable on your part to make the best out of this unique offering before you. Let us remind you that the questions you find in this book will not only help you prepare for the SSC examinations, they will equip you with the much required knowledge and insight in 'cracking' other examinations as well.

Hugh Nibley, the famous American author and Mormon apologist said: **"Only if you reach** the boundary will the boundary recede before you. And if you don't, if you confine your efforts, the boundary will shrink to accommodate itself to your efforts. And you can only expand your capacities by working to the very limit."

Our researchers have taken painstaking efforts in the direction of accommodating and expanding to the limit. The guiding principle has been to have an eye on whatever is significant, and when you do have such a microscopic eye, there is little that can be expected to have been ignored. So, here is our new, novel and unique offering to you, **Kiran's SSC Mathematics Chapterwise Solved Papers**. You will find a scratch card for online test. This will help you prepare for the SSC online exam pattern. Read this book with ppen and paper and digest it thoroughly to reach the limits of life. Have a serious glance to know what it is all about.

With the Best Wishes

(Publisher) Satyanarayan Prasad Email : sanket2000_us@yahoo.com

	SOME NOTABLE FACTS	
	SSC (Staff Selection Commission)	
\checkmark	V	↓
Combined Graduate	Combined Higher	Matric Level
Level(CGL)	Secondary Level (CHSL)	
\downarrow		\checkmark
CGL Tier–I, Tier–II, Tier–III	LDC & DEO	Multi Tasking Staff
& Tier–IV, CAPFs SI & Delhi	and	and Constable (GD)
Police SI and FCI etc.	Stenographer 'C' & 'D'	

- Staff Selection Commission Conducts examination for Graduate Level, Higher Secondary Level and Matric Level on all India basis.
- Till now SSC conducted Combined Graduation level Examination used to be held in two parts i.e. Tier-I and Tier-II. But from now onwards this examination will be held in four parts i.e. Tier-I, Tier-II, Tier-III and Tier-IV.
- Earlier in SSC conducted Tier-I Exam used to have 50 questions on Mathematics out of 200 questions, while in Tier-II a candidate had to answer 100 questions. But from 2016 onwards in Tier-I out of 100 questions, 25 questions will be on Mathematics, while a candidate has to answer 100 questions in Tier-II.
- SSC Conducts Tier-I examination for CHSL of 100 questions out of which Mathematics carries a weightage of 25 questions.
- ➡ Matric Level exams are conducted for Multi Tasking Staff in which out of 150, 25 questions are from Mathematics and in Constable GD exam weightage of Mathematics is 25 questions out of 100.
- ➡ The Changing nature of Mathematics questions in recent exams conducted by SSC make this subject very important and deciding factor in success or failure.



TOP 5 IMPORTANT CHAPTERS

 Combination of Algebra, Geometry, Trigonometry, Mensuration and Statistics & Data Interpretation in recent Exams (2011-2021)



We do worry about your career That is why To inculcate confidence in you We do publish almost all competitive books and monthly magazines **Indispensable for all the Competitive Exams**

Kiran's Competitive Reasoning is a very useful and comprehensive book on Reasoning catering to the needs of every student preparing for competitive examinations.

Special Features :

- ► This Book is Unique in the sense that it follows easy methods in solving difficult questions. Step -by- step explanations have been given for easy understanding.
- Concept has been discussed citing questions asked in various competitive examinations.
- Step-by-step method has been followed, so that book becomes helpful for all aspirants. For beginners, simple and easy questions have been discussed to give them **conceptual clarity** and standard of questions has gradually been raised so that they can master the subject.
- ► This book will stand out from other books Code 2509 available in market as not only the chapters have



been discussed in detail; large number of questions have also been included in each chapter.

- > We have tried to compile questions asked in various exams (Bank PO, Clerk, SSC, Railway, Insurance, RBI, Air Force, by UPSC such as IAS CSAT, CDS, CAPF, NDA, Police, Postal Assistant, Teachers Recruitment Exams and various State Public Service Commission etc; CAT, MAT, XAT etc.). These examples have been solved by conventional methods as well as by short-cut methods.
- If you go through this book, you will get acquainted with all types and standards of questions. This will increase your level of preparation and ultimately the chances of your success.
- ► Latest questions i.e.(lengthy questions & tricky questions) particularly in Problem Solving, Decision Making, Ranking and Arrangement, Statement-Argument, Statement-Conclusion/Inferences have been collected and solved in easy way especially to make you tackle every type of question.
- Unique way of solutions to Input-Output Problems.

CHANNEL



PRACTICE ON MOBILE Visit our website



TOPICWISE DISTRIBUTION OF QUESTIONS OF SSC GRADUATE LEVEL (TIER-I, TIER-II, CPO, DPSI) EXAMS HELD DURING 2011–2021

QUANTITATIVE APTITUDE

						-	-		-	F	CXA	MIN	ATI	ONS	5			-		-	
S. No.	TOPICS	 Average number of Questions 	SSC CGL Tier-I 26.06.2011	SSC CGL Tier-II 16.09.2012	SSC CGL Tier-I 21.04.2013	SSC CGL Tier-II 21.09.2014	SSC CGL Tier-I 26.10.2014	SSC CGL Tier-II 12.04.2015	SSC CAPFs SI, CISF ASI & D.P. SI 21.06.2015	SSC CGL Tier-I 16.08.2015	SSC CGL Tier-II 25.10.2015	SSC CGL Tier-I (Ilnd Sitting) 27.10.2016	SSC CGL Tier-II (CBE) 12.01.2017	SSC CAPFs, SI, CISF ASI & DP. SI. 5.07.2017 (Ist Sitting)	SSC CGL Tier-I (CBE) 22.08.2017 (Illrd Sitting)	SSC CGL Tier-II (CBE) 20.02.2018	SSC CGL Tier-I (CBE) 06.06.2019	SSC CGL Tier-II (CBE) 13.09.2019	SSC CAPFs SI, CISF ASI & DP SI, 11.12.2019 (SHift-I)	SSC CGL Tier-I (CBE) 04.03.2020 (Shift-III)	SSC CGL Tier-I (CBE) 20.08.2021 (Shift-I)
1.	Number System	1	3	4	2	1	—	4	_	2	3	1	4	2	1	1	1	2	3	1	1
2.	LCM and HCF	1	2	1	2	3	_	—	—	1	2	_	2	_	1	1	_	2	_	_	_
3.	Simplification	1	7	_	2	3	2	3	2		1	—	2	2		4	1	2	3	1	1
4.	Power, Indices and Surds	2	4	1	3	1	3	3	3	1	4	_	1	1	_	4	_	5	1	_	_
5.	Average	3	2	5	2	7	2	6	1	1	6	1	5	2	1	4	1	4	1	1	1
6.	Ratio and Proportion	2	2	3	2	2	1	3	2	2	5	1	4	2	2	8	1	5	3	1	1
7.	Alligation or Mixture	1	1	2	_	1	_	2	1	_	2	_	2	_	_	2	_	2	_	_	_
8.	Percentage	2	4	5	2	5	1	3	2	1	4	1	6	—	—	4	1	5	3	1	1
9.	Profit and Loss	3	5	6	3	6	_	7	3	2	5	1	7	2	1	4	1	5	2	1	1
10.	Discount	2	3	4	1	4	4	5	1	1	4	1	3	2	1	4	1	3	2	1	1
11.	Simple Interest	1	1	1	1	1	1	1	_	_	2	1	_	1	1	1	—	1	1	_	_
12.	Compound Interest	1	2	3	1	3	_	3	1	1	3	_	4	1	—	3	1	2	1	1	1
13.	Time and Work	2	3	3	1	3	3	6	1	3	5	1	6	2	1	4	—	3	2	1	1
14.	Pipe and Cistern	1	_	2	1	2	_	1	—	_	2	—	—	1	_	_	1	1	2	_	_
15.	Time and Distance	2	1	3	1	2	2	2	2	3	4	1	4	1	1	4	1	2	1	1	1
16.	Boat and Stream	1	1	1	1	1	_	2	_	_	1	_	_	1	_	_	_	1	_	_	_
17.	Sequence and Series	1	_	1	_	2	_	—	_	_	_	—	_	_	1	2	—	_	_	_	_
18.	Algebra	4	_	9	5	10	4	8	5	8	10	4	9	4	5	10	3	10	4	3	3
19.	Trigonomentry	4	_	10	5	10	6	9	5	7	9	3	10	5	2	10	3	11	3	3	3
20.	Geometry	4	_	11	5	10	7	7	3	5	7	4	7	4	1	11	4	13	4	4	4
21.	Mensuration	6	5	15	5	15	5	20	8	5	16	1	19	8	2	14	1	13	5	1	1
22.	Statistics & Data Interpretation	4	4	5	5	5	7	5	9	7	5	4	5	9	4	5	4	7	9	4	4
23.	Miscellaneous	1	-	5	-	3	2	-	1	-	-	-	-	-	-	-	-	1	-	-	
10 * Ave	rage number of questions	50 is ba	ou ased	on th	ou ne da	ta av	ou vailal	ole ir	outhe	ou char	100 t me	25	ned a	50 bove	25	nside	23	ייין 50 מ	ou mesti	25	25 set)

• READ • LEAD • SUCCEED

For success oriented preparation of

QUANTITATIVE APTITUDE The Unique Presentation of Kiran Prakashan Pvt. Ltd.

- Quantitative Aptitude is an integral part of any competitive examination whether it is SSC, BANK PO, Railway, UPSC, CAT, MAT or any other competitive exam.
- This book has been designed keeping in mind the growing needs of aspirants of today. Assuming that aspirants are new to the subject, focus has been laid on the basic concepts.
- It entails a journey that an aspirant undertakes where he/she starts from the most basic and simple questions asked in various exams to get conceptual clarity and gradually get prepared for SSC, Bank PO, Railway level questions and ends with the CAT level questions. The Think Tank of Kiran Prakashan, Pratiyogita Kiran and Kiran Institute of Career Excellence strongly believe that unless a student has clarity of fundamentals, no shortcut or trick can fetch him with the desired results.
- Each chapter introduces the basic concepts first and gradually exposes a student to more complex and difficult questions.
- Vedic Mathematics is another chapter that has been discussed in detail here which a student may use to cut down on calculation. In the Vedic system there are general methods, that always work. The ease and simplicity of Vedic Mathematics means that calculations can be carried out mentally
- The **exercises** at the end of each chapter are divided into various parts depending upon the level of difficulty. We have compiled questions asked in various exams (Bank PO, Clerk, SSC, Railway, Insurance, RBI, Air force, UPSC CSAT, CDS, CAPF, NDA, Police, Postal Assistant, Teachers Recruitment Exams and various State Public Service Commission etc; CAT, MAT, XAT etc.).
- These examples have been solved by Conventional methods as well as short-cut methods. Again the emphasis is on **"from the easiest to the most difficult."**
- This book is a complete book for aspirants of various competitive examinations. Hopefully it will help an aspirant get the desired results and success.

We do worry about your career That is why To inculcate confidence in you We do publish almost all competitive books and monthly magazines Indispensable for all the Competitive Exams

Kiran's Competitive Reasoning is a very useful and comprehensive book on Reasoning catering to the needs of every student preparing for competitive examinations. Special Features :

- This Book is Unique in the sense that it follows easy methods in solving difficult questions. Step -by- step explanations have been given for easy understanding.
- Concept has been discussed citing questions asked in various competitive examinations.
- Step-by-step method has been followed, so that book becomes helpful for all aspirants. For beginners, simple and easy questions have been discussed to give them conceptual clarity and standard of questions has gradually been raised so that they can master the subject.
- This book will stand out from other books available in market as not only the chapters have been discussed in detail; large number of questions have also been included in each chapter.
- We have tried to compile questions asked in various exams (Bank PO, Clerk, SSC, Railway, Insurance, RBI, Air Force, by UPSC such as IAS CSAT, CDS, CAPF, NDA, Police, Postal Assistant, Teachers Recruitment Exams and various State Public Service





Commission etc; CAT, MAT, XAT etc.). These examples have been solved by conventional methods as well as by short-cut methods.
 If you go through this book, you will get acquainted with all types and standards of questions. This will increase your level of preparation and ultimately the chances of your success.

Latest questions i.e. (lengthy questions & tricky questions) particularly in Problem Solving, Decision Making, Ranking and Arrangement, Statement-Argument, Statement-Conclusion/Inferences have been collected and solved in easy way especially to make you tackle every type of question.









TOPICWISE DISTRIBUTION OF QUESTIONS OF SSC 10+2 DEO & LDC and MATRIC LEVEL EXAMS HELD DURING 2011–2021

| | | | | |

 | | |

 |

 | E | XAN | IINA | TIC | ONS
 | |
 | | |
| |
|--------------------------|--|---|---|---
--
--
---|--|---
--
--
--
---|--
--|--|---
--
--|---|---|---
--|--|
| TOPICS | * Average number
of Questions | SSC Multi-Tasking 27.02.2011 | SSC Cons. (GD) & Riflemen
(GD) 22.04.2012 (lst S) | SSC DEO & LDC 11.12.2012 | SSC Multitasking Staff 17.03.2013

 | SSC DEO & LDC
10.11.2013 (IInd Sitting) | SSC CHSL DEO & LDC
16.11.2014 | SSC Constable (GD)
04.10.2015 (lst Sitting)

 | SSC CHSL DEO & LDC
06.12.2015 (lst Sitting)

 | SSC CHSL DEO & LDC
20.12.2015 (lst Sitting) | SSC CHSL (10+2) Tier-I
(CBE) 08.09.2016 (lst Sitting) | SSC CHSL (10+2) Tier-I
(CBE) 16.01.2017 (IInd Sitting) | SSC MTS 18.09.2017 (IIIrd Sitting) | SSC DP Constable
05.12.2017 (Illrd Sitting)
 | SSC CHSL (10+2) Tier-I
(CBE) 05.03.2018 (lst Sitting) | SSC Constable (GD)
02.06.2019 (1st Sitting)
 | SSC CHSL (10+2) Tier-1
(CBE), 11.07.2019 (Shift-III) | SSC Multi Tasking Staff
(MTS), 14.08.2019 (Shift-I) | SSC DP Constable
03.12.2020 (Shift-I)
| SSC CHSL (10+2) Tier-I
(CBE) 09.08.2021 (lst Sitting) |
| Number System | 1 | 3 | 3 | 3 | 2

 | 3 | — | 2

 | —

 | 1 | — | 2 | 2 | 3
 | — | —
 | 1 | 1 | —
| 1 |
| LCM and HCF | 1 | 1 | 1 | 1 | 1

 | 1 | — | —

 | —

 | 1 | — | _ | — | —
 | — | 1
 | — | 1 | 1
| — |
| Simplification | 2 | 7 | — | — | 1

 | — | 1 | 1

 | 2

 | — | — | — | 1 | 2
 | 1 | 2
 | 1 | 1 | 2
| 1 |
| Power, Indices and Surds | 3 | 6 | 1 | 1 | 1

 | 3 | 1 | —

 | 1

 | 1 | 3 | _ | 3 | —
 | 1 | —
 | — | — | —
| — |
| Average | 2 | 2 | 2 | 2 | 2

 | 2 | 2 | 3

 | 3

 | 2 | 1 | 1 | 1 | 1
 | 1 | 2
 | 1 | 2 | 2
| 1 |
| Ratio and Proportion | 2 | 2 | 2 | 2 | 2

 | — | 2 | 1

 | 2

 | 2 | 1 | 1 | 2 | 2
 | 2 | 3
 | 1 | 1 | 3
| 1 |
| Alligation or Mixture | 1 | 2 | — | _ | —

 | — | — | _

 | —

 | — | — | — | — | —
 | — | —
 | — | — | —
| _ |
| Percentage | 3 | 5 | 2 | 2 | 2

 | 1 | 2 | 2

 | 1

 | 2 | 1 | 1 | 2 | 1
 | 1 | 1
 | 1 | 1 | 1
| 1 |
| Profit and Loss | 3 | 4 | 2 | 2 | 3

 | 3 | 2 | 2

 | 4

 | 3 | 1 | _ | 2 | 1
 | 1 | 2
 | 1 | 2 | 2
| 1 |
| Discount | 2 | 2 | 2 | 2 | 2

 | 2 | 2 | 4

 | 2

 | 2 | 1 | 2 | 2 | 1
 | 1 | 1
 | 1 | 2 | 1
| 1 |
| Simple Interest | 1 | 3 | — | _ | 1

 | 1 | — | 2

 | 1

 | 2 | 1 | — | — | 1
 | 1 | 1
 | — | — | 1
| — |
| Compound Interest | 1 | 1 | 1 | 1 | 1

 | 1 | 1 | —

 | 1

 | — | — | 1 | 1 | —
 | — | 1
 | 1 | 2 | 1
| 1 |
| Time and Work | 2 | 3 | 2 | 2 | 2

 | 1 | 1 | 2

 | 2

 | 2 | 1 | 1 | 1 | 1
 | 1 | 2
 | 1 | 2 | 2
| 1 |
| Pipe and Cistern | 1 | 1 | — | _ | 1

 | — | 1 | —

 | —

 | — | — | — | 1 | —
 | — | —
 | — | — | —
| — |
| Time and Distance | 2 | 2 | — | — | 1

 | 1 | 1 | 2

 | 1

 | 2 | 1 | 1 | 1 | 1
 | 1 | 2
 | 1 | 2 | 2
| 1 |
| Boat and Stream | 1 | 1 | 1 | 1 | —

 | 1 | — | —

 | 1

 | — | _ | _ | — | —
 | — | —
 | — | — | —
| — |
| Sequence and Series | 1 | 2 | — | — | —

 | — | 3 | —

 | 1

 | — | _ | _ | — | —
 | — | —
 | — | — | —
| — |
| Algebra | 3 | — | 5 | 5 | —

 | 5 | 5 | —

 | 3

 | 5 | 2 | 5 | 1 | —
 | 2 | —
 | 3 | — | —
| 3 |
| Trigonomentry | 3 | — | 5 | 5 | —

 | 5 | 5 | —

 | 5

 | 5 | 3 | 4 | — | —
 | 2 | _
 | 3 | — | —
| 3 |
| Geometry | 4 | — | 6 | 6 | —

 | 6 | 7 | —

 | 6

 | 6 | 4 | 1 | — | —
 | 2 | _
 | 3 | — | —
| 3 |
| Mensuration | 5 | — | 6 | 6 | 1

 | 8 | 5 | 2

 | 5

 | 5 | 1 | 1 | 1 | 1
 | 3 | 3
 | 2 | 3 | 3
| 2 |
| Statistics & Data | | | | |

 | | |

 |

 | | | | |
 | |
 | | |
| |
| Interpretation | 5 | 3 | 9 | 9 | 2

 | 4 | 9 | 2

 | 9

 | 9 | 4 | 4 | 4 | —
 | 4 | 4
 | 4 | 4 | 4
| 4 |
| Miscellaneous | 1 | — | 5 | 5 | —

 | 2 | — | —

 | —

 | — | — | — | — | —
 | 1 | —
 | — | 1 | —
| — |
| I Number of Questions | 50 | 50 | 25 | 25 | 25

 | 50 | 50 | 25

 | 50

 | 50 | 25 | 25 | 25 | 15
 | 25 | 25
 | 25 | 25 | 25
| 25 |
| | TOPICSNumber SystemLCM and HCFSimplificationPower, Indices and SurdsAverageRatio and ProportionAlligation or MixturePercentageProfit and LossDiscountSimple InterestCompound InterestTime and WorkPipe and CisternTime and StreamSequence and SeriesAlgebraTrigonomentryGeometryMensurationStatistics & DataInterpretationMiscellaneousI Number of Questions | TOPICSJeggergergergergergergergergergergergerge | TOPICSJage by
SPO by
 | TOPICSJog Birl
UniversityJog Birl
UniversityJog Birl
UniversityNumber System133LCM and HCF111Simplification27-Power, Indices and Surds361Average2222Ratio and Proportion222Percentage3522Profit and Loss3422Discount2222Simple Interest1111Time and Work2322Pipe and Cistern1111Time and Distance222-Boat and Stream1111Sequence and Series12Algebra3-556Statistics & Data
Interpretation539-Miscellaneous1-539 | TOPICSJog up, wJog up, w <th< th=""><th>TOPICS Jog any Strength of the sector se</th><th>TOPICSHorse
BiologyInterpretationInterpretat</th><th>TOPICS Integring by Structure <th< th=""><th>TOPICS Hore solution Interpretation <thinterpretation< t<="" th=""><th>TOPICS Hore of the second second</th><th>TOPICS Image: Constraint of the constraint o</th><th>TOPICS Hog strip H</th><th>TOPICS Ingentifyed and and and and and and and and and an</th><th>TOPICS Number System 1 3 3 3 2 3 - 1 - 2 2 Rumper System 1 3 3 3 2 3 - 1 - <td< th=""><th>TOPICS Normalization Image: Normalite Normalization Image: Normalization</th><th>TOPICS Under System 1 3 3 2 3 - 1 - 2 2 3 -</th><th>TOPICS Image: Constraint of the sector of the</th><th>TOPICS 1<th>TOPICS I<th>TOPICS Image: Strept of the stre</th></th></th></td<></th></thinterpretation<></th></th<></th></th<> | TOPICS Jog any Strength of the sector se | TOPICSHorse
BiologyInterpretationInterpretat | TOPICS Integring by Structure Integring by Structure <th< th=""><th>TOPICS Hore solution Interpretation <thinterpretation< t<="" th=""><th>TOPICS Hore of the second second</th><th>TOPICS Image: Constraint of the constraint o</th><th>TOPICS Hog strip H</th><th>TOPICS Ingentifyed and and and and and and and and and an</th><th>TOPICS Number System 1 3 3 3 2 3 - 1 - 2 2 Rumper System 1 3 3 3 2 3 - 1 - <td< th=""><th>TOPICS Normalization Image: Normalite Normalization Image: Normalization</th><th>TOPICS Under System 1 3 3 2 3 - 1 - 2 2 3 -</th><th>TOPICS Image: Constraint of the sector of the</th><th>TOPICS 1<th>TOPICS I<th>TOPICS Image: Strept of the stre</th></th></th></td<></th></thinterpretation<></th></th<> | TOPICS Hore solution Interpretation Interpretation <thinterpretation< t<="" th=""><th>TOPICS Hore of the second second</th><th>TOPICS Image: Constraint of the constraint o</th><th>TOPICS Hog strip H</th><th>TOPICS Ingentifyed and and and and and and and and and an</th><th>TOPICS Number System 1 3 3 3 2 3 - 1 - 2 2 Rumper System 1 3 3 3 2 3 - 1 - <td< th=""><th>TOPICS Normalization Image: Normalite Normalization Image: Normalization</th><th>TOPICS Under System 1 3 3 2 3 - 1 - 2 2 3 -</th><th>TOPICS Image: Constraint of the sector of the</th><th>TOPICS 1<th>TOPICS I<th>TOPICS Image: Strept of the stre</th></th></th></td<></th></thinterpretation<> | TOPICS Hore of the second | TOPICS Image: Constraint of the constraint o | TOPICS Hog strip H | TOPICS Ingentifyed and and and and and and and and and an | TOPICS Number System 1 3 3 3 2 3 - 1 - 2 2 Rumper System 1 3 3 3 2 3 - 1 - <td< th=""><th>TOPICS Normalization Image: Normalite Normalization Image: Normalization</th><th>TOPICS Under System 1 3 3 2 3 - 1 - 2 2 3 -</th><th>TOPICS Image: Constraint of the sector of the</th><th>TOPICS 1<th>TOPICS I<th>TOPICS Image: Strept of the stre</th></th></th></td<> | TOPICS Normalization Image: Normalite Normalization Image: Normalization | TOPICS Under System 1 3 3 2 3 - 1 - 2 2 3 - | TOPICS Image: Constraint of the sector of the | TOPICS 1 <th>TOPICS I<th>TOPICS Image: Strept of the stre</th></th> | TOPICS I <th>TOPICS Image: Strept of the stre</th> | TOPICS Image: Strept of the stre |

QUANTITATIVE APTITUDE

WE DO WORRY ABOUT YOUR CAREER That is why

TO INCULCATE CONFIDENCE IN YOU We do publish almost all competitive books and monthly magazines

Highlights of the book :

History of India

 Indian History : At a Glance ● Important Dynasties, Founder and Capital ● Important Battles of Indian History ● Important Indian Ruler, Dynasty and Titles ● Ancient India ● Rise of Magadha
 Medieval India ● Delhi Sultanate ● Establishment of the Mughal Rule ● Modern India

- World History
 Indian Political System And Constitution
- Geography
- Geography
 Miscollapool

● Miscellaneous Information ● Regional Geography ● Miscellaneous Information (World Geography) ● Geography (India ● Agriculture in India ● States of India ● Some Indian States

- Indian Economy : Transport and communication
- General Science

Physics
 Mechanics
 Magnetism
 Basic Electronics
 Electricity
 Optics
 Accoustics
 Chemistry
 Biology
 Cytology
 Botany
 Plants Structure and Functions
 Zaclary

- Zoology

 Elementary Physiology and Hygiene
 Agriculture and Animal Husbandry
- Science and Technology
- Science and Technology
 Space Science in India
 Defence
 Antarctica
- Space Science in India
 Defence in Ecology and Environment
- Ecology Biodiversity Pollution
- Computer
- Art & Culture : India
- Dance Drama Music Art, Architecture and Sculpture
- International Organisations
- United Nations Specialised Agencies of the UN Major International Organisation ● International Years of the UN
- Updated traditional General Knowledge
- Sports

SALIENT FEATURES

- Very simple and lucid language used to express the fundamental and textual concepts.
- Wide variety of text covered and then compiled into one after analysis of question papers of more than 10 years from SSC to Railways, Banking, etc.
- Division of book into 5-Sections of Physical Sciences including Physics and Chemistry, Biological Sciences, Computers and never ceasing progress/inventions in the field of Science and Technology.
- Each of the 5-Sections divided into Sub-sections in the form of Units, well arranged in a sequential order from A to Z.
- Each Unit with well listed contents covered under its umbrella at the beginning engrossed in *Italics Font* to help you save time while turning over the pages to look for a particular text.
- Each unit enriched and suspplemented with labeled Pictures, Tables, Flow Charts along with solved numerical problems wherever necessary realizing
- the value of picture/ diagram in proper comprehension of the text.
- the types of numerical based questions that had so far been asked in different spheres of examinations.
- Above all, the points of significance have been highlighted in red colour text, not to scare but draw attention, hence, minimizing any chance of overlooking the text.







