UPSC
Engineering Services
Preliminary Examination

General Studies and Engineering Aptitude

PRACTICE BOOK

3000+
Topicwise Solved Questions

- Engineering Aptitude Covering Logical Reasoning and Analytical Ability
- Engineering Mathematics and Numerical Analysis
- General Principles of Design, Drawing, Importance of Safety
- Standards and Quality Practices in Production, Construction, Maintenance and Services
- Basics of Energy and Environment • Basics of Project Management
- Basics of Material Science and Engineering • Information and Communication Technologies
- Ethics and Values in Engineering Profession

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ESE Prelims : General Studies and Engineering Aptitude Practice Book
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Preface

To get a thorough knowledge and to succeed in the growing competition in Engineering Services Examination reading just the theory will not suffice. To supersede other competitors, an aspirant needs a thorough practice of variety of questions. With the introduction of 9 Non Technical subjects and Current Affairs in Paper-I of ESE Prelims, it has become mandatory to get well versed with these subjects by getting acquainted with every possible variety of question. To help every aspirant to score high marks in the exam, MADE EASY has come up with second edition of General Studies and Engineering Aptitude Practice Book – a 3000+ topicwise question bank.

Made Easy team has put sincere efforts in framing and compilation of questions with accurate explanations, supplemented with relevant theory and illustrations of subjects namely:

- Engineering Aptitude covering Logical Reasoning and Analytical Ability
- Engineering Mathematics and Numerical Analysis
- General Principles of Design, Drawing, Importance of Safety
- Standards and Quality Practices in Production, Construction, Maintenance and Services
- Basics of Energy and Environment
- Basics of Project Management
- Basics of Material Science and Engineering
- Information and Communication Technologies (ICT)
- Ethics and Values in Engineering Profession

For Current Affairs, students are advised to go through the Made Easy Current Affairs Magazine Annual Edition-2018.

It is impossible to acknowledge all the individuals who helped us, but would like to sincerely thank all authors, editors and reviewers for putting their painstaking efforts to publish this book.

With Best Wishes

B. Singh
CMD, MADE EASY
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1. Number Systems

Q.1 What will come in place of the question mark(?) in the following number series?

5 7 ? 25 45 75
(a) 11 (b) 13
(c) 15 (d) 19

Q.2 What should come in place of question mark(?) in the following number series?

132 156 ? 210 240 272
(a) 196 (b) 182
(c) 199 (d) 204

Q.3 Simplify the following equation

2003 × 2004 – 2001 × 2002 = ?
(a) 8010 (b) 8020
(c) 8030 (d) 8040

Q.4 If R and S are different integers both divisible by 5, then which of the following is not necessarily true?

(a) R – S is divisible by 5
(b) R + S is divisible by 10
(c) R × S is divisible by 25
(d) R2 + S2 is divisible by 5

Q.5 What will come in place of the question mark(?) in the series?

3, 8, 27, 112, (?), 3396
(a) 565 (b) 452
(c) 560 (d) 678

Q.6 Police officers of a particular batch are preparing for a drill and are made to stand in different rows. If 4 officers are extra in each row, then there would be 2 rows less. But there would be 4 more rows if 4 officers are less in each row. Find the number of officers in the batch?

(a) 96 (b) 56
(c) 69 (d) 65

Q.7 Father said his son, "I was as old as you are at present at the time of your birth. "If the father age is 38 now, the son age 5 years back was:

(a) 14 (b) 19
(c) 33 (d) 38

Q.8 In a two-digit number, the digit in the unit's place is more than twice the digit in ten's place by 1. If the digits in the unit's place and the ten's place are interchanged, difference between the newly formed number and the original number is less than the original number by 1. What is the original number?

(a) 35 (b) 36
(c) 37 (d) 39

Q.9 Fill in the blank indicated by a star in the number

4 * 56 so as to make it divisible by 33.

(a) 3 (b) 4
(c) 5 (d) None of these

Q.10 What will come in place of the question mark(?) in the series?

121, 222, 424, ?
(a) 646 (b) 828
(c) 626 (d) 524

Q.11 What will come in place of the question mark(?) in the series?