PRACTICE ON MOBILE



CONTENTS

CHAPTERS	PAGES	Cl
1. Number System [No. of Questions	s 603 (283+320*)]	
-		
TYPE–I : Question Multiplication, Add TYPE–II : Question the Division of a m TYPE–III : Questi sum of Consecuti	ns based on dition and Subtraction 	
(Odd, even, etc.) TYPE-IV · Questic	ons based on finding	
the ascending & de numbers etc TYPE–V : Questie	escending order of SME-32 ons based on Smallest	
and Largest Num	SME-33	
TYPE–VI : Questi Fraction of numbe TYPE–VII : Miscell	ons based on the ers SME-33 aneous Questions	
EXPLANATIONS	SME-35	
TYPE-I TYPE-II TYPE-III		
TYPE–IV TYPE–V TYPE–VI		
TYPE–VII		
TEST YOURSELF 2. LCM and HCF		
[No. of Questions	$S 181(92 + 89^{+})$ SME-59-72	
TYPE–I : Question finding the LCM o	ns based on only f the numbers SME-60	
TYPE–II : Questic finding the HCF o	ons based on only f the numbers SME-61	
TYPE–III : Questi formula (LCM × H × Second Number)	ons based on the CF = First Number SME–62	
TYPE–IV : Questic subtraction, multi of the numbers	ons based on addition, plication and division SME-63	
	* No. of questions availa	able

HA	PTERS PAGES
	TYPE–V : Questions based on ratio of the numbers SME–63 TYPE–VI : Miscellaneous Questions SME–64
	EXPLANATIONS TYPE-I SME-64
	TYPE-III SME-67
	TYPE-IV SME-68 TYPE-V
	TYPE-VI SME-69
3.	TEST YOURSELF SME–70 Simplification
	[No. of Questions 428 (271 + 157*) SME_73-114
	TYPE-I : Questions based on
	square and square root SME–75 TYPE–II : Questions based on
	cube & cube root SME-77
	fraction
	BODMAS STREET
	TYPE-V: Miscellaneous Questions
	EXPLANATIONS TYPE–I SME–89
	TYPE–II SME–92 TYPE–III SME–93
	TYPE-IV
	TEST YOURSELF
4.	Power, Indices and Surds [No. of Questions 510 (260 +250*)]
	TYPE–I : Questions based on rationalising or prime factor SME–117 TYPE–II : Simplifying when root
	values are given If $\sqrt{x} = a$ is given
	(where $x = 1, 2, 3$ and 'a' is the correct
	value of \sqrt{x}) and questions based on Increasing & Decreasing order SME–117

ole online/visit kicx.in

CHAPTERSPAGES	CHAPTERSPAGES
TYPE–III : Questions based on finding the largest and smallest value etc SME–118TYPE–IV : Questions based on Simplification	TYPE–VIII : Questions based on determining the average age SME–172TYPE-IX : Questions based on if the monthly income & expenditure of factors (x, y or z) are given, then finding the monthly income of 'x' or 'y' or 'z' or 'x+y' or ''x-y' etc
[No. of Questions 519 (316 + 203*)	6. Ratio and Proportion [No. of Questions 581 (344 + 237*)]
SME-161-206 TYPE-I : Questions based on basic Average and mutual relation of numbers Questions numbers Questions SME-163 TYPE-II : Questions based on average of consecutive even, odd and prime numbers etc. numbers etc. SME-166 TYPE-III : Questions based on to find n th number when average of first 'p' and last 'q' numbers are given SME-169 TYPE-IV : Questions based on twice, thrice, one-third etc. of numbers SME-170 TYPE-V : Questions based on where correct average have to be find out as earlier some mistake was done . SME-170 TYPE-VI : Questions based on where missing number has to be find one as there has been some change in given average. SME-171 TYPE-VII : Questions based on cricket	INO. OF QUESTIONS 581 [344 + 237*]]
* No. of quantiana availa	ble online /visit kiev in

CHAPTERSPAGES	CHAPTERSPAGES					
EXPLANATIONS TYPE-I SME-230 TYPE-II SME-232 TYPE-III SME-235 TYPE-IV SME-243 TYPE-V SME-243 TYPE-V SME-243 TYPE-VI SME-246 TYPE-VI SME-252 TYPE-VII SME-253 TYPE-VII SME-256 TYPE-IX SME-256 TYPE-IX SME-257 TEST YOURSELF SME-260 7. Alligation & Mixtures [No. of Questions 179 (111 + 68*)	TYPE-III : Questions based on if 'x' is less/more than 'y' by 'm %' then 'y' exceed/less than 'x'					
8. Percentage	TYPE-V					
[No. of Questions 514 (342 +172*)] 	TYPE-VI					
TYPE-I: Questions based on the basic concept of percentage	TYPE-VIII					
* No. of questions available online/visit kicx.in						

CHAPTERSPAGES	CHAPTERSPAGES
TYPE-II : Questions based on tricks	10. Discount
$x+y+\frac{xy}{100} -x-y+\frac{xy}{100}$	[No. of Questions 458 (291 + 167*)
$-x + y - \frac{xy}{100}$ $x - y - \frac{xy}{100}$	TYPE-I : Questions based on the basic concept of Discount and Successive Discount
TYPE-IX : Questions based on a person	TEST YOURSELF SME-447
bought two articles for $\gtrless x$. He sold A at $m\%$ profit/loss and B at n% loss/profit. Then gain/loss p% on his outlay. Find the C P of $A/B/A+B$ at a SME 354	 11. Simple Interest [No. of Questions 228 (161 + 67*)
TYPE-X : Miscellaneous Questions	TYPE–I: Questions based on the basic
SME-357 EXPLANATIONS	formula of Simple Interest $S.I.=\frac{P \times R \times T}{100}$
TYPE-I SME-361 TYPE-II SME-373 TYPE-III SME-374 TYPE-IV SME-376 TYPE-V SME-378 TYPE-VI SME-380 TYPE-VII SME-381 TYPE-VIII SME-384 TYPE-IX SME-386	
TYPE-X SME-391 TEST YOURSELF SME-396	difference and equality of Simple Interest, rate and years SME-455
* No. of questions availa	ble online/visit kicx.in

CHAPTERSPAGES	CHAPTERSPAGES
CHAPTERS PAGES TYPE-V: Questions based on ratios	CHAPTERS PAGES 13. Time and Work [No. of Questions 457 (340 + 117*)
* No. of questions availa	ble online/visit kicx.in

CHAPTERS	PAGES	CHAPTERSPAGE
15. Time and Distance (No. of Questions 462 ((303 + 159*)] SME-609-670	16. Boat and Stream [No. of Questions 81 (63 + 18*)
TYPE-I : Questions bas concept of time and distTYPE-II : Questions bas average speedTYPE-III : Questions bas on RatiosTYPE-IV : Questions bas (transport system)/a may speed, then he arrives a before/laterTYPE-V : Questions bas train travel in same dired different speed or thief/ overtake.TYPE-VI : Questions bas train travel in same dired different speed or thief/ overtake.TYPE-VI : Questions bas 	ed on the basic ance SME-612 sed on 	TYPE-I: Questions based on speed of Boat SME-67 TYPE-II: Questions based on speed of stream SME-67 TYPE-III: Questions based on distance
TYPE–X: Questions bas crosses both platform an pole at same time TYPE–XI : Miscellaneou	etc SME-627 ed on any train id a man/a SME-628 us Questions SME-628	the next number/missing number/ wrong number SME-68 TYPE-II : Questions based on 'x th ' term & sum of 'n' terms SME-68 TYPE-IV : Questions based on square/ cube of natural/odd/even/prime
EXPLANATIONS TYPE-I TYPE-II TYPE-III		numbers etc
TYPE-IV TYPE-V TYPE-VI TYPE-VII		TYPE-I SME-68 TYPE-II SME-68 TYPE-IV SME-69 TYPE-V SME-69
TYPE-VIII TYPE-IX TYPE-X TYPE-XI TEST YOURSELF		TEST YOURSELF SME-69 18. Algebra [No. of Questions 1038 (578+460 SME-695-79 TYPE-I : Questions based on the basic algebraic concept/calculation SME-70
* No.	ot questions availa	able online/visit kicx.in

CHAPTERSPAGES	CHAPTERSPAGES					
TYPE-II : Questions based on polynomial and algebraic identity SME-710	TYPE-II: Questions based on Isosceles Triangles					
TYPE-IV : Questions based on ratios etc. SME-724 TYPE-IV : Questions based on graphs	triangles, Acute & obtuse angles triangles and others triangles					
of linear equations and co-ordinate Geometry	TYPE–IV : Questions based on Right angle Triangles SME–962					
Permutation and Combination and Binomial Therom	TYPE–V : Questions based on Similar Triangles SME–964					
TYPE-VI : Miscellaneous Questions 	TYPE-VI : Questions based on Rectangle 					
EXPLANATIONS TYPE-I SME-730 TYPE-II SME-748	TYPE–VII : Questions based on Square SME–968					
TYPE-III	TYPE–VIII : Questions based on Polygon SME–969					
TYPE-V SME-786 TYPE-VI SME-786	TYPE–IX : Questions based on Parallelogram SME–970					
TEST YOURSELF SME–787 19. Trigonometry	TYPE-X : Questions based on Cyclic and others Quadrilateral SME-971					
[No. of Questions 977 (671+306*)] 	Rhombus					
Measure of angles (Radian & Degree Measure)	Circle					
TYPE-II : Questions based on Trigonometric Ratios & Identities, Example a Decision Law of	to Circle					
Tangents etc	Circumcentre and Incircle Circumcircle 					
angle of elevation SME-825 TYPE-IV : Questions based on angle of depression SME 832	TYPE-XV : Miscellaneous Questions 					
TYPE-V : Miscellaneous Questions SME-833	EXPLANATIONS TYPE-I SME-998					
EXPLANATIONS TYPE-I SME-838	TYPE-II SME-1002 TYPE-III SME-1005					
TYPE–II SME–839 TYPE–III SME–891	TYPE-IV SME-1029					
TYPE–IV SME–913 TYPE–V SME–919	TYPE-VI					
TEST YOURSELF SME-925 20. Geometry	TYPE-VII SME-1041 TYPE-VIII SME-1042					
[No. of Questions 1065 (867+198*)) 	TYPE-IX SME-1044 TYPE-X SME-1045					
TYPE–I : Questions based on Equilateral Triangles SME–948	TYPE-XI SME-1051 TYPE-XII SME-1055					
* No. of questions availa	able online/visit kicx.in					

C

CHAPTERSPAGES	CHAPTERSPAGES
CHAPTERS	CHAPTERSPAGESTYPE-V: Questions based on Histogram
EXPLANATIONS TYPE-I	LogarithmSME-1428TYPE-II : Questions based onSet TheorySME-1428TYPE-III : Questions based onProbabilitySME-1428TYPE-IV : Questions based onCalendarSME-1428TYPE-V : Questions based on
TYPE-VII SME-1262 TEST YOURSELF SME-1266 22. Statistics and Data Interpretation [No. of Questions 1891(1107+784*)] SME-1273-1426	clock SME-1428 TYPE-VI : Questions based on Others SME-1429 EXPLANATIONS TYPE-I SME-1430
TYPE-I : Questions based on Table 	TYPE-II SME-1430 TYPE-III SME-1430 TYPE-IV SME-1430 TYPE-V SME-1430 TYPE-VI SME-1431 (Grand Total No. of Questions 12913 (8116+4797*)



Importance : Being a basic concept of mathematics : 1 and 2 questions on number system are regularly asked in different competitive exams. Its knowledge is also essential to solve other questions.

Scope of questions : Different type of questions like based on fractions, even/odd/whole/divisible/prime/ coprime/rational/irrational/numbers and related to divisibility, order, ascending, descending, addition, multiplication, inverse numbers may be asked.

Way to success : These questions are solved by different methods. Maximum practice and rechecking is the way to success for this chapter.

Natural Numbers : Set of counting numbers is callled natural numbers. It is denoted by N. where,

 $N = \{1, 2, 3, \dots, \infty\}$

Where, $E = \{2, 4, 6, 8, 10, \dots, \infty\}$

Odd Numbers : The set of all natural numbers which are not divisible by 2 are called odd numbers. In other words, the natural numbers which are not even numbers, are odd numbers. i.e.,

 $O = \{1, 3, 5, 7, \dots, \infty\}$

Whole Numbers : When zero is included in the set of natural numbers, then it forms set of whole numbers. It is denoted by W. where,

 $W = \{0, 1, 2, 3, \dots, \infty\}$

Integers : When in the set of whole numbers, natural numbers with negative sign are included, then it becomes set of integers. It is denoted by I or Z.

$$I = [-\infty, \dots, -4, -3, -2, -1, 0, 1, 2, 3, 4, \dots, \infty]$$

Integers can further be classified into negative or positive Integers. Negative Integers are denoted by Z^- and positive Integers are denoted by Z^+ .

 $Z^- = \{-\infty, \dots, -3, -2, -1\}$ and $Z^+ = \{1, 2, 3, \dots, \infty\}$

Further 0 is neither negative nor positive integer.

Prime Numbers: The natural numbers which have no factors other than 1 and itself are called prime numbers.

Note that, (i) In other words they can be divided only by themselves or 1 only. As, 2, 3, 5, 7, 11 etc.

(ii) All prime numbers other than 2 are odd numbers but all odd numbers are not prime numbers.

2 is the only one even Prime number.

Co-Prime Numbers : Two numbers which have no common factor except 1, are called Co–Prime numbers. Such as, 9 and 16, 4 and 17, 80 and 81 etc.

It is not necessary that two co-prime numbers are prime always. They may or may not be prime numbers. **Divisible numbers/composite numbers** : The whole numbers which are divisible by numbers other than itself and 1 are called divisible numbers or we can say the numbers which are not prime numbers are composite or divisible numbers. As, 4, 6, 9, 15,

Note : 1 is neither Prime number nor composite number. Composite numbers may be even or odd.

Rational Numbers : The numbers which can be

expressed in the form of $\frac{p}{q}$ where p and q are integers

and coprime and $q \neq 0$ are called rational numbers. It is denoted by Q. These may be positive, or negative.

e.g.
$$\frac{4}{5}$$
, $\frac{5}{1}$, $-\frac{1}{2}$ etc are rational numbers.

Irrational Numbers : The numbers which are not rational numbers, are called irrational numbers. Such as

$$\sqrt{2} = 1.414213562....$$

 $\pi = 3.141592653 \dots$

Real Numbers: Set of all rational numbers as well as irrational numbers is called Real numbers. The square of all of them is positive.

Cyclic Numbers : Cyclic numbers are those numbers of n digits which when multiplied by any other number upto n gives same digits in a different order. They are in the same line. As 142857

 2×142857 = 285714 : 3 \times 142857 = 428571

 $4 \times 142857 = 571428 : 5 \times 142857 = 714285$

 $\begin{array}{l} \textbf{Perfect Numbers:} If the sum of all divisors of a number \\ N (except N) is equal to the number N itself then the number \\ is called perfect number. Such as, 6, 28, 496. 8128 etc. \end{array}$

The factor of 6 are 1, 2 and 3 Since, 6: 1+2+3=628: 1+2+4+7+14=28496: 1+2+4+8+16+31+62+124+248=496

8128: 1 + 2 + 4 + 8 + 16 + 32 + 64 + 127 + 254 + 508+ 1016 + 2032 + 4064 = 8128. etc.

Note : In a perfect number, the sum of inverse of all of its factors including itself is 2 always.

e.g. Factors of 28 are 1,2,4,7,14 are

$$=\frac{1}{1}\!+\!\frac{1}{2}\!+\!\frac{1}{4}\!+\!\frac{1}{7}\!+\!\frac{1}{14}\!+\!\frac{1}{28}\!=\frac{56}{28}=2$$

Complex Numbers : Z = a + ib is called complex number, where a and b are real numbers, $b \neq 0$ and i =

 $\sqrt{-1}$. Such as, $\sqrt{-2}$, $\sqrt{-3}$ etc.

So, a + ib or 4 + 5i are complex numbers.



- (t) There can be infinite number of rational or irrational numbers between two rational numbers or two irrational numbers.
- (u) Decimal indication of an irrational number is infinite coming. as $-\sqrt{3}$, $\sqrt{2}$
- (v) The square of an even number is even and the square of an odd number is odd.

DECIMAL

(w) The decimal representation of a rational number is

either finite or infinite recurring e.g. = $\frac{3}{4}$ = 0.75

(finite),
$$\frac{11}{3} = 3.666$$
 (infinite recurring)

(x) If decimal number 0, *x* and 0. *xy* are given, then they

can be expressed in the form of $\frac{p}{q}$

As, $0.x = \frac{x}{10}$ and $0.xy = \frac{xy}{100}$

(y) If decimal recurring numbers $0, \overline{x}$ and $0, \overline{xy}$ are given,

then they can be expressed in the form of $\frac{p}{q}$ As $0.\overline{x}$

$$=\frac{x}{9}$$
 and $0.\overline{xy} = \frac{xy}{99}$

(z) The recurring decimal numbers of type $0.\overline{x}$ or

 $0. \overline{xyz}$ may be converted to rational form as $\frac{p}{q}$ follows.

$$0.x\overline{y} = \frac{xy - x}{90} \text{ and } 0.x\overline{yz} = \frac{xyz - x}{990}$$

DIVISIBILITY

Importance : Divisibility questions, if not asked directly, still its knowledge is very essential to solve different questions in simplification.

Scope of questions : The study of this concept is very useful to increase speed in simplification and number system.

Way to success : The knowledge of divisibility rules (of ,2, 3, 4, 5, 6, 8, 9) and of osculaters for 7, 11, 13 etc & mental calculations increase our (speed) time management and accuracy.

Basic Formulae of Divisibility from 2 to 19:

1. Divisibility by 2 : If the last digit of a number is 0 or an even number then that number is divisible by 2. Such as, 242, 540 etc.

2. Divisibility by **3** : If the sum of all digits of a number is divisible by **3**, then that number will be divisible by **3**. Such as.

432: 4 + 3 + 2 = 9 which is divisible by 3.

So, 432 is divisible by 3.

3. Divisibility by 4 : If in any number last two digits are divisible by 4, then whole number will be divisible by 4. Such as,

48424. In this number 24 is divisible by 4. So, 48424 will be divisible by 4.

4. Divisibility by **5**: If last digit of a number is 5 or 0, then that number is divisible by 5. Such as 200, 225 etc.

5. Divisibility by **6** : If a number is divisible by both 2 and 3, then that number is divisible by 6 also, such as 216, 25614 etc.

6. Divisibility by 7 : Here concept of osculator should be applied. The meaning of negative osculator is – there increases or decreases 1 from the factor of 10 of the number. As, $21 : 2 \times 10 + 1 = 21$

 $49:5 \times 10 - 1 = 50 - 1 = 49$

To check the divisibility of 7, we use osculator '2', as , $112: 11 - 2 \times 2 = 7$ which is divisible by 7

Again.

 $343: 34 - 2 \times 3 = 28$ which is divisible by 7. Then 343 will be divisible by 7.

7. Divisibility by 8: If in any number last three digits are divisible by 8, then whole number is divisible by 8, such as,

247864 since 864 is divisible by 8.

So, 247864 is divisible by 8.

Similarly, 289000 is divisible by 8.

8. Divisibility by 9 : If the sum of all digits of a number is divisible by 9, then that whole number will be divisible by 9. As, 243243 : 2 + 4 + 3 + 2 + 4 + 3 = 18 is divisible by 9.

So, 243243 is divisible by 9.

9. Divisibility by 10 : The number whose last digit is '0', is divisible by 10, such as, 10, 20, 200, 300 etc.

10. Divisibility by 11 : If the difference between "Sum of digits at even place" and "Sum of digits at odd place" is divisible by 11, then the whole number is divisible by 11 such as,

$$9174$$

+++5
 16

:. (9 + 7) - (4 + 1) = 16 - 5 = 11 is divisible by 11. So, 9174 will be divisible by 11.

11. Divisibility by 12 : If a number is divisible by 3 and 4 both. Then the number is divisible by 12. Such as, 19044 etc.

12. Divisibility by 13 : For 13 we use osculator 4, but our osculator is not negative here. It is one-more osculator (4).

 $143:14+3 \times 4 = 26$

and 26 is divisible by 13, So, 143 is divisible by 13. Similarly for $325:32+5\times4=52$

52 is divisible by 13

Hence, 325 will also be divisible by 13.

13. Divisibility by 14 : If a number is divisible by 2 and 7 both then that number is divisible by 14 i.e. number is even and osculator 2 is applicable.

14. Divisibility by 15 : If a number is divisible by 3 and 5 both, then that number is divisible by 15.

15. Divisibility by 16 : If last 4 digits of a number are divisible by 16, then whole number is divisible by 16. Such as 341920.

16. Divisibility by 17 : For 17, there is a negative 'osculator 5'. This process is same as the process of 7. As. $1904 : 190 - 5 \times 4 = 170$.

∴ 170 is divisible by 17. So 1904 will be divisible by 17.
 17. Divisibility by 18 : If a number is divisible by 2

and 9 both, then that number is divisible by 18.

18. Divisibility by 19 : For 19, there is one-more (positive) osculator 2, which is same processed as 13. As, $361 = 36 + 1 \times 2 = 38$

 \therefore 38 is divisible by 19. So 361 is also divisible by 19. Few more Important Points:

1. Out of a group of n consecutive integers one and only one number is divisible by n.

2. The product of n consecutive numbers is always divisible by n! or = $|\underline{n}|$.

3. For any number n, $(n^{p}-h)$ is always divisible by P where P is a prime number, for e.g.,

if n = 2 and P = 5 then,

 $(2^5 - 2) = (32 - 2) = 30$ which is divisible by 5.

4. The square of an odd number when divided by 8 always leaves a remainder 1, as $\$

If we divide $7^2 = 49$ or $5^2 = 25$ by 8 then remainder will be 1. 5. For any natural number n, n^5 or n^{4k+1} is having same unit digit as n has, where k is a whole number, such as,

 $3^5 = 243$ has 3 at its unit place.

6. Square of any natural number can be written in the form of 3n or 3n + 1 or 4n or (4n + 1).

e.g. square of $11 = 121 = 3 \times 40 + 1$ or $4 \times 30 + 1$

If N = a^p b^q c^r where a, b and c are prime numbers and p, q and r are natural numbers, then 1. Number of factors of N is given by

 $F = (p + 1)(q + 1)(r + 1) \dots$

2. Number of ways to express the number as
$$F$$
 $F+1$

product of two factors are
$$\frac{1}{2}$$
 F is even or $\frac{1}{2}$ if F is

odd respectively.

3. Sum of all the factors of the number N.

$$S(F) = \frac{\left(a^{p+1}-l\right)}{(a-1)} \times \frac{\left(b^{q+1}-l\right)}{(b-1)} \times \frac{\left(c^{r+1}-l\right)}{(c-1)}$$

4. The number of ways in which a number N can be resolved into co-prime factors is 2^{k-1} , where k is the number of different Prime factors of the number N.

5. The number of co-primes to number N is given by

$$C(N) = n \left(1 - \frac{1}{a} \right) \left(1 - \frac{1}{b} \right) \left(1 - \frac{1}{c} \right)$$

Special Rules :

Rule 1 : If the sum of digits of two digit number is 'a' and if the digits of the number are reversed, such that number reduces by 'b', then

Original Number = $\frac{11a+b}{2}$ For example : (For number 82) a = 8 + 2 = 10 and b = 82 - 28 = 54 is given then

original number =
$$\frac{11 \times 10 + 54}{2} = \frac{164}{2} = 82$$

Rule 2 : If the sum of digits of two digit number is 'a' and if the digits of the number are reveresed, such that number increases by 'b', then,

Original Number =
$$\frac{11a-b}{2}$$

original number =
$$\frac{11 \times 11 - 27}{2} = 47$$

Rule 3 : If the difference between a number and formed by number reversing digit is *x*, then the difference between

th the digits of the number is
$$\frac{x}{9}$$

eg. (for 63) $x = 63 - 36 = 27$
 \Rightarrow Required difference $= \frac{27}{9} = 3$

 $\label{eq:Rule 4: If the sum of a number and the number formed} \\ \text{by reversing the digits is } x, \text{ then the sum of digits of the} \\$

number is $\frac{x}{11}$.

bo

а

e.g. (For number 76) = x = 67 + 76 = 143 Required sum of numbers = 67 + 76 = 143

Required sum =
$$\frac{143}{11}$$
 = 13

 $Dividend = (Divisor \times Quotient) + Remainder$

$$Divisor = \frac{Dividend - Remainder}{Quotient}$$

Quotient =
$$\frac{Dividend - Remainder}{Divisor}$$

Remainder = Dividend – (Divisor × Quotient) Special Rule for Remainder Calculation:

Rule 5 : If
$$\frac{a^n}{a-1}$$
 then remainder will always be 1,

whether n is even or odd.

Rule 6 : If
$$\frac{a^{(even number)}}{(a+1)}$$
, then remainder will be 1.

Rule 7 : If
$$\frac{a^{(odd number)}}{(a+1)}$$
, then remainder will be a.

Rule 8 : If n is a single digit number, then in n^3 , n will be at unit place. It is valid for the number 0, 1, 4, 5, 6 or 9 As, digit at unit place in (4³) is 4.

Rule 9 : If n is a single digit number then in n^p , where p is any number (+ve), n will be at unit place. It is valid for 5 and 6.

QUESTIONS ASKED IN PREVIOUS SSC EXAMS QUESTIONS FROM 1999 TO 2010 ARE AVAILABLE ONLINE

TYPE-I

1. When 'n' is divisible by 5 the remainder is 2. What is the remainder when n^2 is divided by 5 ? (1) 2(2) 3 (3) 1 (4) 4(SSC CGL Tier-1 Exam 19.06.2011 (Second Sitting) 2. The remainder when 3²¹ is divided by 5 is (1) 1 (2) 2 (3) 3 (4) 4 (SSC CGL Tier-1 Exam 26.06.2011 (First Sitting) 3. If the sum of the digits of any integer between 100 and 1000 is subtracted from the same integer, the resulting number is always divisible by (1) 2 (2) 5 (3) 6 (4) 9 (SSC CGL Tier-I (CBE) Exam. 03.09.2016 (IInd Sitting) 4. When 2^{31} is divided by 5 the remainder is (1) 4(2) 3 (3) 2(4) 1 (SSC CGL Tier-1 Exam 19.06.2011 (First Sitting) 5. A student was asked to divide a number by 6 and add 12 to the quotient. He, however, first added 12 to the number and then divided it by 6, getting 112 as the answer. The correct answer should have been (1) 124(2) 122 (3) 118 (4) 114(SSC CGL Tier-1 Exam. 19.06.2011 (Second Sitting) 6. The expression $2^{6n} - 4^{2n}$, where *n* is a natural number is always divisible by (1) 15(2) 18 (3) 36(4) 48 (SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (North Zone) 7. $(4^{61} + 4^{62} + 4^{63})$ is divisible by (1) 3(2) 11(3) 13(4) 17(SSC CHSL DEO & LDC Exam. 04.12.2011 (IInd Sitting (North Zone) 8. 47 is added to the product of 71 and an unknown number. The new number is divisible by 7 giv-

ing the quotient 98. The unknown number is a multiple of (1) 2 (2)5(3) 7 (4) 3 (SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone) 9. When an integer K is divided by 3, the remainder is 1, and when K + 1 is divided by 5, the remainder is 0. Of the following, a possible value of K is (1) 62(2) 63 (3) 64 (4) 65 (SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (Delhi Zone) 10. The number of integers in between 100 and 600, which are divisible by 4 and 6 both, is (1) 40 (2) 42 (4) 50 (3) 41 (SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (IInd Sitting) 11. The value of λ for which the expression $x^3 + x^2 - 5x + \lambda$ will be divisible by (x-2) is : (1) 2(2) - 2(3) - 3(4) 4 (SSC CHSL DEO & LDC Exam. 21.10.2012, IInd Sitting) 12. If the number formed by the last two digits of a three digit integer is an integral multiple of 6, the original integer itself will always be divisible by (1) 6(2) 3 (3) 2(4) 12 (SSC Multi-Tasking Staff Exam. 17.03.2013, Kolkata Region) 13. Divide 37 into two parts so that 5 times one part and 11 times the other are together 227. (1) 15, 22 (2) 20, 17 (3) 25, 12 (4) 30, 7 (SSC Multi-Tasking Staff Exam. 24.03.2013, Ist Sitting) 14. The greatest common divisor of $3^{3^{333}} + 1$ and $3^{3^{334}} + 1$ is : (1) 2(2) 1 (3) $3^{3^{333}} + 1$ (4) 20(SSC CGL Tier-I Exam. 21.04.2013) 15. How many numbers between 400 and 800 are divisible by 4, 5 and 6?

(1) 7 (2) 8 (3) 9 (4) 10

(SSC Constable (GD) Exam. 12.05.2013 Ist Sitting) 16. A number x when divided by 289 leaves 18 as the remainder. The same number when divided by 17 leaves y as a remainder. The value of *y* is

(1) 5 (2) 2(3) 3

(4) 1

(SSC CGL Tier-I Exam. 19.05.2013 Ist Sitting)

17. When n is divided by 6, the remainder is 4. When 2n is divided by 6, the remainder is

(1) 2(2) 0

(3) 4 (4) 1(SSC CHSL DEO & LDC Exam.

10.11.2013, Ist Sitting)

18. Two numbers 11284 and 7655, when divided by a certain number of three digits, leaves the same remainder. The sum of digits of such a three-digit number is (1) 8(2) 9

(3) 10 (4) 11

(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

19. In a division sum, the divisor is 3 times the quotient and 6 times the remainder. If the remainder is 2, then the dividend is

(1) 50 (2) 48 (3) 36 (4) 28

(SSC CHSL DEO & LDC Exam. 10.11.2013, IInd Sitting) The least number which must be

20. added to the greatest number of 4 digits in order that the sum may be exactly divisible by 307 is (1) 132 (2) 32 (3) 43 (4)75

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IInd Sitting)

21. If a = 4011 and b = 3989 then value of ab = ?

(1) 15999879 (2) 15899879 (3) 15989979 (4) 15998879

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014 **22.** For any integral value of n, 3^{2n} +

9n + 5 when divided by 3 will leave the remainder (2) 2 (1) 1 (3) 0 (4) 5 (SSC CGL Tier-I Exam. 19.10.2014)

- 23. 5349 is added to 3957. Then 7062 is subtracted from the sum. The result is not divisible by (1) 4 (2) 3 (3) 7 (4) 11 (SSC CHSL DEO Exam. 02.11.2014 (Ist Sitting) 24. The product of all the prime numbers between 80 and 90 is (1) 83 (2) 89 (4) 598347 (3) 7387 (SSC CHSL DEO Exam. 02.11.2014 (Ist Sitting) 25. I have x marbles. My elder brother has 3 more than mine, while my younger brother has 3 less than mine. If the total number of marbles is 15, the number of marbles that I have is (1) 3 (2)5(3) 8 (4) 7 (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IInd Sitting (TF No. 545 QP 6) 26. Weight of a bucket when filled fully with water is 17 kg. If the weight of the bucket when half filled with water is 13.5 kg, what is the weight of empty bucket? (1) 12 kg (2) 8 kg (3) 10 kg (4) 7 kg (SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IInd Sitting (TF No. 545 QP 6) 27. In a farm there are cows and hens. If heads are counted they are 180, if legs are counted they are 420. The number of cows in the farm is (1) 130(2) 150(3) 50 (4) 30(SSC CGL Tier-II Exam. 12.04.2015 (TF No. 567 TL 9) 28. The number which can be written in the form of n(n + 1)(n + 2), where n is a natural number, is (1)7(2)3(3)5(4) 6 (SSC CGL Tier-II Exam. 12.04.2015 (TF No. 567 TL 9) 29. The sum of four numbers is 48. When 5 and 1 are added to the first two; and 3 and 7 are subtracted from the 3rd and 4th, the numbers will be equal. The numbers are (1) 9, 7, 15, 17 (2) 4, 12, 12, 20 (3) 5, 11, 13, 19 (4) 6, 10, 14, 18 (SSC CGL Tier-I Exam, 09.08.2015 (Ist Sitting) TF No. 1443088)
- 30. The least number that should be added to 2055, so that the sum is exactly divisible by 27 is (1) 28(2) 24 (3) 27(4) 31(SSC CGL Tier-I Exam, 09.08.2015 (Ist Sitting) TF No. 1443088) 31. What is the Arithmetic mean of the first 'n' natural numbers? (1) $\frac{n(n+1)}{2}$ (2) $\frac{n+1}{2}$ (3) $\frac{n^2(n+1)}{2}$ (4) 2(n+1)(SSC CGL Tier-I Exam, 09.08.2015 (Ist Sitting) TF No. 1443088) 32. Which one of the following is the minimum value of the sum of two integers whose product is 24? (1) 25 (2) 11 (3) 8 (4) 10 (SSC CGL Tier-I (CBE) Exam.10.09.2016) 33. If the sum of the digits of a three digit number is subtracted from that number, then it will always be divisible by (1) 3 only (2) 9 only (3) Both 3 and 9 (4) All of 3, 6 and 9 (SSC CGL Tier-II Online Exam.01.12.2016) **34.** The greater of the two numbers whose product is 900 and sum exceeds their difference by 30 is (1) 60 (2) 75 (3) 90 (4) 100 (SSC CGL Tier-II Online Exam.01.12.2016) 35. In a division sum, the divisor 'd' is 10 times the quotient 'q' and 5 times the remainder 'r'. If r = 46, then the dividend will be (1) 5042 (2) 5328 (3) 5336 (4) 4276 (SSC CGL Tier-II Online Exam.01.12.2016) 36. If the sum of a number and its reciprocal be 2, then the number is (1) 0 (2) 1 (3) -1 (4) 2 (SSC CGL Tier-I (CBE) Exam. 29.08.2016) (IInd Sitting) 37. A positive number when decreased by 4, is equal to 21 times the reciprocal of this number. The number is :

(1) 3(2) 7 (3) 5(4) 9 (SSC CGL Tier-I (CBE) Exam. 03.09.2016) (IInd Sitting) **38.** When *n* is divided by 4, the remainder is 3. The remainder when 2n is divided by 4 is : (1) 1 (2) 2(4) 6 (3) 3 (SSC CGL Tier-I (CBE) Exam. 02.09.2016) (IInd Sitting) **39.** A number when divided by the sum of 555 and 445 gives two times their difference as quotient and 30 as the remainder. The number is (1) 220030 (2) 22030(3) 1220 (4) 1250(SSC CGL Tier-II (CBE) Exam. 30.11.2016) 40. (91 + 92 + 93 + + 110) is equal to (1) 4020 (2) 2010 (3) 6030 (4) 8040 (SSC CGL Tier-I CBE (Exam) 30.01.2017 (IIIrd Sitting) 41. If 34N is divisible by 11, then what is the value of N? (1) 1 (2) 3 (3) 4 (4) 9 (SSC CAPFs ASI & Delhi Police SI Online Exam. 01.07.2017 (Ist Sitting) 42. How many numbers are there from 700 to 950 (including both) which are neither divisible by 3 nor by 7? (1) 107 (2) 141 (3) 144 (4) 145 (SSC CGL Tier-I CBE (Exam) 09.08.2017 (IInd Sitting) 43. How many times the keys of a typewriter have to be pressed in order to write numbers from 121 to 1346? (1) 3675 (2) 4018 (4) 4025 (3) 4021 (SSC CGL Tier-I CBE (Exam) 09.08.2017 (IIIrd Sitting) 44. What will be the quotient when 2143 is divided by 38? (1) 56 (2) 55 (3) 57 (4) 54 (SSC CGL Tier-I CBE (Exam) 18.08.2017 (IIIrd Sitting) 45. What least number must be subtracted from 3401, so that the sum is completely divisible by 11? (1) 3 (2) 1 (3) 2 (4) 0 (SSC CGL Tier-I CBE (Exam) 19.08.2017 (IIIrd Sitting)

46. Which smallest number must be added to 100, so that the resulting number is completely divisible by 6? (1) 2(2) 3 (3) 5 (4) 4 (SSC Multi-Tasking Staff Exam. 16.09.2017 (IIIrd Sitting) 47. A number when divided by 80 leaves remainder 20. What is the remainder when the same number is divided by 16? (1) 2 (2) 4 (3) 6 (4) 8 (SSC Multi-Tasking Staff Exam. 17.09.2017 (IIIrd Sitting) 48. Which of the given values is divisible by 15? (1) 2365 (2) 1375 (3) 4365 (4) 2275 (SSC Multi-Tasking Staff Exam. 17.09.2017 (IIIrd Sitting) 49. How many positive factors of 160 are there? (1) 6(2) 8 (3) 5 (4) 12 (SSC Multi-Tasking Staff Exam. 18.09.2017 (IIIrd Sitting) 50. N is the largest two digit number, which when divided by 3, 4 and 6 leaves the remainder 1, 2 and 4 respectively. What is the remainder when N is divided by 5? (1) 4(2)2(3) 0(4) 1 (SSC CGL Tier-II CBE (Exam) 17.02.2018 51. A and B are positive integers. If A + B + AB = 65, then what is the difference between A and B $(A, B \le 15)$? (1) 3(2)4(4) 6 (3)5(SSC CGL Tier-II CBE (Exam) 17.02.2018 52. How many factors of 108 are prime numbers? (1) 2(2)3(3)5(4) 6(SSC CAPFs ASI & Delhi Police SI Online Exam, (Shift-I) 07.07.2017) 53. How many two digit numbers are there which end in 7 and are divisible by 3? (1) 2(2) 3 (3) 4 (4) 5 (SSC CAPfs ASI & Delhi Police SI Exam, (Shift-III) 07.07.2017) 54. If 34P8 is divisible by 9, what is the value of P?

(1) 2(2) 3 (3) 4(4) 5 (SSC Multi Tasking Staff Exam, (Shift-III) 03.10.2017) 55. How many positive factors of 288 are there? (1) 18(2) 15 (3) 10(4) 16 (SSC Multi Tasking Staff Exam, (Shift-III) 04.10.2017) 56. What is the least number multiplied to 100, so that the number becomes a multiple of 15? (1)5(2) 2 (3) 4(4) 3 (SSC Multi Tasking Staff Exam, (Shift-III) 04.10.2017) 57. What is the least number which leaves remainder 3 and 7 respectively when divided by 7 and 11? (1) 80(2) 73 (3) 93(4) 150 (SSC Multi Tasking Staff Exam, (Shift-III) 21.10.2017) 58. The product of two numbers is 231 and one number is 21. What is the second number? (1) 31(2) 7 (3) 11(4) 21 (SSC Multi Tasking Staff Exam, (Shift-III) 21.10.2017) 59. How many multiples of both 3 and 5 are there from numbers 1 to 150? (1) 8(2) 10 (3) 11(4) 30 (SSC Multi Tasking Staff Exam, (Shift-III) 21.10.2017) 60. What is the value of 31 + 33 + 33..... 57? (1) 617(2) 615 (3) 616 (4) 601 (SSC Multi Tasking Staff Exam, (Shift-III) 22.10.2017) 61. How many positive factors of 74 are there? (1)5(2) 6(3) 4(4) 3 (SSC Multi Tasking Staff Exam, (Shift-III) 22.10.2017) 62. What least number must be added to 11158, so that the sum is divisible by 77? (1) 9 (2) 8(3) 7 (4) 5(SSC Multi Tasking Staff Exam, (Shift-III) 23.10.2017) 63. The divisior is 50 times the quotient and 10 times the remainder. If the quotient is 32, what is the dividend?

(1) 51000 (2) 51360 (3) 61000 (4) 61520 (SSC Multi Tasking Staff Exam, (Shift-III) 23.10.2017) 64. The product of two positive numbers is 1152. If one number is two times the other, what will be the sum of the two numbers? (1) 68 (2) 72 (3) 76 (4) 80 (SSC Multi Tasking Staff Exam, (Shift-III) 23.10.2017) 65. How many natural numbers are there between 1000 to 2000, which when divided by 341 leaves remainder 5? (1)3(2) 2(3) 4(4) 1(SSC CGL Tier-II CBE Exam, 21.02.2018) 66. M is the largest three digit number which when divided by 6 and 5 leaves remainders 5 and 3 respectively. What will be the remainder when M is divided by 11? (1) 1(2) 2(3)3(4) 4 (SSC CGL Tier-II CBE Exam, 21.02.2018) 67. How many 3-digit numbers are completely divisible by 4. (1) 225 (2) 224 (3) 223 (4) 222 (SSC CHSL (10 + 2) Tier-I CBE Exam, (Shift-I) 07.03.2018) 68. Find the number which is NOT a prime number. (1) 89 (2) 87 (3) 79 (4) 97 (SSC CHSL (10 + 2) Tier-I CBE Exam, (Shift-III) 07.03.2018) 69. If the seven digit number 56x34y4 is divisible by 72, then what is the least value of (x + y)? (1) 8 (2) 12(3) 5 (4) 14(SSC SI In Delhi Police, CAPFs & ASI (CISF) Exam, 13.03.2019 (Shift-I)) 70. If a nine-digit number 985x3678y is divisible by 72, then the value of (4x - 3y) is : (1) 5(2) 4 (3) 6(4) 3 (SSC CGL Tier-I CBE Exam. 04.06.2019 (Shift-I)) **71.** If the 8-digit number 2074x4y2is divisible by 88, then the value of (4x + 3y) is : (1) 49 (2) 36 (4) 45 (3) 42 (SSC CGL Tier-I CBE Exam, 06.06.2019 (Shift-I))

72. The value of $22.\overline{4} + 11.5\overline{67}$ -		
33.59 is :		
(1) $0.\overline{32}$ (2) $0.\overline{412}$		
(3) $0.3\overline{1}$ (4) $0.4\overline{12}$		
(SSC CGL Tier-II (CBE) Exam-2018, 11.09.2019) 73. When a two-digit number is mul- tiplied by the sum of its digits, the product is 424. When the number obtained by interchang- ing its digits is multiplied by the sum of the digits, the result is 280. The sum of the digits of the given number is : (1) 6 (2) 9 (3) 8 (4) 7 (SSC CGL Tier-II (CBE) Exam-2018, (12.09.2019)) 74. What is the largest two digit num-		
ber which when divided by 6 and 5 leaves remainder 1 in each case		
(1) 61 (2) 93 (3) 91 (4) 97 (SSC MTS Exam. 05.08.2019 (Shift-II)) 75. What is the largest two digit number which when divided by		
6 and 7 gives remainder 3 and 4 respectively? (1) 81 (2) 94 (3) 83 (4) 84		
(SSC MTS (Non-Technical) Staff Exam. 08.08.2019 (Shift-II)) 76. The value of 515 × 485 is : (1) 200825 (2) 250225 (3) 20825 (4) 249775 SSC CGL (CBE) Tier-I Exam. 09.03.2020 (Shift-III)		
 77. Two positive integets differ by 1627. When the larger integer is divided by the smaller, the quotient is 7 and the remainder is 157. The sum of the digits of the smaller integer is : 17 (2) 11 13 (4) 12 (Delhi Police Constable Exam, 02.12.2020 (Shift-III)) 		
GET LATEST INFORMATION		
FOR LATEST VACANCIES and Dates of Written Examinations, log on our website :		
www.kiranprakashan.com		

	TYPE-II
1.	The unit's digit in the product $7^{71} \times 6^{63} \times 3^{65}$ is
	(1) 1 (2) 2
	(3) 3 (4) 4
	(SSC Multi-Tasking (Non-Technical) Staff Exam 27 02 2011)
2.	The digit in unit's place of the
	number $(1570)^2 + (1571)^2 +$
	$(1572)^2 + (1573)^2$ is :
	(1) 4 (2) 1
	(3) 2 (4) 3
	(SSC CHSL DEO & LDC Exam. 21 10 2012 Und Sitting)
3.	In a two-digit number, the digit
	at the unit's place is 1 less than
	twice the digit at the ten's place.
	If the digits at unit's and ten's
	place are interchanged, the dif-
	original number is less than the
	original number by 20. The origi-
	nal number is
	(1) 59 (2) 23
	(3) 35 (4) 47
	(SSC CHSL DEO & LDC Exam 20.10.2013)
4	By interchanging the digits of a
	two digit number we get a num-
	ber which is four times the orig-
	inal number minus 24. If the
	unit's digit of the original num-
	then original number is
	(1) 29 (2) 36
	(3) 58 (4) 18
	(SSC CGL Tier-II Exam, 2014
	12.04.2015 (Kolkata Region)
5	(IF NO. 789 IH 7) There is a number consisting of
0.	two digits, the digit in the units'
	place is twice that in the tens' place
	and if 2 be subtracted from the
	sum of the digits, the difference is
	equal to $\frac{1}{6}$ th of the number. The
	number is
	(1) 26 (2) 25 (3) 24 (4) 22 (4)
	(3) 24 (4) 23
	(SSC CGL HeF-H Exam, 25.10.2015, TF No. 1099685)
6.	What is the unit digit of 279 +
	167 × 342?
	(1) 1 (2) 3
	(3) 5 (4) 8
	(SSC Multi-Tasking Staff Exam 17 09 2017 (IIIrd Sitting)
7.	If the unit digit of $(433 \times 456 \times 10^{-1})$
- •	43N) is $(N + 2)$, then what is the
	value of N?