2, 3, 5, 9, 17, ?
(a) 31 (b) 32
(c) 33 (d) 34

Q.12 What will come in place of the question mark(?) in the series?

23 : 13 :: 54 : ?
(a) 40 (b) 41
(c) 44 (d) 39

Q.13 Three hundred passengers are travelling in white, silver and black cars; each of these cars is carrying 6, 5 and 3 passengers, respectively. If the number of white and silver cars is equal and three is only one black car, what is the total number of cars?

(a) 52 (b) 53
(c) 54 (d) 55

Q.14 A total of 324 notes comprising of ₹20 and ₹50 denominations make a sum of ₹12,450. The number of ₹20 notes is

[ISE Prelims 2017]
(a) 200  (b) 144  
(c) 125   (d) 110

**[ESE Prelims 2017]**

Q.16 The sum of squares of successive integers 8 to 16, both inclusive, will be
(a) 1126  (b) 1174  
(c) 1292   (d) 1356

**[ESE Prelims 2018]**

Q.17 In a particular test, the marks scored by 4 candidates – A, B, C and D are as follows:
- Marks obtained by A and B add to 100;
- Marks obtained by C and D add up to those scored by A;
- B scores 4 times of D;
- D scores 10 marks less than C.

The marks obtained by C will be
(a) 30  (b) 15  
(c) 20   (d) 25

**[ESE Prelims 2018]**

Q.18 Let the sum of the squares of successive integers $0, 1, 2, \ldots, n - 1, n$ be denoted by $S$. Let the sum of the cubes of the same integers be denoted by $C$. It is desirable that \( \frac{C}{S} \), as $n$ increases in steps of ‘unity’ from ‘zero’, is given by the series:

\[
0 3 9 18 30 1^3 3^3 5^3 7^3 \ldots \]  
(for $n = 0, 1, 2, 3, 4 \ldots$). What will this ratio be for $n = 8$?

(a) $\frac{108}{17}$  (b) $\frac{103}{17}$  
(c) $\frac{103}{15}$  (d) $\frac{100}{15}$

**[ESE Prelims 2018]**

2. Percentage

**Directions (Q.19 to Q.20):** Answer the questions on the basis of the information given below:

In an examination, there are 100 questions divided into three groups A, B and C such that each group contains atleast one question. Each question in group A carries 1 mark, each question in group B carries 2 marks and each question in group C carries 3 marks. It is known that the questions in group A together carry atleast 60% of the total marks.

Q.19 If group B contains 23 questions, then how many questions are there in group C?
(a) 1  (b) 2  
(c) 3   (d) Cannot be determined

Q.20 If group C contains 8 questions and group B carries atleast 20% of the total marks, which of the following best describes the number of questions in group B?
(a) 11 or 12  (b) 12 or 13  
(c) 13 or 14   (d) 14 or 15

Q.21 Anita’s mathematics test had 70 problems carrying equal marks i.e., 10 arithmetic, 30 algebra and 30 geometry. Although she answered 70% of the arithmetic, 40% of the algebra and 60% of the geometry problems correctly, she did not pass the test because she got less than 60% marks. The number of more questions she would have to answer correctly to earn a 60% passing marks is:
(a) 1  (b) 5  
(c) 7   (d) 9

Q.22 In a class, there are 18 very tall boys. If these constitute three-fourths of the boys and the total number of boys is two-thirds of the total number of students in the class, what is the number of girls in the class?
(a) 6  (b) 12  
(c) 18   (d) 21

Q.23 Consider the following statements:

1. Either A and B are of the same age or A is older than B
2. Either C and D are of the same age or D is older than C
3. B is older than C

Which of the following conclusions can be drawn from the above statements?
(a) A is older than B  
(b) B and D are of the same age  
(c) D is older than C  
(d) A is older than C