(3) 3 (4) 6 (SSC CGL Tier-II CBE Exam, 09.03.2018) 8. If a number 657423547 X 46 is divisible by 11, then find the value of X. (1) 7(2)9(3) 8(4) 6 (SSC CHSL (10 + 2) Tier-I CBE Exam, (Shift-I) 17.03.2018) 9. If the 8-digit number 789*x*531y is divisible by 72, then the value of (5x - 3y) is : (1) 0 (2) -1(3) 2(4) 1 (SSC CGL Tier-I (CBE) Exam. 04.06.2019 (Shift-II)) 10. If the 8-digit number 179x091y is divisible by 88, the value of (5x - 8y) is : (2) 7 (1) 4 (3) 9 (4) 5 (SSC CGL Tier-I (CBE) Exam. 04.06.2019 (Shift-III)) 11. If a 9 digit number 32*x*4115y2 is divisible by 88, then the value of (4x - Y) for the smallest possible value of y, is : (1) 31 (2) 20 (3) -1 (4) 11 (SSC CGL Tier-I (CBE) Exam. 06.06.2019 (Shift-II)) 12. If a 10-digit number 2094x-843y2 is divisible by 88, then the value of (5x-7y) for the largest possible value of *x*, is : (1) 3 (2) 5 (3) 2 (4) 6 (SSC CGL Tier-I (CBE) Exam. 06.06.2019 (Shift-III)) 13. If a 10-digit number 1330x 558y2 is divisible by 88, then the value of (x + y) is : (1) 7 (2) 9(3) 6 (4) 8 (SSC CGL Tier-I (CBE) Exam. 07.06.2019 (Shift-I)) 14. If the 10-digit number 8 9 7 3 5 9 y 7 x 2 is divisible by 72, then what is the value of (3x - y), for the possible greatest value of y? (1) 3 (2) 8 (3) 7 (4) 5 (SSC CGL Tier-I (CBE) Exam. 07.06.2019 (Shift-II)) 15. if 10-digit number 67127y76x2 is divisible by 88, then the value of (7x - 2y). (1) 10 (2) 7

(2) 8

(1) 1

(3) 3 (4) 5

(SSC CGL Tier-I (CBE) Exam. 07.06.2019 (Shift-III))

\sqrt{xy} is :	j, 15 16 of
(1) $\sqrt{7}$ (2) 3	
(3) 7 (4) $2\sqrt{7}$	
(SSC CGL Tier-I (CBE)
Exam. 10.06.2019 (Shi 17. If the six digit number $15x$ is divisible by 44, then $(x + y)$	ift-I)) :1y2 y) is
(1) 8 (2) 7	
(3) 6 (4) 9 (SSC CGL Tier-I (0	CBE)
Exam. 10.06.2019 (Shif	t-II))
18. If the six digit number 6x290)4 is
x is:	le of
(1) 5 (2) 6 (2)	
(3) 7 (4) 8 (SSC CGL Tier-I (CBE)
Exam. 10.06.2019 (Shift	-III))
19. What is the least value of x s	uch
that 517 x 324 is divisible by ?	y 12
(1) 3 (2) 1	
(3) 0 (4) 2 (SSC OCL Then L ((حاجات
Exam. 11.06.2019 (Shi	ift-I))
20. If the six digit number $4x573$ divisible by 72 then the value $(x + y)$ is :	By is ie of
(1) 9 (2) 4	
(3) 8 (4) 6	
(3) 8 (4) 6 (SSC CGL Tier-I (0) Evern 11 06 2010 (Shii	CBE)
(3) 8 (4) 6 (SSC CGL Tier-I (0 Exam. 11.06.2019 (Shii 21. For what value of <i>x</i> is the se	CBE) ft-II)) even
 (3) 8 (4) 6 (SSC CGL Tier-I (0 Exam. 11.06.2019 (Shift 21. For what value of <i>x</i> is the set digit number 46393<i>x</i>8 divise by 11? 	CBE) ft-II)) even sible
 (3) 8 (4) 6 (SSC CGL Tier-I (Exam. 11.06.2019 (Shift 21. For what value of <i>x</i> is the set digit number 46393<i>x</i>8 divise by 11? (1) 5 (2) 3 	CBE) ft-II)) even sible
 (3) 8 (4) 6 (SSC CGL Tier-I (Exam. 11.06.2019 (Shift 21. For what value of x is the se digit number 46393x8 divise by 11? (1) 5 (2) 3 (3) 2 (4) 7 	CBE) (t-II)) even ible
 (3) 8 (4) 6 (SSC CGL Tier-I (Exam. 11.06.2019 (Shif) 21. For what value of x is the set digit number 46393x8 divise by 11? (1) 5 (2) 3 (3) 2 (4) 7 (SSC CGL Tier-I (Exam. 11.06.2019 (Shift) 	CBE) (t-II)) vven sible CBE) t-III))
 (3) 8 (4) 6 (SSC CGL Tier-I (Exam. 11.06.2019 (Shii) 21. For what value of x is the se digit number 46393x8 divis by 11? (1) 5 (2) 3 (3) 2 (4) 7 (SSC CGL Tier-I (Exam. 11.06.2019 (Shifi 22. What is the value of x so that 	CBE) ft-II)) even iible CBE) t-III))
 (3) 8 (4) 6 (SSC CGL Tier-I (Exam. 11.06.2019 (Shift 21. For what value of <i>x</i> is the set digit number 46393<i>x</i>8 divise by 11? (1) 5 (2) 3 (3) 2 (4) 7 (SSC CGL Tier-I (Exam. 11.06.2019 (Shift 22. What is the value of <i>x</i> so that seven digit number 91876<i>x</i> 	CBE) it-II)) even iible CBE) t-III)) t the 2 is
(3) 8 (4) 6 (SSC CGL Tier-I (Exam. 11.06.2019 (Shif 21. For what value of x is the se digit number 46393 x 8 divise by 11? (1) 5 (2) 3 (3) 2 (4) 7 (SSC CGL Tier-I (Exam. 11.06.2019 (Shift 22. What is the value of x so that seven digit number 91876 x divisible by 72? (1) 2 (2) 7	CBE) (t-II)) even iible CBE) t-III)) t the 2 is
 (3) 8 (4) 6 (SSC CGL Tier-I (Exam. 11.06.2019 (Shift 21. For what value of <i>x</i> is the se digit number 46393<i>x</i>8 divise by 11? (1) 5 (2) 3 (3) 2 (4) 7 (SSC CGL Tier-I (Exam. 11.06.2019 (Shift 22. What is the value of <i>x</i> so that seven digit number 91876<i>x</i> divisible by 72? (1) 2 (2) 7 (3) 5 (4) 3 	CBE) ft-II)) even sible CBE) t-III)) t the 2 is
(3) 8 (4) 6 (SSC CGL Tier-I (Exam. 11.06.2019 (Shift 21. For what value of x is the se digit number 46393 x 8 divise by 11? (1) 5 (2) 3 (3) 2 (4) 7 (SSC CGL Tier-I (Exam. 11.06.2019 (Shift 22. What is the value of x so that seven digit number 91876 x divisible by 72? (1) 2 (2) 7 (3) 5 (4) 3 (SSC CGL Tier-I (0)	CBE) (t-II)) even iible (CBE) t-III)) t the 2 is (CBE)
 (3) 8 (4) 6 (SSC CGL Tier-I (Exam. 11.06.2019 (Shif) 21. For what value of x is the set digit number 46393x8 divise by 11? (1) 5 (2) 3 (3) 2 (4) 7 (SSC CGL Tier-I (Exam. 11.06.2019 (Shif) 22. What is the value of x so that seven digit number 91876x divisible by 72? (1) 2 (2) 7 (3) 5 (4) 3 (SSC CGL Tier-I (Exam. 12.06.2019 (Shif) 23. What is the value of x so that 	CBE) (t-III) ven ible CBE) t-III) t the 2 is CBE) (ft-I)) t that
(3) 8 (4) 6 (SSC CGL Tier I (Exam. 11.06.2019 (Shii 21. For what value of x is the se digit number $46393x8$ divise by 11? (1) 5 (2) 3 (3) 2 (4) 7 (SSC CGL Tier I (Exam. 11.06.2019 (Shif 22. What is the value of x so that seven digit number 91876x divisible by 72? (1) 2 (2) 7 (3) 5 (4) 3 (SSC CGL Tier I (Exam. 12.06.2019 (Shi 23. What is the value of x so the seven digit number 5656	CBE) (t-III) ven ible CBE) (-IIII) the 2 is CBE) (ft-II) that 5x52
(3) 8 (4) 6 (SSC CGL Tier-I (Exam. 11.06.2019 (Shift 21. For what value of x is the se digit number 46393 x 8 divise by 11? (1) 5 (2) 3 (3) 2 (4) 7 (SSC CGL Tier-I (Exam. 11.06.2019 (Shift 22. What is the value of x so that seven digit number 91876 x divisible by 72? (1) 2 (2) 7 (3) 5 (4) 3 (SSC CGL Tier-I (Exam. 12.06.2019 (Shift 23. What is the value of x so that the seven digit number 5656 is divisible by 72?	CBE) (t-II)) even iible CBE) (-III)) the 2 is CBE) (tt-I)) that 5x52
(3) 8 (4) 6 (SSC CGL Tier-I (Exam. 11.06.2019 (Shift 21. For what value of x is the se digit number 46393 x 8 divise by 11? (1) 5 (2) 3 (3) 2 (4) 7 (SSC CGL Tier-I (Exam. 11.06.2019 (Shift 22. What is the value of x so that seven digit number 91876 x divisible by 72? (1) 2 (2) 7 (3) 5 (4) 3 (SSC CGL Tier-I (Exam. 12.06.2019 (Shift 23. What is the value of x so the seven digit number 5656 is divisible by 72 ? (1) 5 (2) 4	CBE) (t-II)) (ven ible CBE) (-III)) (the 2 is CBE) (ft-I)) that (x52)
(3) 8 (4) 6 (SSC CGL Tier-I (Exam. 11.06.2019 (Shift 21. For what value of x is the se digit number 46393 x 8 divise by 11? (1) 5 (2) 3 (3) 2 (4) 7 (SSC CGL Tier-I (Exam. 11.06.2019 (Shift 22. What is the value of x so that seven digit number 91876 x divisible by 72? (1) 2 (2) 7 (3) 5 (4) 3 (SSC CGL Tier-I (Exam. 12.06.2019 (Shift 23. What is the value of x so the seven digit number 5656 is divisible by 72 ? (1) 5 (2) 4 (3) 7 (4) 8	CBE) (t-II)) even iible (CBE) (t-III)) the 2 is (CBE) (tf-I)) that ix52
(3) 8 (4) 6 (SSC CGL Tier-I (Exam. 11.06.2019 (Shift 21. For what value of x is the se digit number 46393 x 8 divise by 11? (1) 5 (2) 3 (3) 2 (4) 7 (SSC CGL Tier-I (Exam. 11.06.2019 (Shift 22. What is the value of x so that seven digit number 91876 x divisible by 72? (1) 2 (2) 7 (3) 5 (4) 3 (SSC CGL Tier-I (Exam. 12.06.2019 (Shift 23. What is the value of x so that the seven digit number 5656 is divisible by 72 ? (1) 5 (2) 4 (3) 7 (4) 8 (SSC CGL Tier-I (Exam. 12.06 2019 (Shift	CBE) t-II)) even iible CBE) t-III)) the 2 is CBE) (ft-I)) that ix52 CBE) that ix52 CBE)
(3) 8 (4) 6 (SSC CGL Tier-I (Exam. 11.06.2019 (Shif 21. For what value of x is the se digit number $46393x8$ divise by 11? (1) 5 (2) 3 (3) 2 (4) 7 (SSC CGL Tier-I (Exam. 11.06.2019 (Shiff 22. What is the value of x so that seven digit number 91876x divisible by 72? (1) 2 (2) 7 (3) 5 (4) 3 (SSC CGL Tier-I (Exam. 12.06.2019 (Shif 23. What is the value of x so that is divisible by 72? (1) 5 (2) 4 (3) 7 (4) 8 (SSC CGL Tier-I (Exam. 12.06.2019 (Shift 24. What is the value of x so that (SSC CGL Tier-I (Exam. 12.06.2019 (Shift 24. What is the value of x so that	CBE) t-III) ven iible CBE) t-III) the 2 is CBE) (ft-I)) that ix52 CBE) t-III) that ix52 CBE) t-III) that ix52 CBE) t-III)

(1) 4 (2) 2 (3) 8 (4) 6 (SSC CGL Tier-I (CBE) Exam. 12.06.2019 (Shift-III)) **25.** What is the value of x so that the seven digit number 55350 x2 is divisible by 72? (1) 1 (2) 8(3) 7 (4) 3 (SSC CGL Tier-I (CBE) Exam. 13.06.2019 (Shift-I)) **26.** What is the value of x so that the seven digit number 8439x53 is divisible by 99? (1) 9 (2) 4 (3) 3 (4) 6 (SSC CGL Tier-I (CBE) Exam. 13.06.2019 (Shift-II)) 27. When an integer n is divided by 8, the remainder is 3. What will be the remainder if 6n-1 is divided by 8? (1) 4 (2) 1 (4) 2 (3) 0 (SSC CGL Tier-I (CBE) Exam. 13.06.2019 (Shift-III)) 28. When an interger n is divided by 7, the remainder is 3. What will be the remainder if 6n is divided bv 7? (1) 2 (2) 1 (3) 4 (4) 0 (SSC CGL Tier-I (CBE) Exam. 19.06.2019 (Shift-III)) **29.** If a nine-digit number 389x6378y is divisible by 72, then the value of $\sqrt{6x + 7y}$ will be : (1) 6 (2) $\sqrt{13}$ (3) $\sqrt{46}$ (4) 8 (SSC CGL Tier-II (CBE) Exam-2018, 11.09.2019) 30. The sum of the digits of a twodigit number is $\frac{1}{7}$ of the number. The unit's digit is 4 less than the ten's digit. If the number obtained on reversing its digits is divided by 7, the remainder will be : (1) 4 (2) 5 (4) 6 (3) 1 (SSC CGL Tier-II (CBE) Exam-2018, 11.09.2019) **31.** If the 11-digit number 5678x43267y is divisible by 72, then the value of $\sqrt{5x+8y}$ is : (1) 6 (2) 4 (3) 7 (4) 8 (SSC CGL Tier-II (CBE) Exam-2018, (12.09.2019))

32. If a 10-digit number 5 4 3 2 *y* 1 7 4 9 x is divisible by 72, then what is the value of (5x - 4y)? (1) 14 (2) 15 (3) 10 (4) 9 (SSC CGL Tier-II (CBE) Exam-2018, (13.09.2019)) 33. Two positive numbers differ by 2001. When the larger number is divided by the smaller number, the quotient is 9 and the remainder is 41. The sum of the digits of the larger number is : (1) 15 (2) 11 (3) 10 (4) 14 (SSC CGL Tier-II (CBE) Exam-2018, (13.09.2019)) 34. If the nine-digit number 43x1145y2 is divisible by 88, then the value of (3x - 2y), for the smallest value of *y*, is : (1) 22(2) 18 (3) 20(4) 9 (SSC CHSL (10+2) Tier-I Exam, 01.07.2019 (Shift-III)) **35.** If the eight-digit number 342 x18 y 6 is divisible by 72, then what is the value of $\sqrt{9x+y}$, for the largest value of y? (1) $2\sqrt{7}$ (2) $4\sqrt{7}$ (3) 8 (4) 6 (SSC CHSL (10+2) Tier-I Exam, 02.07.2019 (Shift-I)) 36. If the nine-digit number 8175x45y2 is divisible by 72, then the value of $\sqrt{4x+y}$, for the largest value of y, is: (1) 8 (2) 4 (3) 5 (4) 6 (SSC CHSL (10+2) Tier-I Exam, 02.07.2019 (Shift-II)) 37. If an eleven-digit number $5y 5888406 \times 6$ is divisible by 72, what is the value of (9x - 2y), for the least value of x? (1)5(2) 3 (3) 4(4) 7(SSC CHSL (10+2) Tier-I Exam, 03.07.2019 (Shift-I)) **38.** If a 10-digit number 4 6 7 8 9 x 5 3 1 y is divisible by 72, then the value of (2x + 5y), for the largest of x is : (1) 28(2) 16(3) 10(4) 38(SSC CHSL (10+2) Tier-I Exam, 03.07.2019 (Shift-III))

48. If the seven digit number

39. If a 10-digit number 75y97405 x 2 is is divisible by 72, then the value of (2x - y), for the greatest value of x, is : (1) 24(2) 21(3) 12(4) 18 (SSC CHSL (10+2) Tier-I Exam, 04.07.2019 (Shift-I)) **40**. If a 10-digit number 1 2 2 0 *x* 5 5.8 y 2 is divisible by 88, then the value of (x + y) is : (1)9(2) 7 (3) 15(4) 11 (SSC CHSL (10+2) Tier-I Exam, 04.07.2019 (Shift-II)) 41. If 10-digit number 6220x558y2 is divisible by 88, then the value of (5x + 5y) is : (1) 20 (2) 55 (3) 25 (4) 45 (SSC CHSL (10+2) Tier-I Exam, 05.07.2019 (Shift-I)) **42.** If a 10 digit number 7 2 2 0 *x* 5 5 8 y 2 is divisible by 88, then the value of (5x + 5y) is : (1) 10(2) 25 (4) 34 (3) 15 (SSC CHSL (10+2) Tier-I Exam, 05.07.2019 (Shift-II)) 43. If a 10-digit number 1230x558y2 is divisible by 88, then the value of (5x + 5y) is: (1) 20(2) 40(3) 30 (4) 50(SSC CHSL (10+2) Tier-I Exam, 05.07.2019 (Shift-III)) 44. If an 8-digit number 30*x*558*y*2 is divisible by 88, then the value of (6x + 6y) is : (1) 42(2) 66(3) 30(4)35(SSC CHSL (10+2) Tier-I Exam, 08.07.2019 (Shift-I)) 45. Given n is an integer, what is the remainder when $(6n + 3)^2$ is divided by 9? (1) 3(2) 2(3) 1(4) 0(SSC CHSL (10+2) Tier-I Exam, 08.07.2019 (Shift-II)) 46. If the seven digit number 54x29y6 (x > y) is divisible by 72, what is the value of (2x+3y)? (1) 32(2) 13(3) 38(4) 23(SSC CHSL (10+2) Tier-I Exam, 08.07.2019 (Shift-III)) 47. If the seven digit number 64x29y6 (x > y) is divisible by 72, what is the value of (2x-3y)? (1) 13(2)3(3)9(4) 7 (SSC CHSL (10+2) Tier-I Exam, 09.07.2019 (Shift-I))

64x29y6 (x > y) is divisible by 72, what is the value of (2x - y)? (2) 13(1)3(3)7(4) 9(SSC CHSL (10+2) Tier-I Exam, 09.07.2019 (Shift-II)) 49. The seven digit number 78x1y68 is divisible by 88. The value of (x + y) is : (1) 13(2) 10(3) 11(4) 14(SSC CHSL (10+2) Tier-I Exam, 09.07.2019 (Shift-III)) 50. Which among the following numbers is exactly divisible by 7, 11 and 13? (1) 14982 (2) 15004 (3) 14993 (4) 15015 (SSC CHSL (10+2) Tier-I Exam, 10.07.2019 (Shift-I)) 51. The ten digit number 2x600000y8 is exactly divisible by 24. If $x \neq 0$ and $y \neq 0$, then the least value of (x + y) is equal to : (1) 5 (2) 8 (3) 9 (4) 2(SSC CHSL (10+2) Tier-I Exam, 11.07.2019 (Shift-I)) 52. The 10-digit number 7 9 x 0 0 0 0.1 y 6 is exactly divisible by 88. What is the value of (x + y)? (1)5(2)9(3) 6(4) 7 (SSC CHSL (10+2) Tier-I Exam, 11.07.2019 (Shift-II)) 53. The eight digit number 5x32465yis divisible by 88. What is the value of (2x + 3y)? (1) 18(2) 20(3) 16(4) 24(SSC CHSL (10+2) Tier-I Exam, 11.07.2019 (Shift-III)) 54. What is the sum of the digits of the two digit prime number, whose unit's and ten's digits are same? (1) 18 (2) 10 (3) 2 (4) 6(SSC MTS (Non-Technical) Staff Exam. 14.08.2019 (Shift-II)) 55. If the six-digit number 479 xyz is exactly divisible by 7, 11, and 13, then $\{(y + z) \div x\}$ is equal to: (1) $\frac{11}{9}$ (2) 4 (3) $\frac{13}{7}$ (4) $\frac{7}{13}$ (SSC CAPFs SI, Delhi Police SI &

CISF ASI Exam, 09.12.2019(Shift-I))

56. How many nutural numbers less than 1000 are divisible by 5 or 7 but NOT by 35? (1) 285 (2) 313 (3) 341 (4) 243 (SSC CAPFs SI, Delhi Police SI & CISF ASI Exam, 11.12.2019(Shift-I)) 57. If the 5-digit number 538xy is divisible by, 3, 7 and 11, find the value of $(x^2 + y^2)$. (1) 25(2) 13(3) 17(4) 10(SSC CAPFs SI, Delhi Police SI & CISF ASI Exam, 12.12.2019(Shift-I)) 58. If the number 1005x4 is completely divisible by 8, then the smallest integer in place of x will be : (1) 4 (2) 1 (3) 2 (4) 0SSC CGL (CBE) Tier-I Exam, 03.03.2020 (Shift-I) 59. When 200 is divided by a positive integer x, the remainder is 8. How many values of x are there ? (1) 8 (2) 5(3) 6 (4) 7 SSC CGL (CBE) Tier-I Exam, 03.03.2020 (Shift-II) 60. What should replace * in the number 94*2357, so that the number is divisible by 11? (1) 3 (2) 8(3)7(4) 1 SSC CGL (CBE) Tier-I Exam, 03.03.2020 (Shift-III) 61. When 732 is divided by a positive integer *x*, the remainder is 12. How many values of x are there? (1) 19 (2) 18 (3) 16 (4) 20SSC CGL (CBE) Tier-I Exam, 04.03.2020 (Shift-I) 62. If the 6-digit numbers x35624 and 1257y4 are exactly divisible by 11 and 72, respectively, then what is the value of (5x - 2y)? (1) 13 (2) 12 (3) 10 (4) 14 SSC CGL (CBE) Tier-I Exam. 04.03.2020 (Shift-II) 63. How many numbers are there from 200 to 800 which are neither divisible by neither 5 nor 7?(1) 410 (2) 407 (3) 413 (4) 411

> SSC CGL (CBE) Tier-I Exam, 04.03.2020 (Shift-III)

64. If the nine-digit number 708*x*6*y*8*z*9 is divisible by 99, then what is the value of (x + y +z)?(1) 5 (2) 16 (4) 27 (3) 9 SSC CGL (CBE) Tier-I Exam, 05.03.2020 (Shift-I) 65. When a positive integer is divided by d, the remainder is 15. When ten times of the same number is divided by d. the remainder is 6. The least possible value of *d* is : (2) 16 (1) 12(3) 18(4) 9SSC CGL (CBE) Tier-I Exam, 05.03.2020 (Shift-II) 66. The greatest number which should replace '*' in the number 146 * 48 to make it divisible by 8 is : (1) 0(2)8(3)9(4) 2SSC CGL (CBE) Tier-I Exam, 05.03.2020 (Shift-III) 67. If the number 687 *x* 29 is divisible by 9, then the value of 2xis: (1) 4 (2) 8 (3) 2 (4) 3 SSC CGL (CBE) Tier-I Exam, 06.03.2020 (Shift-I) 68. The largest number which should replace * in the number 2365*4 to make the number divisible by 4 is: (1) 8 (2) 9(3) 2 (4) 0SSC CGL (CBE) Tier-I Exam, 06.03.2020 (Shift-II) **69.** If the given number 925x85 is divisible by 11, then the smallest value of x is: (1) 1 (2) 2(3) 3 (4) 4 SSC CGL (CBE) Tier-I Exam, 07.03.2020 (Shift-I) **70.** If a positive integer *n* is divided by 7 the remainder is 2. Which of the following numbers gives a remainder of 0 when divided by 7?(1) n + 5(2) n - 5(3) n+2(4) n + 1SSC CGL (CBE) Tier-I Exam, 07.03.2020 (Shift-II) 71. If 5 divides the integer n, the

71. If 5 divides the integer *n*, the remainder is 2. What will be the remainder if 7n is divided by 5?

(1) 1(2) 3 (3) 2(4) 4 SSC CGL (CBE) Tier-I Exam, 09.03.2020 (Shift-II) 72. The greatest digit which may replace * in the number 1190*6 to make the number divisible by 9 is : (1) 0(2) 1 (3) 3 (4) 9 SSC CGL (CBE) Tier-I Exam, 09.03.2020 (Shift-III) 73. Which of the following numbers is divisible by 2, 5 and 10? (1) 7,20,345 (2) 1,25,372 (3) 19,400 (4) 149 (SSC CHSL (10+2) Tier-I Exam, 18.03.2020 (Shift-I)) 74. If a positive integer *n* is divided by 7, the remainder is 2. Which of the numbers in the options yields a remainder 0 when it is divided by 7? (1) n+3(2) n + 1(3) n+2(4) n + 5(SSC CHSL (10+2) Tier-I Exam, 18.03.2020 (Shift-II)) 75. Which of the following numbers is divisible by both 7 and 11? (2) 12,235 (1) 16,324 (3) 16.257 (4) 16,425 (SSC CHSL (10+2) Tier-I Exam, 19.03.2020 (Shift-I)) 76. How many numbers between 800 to 2000 are divisible by 13? (1) 90(2)92(3) 91 (4) 93(SSC CHSL (10+2) Tier-I Exam, 19.10.2020 (Shift-I)) 77. When 1062, 1134 and 1182 are divided by the greatest number *x*, the remainder in each case is y. What is the value of (x - y)? (1) 17 (2) 18 (3) 16 (4) 19 SSC CGL Tier-II Exam, 15.11.2020 78. Two positive numbers differ by 1280. When the greater number is divided by the smaller number, the quotient is 7 and the remainder is 50. The greater number is : (1) 1558(2)1458(3) 1585(4) 1485 SSC CGL Tier-II Exam, 15.11.2020 79. When positive numbers a, b and c are divided by 13, the remainders are 9, 7 and 10, respectively. What will be the remainder when (a + 2b + 5c) is divided by 13?

(1) 8 (2) 9(3) 5 (4) 10 SSC CGL Tier-II Exam, 16.11.2020 80. If the five-digit number 235xyis divisible by 3, 7 and 11, then what is the value of (3x - 4y)? (2) 8 (1) 10 (3) 9 (4) 5 SSC CGL Tier-II Exam, 16.11.2020 81. A divisor is 15 times the quotient and 3 times the remainder. If the remainder is 40, find the dividend. (1) 900 (2) 750 (3) 1000 (4) 600 SSC CGL Tier-II Exam, 18.11.2020 82. Let x be the greatest number which when divides 955, 1027, 1075, the remainder in each case is the same. Which of the following is NOT a factor of x? (1) 4 (2) 16 (3) 8 (4) 6 SSC CGL Tier-II Exam, 16.11.2020 83. If $14331433 \times 1422 \times 1425$ is divided by 12, then what is the remainder? (1) 3 (2)9(3) 8 (4) 6(SSC Delhi Police SI,CAPFs SI& CISF ASI Exam, 23.11.2020(Shift-I)) 84. If a nine-digit number 785x3678y is divisible by 72, then the value of (x - y) is: (1) 0 (2) - 2(4) 2(3) -1 (SSC Delhi Police SI,CAPFs SI& CISF ASI Exam, 23.11.2020(Shift-I)) 85. The remainder when $72 \times 73 \times$ 78×76 is divided by 35 is : (1) 12 (2) 8 (3) 22 (4) 15 (SSC Delhi Police SI, CAPFs SI& CISF ASI Exam, 24.11.2020(Shift-I)) 86. If six-digit number 5x2y6z is divisible by 7,11 and 13, then the value of (x - y + 3z) is : (1) 0 (2) 4(3) 7 (4) 9(SSC Delhi Police SI,CAPFs SI& CISF ASI Exam, 24.11.2020(Shift-I)) 87. What is the product of the largest and the smallest possible values of m for which a number 5m 83m 4m1 is divisible by 9? (1) 80 (2) 10 (3) 40 (4) 16 (SSC CHSL (10+2) Tier-I Exam, 12.04.2021 (Shift-I))

88. The six digit number 537xy5 is divisible by 125. How many such six-digit numbers are there? (1) 4 (2) 2 (3) 3 (4) 5 (SSC CHSL (10+2) Tier-I Exam, 19.04.2021 (Shift-I)) 89. If the 5-digit number 676xy is divisible by 3, 7 and 11, then what is the value of (3x - 5y)? (1) 10 (2) 7 (3) 9 (4) 11 SSC CGL (CBE) Tier-I Exam, 13.08.2020 (Shift-I) 90. If the 6-digit number 5x 423yis divisible by 88, then what is the value of (5x - 8y)? (1) 28 (2) 14 (3) 16 (4) 24 SSC CGL (CBE) Tier-I Exam, 16.08.2020 (Shift-I) **91.** If the seven-digit number 94x29y6 is divisible by 72, then what is the value of (2x + 3y) for $x \neq y$? (1)35(2) 21(3)37(4) 23SSC CGL (CBE) Tier-I Exam, 17.08.2020 (Shift-I) **92.** If the 8-digit number 888*x*53*y*4 is divisible by 72, then what is the value of (7x+2y), for the maximum value of y? (1) 19(2) 15(3) 23(4) 27 SSC CGL (CBE) Tier-I Exam, 18.08.2020 (Shift-I) 93. What is the value of k such that number 72k 460k is divisible by 6? (1) 4(2) 9 (3) 7(4) 8SSC CGL (CBE) Tier-I Exam, 20.08.2020 (Shift-I)

TYPE-III

 If the sum of five consecutive integers is S, then the largest of those integers in terms of S is

(1)
$$\frac{S-10}{5}$$
 (2) $\frac{S+4}{4}$
(3) $\frac{S+5}{4}$ (4) $\frac{S+10}{5}$

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone) 2. The sum of the squares of 3 consecutive positive numbers is 365. The sum of the numbers is

(1) 30 (2) 33 (3) 36 (4) 45 (SSC Multi-Tasking (Non-Technical) Staff Exam. 22.02.2011) 3. Find three consecutive numbers such that twice the first, three times the second and four times the third together make 191. (1) 19, 20, 21 (2) 21, 22, 23 (3) 20, 21, 22 (4) 22, 23, 24 (SSC Multi-Tasking Staff Exam. 24.03.2013, Ist Sitting) 4. The sum of all prime numbers between 58 and 68 is (1) 179 (2) 178 (3) 187 (4) 183 (SSC CHSL (10+2) Tier-I CBE (Exam) 16.01.2017 (Second Sitting) 5. The sum of three consecutive odd numbers is always divisible by (1) 3 (2) 9(3) 15 (4) 21 (SSC CAPFs ASI & Delhi Police SI Exam. 05.07.2017 (Ist Sitting) 6. What is the sum of first 15 odd natural numbers? (1) 255 (2) 225 (3) 235 (4) 215(SSC Multi-Tasking Staff Exam. 16.09.2017 (IIIrd Sitting) 7. What is the sum of all natural numbers between 1 and 100 which are multiples of 7? (1) 735 (2) 675 (3) 745 (4) 705 (SSC Multi-Tasking Staff Exam. 16.09.2017 (IIIrd Sitting) 8. Which of the following statement(s) is/are TRUE? I. The total number of positive factors of 72 is 12. II. The sum of first 20 odd numbers is 400. III. Largest two digit prime number is 97. (1) Only I and II (2) Only II and III (3) Only I and III (4) All are true. (SSC CGL Tier-II CBE (Exam) 20.02.2018 9. The product of two even consecutive numbers is 168. Find the sum of these numbers. (1) 20 (2) 22 (4) 26 (3) 24 (SSC CHSL (10 + 2) Tier-I CBE Exam, (Shift-III) 23.03.2018) 10. The sum of four consecutive odd numbers is 328. Find the largest number.

SME-32

(1) 85 (2) 98 (4) 97 (3) 79 (SSC CHSL (10 + 2) Tier-I CBE Exam, (Shift-III) 28.03.2018) 11. The average of all the prime and composite numbers upto 100 is : (1) 51(2)50(3) 50.5 (4) 49.5 (SSC MTS (Non-Technical) Staff Exam. 09.08.2019 (Shift-II)) TYPE-IV 1. Six numbers are arranged in decreasing order. The average of the first five numbers is 30 and the average of the last five numbers is 25. The difference of the first and the last numbers is : (1) 20 (2) 25 (3) 5 (4) 30 (SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (Ist Sitting) TF No. 6636838) 2. The sum of three consecutive integers is 51. The middle one is : (1) 14 (2) 15 (3) 16 (4) 17 (SSC CGL Tier-I (CBE) Exam. 09.09.2016 (IIIrd Sitting) 3. Which of the following statement (s) is/are TRUE? I. $\frac{3}{71} < \frac{5}{91} < \frac{7}{99}$ II. $\frac{11}{135} > \frac{12}{157} > \frac{13}{181}$ (1) Only I (2) Only II (3) Both I and II (4) Neither I nor II (SSC CGL Tier-II CBE Exam, 21.02.2018) 4. Three fractions, *x*, *y* and *z*, are such that x > y > z. When the smallest of them is divided by the greatest, the result is $\frac{9}{16}$, which exceeds y by 0.0625 If $x + y + z = 1\frac{13}{24}$, then the value of (x + z) is : (2) 1 $\frac{25}{24}$ (4) $\frac{7}{6}$ (3)

> (SSC CGL Tier-II (CBE) Exam-2018, (12.09.2019))

TYPE–V		
1. The least n which has 1	umber of five digits 23 as a factor is	
 (1) 10037 (3) 10081 	 (2) 10086 (4) 10063 (SSC Delhi Police SI Exam. 19.08.2012) 	
2. The largest a $(0, 1)^2 \sqrt{2}$	among the numbers $\overline{0121}$ 0.12 and	
$\sqrt{0.0004}$ is	6 6	
(1) $(0.1)^2$	(2) √ <u>0.0121</u>	
(3) 0.12	(4) √ <u>0.0004</u>	
(S Exam. 2 3. The greatest	SC CHSL DEO & LDC 8.10.2012, Ist Sitting) among the following	
numbers (3) is :	$\frac{1}{3}$, $(2)^{\frac{1}{2}}$, $(1)^{\frac{1}{6}}$, $(6)^{\frac{1}{6}}$	
$\frac{1}{1}$		
(1) $(2)_2$	(2) 1	
(3) $(6)^{\frac{1}{6}}$	(4) $(3)^{\frac{1}{3}}$	
(SSC	CAPFs SI & CISF ASI Exam. 23.06.2013)	
4. When 335 is result is 8E by 3. What sible value o (1) 8	s added to 5A7, the 32. 8B2 is divisible is the largest pos- of A ? (2) 2	
(3) 1 (SSC CGL Tier	(4) 4 r-II Exam. 29.09.2013	
5. If a number than 31 as	is as much greater it is less than 75, mber is	
(1) 106	(2) 44	
(3) 74 (S	(4) 53 SC CHSL DEO & LDC Exam. 20.10.2013)	
6. Which is the lowing fraction	e largest of the fol- ons?	
$\frac{2}{3}, \frac{3}{5}, \frac{8}{11}, \frac{11}{17}$;	
(1) $\frac{8}{11}$	(2) $\frac{3}{5}$	
(3) $\frac{11}{17}$	(4) $\frac{2}{3}$	
Re-Exa 7. A number is	m. (2013) 27.04.2014 greater than thrice 26	
its reciprocal	by $\frac{3}{3}$. What is the	
number?		

(1)	10	(2) 11
(3)	9	(4) 8
(S	SC	CHSL (10+	2) Tier–I CBE (Exam)
0.1	171-4	20.0	1.2017 (Third Sitting)
8. v t	v ni be	fractions	the largest among
	лс. \		
$\frac{5}{113}$	$\overline{3}$	$\left(\frac{7}{120}\right), \left(\frac{1}{1}\right)$	$\left(\frac{13}{45}\right)$ and $\left(\frac{17}{160}\right)$?
(1)	$\frac{5}{113}$	
(1	2)	$\frac{7}{120}$	
(;	3)	$\frac{13}{145}$	
(4	4)	$\frac{17}{160}$	
		([]) 00	(SSC CGL Tier-I CBE
0.1	Wh.	(Exam) 08	3.08.2017 (Ist Sitting)
9. v r	orir	at is the	r?
г (1)	91	(2) 93
(3)	97	(4) 99
		(SSC D	elhi Police Constable
. T	. .	Exam. 05.1	12.2017 (IIIrd Sitting)
0. F g	9110 grea 95.	d the num ater than	49 as is less than
(1) 2	23	(2) 55
(3) 7	72	(4) 76
(S	SC	CHSL (10 +	- 2) Tier-I CBE Exam, (Shift-I) 10 03 2018)
1. F	rine	d the num	ber that is as much
8 7	grea 79.	ater than	39 as is less than
(1)	42	(2) 49
(;	3)	55	(4) 59
(S	SC	CHSL (10 +	- 2) Tier-I CBE Exam,
2. V	Vhi	ich of the	following numbers
1	07		
(U. 7,	, 0.7, 0.07	, 0.07
(1)	$0.\overline{07}$	
(: (;	2) 3)	0.07 0.7	
6	4)	$0\overline{7}$	
(S	sc	CHSL (10 +	- 2) Tier-I CBE Exam,
		(Shift-III) 17.03.2018)
3. V	Vha	at is that le	east digit that must
t ج	578	$\frac{1}{2}$	ne product 5786 X
5	squ	are?	and it a periodi
(1)	1	(2) 6
(3)	5	(4) 4
(S	SC	CHSL (10 +	- 2) Tier-I CBE Exam,
		l	SIIIII-IIIJ 20.03.2018J

1

1

1

1

TYPE-VI

1. The sum of the numerator and denominator of a positive fraction is 11. If 2 is added to both numerator and denominator, the

fraction is increased by $\frac{1}{24}$. The difference of numerator and denominator of the fraction is (1) 5 (2)3

,	-	(_) -
)	1	(4) 9

(3)(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (North Zone) 2. The denominator of a fraction is 3 more than its numerator. If the numerator is increased by 7 and the denominator is decreased by 2, we obtain 2. The sum of numerator and denominator of the fraction is (2) 13(1)5

(1) 5	(2) 10
(3) 17	(4) 19

(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone)

3. A fraction becomes $\frac{1}{3}$ when 1 is subtracted from both the numer-

ator and the denominator. The

same fraction becomes $\frac{1}{2}$ when 1 is added to both the numerator and the denominator. The sum of numerator and denominator of

the fraction is (1) 10 (2) 18

- (3)7(4) 16 (SSC CHSL DEO & LDC Exam.
- 04.12.2011 (IInd Sitting (East Zone) 4. A number whose one-fifth part increased by 4 is equal to its one-fourth part diminished by 10,
 - is:(1) 260 (2) 280

(3) 240 (4) 270 (SSC CHSL DEO & LDC

Exam. 11.12.2011 (IInd Sitting (East Zone)

5. A person gives $\frac{1}{4}$ of his prop-

erty to his daughter, $\frac{1}{2}$ to his

sons and $\frac{1}{5}$ for charity. How much has he given away?

(1) $\frac{1}{20}$ (2) $\frac{19}{20}$	
(3) $\frac{1}{10}$ (4) $\frac{9}{10}$	
(SSC CGL Tier-I	
6 In an office, there are 108 tables	
6. In an onice, there are 100 tables	
and 132 chairs. If $\frac{1}{6}$ of the tables	
and $\frac{1}{4}$ of the chairs are broken.	
How many people can work in the office if each person requires one	
table and one chair?	
(1) 86 (2) 90	
(3) 92 (4) 99 (SSC Multi Tasking Staff	
Exam. 24.03.2013, Ist Sitting)	
7. A, B, C and D purchase a gift	
1	
worth $\vec{\boldsymbol{\zeta}}$ 60. A pays $\frac{1}{2}$ of what	
others are paying, B pays $\frac{1}{3}$ of	
what others are paying and C	
1	
pays $\frac{1}{4}$ of what others are pay-	
ing. What is the amount paid by D ?	
(1) ₹ 16 (2) ₹ 13	
(SSC CGL Tier-I Exam. 21.04.2013)	
1	
8. In a school $\frac{1}{10}$ of the boys are	
10	
same in number as $\frac{1}{4}$ of the	
girls and $\frac{5}{8}$ of the girls are same	
in number as $\frac{1}{4}$ of the boys. The	
ratio of the boys to girls in that	
school is (1) $2 \cdot 1$ (2) $5 \cdot 2$	
$(1) 2 \cdot 1 (2) 5 \cdot 2 \\ (3) 4 : 3 (4) 3 : 2$	
(SSC Constable (GD)	
Exam. 12.05.2013 Ist Sitting)	
5. which of the following fractions	
does not lie between $\frac{5}{6}$ and $\frac{8}{15}$?	
a) ² a) ³	
(1) $\frac{1}{3}$ (2) $\frac{1}{4}$	

 $\frac{6}{7}$ (3) $\frac{4}{5}$ (4) (SSC CPO SI & ASI, Online Exam. 06.06.2016) (IInd Sitting) 10. In a class, there are 'z' students. Out of them 'x' are boys. What part of the class is composed of girls? (1) $\frac{x}{z}$ (2) $\frac{z}{x}$ (3) $1 - \frac{x}{z}$ (4) $\frac{x}{z} - 1$ (SSC CGL Tier-II Exam. 29.09.2013 11. Divide 50 into two parts so that the sum of their reciprocals is 1 12 (1) 35, 15 (2) 20, 30 (3) 24, 36 (4) 28, 22 (SSC CHSL DEO & LDC Exam. 20.10.2013) 12. A school group charters three identical buses and occupies $\frac{1}{5}$ of the seats. After $\frac{1}{4}$ of the passengers leave, the remaining passengers use only two of the buses. The fraction of the seats on the two buses that are now occupied is (1) $\frac{8}{9}$ (2) $\frac{7}{10}$ (3) $\frac{7}{9}$ (4) $\frac{9}{10}$ (SSC CGL Tier-II Exam. 12.04.2015 (TF No. 567 TL 9) 13. The sum of three numbers is 2, the 1st number is $\frac{1}{2}$ times the 2nd number and the 3rd number is $\frac{1}{4}$ times the 2nd number. The 2nd number is (1) $\frac{7}{6}$ (2) $\frac{8}{7}$ (3) $\frac{9}{8}$ (4) $\frac{10}{9}$ (SSC CGL Tier-II (CBE) Exam. 30.11.2016) SME-34

14. If $\frac{1}{2}$ is added to a number and the sum is multiplied by 3, the result is 21. Then the number is: (1) 6.5 (2) 5.5(3) 4.5 (4) - 6.5 (SSC CGL Tier-I (CBE) Exam. 04.09.2016 (IIIrd Sitting) 15. The reciprocal of the sum of the reciprocals of $\frac{2}{9}$ and $\frac{7}{10}$ is (1) $\frac{14}{83}$ 2) $\frac{83}{14}$ (3) $\frac{90}{83}$ 4) $\frac{83}{90}$ (SSC CGL Tier-I CBE (Exam) 19.01.2017 (Second Sitting) 16. What is the value of $\left(\frac{3}{5} + \frac{7}{9}\right)$? (1) $\frac{62}{45}$ (2) $\frac{31}{28}$ (3) $\frac{5}{7}$ (4) $\frac{1}{7}$ (SSC CHSL (10+2) Tier-I CBE (Exam) 22.01.2017 (IIIrd Sitting) 17. The sum of twice a number and thrice its reciprocal is $\frac{25}{2}$. What is the number? (1) 7 (2) 6(3) 5 (4) 4 (SSC CHSL (10+2) Tier-I CBE (Exam) 22.01.2017 (IIIrd Sitting 18. A fraction is greater than twice its reciprocal by $\frac{7}{15}$. What is the fraction? (1) $\frac{3}{5}$ (2) $\frac{5}{3}$ (3) $\frac{3}{4}$ (4) $\frac{4}{3}$ (SSC CGL Tier-I CBE (Exam) 18.08.2017 (IIIrd Sitting) 19. Convert the 0.0068 into vulgar fraction: (1) $\frac{7}{1250}$ (2) $\frac{17}{2500}$ 17 (4) 1750 (3) 5000 (SSC CHSL (10 + 2) Tier-I CBE Exam, (Shift-I) 07.03.2018)

0

20. If
$$\frac{1}{(3.197)} = 0.3127$$
, find the value of $\frac{1}{(0.0003197)}$.
(1) 3127 (2) 3197
(3) 312.7 (4) 0.3127
(SSC CHSL (10 + 2) Tier1 CBE Exam.
(Shift-1) 15.03.2018)
21. Represent the 0.000256 in vul-
gar fraction.
(1) $\frac{4}{15625}$ (2) $\frac{2}{15625}$
(3) $\frac{16}{15625}$ (4) $\frac{8}{15625}$
(SSC CHSL (10 + 2) Tier-1 CBE Exam.
(Shift-1) 16.03.2018)
22. In a fraction when 3 is added to
its numerator and denominator
it becomes $\frac{4}{5}$ and it becomes
 $\frac{1}{2}$ when 2 is subtracted from
both the numerator and denominator.
(1) $\frac{15}{16}$ (2) $\frac{14}{16}$
(3) $\frac{11}{16}$ (4) $\frac{9}{16}$
(SSC CHSL (10 + 2) Tier1 CBE Exam.
(Shift-1) 20.03.2018)
23. By adding 3 and 5 to the numer-
ator and denominator of a frac-
tion, it becomes $\frac{2}{3}$. If 1 and 3
are subtracted from and added
to numerator and denominator
respectively, it becomes $\frac{2}{5}$, Find
the fraction.
(1) $\frac{5}{7}$ (2) $\frac{6}{7}$ (3) $\frac{7}{6}$ (4) $\frac{7}{5}$
(SSC CHSL (10+2) Tier-1
Exam, 19.10.2020 (Shift-I))
24. The numerator of a fraction is 3
more than the denominator.
When 5 is added to the numer-
ator and 2 is subtracted from the
denominator, the fraction be-
comes $\frac{8}{3}$. When the original
fraction is divided by $5\frac{1}{2}$ the
fraction so obtained is :

(1)
$$\frac{1}{2}$$
 (2) $\frac{2}{3}$
(3) $\frac{3}{4}$ (4) $\frac{1}{4}$
SSC CGL Tier-II Exam, 15.11.2020
25. The denominator of a fraction is
4 more than twice the numera-
tor. When the numerator is in-
creased by 3 and the denomina-
tor is decreased by 3, the frac-
tion becomes $\frac{2}{3}$. What is the
difference between the denomi-
nator and numerator of the origi-
nal fraction ?
(1) 13 (2) 10
(3) 12 (4) 11
SSC CGL Tier-II Exam, 16.11.2020
26. The numerator of a fraction is 6
less than its denominator. If the
numerator is decreased by 1
and the denominator is in-
creased by 5, then the denomi-
nator becomes 4 times the nu-
merator. Find the fraction.
(1) $\frac{5}{11}$ (2) $\frac{3}{11}$
(3) $\frac{4}{11}$ (4) $\frac{7}{11}$
SSC CGL Tier-II Exam, 18.11.2020
27. If $\frac{1}{4.263} = 0.2346$, find the val-
ue of $\frac{1}{0.0004263}$.
(1) 2346 (2) 4.263
(3) 2.346 (4) 4263
SSC CGL Tier-II Exam, 18.11.2020
28. What decimal fraction is 195 ml
of 5 litres ?
(1) 0.039 (2) 0.0039
(3) 0.39 (4) 3.9
(Delhi Police Constable
Exam, 03.12.2020 (Shift-I))
TYPE-VII
1. Of the three numbers, the sum
of the first two is 55, sum of the
second and third is 65 and sum
of third with thrice of the first is
110. The third number is
(1) 25 (2) 30
(3) 35 (4) 28
(SSC CHSL DEO & LDC Exam.
04.12.2011 (Ist Sitting (North Zone)
2. A number consists of two digits
and the digit in the ten's place
exceeds that in the unit's place

by 5. If 5 times the sum of the digits be subtracted from the number, the digits of the number are reversed. Then the sum of digits of the number is

(1) 11	(2) 7
(3) 9	(4) 13

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IInd Sitting (North Zone)

3. In a three-digit number, the digit at the hundred's place is two times the digit at the unit's place and the sum of the digits is 18. If the digits are reversed, the number is reduced by 396. The difference of hundred's and ten's digit of the number is

(1) 1	(2) 2
(3) 3	(4) 5

0	(4) 0
	(SSCCHSL DEO & LDC

Exam. 04.12.2011

(IInd Sitting (East Zone) 4. If the digits in the unit and the ten's places of a three digit number are interchanged, a new number is formed, which is greater than the original number by 63. Suppose the digit in the unit place of the original number be *x*. Then, all the possible values of x are

(1) 7, 8, 9	(2) 2, 7, 9
(3) 0, 1, 2	(4) 1, 2, 8

,	1, 1	2	(4) 1, 2, 8
			(SSC CHSL DEO & LDC
			Exam. 11.12.2011

(Ist Sitting (East Zone)

- 5. The sum of a natural number and its square equals the product of the first three prime numbers. The number is
 - (1) 2 (2) 3 (3) 5 (1) 6

J	0	(4) 0	
	(000	Cometable (CD)	0_

(SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (Ist Sitting)

6. A man has some hens and cows. If the number of heads : number of feet = 12 : 35, find out the number of hens. if the number of heads alone is 48. (1) 90 (1) 96

(1) 28	(2) 26
(3) 24	(4) 22

(SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (Ist Sitting)

7. The length of a road is one kilometre. The number of plants required for plantation at a gap of 20 metres in both sides of the road is

(1) 102	(2) 100
(3) 51	(4) 50
	(SSC CHSL DEO & LDC
Exam	. 28.10.2012 (Ist Sitting)

8. What decimal of a week is an hour? (1) 0.0059 (2) 0.0062(3) 0.062 (4) 0.059(SSC CPO Exam. 06.06.2016) (Ist Sitting) 9. There are 50 boxes and 50 persons. Person 1 keeps 1 marble in every box. Person 2 keeps 2 marbles in every 2nd box, person 3 keeps 3 marbles in every third box. This process goes on till person 50 keeps 50 marbles in the 50th box. Find the total number of marbles kept in the 50th box. (2) 78 (1) 43(4) 93 (3) 6 (SSC FCI Assistant Grade-III Main Exam. 07.04.2013) 10. 252 m of pant cloth and 141 m of shirt cloth are available in a cloth store. To stitch one pant and one shirt, $2\frac{1}{2}$ m and $1\frac{3}{4}$ m of cloth are needed respectively. Then the approximate number of pants and shirts that can be made out of it are (1) (80, 100)(2) (100,80) (3) (100,90) (4) (90,80) (SSC FCI Assistant Grade-III Main Exam. 07.04.2013) 11. The number 323 has (1) three prime factors (2) five prime factors (3) two prime factors (4) no prime factor (SSC CGL Tier-I Exam. 21.04.2013 IInd Sitting) 12. If $a * b = a + b + \frac{a}{b}$, then the value of 12 * 4 is : (1) 20 (2) (2) 21 (4) 19 (3) 48 (SSC CGL Tier-I Exam. 21.04.2013) 13. Find the maximum number of trees which can be planted, 20 metres apart, on the two sides of a straight road 1760 metres long (1) 180 (2) 178 (4) 176 (3) 174(SSC CGL Tier-I Exam. 21.04.2013) 14. A and B have together three times what B and C have, while A, B, C together have thirty rupees more than that of A. If B has 5 times that of C, then A has (2) ₹ 65 (A) **₹** 60 (3) ₹ 75 (4) ₹ 45 (SSC CGL Tier-I Exam. 21.04.2013) 15. If sum of two numbers be *a* and their product be b, then the sum of their reciprocals is

(1) $\frac{1}{a} + \frac{1}{b}$ (2) $\frac{b}{a}$ (3) $\frac{a}{b}$ (4) $\frac{1}{ab}$ (SSC Constable (GD) Exam. 12.05.2013 Ist Sitting) 16. In a factory one out of every 9 is a female worker. If the number of female workers is 125, the total number of workers is (1) 1250 (2) 1125 (3)1025 (4) 1000 (SSC Constable (GD) Exam. 12.05.2013) 17. 'a' divides 228 leaving a remainder 18. The biggest twodigit value of 'a' is (1) 70(2) 21(4) 30 (3) 35(SSC CHSL DEO & LDC Exam. 20.10.2013) 18. In a division sum, the divisor is 12 times the quotient and 5 times the remainder. If the remainder is 36, then the dividend is (1)2706(2) 2796(3) 2736(4) 2826(SSC CHSL DEO & LDC Exam. 27.10.2013 IInd Sitting) 19. The product of digits of a 2-digit number is 24. If we add 45 to the number, the new number obtained is a number formed by interchanging the digits.What is the original number? (2) 83 (1) 54 (3) 38 (4) 45 (SSC CHSL (10+2) Tier-I CBE (Exam) 16.01.2017 (Second Sitting) 20. The ten's digit of a two-digit number is greater than the unit's digit by 7. If we subtract 63 from the number, the new number obtained is a number formed by interchange of the digits. Find the number. (1) 81 (2) 18 (3) 62 (4) 26 (SSC CGL Tier-I CBE (Exam) 30.01.2017 (IIIrd Sitting) 21. There are two buckets, smaller bucket can hold only 3/5th of the water as compared to the larger bucket. If 6,000 buckets of larger capacity are needed to fill a pond, then how many smaller capacity buckets are needed to fill the same pond? (1) 8000 (2) 10000(3) 12000 (4) 15000 (SSC CHSL (10 + 2) Tier-I CBE Exam, (Shift-I) 07.03.2018) **SME-36**

22. A crate of eggs holds one rotten egg out of every 25 eggs in it. If 5 out of 8 rotten eggs are unusable and there are total 10 unusable eggs in the crate, then calculate the number of eggs in the crate. (1) 380(2) 400(3) 420(4) 440 (SSC CHSL (10 + 2) Tier-I CBE Exam, (Shift-I) 08.03.2018) **23.** Tanzeem spent $\frac{1}{5}$ of his salary on his friends, $\frac{1}{10}$ of his salary on accommodation and $\frac{1}{4}$ of his salary on savings. If he has Rs. 1800 left in his wallet, then find his total expenditure on accommodation and savings. (1) Rs. 1,200 (2) Rs. 1,400 (3) Rs. 1.600 (4) Rs. 1,800 (SSC CHSL (10 + 2) Tier-I CBE Exam, (Shift-I) 10.03.2018) 24. In a company $\frac{2}{3}$ of the workers are girls, $\frac{1}{2}$ of the girls are married and $\frac{1}{3}$ of the married girls live in hostel. If $\frac{3}{4}$ of the boys are married and $\frac{2}{3}$ of married boys live in hostel. Calculate the part of workers who don't live in hostel. (1) $\frac{11}{18}$ (2) $\frac{15}{18}$ (3) $\frac{17}{18}$ (4) $\frac{13}{18}$ (SSC CHSL (10 + 2) Tier-I CBE Exam, (Shift-I) 17.03.2018) 25. 1800 chocolates were distributed among the students of a class. Each student got twice as many chocolates as the number of students in the class. Calculate the number of students in the class. (1) 30 (2) 40 (4) 90 (3) 60 (SSC CHSL (10 + 2) Tier-I CBE Exam, (Shift-III) 28.03.2018)

26. 57 sweets are distributed among 10 children such that each girl gets 6 sweets and each boy gets 5 sweets. The number of boys is (1) 3 (2) 6 (4) 5 (3) 4 (SSC MTS (Non-Technical) Staff Exam. 13.08.2019 (Shift-II)) 27. If the 5-digit number 535ab is divisible by 3, 7 and 11, then what is the value of (a^2-b^2+ab) ? (1) 77 (2) 89 (3) 95 (4) 83 SSC CGL Tier-II Exam, 15.11.2020 **28.** When positive numbers x, y and z are divided by 31, the remainders are 17, 24 and 27, respectively. When (4x - 2y + 3z) is divided by 31, the remainder will be : (1) 9 (2) 16 (3) 8 (4) 19 SSC CGL Tier-II Exam, 15.11.2020 **29.** Let ab, $a \neq b$, is a 2-digit prime number such that ba is also a prime number. The sum of all such numbers is : (2) 418(1) 407 (3) 396 (4) 374 SSC CGL Tier-II Exam, 16.11.2020 30. The numerator of a fraction is 3 more than the denominator. When 5 is added to the numerator and 2 is subtracted from the denominator, the fraction becomes $\frac{8}{3}$. When the original fraction is divided by $5\frac{1}{2}$ the fraction so obtained is : (1) $\frac{1}{2}$ (2) $\frac{2}{3}$ (3) $\frac{3}{4}$ (4) $\frac{1}{4}$ SSC CGL Tier-II Exam, 15.11.2020 31. In a two-digit number, its units digit exceeds its tens digit by 2 and that the product of the given number and the sum of its digits is equal to 460. The number is : (1) 48(2) 64 (3) 46 (4) 36 SSC CGL Tier-II Exam, 18.11.2020 41. (1) 32. The students of a class donated a sum of Rs. 2,809 to the Fund. 45. (4) Each student donated as many **49**. (3) rupees as the number of students in the class. The number of 53. (4) students in the class is : 57. (2) (1) 47(2)51(3) 49(4) 5361. (4) (SSC Delhi Police SI.CAPFs SI& 65. (2) CISF ASI Exam, 24.11.2020(Shift-I))

SHORT ANSWERS				
	TYP	Ъ-I		
1. (4)	2. (3)	3. (4)	4. (2)	
5. (2)	6. (4)	7. (1)	8. (4)	
9. (3)	10. (2)	11. (2)	12. (3)	
13. (4)	14. (1)	15. (1)	16. (4)	
17. (1)	18. (4)	19. (1)	20. (1)	
21. (1)	22. (2)	23. (3)	24 . (3)	
25. (2)	26. (3)	27. (4)	28. (4)	
29. (4)	30. (2)	31. (2)	32. (4)	
33. (3)	34. (1)	35. (3)	36. (2)	
37. (2)	38. (2)	39. (1)	40. (2)	
41. (1)	42. (3)	43. (4)	44. (1)	
45. (3)	46 (1)	47. (2)	48. (3)	
49. (4)	50. (1)	51. (3)	52 . (1)	
53. (2)	54. (2)	55. (1)	56. (4)	
57. (2)	58. (3)	59. (2)	60. (3)	
61. (3)	62. (3)	63. (2)	64. (2)	
65. (1)	66. (4)	67. (1)	68. (2)	
69. (3)	70. (2)	71. (4)	72. (4)	
73. (3)	74. (3)	75. (1)	76. (4)	
77. (2)				
	TYP	E-II		
1. (4)	2 . (1)	3. (4)	4. (1)	
5. (3)	6. (2)	7. (4)	8. (2)	
9. (2)	10. (1)	11. (1)	12. (3)	
13. (2)	14. (3)	15. (2)	16. (3)	
17. (2)	18. (2)	19. (4)	20. (3)	
21. (2)	22. (4)	23. (3)	24. (2)	
25. (3)	26. (2)	27. (2)	28. (3)	
29. (4)	30. (4)	31. (1)	32. (1)	
33. (4)	34. (1)	35. (4)	36. (3)	
37. (2)	38. (1)	39. (3)	40. (1)	

69. (4)	70. (1)	71. (4)	72. (2)
73. (3)	74. (4)	75. (1)	76. (2)
77. (2)	78. (4)	79. (1)	80. (1)
81. (3)	82. (2)	83. (4)	84. (4)
85. (2)	86. (3)	87. (4)	88. (1)
89. (3)	90. (4)	91. (3)	92 . (3)
93. (1)			

TYPE-III				
1. (4)	2. (2)	3. (3)	4. (3)	
5. (1)	6. (2)	7. (1)	8. (4)	
9. (4)	10. (1)	11. (1)		

TYPE-IV

|--|

1.

TYPE-V	

1. (2)	2. (3)	3. (4)	4. (4)
5. (4)	6. (1)	7. (3)	8. (4)
9. (3)	10. (3)	11. (4)	12. (4)
13. (1)			

TYPE-VI

1. (3)	2. (2)	3. (1)	4. (2)
5. (2)	6. (2)	7. (2)	8. (2)
9. (4)	10. (3)	11. (2)	12. (4)
13. (2)	14. (1)	15. (1)	16. (1)
17. (2)	18. (2	19. (2)	20. (1)
21. (1)	22. (3)	23. (1)	24. (4)
25. (4)	26. (1)	27. (1)	28. (1)

TYPE-VII					
2 . (3)	3. (2)	4. (1)			
6. (2)	7. (1)	8. (1)			
10. (2)	11. (3)	12. (4)			
14. (2)	15. (3)	16. (2)			
18. (3)	19. (3)	20. (1)			
22. (2)	23. (2)	24. (4)			
26. (1)	27. (3)	28. (3)			
30. (4)	31. (3)	32. (4)			
	2. (3) 6. (2) 10. (2) 14. (2) 18. (3) 22. (2) 26. (1) 30. (4)	TYPE-VII 2. (3) 3. (2) 6. (2) 7. (1) 10. (2) 11. (3) 14. (2) 15. (3) 18. (3) 19. (3) 22. (2) 23. (2) 26. (1) 27. (3) 30. (4) 31. (3)			



42. (3)

46. (4)

50. (4)

54. (3)

58. (4)

62. (4)

66. (2)

43. (2)

47. (2)

51. (1)

55. (2)

59. (1)

63. (4)

67. (2)

44. (1)

48. (4)

52. (2)

56. (1)

60. (1)

64. (2)

68. (1)

EXPLANATIONS TYPE-I 1. (4) Required remainder = Remainder obtained by dividing 2^2 by 5. Remainder = 4**2.** (3) $3^1 = 3$; $3^2 = 9$; $3^3 = 27$; $3^4 =$ 81; $3^5 = 243$ i.e. unit's digit is repeated after index 4. Remainder after dividing 21 by 4 = 1... Unit's digit in the expansion of $(3)^{21} = 3$:. Remainder after dividing by 5 = 33. (4) A 3-digit number = 100x + 10y + zSum of digits = x + y + zDifference = 100x + 10y + z - x - y - z= 99x + 9y = 9 (11x + y) i.e., multiple of 9. **4.** (2) $2^{31} = (2^8)^4 \div 2 = (256)^4 \div 2$ $=\frac{.....6}{2}=.....3$ Clearly, the remainder will be 3 when divided by 5. Illustration: $23 \div 5$ gives remainder = 3 $83 \div 5$ gives remainder = 3 5. (2) Let the number be x. $\therefore \frac{x+12}{6} = 112$ \Rightarrow x + 12 = 672 \Rightarrow x = 672 - 12 = 660 $\therefore \text{ Correct answer} = \frac{660}{6} + 12$ = 110 + 12 = 1226. (4) $2^{6n} - 4^{2n} = (2^6)^n - (4^2)^n$ $= 64^n - 16^n$ which is divisible by 64 - 16 = 487. (1) $4^{61} + 4^{62} + 4^{63}$ $= 4^{61} (1 + 4 + 4^2)$ = $4^{61} \times 21$ which is divisible by 3. 8. (4) Let the unknown number be х. $\therefore 71 \times x + 47 = 98 \times 7$ $\Rightarrow 71x = 686 - 47 = 639$ $\Rightarrow x = \frac{639}{71} = 9 = 3 \times 3$ 9. (3) Of the given alternatives, When 64 is divided by 3, remain-

der = 1

When 65 is divided by 5, remainder = 010. (2) We have to find such numbers which are divisible by 12 (LCM of 4 and 6). Number of numbers divisible by 12 and lying between 1 to 600 $=\frac{600}{12}=50$ Number of numbers divisible by 12 from 1 to 100 = $\frac{100}{12} = 8$ \therefore Required answer = 50 - 8 = 42 11. (2) (x-2) is a factor of polynomial $P(x) = x^3 + x^2 - 5x + \lambda$. \therefore P(2) = 0 (i.e., on putting x = 2) $\Rightarrow 2^3 + 2^2 - 5 \times 2 + \lambda = 0$ \Rightarrow 8 + 4 - 10 + λ = 0 $\Rightarrow \lambda + 2 = 0$ $\Rightarrow \lambda = -2$ 12. (3) Required Number = 100x + 10y + z $\therefore 10y + z = 6m$ \therefore Number = 100x + 6m, where m is a positive integer. = 2(50x + 3m)13. (4) If the first part be x, then second part = 37 - x. $\therefore x \times 5 + (37 - x) 11 = 227$ \Rightarrow 5*x* + 407 - 11*x* = 227 \Rightarrow 6x = 407 - 227 = 180 $\Rightarrow x = 30$ \therefore Second part = 7 14. (1) $3^1 = 3$, $3^2 = 9$, $3^3 = 27, 3^4 = 81$ i.e. the unit's digit = odd number : Hence, both numbers are divisible by 2. **15.** (1) LCM of 4, 5 and 6 = 60 Quotient on dividing 800 by 60 = 13Quotient on dividing 400 by 60 = 6 \therefore Required answer = 13 – 6 = 7 Method 2: First number greater than 400 that is divisible by 60 = 420Smaller number than 800 that is divisible by 60 = 780It is an Arithmetic Progression with common difference = 60By $t_n = a + (n-1)d$ $780 = 420 + (n - 1) \times 60$ \Rightarrow $(n-1) \times 60 = 780 - 420$ = 360 \Rightarrow $(n-1) = 360 \div 60 = 6$ \Rightarrow n = 6 + 1 = 716. (4) Here, the first divisor (289) is a multiple of second divisor (17).

SME-38

NUMBER SYSTEM

∴ Required remainder = Remainder obtained on dividing 18 by 17 = 1

17. (1) n = 6q + 42n = 12q + 8Dividing 8 by 6 the remainder = 218. (4) If the remainder be x, then (11284 - x) and (7655 - x) are divisible by three digit number. i.e. (11284 - x) - (7655 - x)= 3629 is divisible by that number. $3629 = 19 \times 191$ Hence, required number = 191 Sum of digits = 1 + 9 + 1 = 11**19.** (1) Divisor = $6 \times 2 = 12$ Again, Divisor = $3 \times$ quotient \therefore Quotient = $\frac{12}{3} = 4$ Dividend = $12 \times 4 + 2$ = 48 + 2 = 50**20.** (1) $307 \times 32 = 9824$ 307 × 33 = 10131 ∴ Required number = 10131 - 9999 = 132**21.** (1) a = 4011, b = 3989∴ *ab* = 4011 × 3989 = (4000 + 11) (4000 - 11) $= (4000)^2 - (11)^2$ = 16000000 - 121 = 15999879**22.** (2) Expression = $3^{2n} + 9n + 5$ $=(3^{2n}+9n+3)+2$ $= 3 (3^{2n-1} + 3n + 1) + 2$ Clearly, remainder = 223. (3) Resulting number = 3957 + 5349 - 7062 = 2244 which is divisible by 4, 3 and 11. $2244 \div 4 = 561$ $2244 \div 3 = 748$ $2244 \div 11 = 204$ 24. (3) Prime numbers between 80 and 90. = 83 and 89 \therefore Required product = 83×89 = 7387 **25.** (2) Total number of marbles = x+x+3+x-3=3x \therefore 3x = 15 \Rightarrow x = 5 **26**. (3) Bucket + full water = 17 kg. Bucket + $\frac{1}{2}$ water = 13.5 kg. $\frac{1}{2}$ water = 3.5 kg. \therefore Water = 2 × 3.5 = 7 kg. ... Weight of empty bucket = 17 - 7 = 10 kg.



bers $=\frac{n(n+1)}{2}$... Required average $= \frac{n(n+1)}{2 \times n} = \frac{n+1}{2}$ 32. (4) xy = 24∴ (*x*, *y*) $= (1 \times 24), (2 \times 12), (3 \times 8), (4 \times 6)$ \therefore Minimum value of (x + y)= 4 + 6 = 10.33. (3) Let the 3-digit number be 100x + 10y + z. Sum of the digits = x + y + zAccording to the question, Difference = 100x + 10y + z - (x + y + z)= 99x + 9y= 9 (11x + y)Clearly, it is a multiple of 3 and 9. **34.** (1) Let the numbers be x and ywhere x > y. According to the question, (x + y) - (x - y) = 30 $\Rightarrow x + y - x + y = 30$ $\Rightarrow 2y = 30$ $\Rightarrow y = \frac{30}{2} = 15$ ∴ *xy* = 900 $\Rightarrow 15x = 900$ $\Rightarrow x = \frac{900}{15} = 60$ 35. (3) According to the question, Divisor (*d*) = $5r = 5 \times 46 = 230$ Again, Divisor $(d) = 10 \times Quo$ tient (q) $\Rightarrow 230 = q \times 10$ $\Rightarrow q = \frac{230}{10} = 23$: Dividend = Divisor × Quotient + Remainder $= 230 \times 23 + 46$ = 5290 + 46 = 5336**36.** (2) Let the number be *a*. According to the question, $a + \frac{1}{a} = 2$ $\Rightarrow a^2 + 1 = 2a \Rightarrow a^2 - 2a + 1 = 0$ \Rightarrow $(a-1)^2 = 0 \Rightarrow a-1 = 0$ $\Rightarrow a = 1$ 37. (2) Let the number be x. According to the question, $x - 4 = \frac{21}{x}$ **SME-39**

 $\Rightarrow x^2 - 4x = 21$ $\Rightarrow x^2 - 4x - 21 = 0$ $\Rightarrow x^2 - 7x + 3x - 21 = 0$ $\Rightarrow x(x-7) + 3(x-7) = 0$ \Rightarrow (x + 3) (x - 7) = 0 \Rightarrow x = 7 because x \neq - 3. **38.** (2) Let quotient be 1. \therefore $n = 4 \times 1 + 3 = 7$ $\therefore 2n = 2 \times 7 = 14,$ On dividing 14 by 4, remainder = 2 **39.** (1) Divisor = 555 + 445 = 1000 Quotient = $(555 - 445) \times 2$ $= 110 \times 2 = 220$ Remainder = 30 : Dividend = Divisor × Quotient + Remainder $= 1000 \times 220 + 30 = 220030$ **40.** (2) $1 + 2 + 3 + \dots + n = \frac{n(n+1)}{2}$ ∴ 91 + 92 + + 110 $= (1 + 2 + \dots + 110) - (1 + 2 + \dots + 90)$ $= \frac{110 \times 111}{2} - \frac{90 \times 91}{2}$ = 6105 - 4095 = 201041. (1) When N = 1, $341 \div 11 = 31$ 42. (3) From 700 to 950 (both inclusive) number of numbers = 251Smallest number of them divisible by 3 = 702Largest number of them divisible by 3 = 948Common difference = d = 3 $\therefore t_n = a + (n-1)d$ \Rightarrow 948 = 702 + (n - 1)3 \Rightarrow $(n-1) \times 3 = 948 - 702$ = 246 \Rightarrow $n-1 = \frac{246}{3} = 82$ \Rightarrow n = 82 + 1 = 83 Again, of them smallest number divisible by 7 = 700Of them largest number divisible by 7 = 945: Number of numbers divisible by 7 $= \frac{\text{Last term} - \text{first term}}{\text{Common difference}} + 1$ $=\frac{945-700}{7}+1$ $= \frac{245}{7} + 1 = 35 + 1 = 36$ Similarly, number of numbers divisible by 7 and 3 i.e., 21

 $=\frac{945-714}{21}+1$ $=\frac{231}{21}$ + 1 = 12 : Number of numbers divisible by either 3 or 7 or both = 83 + 36 - 12 = 107 .: Required answer = 251 - 107 = 144 Aliter: Total Number from (700 to 950) = (950 - 700) + 1 = 251Number of Numbers from 700 to 950 divisible by 3 $=\frac{700}{3} - \frac{950}{3} \Rightarrow 233 - 316 = 83$ (only Quotient we take) Number of Numbers from 700 to 950 divisble by 7 $=\frac{700}{7}-\frac{950}{7}$ \Rightarrow 100 - 135 = 35 If the Ist Number is totally divisible then we add + 1 in number \therefore We take n = 36Similarly Number of Numbers from 700 to 950 divisible by 3 and 7 i.e. 21 $=\frac{700}{21} - \frac{950}{21} \Rightarrow 33 - 45 = 12$ \therefore Required Answer = 251 - (83 + 35 - 12) = 14443. (4) Number of 3-digit numbers from 121 to 999 = 999 - 121 + 1 = 879Number of 4-digit numbers from 1000 to 1346 = 1346 - 1000 + 1= 347.: Required answer $= 879 \times 3 + 347 \times 4$ = 2637 + 1388 = 4025**44**. (1) 38) <u>2143(56</u> <u>190</u> ∴ Required quotient = 56 45. (3) 11) 3401 (309 33 101 99 Here, remainder = 2 \therefore 3401 – 2 = 3399 which is divisible by 11.

46 (1) 6)100(16 6 40 36 4 \therefore Required number = 6–4 = 2 47. (2) First divisor (80) is a multiple of second divisor (16). Required remainder = remainder obtained on dividing 20 by 16 = 448. (3) A number is divisible by 15 if it is divisible by 3 and 5. Sum of the digits of 4365 = 4 + 3+6+5=18 which is divisible by 3. Unit's digit of 4365 is 5. Hence, it is divisible by 5. 49. (4) 2 | 160 80 2240 220 $\overline{2}$ 10 5 $\therefore 160 = 2^5 \times 5^1$... Required number of factors $= (5+1) (1 + 1) = 6 \times 2 = 12$ 50. (1) LCM of 3, 4 and 6 = 12 Here, divisor corresponding remainder = 2: Required number (N) = Multiple of 12 - 2= 96 - 2 = 94 \therefore 94 ÷ 5 gives remainder = 4 OR 94 is the largest digit which when divided by 3, 4 and 6 will leave remainder 1, 2 and 4. When this number is divided by 5 Remainder = 451. (3) A + B + AB = 65 = 15 + 50 \Rightarrow A + B + AB $= 10 + 5 + 10 \times 5$ ∴ A – B = 10 – 5 = 5 OR Here, A + B + AB= 65 (A, B ≤ 15) Let A = 10, B = 5 $[::10 + 5 + 10 \times 5 = 65]$ \Rightarrow A – B = (10 –5) = 5 52. (1) Factorisation of 108 : 2 108 2 54 3 27 \therefore Prime numbers = 2 and 3

53. (2) A number is divisible by 3 if the sum of its digits is divisible by 3. Required numbers \Rightarrow 27, 57 and 87 54. (2) \therefore 34P8 is divisible by 9. \therefore 3 + 4 + P + 8 = 15 + P is divisible by 9. $\therefore 15 + P = 18$ \Rightarrow P = 18 - 15 = 3 55. (1) 2 288 2 1 4 4 $\therefore 288 = 2 \times 2 \times 2 \times 2 \times 2 \times 3 \times 3 = 2^5 \times 3^2$... Required number of positive factors = (5 + 1)(2 + 1) $= 6 \times 3 = 18$ 56. (4) Required number = 3 because $100 \times 3 = 300$ which is a multiple of 15. 57. (2) Here, divisor - corresponding remainder = 4 \therefore Required number = LCM of 7 and 11 – 4 = 77 - 4= 73 58. (3) Second number Product of two numbers First number $=\frac{231}{21}=11$ 59. (2) Multiples of 3 and 5 = Multiples of 15 = 1015) 150 (10 15x 60. (3) Given series = 31 + 33 ++ 57 It is an arithmetic series whose first term (a) = 31 and the last term $(a_{..}) = 57$. Common difference (d) = 33 - 31 = 2 $\therefore a_n = a + (n-1) d$ $\Rightarrow 5\ddot{7} = 31 + (n - 1) \times 2$ $\Rightarrow (n-1) \times 2 = 57 - 31 = 26$ \Rightarrow $n-1 = \frac{26}{2} = 13$ \Rightarrow n = 13 + 1 = 14 \therefore Required sum = $\frac{n}{2}(a + a_n)$ $=\frac{14}{2}(31+57) = 7 \times 88 = 616$

61. (3) $74 = 2^1 \times 37^1$: Number of factors = (1+1)(1+1) $= 2 \times 2 = 4$ (=1, 2, 37, 74) 62. (3) Dividing 11158 by 77, remainder = 70 \therefore Required number = 77–70 = 7 63. (2) Divisor = $50 \times 32 = 1600$ \therefore Remainder $\times 10 = 1600$ \Rightarrow Remainder = $\frac{1600}{10}$ = 160 \therefore Dividend = Divisor × quotient + remainder $= 1600 \times 32 + 160$ = 51360 64. (2) Let the first number be x. \therefore Second number = 2xAccording to the question, $x \times 2x = 1152$ $\Rightarrow 2x^2 = 1152$ $\Rightarrow x^2 = 576 \Rightarrow x = \sqrt{576} = 24.$ \therefore Sum of numbers = x + 2x $= 3x = 3 \times 24 = 72$ 65. (1) Required numbers between 1000 and 2000 : First number \Rightarrow 341 × 3 + 5 = 1023 + 5 = 1028 > 1000Second number \Rightarrow 341 × 4 + 5 = 1364 + 5 = 1369Third number \Rightarrow 341 × 5 + 5 = 1705 + 5 = 1710Fourth number \Rightarrow 341 × 6 + 5 = 2046 + 5 = 2051 > 200066. (4) Let the quotient be x when divided by 6. \therefore Number = 6x + 5 Again, let the quotient be y when divided by 5. \therefore Number = 5y + 3 Clearly, 6x + 5 = 5y + 3 $\therefore 6x = 5y - 2$ Now, x = 3 and y = 4 satisfy this relation. ∴ Two digit numebr = 23 LCM of divisors 5 and 6 = 30∴ Required number = 30k + 23When k = 32, Required number $= 30 \times 32 + 23$ = 960 + 23 = 983Dividing 983 by 11, remainder = 4

Illustration : 11)983(89 88 103 _99 4 67. (1) Number of 3-digit numbers = 900 $4 \underbrace{)}_{\substack{8\\\underline{8}\\\underline{10}\\\underline{8}\\\underline{10}\\\underline{8}}}^{900} \left(225 \right)$ \therefore Required answer = 225 68. (2) In the given numbers, 87 is not a prime number. Divisors of 87 are 1, 3, 29 and 87. **69.** (3) A number is divisible by 72 if it is divisible by 9 and 8 both. If the number formed by the last three digits is divisible by 8, the original number is divisible by 8. \therefore For 4*y*4, if *y* = 2(least value), then $424 \div 8 = 53$ Again, if the sum of digits of a number is divisible by 9, the number is divisible by 9. $\therefore 56x3424 \Rightarrow 5 + 6 + x + 3 + 4$ +2+4= 24 + x which is divisible by 9 for x = 3. $\therefore x + y = 3 + 2 = 5$ 70. (2) The given number is exactly divisible by 72 if it is divisible by 8 and 9. The given number is divisible by 8 if 78y is divisible by 8. For y = 4, 784 ÷ 8 = 98 The given number is divisible by 9 if sum of its digits is divisible by 9 For 985x36784, Sum of digits = 50 + x which is divisible by 9 for x = 4 $\therefore 4x - 3y = 4 \times 4 - 3 \times 4$ = 16 - 12 = 471. (4) The given number is exactly divisible by 88, if it is divisible by 8 and 11 both. The given number is divisible by 8 if 4y 2 is divisible by 8. When y = 3, $432 \div 8 = 54$ Again for divisibility by 11, Sum of digits at odd places - sum of digits at even places = 0 or multiple of 11 \Rightarrow (3 + x + 7 + 2) - (2 + 4 + 4 + 0) = 0 or 11 $\Rightarrow x + 2 = 11 \Rightarrow x = 9$ $\therefore 4x + 3y = (4 \times 9 + 3 \times 3) = 45$ **SME-41**

72. (4) Expression $= 22.\overline{4} + 11.5\overline{67} - 33.5\overline{9}$ $22 + 0.\overline{4} + 11 + 0.5\overline{67} - 33 - 0.5\overline{9}$ $= (22 + 11 - 33) + 0.4 + 0.5\overline{67}$ - 0.59 $= \frac{4}{9} + \frac{567 - 5}{990} - \frac{59 - 5}{90}$ $= \frac{4}{9} + \frac{562}{990} - \frac{54}{90}$ $=\frac{440+562-594}{990}=\frac{408}{990}$ $=\frac{412-4}{990}$ $= 0.4\overline{12}$ OR Expression $= 22.\overline{4} + 11.5\overline{67} - 33.5\overline{9}$ = 22.444 + 11.567 - 33.599 $= 0.4\overline{44} + 0.5\overline{67} - 0.5\overline{99}$ $= 0.4\overline{12}$ [Maximum recurring places = 2; non-recurring place = 1] **73.** (3) Let the two-digit number be 10x + y. \therefore (10*x* + *y*) (*x* + *y*) = 424.....(i) Number got by reversing the digits = 10y + x \therefore (10 y + x) (x + y) = 280....(ii) Adding equations (i) and (ii), (10x + y)(x + y) + (10y + x)(x + y)= 424 + 280 \Rightarrow (x + y) (10x + y + 10y + x) = 704 \Rightarrow (*x* + *y*) (11*x* + 11*y*) = 704 $\Rightarrow 11 (x + y)^2 = 704$ $\Rightarrow (x+y)^2 = \frac{704}{11} = 64$ $\Rightarrow x + y = \sqrt{64} = 8$ 74. (3) L.C.M. of 6 and 5 = 30 Required number = 30k + 1For k = 3Required number = $30 \times 3 + 1 =$ 91 75. (1) Here, respective divisor remainder = 3 LCM of 6 and 7 = 42∴ Required number $= 42 \times 2 - 3 = 84 - 3 = 81$

 $\therefore 13x - 2(x + 7) = 8$

76. (4) 515 × 485 $= (500 + 15) \times (500 - 15)$ $=(500)^2 - (15)^2$ = 250000 - 225 = 249775**77.** (2) Let larger number be x and smaller number be yx - y = 1627x = 7y + 157 \Rightarrow 7y + 157 – y = 1627 $\Rightarrow 6y = 1627 - 157$ $\Rightarrow y = \frac{1470}{6} = 245$ smaller number = 245Sum of digits of smaller number = 2 + 4 + 5 = 11**TYPE-II** 1. (4) $7^{71} \times 6^{63} \times 3^{65}$ Remainder on dividing 71 by 4 = 3Remainder on dividing 63 by 4 = 3Remainder on dividing 65 by 4 = 1 $= 7^3 \times 6^3 \times 3^1$ $= 343 \times 216 \times 3 \text{ or } 3 \times 6 \times 3 = 4$ \therefore Required unit digit = 4 **2.** (1) Unit's digit in $(1570)^2 = 0$ Unit's digit in $(1571)^2 = 1$ Unit's digit in $(1572)^2 = 4$ Unit's digit in $(1573)^2 = 9$ ∴ Required unit's digit = 0 + 1 + 4 + 9 = 4**3.** (4) Ten's digit = xUnit's digit = 2x - 1.: Original number = 10x + (2x - 1)= 12x - 1New number = 10 (2x - 1) + x= 20x - 10 + x = 21x - 10 $\therefore (21x - 10) - (12x + 1)$ = 12x - 1 - 20 \Rightarrow 9x - 9 = 12x - 21 \Rightarrow 3*x* = 12 \Rightarrow *x* = 4 \Rightarrow Original number = 12x - 1 $= 12 \times 4 - 1 = 47$ [check through options]. 4. (1) Let the two-digit number be 10x + y where x < y. Number obtained on reversing the digits = 10y + xAccording to the question, 10y + x = 4(10x + y) - 24 $\Rightarrow 40x + 4y - 10y - x = 24$ $\Rightarrow 39x - 6y = 24$ $\Rightarrow 13x - 2y = 8$(i) Again, y - x = 7 $\Rightarrow y = x + 7$(ii)

 $\Rightarrow 13x - 2x - 14 = 8$ $\Rightarrow 11 x = 14 + 8 = 22$ $\Rightarrow x = \frac{22}{11} = 2$ From equation (ii), $y-2 = 7 \Rightarrow y = 2 + 7 = 9$: Number = $10x + y = 10 \times 2 + 9 = 29$ 5. (3) Ten's digit of original number = *x* \therefore Unit's digit = 2x \therefore Number = 10x + 2x = 12xAccording to the question, $3x - 2 = \frac{1}{6} \times 12x$ $\Rightarrow 3x - 2 = 2x$ \Rightarrow 3*x* – 2*x* = 2 $\Rightarrow x = 2$ \therefore Number = $12x = 12 \times 2 = 24$ 6. (2) Unit's digit in 279 = 9 Unit's digit in $167 \times 342 = 4 (= 7 \times 2)$... Required unit's digit = Unit's digit in (9 + 4) = 37. (4) Unit's digit of $433 \times 456 = 8$ Unit's digit of $8 \times 43N = N + 2$ Clearly, N + 2 = 8N = 8 - 2 = 6(\cdot Unit's digit of $8 \times 6 = 8$) 8. (2) A number is divisible by 11 if the difference between the sum of digits at odd places and that at even places is zero. \therefore (6 + x + 4 + 3 + 4 + 5) - (4 +7+5+2+7+6) = 0 $\Rightarrow 22 + x - 31 = 0$ $\Rightarrow x - 9 = 0 \Rightarrow x = 9$ 9. (2) 789*x*531*y* is divisible by 72 \therefore 789x531y is divisible by 8 and 9 Given number is divisible by 8. 31y is divisible by 8 ∴ y = 2 Given number is divisible by 9 7 + 8 + 9 + x + 5 + 3 + 1 + 2 = 36x + 35 = 36x = 36 - 35 = 15x - 3y $= 5 \times 1 - 3 \times 2$ = 5 - 6 = -110. (1) 179x091y is divisible by 88. \therefore 179x091y is divisible by 8 and 11. The given number is divisible by 8. \therefore *y* = 2, as 912 is divisible by 8.

179*x*0912 is divisible by 11. \therefore (7 + x + 9 + 2) - (1 + 9 + 0 + 1) = 11 \Rightarrow 18 + *x* - 11 = 11 \Rightarrow 7 + x = 11 $\therefore x = 11 - 7 = 4$ \therefore 5x - 8y = 5 × 4 - 8 × 2 = 20 - 16 = 411. (1) 32x41145y2 is divisible by 88. So, the given number is divisible by 11 and 8. The given number is divisible by 8. \therefore y = 1, as 512 is divisible by 8. (3+x+1+5+2)-(2+4+1+1)=11 $\Rightarrow 11 + x - 8 = 11$ $\Rightarrow x = 11 - 11 + 8$ x = 8 $4x - y = 4 \times 8 - 1 = 31$ 12. (3) 2094*x*843*y*2, is divisible ... The given number is divisible by 11 and 8. Now, if any number divisible by 8 then 3y2 should be divisible by 8. \therefore *y* = 1 as 312 is divisible by 8. Again, If given number divisible by 11, then (2 + 9 + x + 4 + 1) - (0 + 4 + 8)+3+2) = 0 \Rightarrow 16 + x - 17 = 0 $\Rightarrow x = 17 - 16$ $\Rightarrow x = 1$ ∴ Consider, $5x - 7y = 5 \times 1 - 7 \times 1$ = - 2 So, Positive integer = 213. (2) A number is divisible by 88 if it is divisible by 8 and 11. The given number is divisible by 8 if 8y2 is divisible by 8. For y = 3, $832 \div 8 = 104$ For divisibility by 11, Sum of digits at odd places - sum of digits at even places = 0(1 + 3 + x + 5 + 3) - (3 + 0 + 5 + 3)8 + 2) = 0 $\Rightarrow x + 12 - 18 = 0$ $\Rightarrow x = 6$ $\therefore x + y = 6 + 3 = 9$ 14. (3) 897359y7x2 is divisible by 72 897359y7x2 is divisible by 8 and 9

As 712, 752 and 792 are divisible by 8 $\therefore x = 1, 5 \text{ or } 9$ 8 + 9 + 7 + 3 + 5 + 9 + y + 7 +x + 2 = 50 + y + xFor x = 1, $\Rightarrow y = 54 - 51 = 3$ For x = 5, $\Rightarrow y = 63 - 55 = 8$ For x = 9, $\Rightarrow y = 63 - 59 = 4$ $\therefore 3x - y = 3 \times 5 - 8 = 15 - 8 =$ 15. (2) $67127y76x^2$ is divisible by 88 ... The given number is divisible by 8 and 11 632 is divisible by 8 $\therefore x = 3$ (6 + 1 + 7 + 7 + 3)-(7+2+y+6+2)= 024 - (17 + u) = 024 - 17 - y = 0 \Rightarrow 7 - y = 0 y = 7 $7x - 2y = 7 \times 3 - 2 \times 7$ = 21 - 14 = 716. (3) The given number is divisible by 72, if it is divisible by 8 and 9. The number is divisible by 8 if 5x6 is divisible by 8. For x = 7, $576 \div 8 = 72$ The number is divisible by 9, if sum of its digits is divisible bv 9. \therefore *y* + 56 is divisible by 9. For y = 7, y + 56 = 63 which is divisible by 9. $\therefore \sqrt{xy} = \sqrt{7 \times 7} = 7$ 17. (2) 15x1y2 is divisible by 44 \therefore 15x1y2 is divisible by 11 and 4. y2 is divisible by 4. \therefore y = 1 as 12 is divisible by 4. 15x1y2 is divisible by 11. (1 + x + 1) - (5 + 1 + 2) = 02 + x - 8 = 0x = 618. (2) 6x2904 is divisible by 88. \therefore 6*x*2904 is divisible by 11. (x + 9 + 4) - (6 + 2 + 0) = 11 \Rightarrow 13 + x - 8 = 11 $\Rightarrow x + 5 = 11$ $\Rightarrow x = 11 - 5 = 6$ $\therefore x + y = 6$ +1 = 719. (4) The given number is divisible by 12 if it is divisible by 3 and 4. This number is divisible by 3 if the sum of its digits is divisible by 3.

The sum of digits of the given number = 22 + x that is divisible by 3 for x = 2 (least value) 20. (3) 4x573y is divisible by 72 \therefore 4x573y is divisible by 8 and 9 73y is divisible by 8 ∴ y = 6 4x573y is divisible by 9 4 + x + 5 + 7 + 3 + 6 = 27 $\Rightarrow 25 + x = 27$ $\Rightarrow x = 27 - 25 = 2$ x + y = 2 + 6 = 8**21.** (2) 46393*x*8 is divisible by 11. (4 + 3 + 3 + 8) - (6 + 9 + x) = 0 \Rightarrow 18 - 15 - x = 0 \Rightarrow 3 – x = 0 $\Rightarrow x = 3$ 22. (4) The given number 91876x2 is divisible by 72 if it is divisible by 8 and 9. For divisibility by 8, 6x2 must be divisible by 8. For x = 3 or 7, $632 \div 8 = 79$ $672 \div 8 = 84$ Again, for divisibility by 9, Sum of digits = 33 + x must be divisible by 9. For x = 3, $(33 + 3) \div 9 = 4$ **23.** (3) 5656*x*52 is divisible by 72. 5656x52 is divisible by 8 and 9. 5 + 6 + 5 + 6 + x + 5 + 2= 29 + xGiven number of divisible by 9. 29 + x = 36 $\Rightarrow x = 36 - 29 = 7$ Also, 752 is divisible by 8. $\therefore x = 7.$ 24. (2) 6913x08 is divisible by 88. 6913x08 is divisible by 8 and 11. (6 + 1 + x + 8) - (9 + 3 + 0) = 11 $\Rightarrow 15 + x - 12 = 11$ $\Rightarrow 3 + x = 11$ x = 11 - 3 = 825. (3) The given number 55350x2 is divisible by 72 if it is divisible by 8 and 9 both. For divisibility by 8, Number $0x^2$, must be divisible bv 8. For x = 3 and 7, $0x^2$ is divisible by 8. Again, for divisibility by 9, 5 + 5 + 3 + 5 + 0 + x + 2= 20 + x must be divisible by 9. Clearly, for x = 7, 20 + 7 = 27 which is divisible by 9.

26. (2) 8439*x*53 is divisible by 99. \therefore 8439*x*53 is divisible by 11 and 9. 8 + 4 + 3 + 9 + x + 5 + 3 = 32 + 3х $\Rightarrow 32 + x = 36$ $\Rightarrow x = 36 - 32 = 4$ (8 + 3 + 4 + 3) - (4 + 9 + 5)= 18 - 18 = 0.: Given number is divisible by 11. **27.** (2) n = 8k + 36n - 1 = 6(8k + 3) - 1= 48k + 18 - 1 = 48k + 17= 48k + 16 + 1= 8(6k + 2) + 1 \therefore remainder = 1 **28.** (3) Let, n = 7k + 36n = 6(7k + 3) = 42k + 186n = 42k + 18 = 42k + 14 + 46n = 7(6k + 2) + 4When 6n is divided by 7 then remainder = 4. 29. (4) A number is divisible by 72 if it is divisible by 8 and 9 both. For divisibility by 8, 78y must be divisible by 8 which is true for y = 4. Again, for divisibility by 9, Sum of digits = 3 + 8 + 9 + x + 6+3+7+8+4=48+x must be divisible by 9. When x = 6, then 48 + 6 = 54which is divisible by 9. $\therefore \sqrt{6x+7y} = \sqrt{6\times 6+7\times 4}$ $=\sqrt{36+28} = \sqrt{64} = 8$ 30. (4) Let ten's digit be x. Unit's digit = x - 4 \therefore Number = 10x + x - 4= 11x - 4According to the question 11x - 4 = 7(2x - 4) $\Rightarrow 11x - 4 = 14x - 28$ $\Rightarrow 14x - 11x = 28 - 4$ $\Rightarrow 3x = 24$ $\Rightarrow x = \frac{24}{3} = 8$ \therefore Number = 11 × 8 - 4 = 84 Number obtained after reversing the digit = 487)48(6 42 6 \therefore Remainder = 6 31. (1) A number is exactly divisible by 72, if it is divisible by 8 and 9 both. For divisibility by 8,

The number formed by last three digits i.e. 67y must be divisible by 8. For y = 2, $672 \div 8 = 84$ For divisibility by 9, Sum of digits = 5 + 6 + 7 + 8 + x+4+3+2+6+7+2= 50 + x, must be divisible by 9. For x = 4. $54 \div 9 = 6$ $\therefore \sqrt{5x+8y} = \sqrt{5\times 4+8\times 2}$ $=\sqrt{36} = 6$ **32.** (1) A number is divisible by 72 if it is divisible by 8 and 9 both. For divisibility by 8, Number 49x must be divisible by 8. For x = 6, 496 ÷ 8 = 62 For divisibility by 9, Sum of digits = 41 + y must be divisible by 9. For y = 4, $45 \div 9 = 5$ $\therefore 5x - 4y = 5 \times 6 - 4 \times 4$ = 30 - 16 = 14**33.** (4) Let the numbers be *a* and *b* where a > b. $\therefore a - b = 2001....(i)$ Again, b) a (9 41 $\therefore a = 9b + 41$ $\Rightarrow a - 9b = 41$ \Rightarrow 2001 + b - 9b = 41 From equation (i) $\Rightarrow 8b = 2001 - 41 = 1960$ $\Rightarrow b = \frac{1960}{8} = 245$ $\therefore a = 2001 + 245 = 2246$ \therefore Sum of digits = 2 + 2 + 4 + 6 = 14 34. (1) 43x1145y2 is divisible by 88 43x1145y2 is divisible by 8 and 11. 5y2 is divisible by 8. We know, 512 is divisible by 8. $\therefore y = 1$ Again, $43 \times 1145y^2$ is divisible by 11 (4 + x + 1 + 5 + 2) - (3 + 1 + 3)4 + 1) = 11 \Rightarrow 12 + x - 9 = 11 $\Rightarrow x = 11 - 3 = 8$ $3x - 2y = 3 \times 8 - 2 \times 1$ = 24 - 2 = 2235. (4) The given number 342x 18 y6 is divisible by 72 if it is divisible by 8 and 9 both. For divisibility by 8.

846 must be divisible by 8 which is true for y=1, 5 and 9. For divisibility by 9. Sum of digits = 3 + 4 + 2 + x + 1 + 8 + y + 6= 24 + x + y must be divisible by 9. When y = 9, x = 3 because 24 + 3 + 9 = 36 which is divisible by 9. $\therefore \sqrt{9x+y} = \sqrt{9\times 3+9} = \sqrt{36} = 6$ **36.** (3) $8175x \ 45y2$ is divisible bv 72. $8175x \ 45y \ 2$ is divisible by 8 and 9. 5y 2 is divisible by 8 $\therefore y = 1, 5, 9$ Now, 8175x45y2 must be divisible by $9 \Rightarrow$ sum of digits 8 + 1 + 7 + 5 + x + 4 + 5+y + 2= 32 + x + y = should be divisible by 9 \Rightarrow 32 + x + y = 36 or 45 when y = 1 $\Rightarrow x = 36 - 32 - 1 = 3$ possible when y = 5 $\Rightarrow x = 45 - 32 - 5 = 5$, possible when y = 9 $\Rightarrow x = 45 - 32 - 9 = 4$ possible Now, largest value of y = 9 $\Rightarrow x = 4$ $\Rightarrow \sqrt{4x+y}$ $=\sqrt{4\times4+9}$ $=\sqrt{25} = 5$ 37. (2) The given number is divisible by 72 if it is divisible by 8 and 9 both. For divisibility by 8, Number 6x 6 must be divisible by 8 If x = 1, 5 or 9, then $616 \div 8 = 77$; $656 \div 8 = 82$; $696 \div 8 = 87$ Minimum value of x = 1For divisibility by 9, Sum of digits = 5 + y + 5 + 8 + 8+8+4+0+6+1+6=51+ymust be divisible by 9. Clearly, y = 3 $\therefore 9x - 2y = 9 \times 1 - 2 \times 3$ = 9 - 6 = 3**38.** (1) $46789 \times 531 y$ is divisible by 72. 46789x 531y is divisible by 8 and 9.

31y is divisible by 8. 312 is divisible by 8. $\therefore y = 2$ 46789x 531y is divisible by 9. 4 + 6 + 7 + 8 + 9 + x + 5 + 3 +1 + 2 = 45 + x45 + x = 54(Next number divisible by 9) x = 54 - 45 = 9 $2x + 5y = 2 \times 9 + 5 \times 2$ = 18 + 10 = 28**39.** (3) A number is divisible by 72 if it is divisible by 8 and 9 both. For divisibility by 8, Number 5×2 must be divisible by 8. $\therefore x = 1, 5, 9$ Maximum value of x = 9For divisibility by 9, Sum of digits = 7 + 5 + y + 9 +7 + 4 + 0 + 5 + 9 + 2= 48 + y will be divisible by 9. It is true for y = 6. $\therefore 2x - y = 2 \times 9 - 6 = 12$ **40.** (1) 1220 x 558 y2 is divisible by 88. 1220x 558y2 is divisible by 11 and 8. \Rightarrow 8y2 is divisible by 8. 832 is divisible by 8. We know, ∴ *y* = 3 $1220x 558y^2$ is divisible by 11. Difference of sums of alternate digits. (1 + 2 + x + 5 + 3) - (2 + 0 + 5 + 3)8 + 2) = 0[Putting y = 3] \Rightarrow 11 + *x* - 17 = 0 $\Rightarrow x = 6$ x + y = 6 + 3 = 941. (1) 6220x558y2 is divisible by 88 \therefore 6220x558y2 is divisivle by 8 and 11. Hence number formed by last 3 digits i.e. 8y2 is divisible by 8. We have 832 is divisible by 8. $\Rightarrow y = 3$ 6220x558y2 is divisible by 11. Difference of sums of alternative digits = (6 + 2 + x + 5 + 3) - (2 + 0 + 3)5 + 8 + 2) = 816 + x - 17 = 0 $\Rightarrow x - 1 = 0$ x = 1 \Rightarrow 5x + 5y = 5 × 1 + 5 × 3 = 5 + 15 = 20

42. (3) 7220 x 558 y^2 is divisible by 88. \Rightarrow 7220 x 558 y2 is divisible by 8 and 11 \Rightarrow Last 3 digits 8y2 is divisible by 8 ...(i) $[\because 832 \text{ is divisible by 8}]$ $\therefore y = 3$ $7220 \times 558 \text{ y}2$ is divisible by 11. 7220x558y2, (7 + 2 + x + 5 + y) - (2 + 0 + 5 + y)8 + 2) = 0(7 + 2 + x + 5 + 3) - (17) = 017 + x - 17 = 0x = 0 $5x + 5y = 5 \times 0 + 5 \times 3 = 15$ **43.** (2) 1230*x* 558*y*2 is divisible by 88 \Rightarrow 1230x 558y2 is divisible by 8 and 11. 8y2 is divisible by 8 We know 832 is divisible by 8 $\therefore y = 3$ Now, to be divisible by 11, the difference of sums of alternate digits is either zero or divisible by 11. So, (1 + 3 + x + 5 + 3) - (2 + 0 + 5 +8 + 2) = 012 + x - 17 = 0 $x-5=0 \Rightarrow x=5$ $5x + 5y = 5 \times 5 + 5 \times 3 = 25 + 15$ = 4044. (1) 30x558y2 is divisible by 88. \Rightarrow 30x558y2 is divisible by 8 & 11 \Rightarrow Number formed by last 3 digits 8y2 is divisible by 8. We know 832 is divisible by 8. ∴ y = 3 30x558y2 is divisible by 11. \Rightarrow Difference of sums of alternate digits will be zero or divisible by 11. (3 + x + 5 + 3) - (0 + 5 + 8 + 2)= 0 \Rightarrow 11 + x - 15 = 0 $\Rightarrow x = 4$ So, $6x + 6y = 6 \times 4 + 6 \times 3$ = 24 + 18 = 42**45.** (4) $(6n + 3)^2 = 36n^2 + 36n + 9$ $= 9 (4n^2 + 4n + 1) = a$ number divisible by 9. When $(6n + 3)^2$ is divided by 9, remainder = 0

46. (4) 54x 29y6 is divisible by 72
∴ 54 x 29y6 is divisible by 8 and 9.

Then number formed by last 3 digits i.e., $9y_6$ is divisible by 8. We know 936 is divisible by 3. $\therefore y = 3$ 5 + 4 + x + 2 + 9 + 3 + 6 = 29 +х For being divisible by 9, the sum of digits of number should be a multiple of 9. 29 + x = 36(Next multiple of 9) x = 36 - 29 = 7 $2x + 3y = 2 \times 7 + 3 \times 3$ = 14 + 9 = 23**47.** (2) 64*x*29*y*6 is divisible by 72. \Rightarrow 64x 29y6, is divisible by 8 and 9. \Rightarrow Number of last 3 digits 9y6 is divisible by 8. We know. 936 is divisible be 8. $\therefore y = 3$ Also, given number is divisible by 9. 6 + 4 + x + 2 + 9 + y + 6= 27 + x + y= 27 + x + 3= 30 + x30 + x = 36[Next number divisible by 9] x = 36 - 30 = 6 $2x - 3y = 2 \times 6 - 3 \times 3$ = 12 - 9 = 348. (4) 64x 29y 6 is divisible by 72. $\Rightarrow 64x \, 29y \, 6$ is divisible by 9 and 8. \Rightarrow Number made by last 3 digits i.e. 9y6 is divisible by 8 We have, $936 = 8 \times 117$ divisible by 8. $\therefore y = 3$ Again, 64x 29y 6 is divisible by 9. \Rightarrow Sum of digits will also be divisible by 9. 6 + 4 + x + 2 + 9 + 3 + 6= 30 + x30 + x = 36x = 36 - 30 = 6 $2x - y = 2 \times 6 - 3 = 12 - 3$ = 9 **49.** (3) 78x 1y 68 is divisible by – 88. 78x 1y 68 is divisible by 11 & 8. For being divisible by 11, the difference of sums of alternative digits will multiple of 11. (7 + x + y + 8) - (8 + 1 + 6) = 11

 \Rightarrow 15 + x + y - 15 = 11 $\Rightarrow x + y = 11$ 50. (4) LCM of 7, 11 and 13 $= 7 \times 11 \times 13 = 1001$ Required number = 1001×15 = 1501551. (1) 2x600000y8 is exactly divisible by 24. 2x600000y8 is divisible by 3 and 8. The last three letters 0y8 = y8is divisible by 8. We know 48 is divisible by 8. $\therefore y = 4$ Given number is divisible by 3. So sum of all digits divisible by 3. 2 + x + 6 + 4 + 8 = 21 (Least value divisible by 3) $\Rightarrow 20 + x = 21$ \Rightarrow x = 21 - 20 = 1 x + y = 1 + 4 = 5**52.** (2) 79*x*00001*y* 6 is divisible by 88. The given number is divisible by 8 and 11. 1y 6 is divisible by 8. We know. 136 is divisible by 8. So, y = 3The given number is divisible by 11. (7 + x + 0 + 0 + 3) - (9 + 0 + 1 + 3)6) = 0 \Rightarrow 10 + x - 16 = 0 $\Rightarrow x-6=0 \Rightarrow x=6$ x + y = 6 + 3 = 953. (4) 5x 32 46 5y is divisible by 88. :. The given number is divisible by 8 and 11. Hence number formed by last 3 digits. 65y is divisible by 8. We know 656 is divisible by 8. $\therefore y = 6$ Now to be divisible by 11 difference of sum of alternate digits will be zero or divisible by 11. (5 + 3 + 4 + 5) - (x + 2 + 6 + 6)= 0 $17 - x - 14 = 0 \Rightarrow x = 3$ $2x + 3y = 2 \times 3 + 3 \times 6$ = 6 + 18 = 24**54.** (3) Required number = 11 \therefore Sum of digits = 1 + 1 = 2 55. (2) xyzxyz = 1000 xyz + xyz= 1001 xyz $= 7 \times 11 \times 13 \times xyz$ ∴ Required number = 479479

 $\therefore x = 4, y = 7, z = 9$ $\therefore \ \frac{y+z}{x} = \frac{7+9}{4} = \frac{16}{4} = 4$ 56. (1) Number of numbers divisible by 5 =Quotient of $999 \div 5 =$ 119 Number of numbers divisible by 7 = Quotient of 999 \div 7 = 142 Number of numbers divisible by 35 =Quotient of $999 \div 35 = 28$: Number of number of numbers divisible by only 5 or only 7. $= 199 + 142 - 2 \times 28$ = 341 - 56 = 28557. (2) Number will be divisible by $3 \times 7 \times 11 = 231$ 231 × 231 = 53361 $231 \times 233 = 53823$ $\therefore x = 2, y = 3$ $\therefore x^2 + y^2 = (2)^2 + (3)^2 = 4 + 9 = 13$ 58. (4) The given number 1005x4will be divisible by 8 if 5x4 is divisible by 8. For x = 0, 504 ÷ 8 = 63 59. (1) When 200 is divided by x, remainder = 8∴ 200 – 8 = 192 is exactly divisible by x. $\therefore 192 = 2^6 \times 3$ ∴ Number of divisors of 192 $= (6 + 1) (1 + 1) = 7 \times 2 = 14$:. Required divisors must begreater than 8. i.e.12, 16, 24, 32, 48, 64, 96 and 192. \therefore Required answer = 8 60. (1) For divisibility by 11, Sum of digits at odd places - sum of digits at even places = 0 or 11 \Rightarrow (7 + 3 + * + 9) - (5 + 2 + 4) = 0 or 11 \Rightarrow 19 + * - 11 = 11 \Rightarrow * + 8 = 11 \Rightarrow * = 11 - 8 = 3 61. (4) Clearly, 732 - 12 = 720 isdivisible by x. $720 = 2^4 \times 3^2 \times 5$: Number of divisors $= (4 + 1) (2 + 1) \times (1 + 1) = 5 \times 3 \times 2$ = 30 But, x > 12, as remainder = 12 Clearly, 1, 2, 3, 4, 5, 6, 8, 9, 10, 12 = 10 divisors are less than 12. Required answer = 30 - 10= 2062. (4) Number x 35624 is exactly divisible by 11. ... Sum of digits at odd places -Sum of digits at even places = 0

 \Rightarrow (4 + 6 + 3) - (2 + 5 + x) = 0 $\Rightarrow 13 - 7 - x = 0 \Rightarrow x = 6$ Number 1257y4 is divisibe by 72 i.e. by 9 and 8 both. For divisibility by 9. Sum of digits = 19 + y must be divisible by 9. It is true for y = 8. For divisibility 8, Number 7y4 must be divisible by 8. It is true for y = 4 and 8. $\therefore y = 8$ $\therefore 5x - 2y = 5 \times 6 - 2 \times 8 = 30 - 6$ 16 = 1463. (4) Multiples of 5 from 1 to 199 $=\frac{199}{5}=39$ Multiples of 5 from 1 to 800 $=\frac{800}{5}=160$ \therefore Multiples of 5 from 200 to 800 = 160 - 39 = 121Similarly, multiples of 7 from 200 to 800 800 _ 199 = _____ 7 = 114 - 28 = 86Multiples of 35 from 200 to 800 800 199 35 35 = 22 - 5 = 17... Number of numbers dividsible by 5 or 7 or both = 121 + 86 - 17 = 190Number of numbers from 200 to 800 = 800 - 200 + 1 = 601 : Number of numbers not divisible by either 5 or 7 = 601 - 190= 41164. (2) 708*x*6*y*8*z*9,is divisible by 99. \therefore 708x6y8z9 is divisible by 9 and 11. For divisibility by 9, Sum of digits is divisible by 9. \therefore 7 + 0 + 8 + x + 6 + y + 8 + z + 9 = x + y + z + 38 is divisible by 9. For divisibility by 11, (7 + 8 + 6 + 8 + 9) - (0 + x + y + z)= 38 - (x + y + z) = 0 or multiple of 11 From given given options, Putting x + y + z = 1616 + 38 = 54 that is divisible by 9.

38 - 16 = 22 that is a multiple of 11 $\therefore x + y + z = 16$ 65. (2) Dividing by d, remainder = 15∴ d > 15 From options, Let d = 16 \therefore Positive integer = 31 Again, dividing 310 by 16, remainder = 6 \therefore Minimum possible value of d =16 66. (2) 146*48 is divisible by 8. For divisibility by 8. number *48 must be divisible by 8 It is true for * = 2, 4, 6 and 8. \therefore Maximum value of * = 8 67. (2) 687x29 is divisible by 9. \therefore Sum of digits will be divisible by 9. $\therefore 6 + 8 + 7 + x + 2 + 9 = 32 + x$ $\therefore 32 + x = 36$ $\Rightarrow x = 36 - 32$ $\Rightarrow x = 4$ $\therefore 2x = 2 \times 4 = 8$ 68. (1) 2365 * 4 is divisible by 4. For divisibility by 4, *4 should be divisible by 4. Possible values of * = 2, 4, 6, 8 \therefore Maximum value of * = 8 **69.** (4) 925*x* 85 is divisible by 11. : Sum of digits at even places sum of digits at odd places = 11. \Rightarrow (9 + 5 + 8) - (2 + x + 5) = 11 $\Rightarrow 22 - 7 - x = 11$ $\Rightarrow 15 - x = 11$ $\Rightarrow x = 15 - 11$ $\Rightarrow x = 4$ **70.** (1) Dividing n by 7, remainder = 2 \therefore n + (7 - 2) = n + 5 is exactly divisible by 7. Look : $16 \div 7$, Remainder = 2 $21 \div 7$, Remainder = 0 71. (4) Let n = 5k + 2 where k = quotient ∴ 7n = 7 (5k + 2) = 35k + 14 $= 5 \times 7k + 10 + 4$ = 5(7k + 2) + 4 \therefore Remainder = 4 72. (2) \because 1190 * 6, is divisible by 9. $\therefore 1 + 1 + 9 + 0 + * + 6 = (17 + *)$ is a multiple of 9. $\Rightarrow 17 + * = 18$ \Rightarrow * = 18 - 17 = 1

73. (3) The unit digit of the number divisible by 2, 5 and 10 will be zero. Hence, required number = 19400 74. (4) According to the question, n = 7m + 2, where m = quotient Clearly, 7m + 7 = 7(m + 1) is exactly divisible by 7. \therefore Required number = n + 575. (1) For divisibility by 11, the difference between the sum of digits at even places and that at odd places = 0 or multiple of 11. For the number 16324, (4 + 3 + 1) - (6 + 2) = 0For divisibility by 7. $1632 | 4 | \Rightarrow 1632 - 2 \times 4 = 1624$ and $1624 \div 7 = 232$ 76. (2) Number of numbers between 800 and 2000 = 2000 -1 = 1199 13) 1199 (92 117 29 26 x3 \therefore Required answer = 92 77. (2) If two numbers give the same remainder when divided by some other number, then their difference will give a remainder of zero when divided by that number. Numbers will be 1134 - 1062 = 721182 - 1134 = 481182 - 1062 = 120Further, $72 = 2 \times 2 \times 2 \times 3 \times 3$ $48 = 2 \times 2 \times 2 \times 2 \times 3$ $20 = 2 \times 2 \times 2 \times 5 \times 3$ Their H.C.F = 24Remainder in each case = 6 \Rightarrow *x* = 24, *y* = 6 $\therefore (x - y) = 24 - 6 = 18$ **78.** (4) Let the numbers be x and y $\Rightarrow x - y = 1280$ Also, x = 7y + 50 \Rightarrow 7y + 50 - y = 1280 6y = 1280 - 506y = 1230y = 205 $\therefore x = 1485$ **79.** (1) When the number 'a' is divided by 13, remainder = 9 $\Rightarrow a = 13 + 9 = 22$ Similarly, b = 13 + 7 = 20c = 13 + 10 = 23Now, a + 2b + 5c $= 22 + 2 \times 20 + 5 \times 23$ = 22 + 40 + 115

 $\Rightarrow a + 2b + 5c = 177$ Hence, when 177 is divided by 13, remainder = 813 13)177-13 47 39 8 80. (1) L.C.M. of 3, 7 and 11 is 231 Largest possible value of 235 xy is 23,599 On dividing 23,599 by 231 we get remainder = 37. The number will be 23,599 -37 = 23,562 $\Rightarrow x = 6, y = 2$ $\therefore 3x - 4y = 3 \times 6 - 4 \times 2$ = 18 - 8 = 1081. (3) Here, it is given that, Divisor = 15 Quotient \Rightarrow D = 15Q ...(1) Divisor = $3 \times \text{Remainder}$ \Rightarrow D = 3R \Rightarrow D = 120 [\because R = 40 (given)] \Rightarrow Q = 8 (from equation-1) We know that. $Dividend = Divisor \times Quotient +$ Remainder \Rightarrow Dividend = 120 × 8 + 40 = 960 + 40Dividend = 100082. (2) It is given that. *x* is the greatest number which when divides 955, 1027, 1075 gives same remainder. \Rightarrow x will be HCF of 1,027 - 955 = 721,075 - 1,027 = 48 and 1,075 - 955 = 120HCF is 24. 16 is not a factor of HCF of 72, 48, 120, i.e. 24 83. (4) 14331433 ×1422 × 1425 is divided by 12 then remainder = remainder obtained by $9 \times 10 \times$ 1 by 12 Required remainder = 684. (4) 785*x*3678*y* is divisible by 72 The given number is divisible by 8 and 9 \therefore 78y is divisible by 8 ∴ *y* = 4 785×36784 is divisible by 7 + 8 + 15 + x + 3 + 6 + 7 + 8 +4 = x + 48 $\therefore x - y = 6 - 4 = 2$ 85. (2) Remainder obtained by dividing $72 \times 73 \times 78 \times 76$ is divided by 35

Remainder obtained by $2 \times 3 \times 8 \times 6$ by 35 = Remainder obtained by dividing 288 by 35. = 8 86. (3) 5x2y6z, is divisible by 7 11 and 13 if the number in the form abcabc $\therefore x = 6, y = 5, z = 2$ x - y + 3z $= 6 - 5 + 3 \times 2$ = 12 - 5 = 787. (4) The given number is divisible by 9. \therefore Sum of digits = 21 + 3m, will be divisible by 9. Possible value of m = 2, 5, 8 \therefore Required product = 2 × 8 = 1688. (1) Number 537xy5 is divisible by 125 if xy5 is divisible by 125. $125 \times 1 = 125, 125 \times 3 = 375,$ $125 \times 5 = 625;$ $125 \times 7 = 875 =$ Four possible values \therefore Required answer = 4 89. (3) If the sum of digits is divisible by 3, the number is divisible by 3. $\Rightarrow x + y = 2, 5 \text{ or } 8 \text{ or } 11 \dots$ (i) If the difference of digits at odd places and that even places is 0 (zero), the number is divisible 11. 6 + 6 + y - 7 - x = 0 \Rightarrow 5 + y - x = 0 $\Rightarrow x - y = 5$ $\therefore x + y = 11$ x - y = 52x = 16 $\Rightarrow x = 8$ $\therefore x + y = 11$ $\Rightarrow y = 11 - 8 = 3$... Number = 67683 which is also divisible by 7. $\therefore 3x - 5y = 3 \times 8 - 3 \times 5$ = 24 - 15 = 990. (4) Divisibility by 88 = Divisibility by 8 and 11 The given number will be divisible by 8 if 23y is divisible by 8. If y = 2, then $232 \div 8 = 29$ For divisibility of 5x4232 by 11, (2 + 2 + x) - (3 + 4 + 5) = 0 $\Rightarrow 4 + x - 12 = 0$ $\Rightarrow x - 8 = 0 \Rightarrow x = 8$ $\therefore 5x - 8y = 5 \times 8 - 8 \times 2$ = 40 - 16 = 2491. (3) The given number is divisible by 72 i.e., 9 and 8 both. For divisibility by 8, $9y_6$ will be divisible by 8.

When $y = 3,936 \div 8 = 117$; when $y = 7,976 \div 8 = 122$ Now for divisibility of 94x2936 by 9. 9 + 4 + x + 2 + 9 + 3 + 6 = 33 +x, will be divisible by 9 when, x = 3, $(33 + 3) \div 9 = 4$ Again, for 94*x*2976, 37 + x, will be divisible by 9 when, x = 8, 37 + 8 = 45 and 45 $\div 9 = 5$ $\therefore x \neq y \therefore y = 7, x = 8$ $\therefore \quad 2x + 3y = 2 \times 8 + 3 \times 7$ = 16 + 21 = 3792. (3) The given number is divisible by 72 i.e., 8 and 9 both. For divisibility by 8, 3y4 will be divisible by 8. Possible values of y = 4, 8Now, 888x5384 will be divisible by 9 if sum of digits i.e., 44 + xwill be divisible by 9. It is true for x = 1. $\therefore 7x + 2y = 7 \times 1 + 2 \times 8$ = 7 + 16 = 2393. (1) The given number is divisible by 6 i.e. 2 and 3 both. For divisibility by 2, Unit's digit i.e. k = 0, 2, 4, 6, 8. For divisibility by 3, Sum of digits = 19 + 2k, will be divisible by 3. It is true for k = 4**TYPE-III** 1. (4) Sum of five consecutive integers = S \therefore Third integer = $\frac{S}{5}$ \therefore Largest integer = $\frac{S}{5}$ + 2 $=\frac{S+10}{5}$ **2.** (2) $10^2 + 11^2 + 12^2$ = 100 + 121 + 144 = 365 \therefore Required sum =10 + 11 + 12 = 333. (3) Numbers = x, x+1 and x+2 $\therefore 2x + 3x + 3 + 4x + 8 = 191$ \Rightarrow 9x = 191 - 11 = 180 $\Rightarrow x = 20$ \therefore Numbers = 20, 21 and 22 4. (3) Prime numbers between 58 and $68 \Rightarrow 59$, 61 and 67 \therefore Required sum = 59 + 61 + 67 = 1875. (1) Three consecutive odd numbers are :

2x + 1, 2x + 3 and 2x + 5Their sum = 2x + 1 + 2x + 3 + 2x + 5= 6x + 9= 3(2x + 3), which is exactly divisible by 3. 6. (2) $1 + 3 = 4 = 2^2$ $1 + 3 + 5 = 9 = 3^2$ \therefore Sum of first *n* odd numbers= n^2 \therefore Required sum = $(15)^2 = 225$ 7. (1) Multiples of 7 between 1 and 100. Required sum = 7 + 14 + 21+....+98 $= 7 (1 + 2 + \dots + 14)$ $=\frac{7\times14\times15}{2}=735$ 8. (4) I. 2 | 72 2 36 2|183 9 3 $\therefore \quad 72 = 2^3 \times 3^2$ \therefore Number of factors = (3 + 1)(2+1) = 12II. Sum of first n odd numbers $= n^2$: Sum of first 20 odd numbers $= 20^2 = 400$ Look : $1 + 3 = 4 = 2^2;$ $1 + 3 + 5 = 9 = 3^2;$ 1 + 3 + 5 + 7 $= 16 = 4^2$. III. 97 is the largest 2-digit prime number. 9. (4) Let two consecutive even numbers be x and x + 2. $\therefore x(x+2) = 168$ $\Rightarrow x^2 + 2x - 168 = 0$ $\Rightarrow x^2 + 14x - 12x - 168 = 0$ $\Rightarrow x(x+14) - 12(x+14) = 0$ \Rightarrow (x-12) (x + 14) = 0 \Rightarrow x = 12, as x \neq -14 ∴ Numbers are 12 and 14. : Sum of numbers = 12 + 14 = 26OR $168 = 2 \times 2 \times 2 \times 3 \times 7$ $= 12 \times 14$ \therefore Sum of numbers = 12 + 14 = 26 10. (1) Let four consecutive odd numbers be x, x+2, x+4 and x+

6. According to the question, x + x + 2 + x + 4 + x + 6= 328 4x + 12= 328 $\Rightarrow 4x = 328 - 12$ = 316 $\Rightarrow x = \frac{316}{4} = 79$ \therefore Largest number = x + 6= 79 + 6 = 8511. (1) 1 is neither a prime nor a composite number. : Required prime and composite numbers \Rightarrow 2, 3, 4, 5..... 100 ∴ Required average 2+3+....+100 99 $=\frac{\frac{100(100+1)}{2}-1}{\frac{99}{2}}$ $=\frac{5050-1}{99}=\frac{5049}{99}=51$ $:: 1+2+3+...+n=\frac{n(n+1)}{2}$ **TYPE-IV** 1. (2) Numbers are : a > b > c > d > e > fAccording to the question, $a+b+c+d+e=5\times 30$ = 150 --- (i) $b+c+d+e+f=5\times 25$ = 125---- (ii) By equation (i) - (ii) a - f = 150 - 125 = 252. (4) Let the numbers be x, x + 1and *x* + 2. $\therefore x + x + 1 + x + 2 = 51$ $\Rightarrow 3x + 3 = 51$ \Rightarrow 3x = 51 - 3 = 48 $\Rightarrow x = \frac{48}{3} = 16$ \therefore Middle number = 16 + 1 = 17 Aliter : Average or Middle Number $=\frac{Sum}{n}=\frac{51}{3}=17$ 3. (3) I. Decimal equivalent of each fraction :

 $\frac{3}{71} = 0.042$; $\frac{5}{91} = 0.055$; $\frac{7}{99} = 0.07$ Clearly, 0.042 < 0.055 < 0.07 i.e. $\frac{3}{71} < \frac{5}{91} < \frac{7}{99}$ II. Decimal equivalent of each frac- $\frac{11}{135} = 0.08$; $\frac{12}{157} = 0.076$ $\frac{13}{181} = 0.072$ Clearly, $\frac{11}{135} > \frac{12}{157} > \frac{13}{181}$ 4. (3) Given, x > y > z $\therefore \frac{z}{x} = \frac{9}{16}$ Again, $\frac{z}{x} - y = 0.0625$ $\Rightarrow \frac{9}{16} - y = 0.0625$ $\Rightarrow y = \frac{9}{16} - 0.0625$ = 0.5625 - 0.0625 = 0.5 $\therefore x + y + z = 1\frac{13}{24}$ $\Rightarrow x + 0.5 + z = \frac{37}{24}$ $\Rightarrow x + z = \frac{37}{24} - 0.5 = \frac{37}{24} - \frac{1}{2}$ $=\frac{37-12}{24}=\frac{25}{24}$ **TYPE-V** 1. (2) The smallest number of 5 digits = 10000Remainder on dividing 10000 by 123 = 37:. Required number = 10000 + (123 - 37)= 100862. (3) $(0.1)^2 = 0.01$ $\sqrt{0.0121} = \sqrt{0.11 \times 0.11} = 0.11$ $\sqrt{0.0004} = 0.02$ $\Rightarrow 0.01 < 0.02 < 0.11 < 0.12$

3. (4) LCM of 3, 2 and 6 = 6 $(3)^{\frac{1}{3}} = (3^2)^{\frac{1}{6}} = (9)^{\frac{1}{6}}$ $2^{\frac{1}{2}} = (2^3)^{\frac{1}{6}} = (8)^{\frac{1}{6}}$ $(1)^{\frac{1}{6}} = 1; \ (6)^{\frac{1}{6}} = (6)^{\frac{1}{6}}$ 4. (4) 5 A 7 3 3 5 8 B 2 \Rightarrow A \rightarrow 1, 2, 3, 4, 5 & $B \rightarrow 5, 6, 7, 8, 9$ 8B2 is exactly divisible by 3. \therefore 8 + B + 2 = multiple of 3 \therefore B = 5 or 8 \Rightarrow A = 1 or 4 5. (4) If the number be x, then x - 31 = 75 - x $\Rightarrow 2x = 75 + 31 = 106$ $\Rightarrow x = 53$ 6. (1) $\frac{2}{3} = 0.66$ $\frac{3}{5} = 0.6$ $\frac{8}{11} = 0.73$ $\frac{11}{17} = 0.65$ 7. (3) Let the required number be According to the question, $x - \frac{3}{x} = \frac{26}{3}$ $\Rightarrow \frac{x^2 - 3}{x} = \frac{26}{3}$ $\Rightarrow 3x^2 - 9 = 26x$ $\Rightarrow 3x^2 - 26x - 9 = 0$ $\Rightarrow 3x^2 - 27x + x - 9 = 0$ $\Rightarrow 3x(x-9) + 1(x-9) = 0$ \Rightarrow (3x + 1) (x - 9) = 0 \Rightarrow x = 9 because 3x + 1 \neq 0 OR Of the given alternatives, $9 - \frac{3}{9} = 9 - \frac{1}{3} = \frac{27 - 1}{3} = \frac{26}{3}$ 8. (4) Decimal equivalent of each fraction : $\frac{5}{113} = 0.044; \frac{7}{120} = 0.058;$ $\frac{13}{145} = 0.089; \ \frac{17}{160} = 0.106$ **SME-49**

Clearly, $\frac{17}{160}$ is the largest fraction. 9. (3) 91 = 7 × 13 $93 = 3 \times 31$ $99 = 9 \times 11$ $97 = 97 \times 1$ 10. (3) Let the required number be According to the question, x - 49 = 95 - x $\Rightarrow 2x = 49 + 95 = 144$ $\Rightarrow x = \frac{144}{2} = 72$ 11. (4) Let the required number be х. According to the question, x - 39 = 79 - x $\Rightarrow 2x = 39 + 79 = 118$ $\Rightarrow x = \frac{118}{2} = 59$ 12. (4) $0.\overline{7} = 0.77...$ $0.0\bar{7} = \frac{7}{90} = 0.077.....$ 0.0.7 = 0.0707..... Clearly, 0.07 < 0.07 < 0.7 < 0.7 < 0.7 \therefore The largest number = 0.7 13. (1) Unit digit of (5786 × 5784) = 4 From options, least digit that must be added to the product to make it a perfect square = 1Unit digits in perfect squares are 1, 4, 5, 6, 9, 0 TYPE-VI 1. (3) Let numerator be x, then denominator = 11 - x. \therefore Fraction = $\frac{x}{11 - x}$ Again, $\frac{x+2}{11-x+2}$ $=\frac{x}{11-x}+\frac{1}{24}$ $\Rightarrow \frac{x+2}{13-x} - \frac{x}{11-x} = \frac{1}{24}$ $\Rightarrow \frac{11x - x^2 + 22 - 2x - 13x + x^2}{(13 - x)(11 - x)}$