Q.24 The monthly average salary paid to all the employees of a company was ₹ 5000. The monthly average salary paid to male and female employees was ₹ 5200 and ₹ 4200 respectively. Then the percentage of males employed in the company is
(a) 75%  (b) 80%  
(c) 85%   (d) 90%
Q.25 Two numbers X and Y are respectively 20% and 28% less than a third number Z. By what percentage is the number Y less than the number X?
(a) 12%  (b) 10%  (c) 9%  (d) 8%

Q.26 A piece of tin is in the form of a rectangle having length 12 cm and width 8 cm. This is used to construct a closed cube. The side of the cube is:
(a) 2 cm  (b) 3 cm  (c) 4 cm  (d) 7 cm

Q.27 In an election only two candidates contested 20% of the voters did not vote and 120 votes were declared as invalid. The winner got 200 votes more than his opponent thus he secured 41% votes of the total voters on the voter list. Percentage votes of the defeated candidate out of the total votes casted is:
(a) 47.5%  (b) 41%  (c) 38%  (d) 45%

Q.28 The total emoluments of two persons are the same, but one gets allowances to the extent of 65% of his basic pay and the other gets allowances to the extent of 80% of his basic pay. The ratio of the basic pay of the former to the basic pay of the latter is:
(a) 16 : 13  (b) 5 : 4  (c) 7 : 5  (d) 12 : 11

Q.29 When 75 is added to 75% of a number, the answer is the number. Find 40% of that number.
(a) 100  (b) 80  (c) 120  (d) 160

Q.30 An annual report consists of 20 sheets each of 55 lines and each line consists of 65 characters. This report is reduced into sheets each of 65 lines such that each line consists of 70 characters. The percentage reduction in the number of sheets will be:
(a) 30%  (b) 20%  (c) 5%  (d) 35%

Q.31 In an election between two candidates, one got 55% of the total valid votes. 20% of the votes were invalid. If the total number of votes was 7500, the number of valid votes that the other candidate got, was:
(a) 2500  (b) 2700  (c) 2900  (d) 3100

Q.32 If each side of a square is increased by 25%, find the percentage change in its area?
(a) 65.25  (b) 56.25  (c) 65  (d) 56

Q.33 If 20% of a = b, then b% of 20 is the same as:
(a) 4% of a  (b) 6% of a  (c) 8% of a  (d) 10% of a

Q.34 Fresh fruit contains 68% water and dry fruit contains 20% water. How much dry fruit can be obtained from 100 kg of fresh fruits?
(a) 20  (b) 30  (c) 40  (d) 50

Q.35 A candidate scoring 25% in an examination fails by 30 marks, while another candidate scores 50% mark, gets 20 marks more than the minimum pass marks. Find the minimum pass marks.
(a) 20  (b) 50  (c) 80  (d) 200

Q.36 In an election, a candidate who gets 84% of the votes is elected by a majority of 476 votes. What is the total number of votes polled?
(a) 900  (b) 810  (c) 600  (d) 700

Q.37 The salaries of A, B, and C are in the ratio of 1 : 2 : 3. The salary of B and C together is ₹6000. By what percent is the salary of C more than that of A?
(a) 100%  (b) 200%  (c) 300%  (d) 600%

Q.38 There are 1650 students in a college. The difference between the number of boys and girls in the college is 400. What is the percentage of girls in the college?
(a) 49  (b) 34  (c) 43  (d) 38

Q.39 The length, breadth and height of a room are in the ratio 7 : 3 : 1. If the breadth and height are doubled while the length is halved, then by what percent the total area of the 4 walls of the room will be increased?
(a) 90%  (b) 88%  (c) 85%  (d) 84%

Q.40 Rajiv spends 40% of his salary on food, 20% on house rent, 10% on entertainment and 10% on conveyance. If his savings at the end of the month are ₹2,000, then his monthly salary is:
(a) ₹6,000  (b) ₹8,000  (c) ₹10,000  (d) ₹12,000

[ESE Prelims 2017]
3. Profit and Loss

Q.41 By selling 45 lemons for ₹ 40, a man loses 20%. How many should he sell for ₹ 24 to gain 20% in the transaction?
(a) 16  (b) 18  
(c) 20  (d) 22

Q.42 A student has to obtain 33% of the total marks to pass. He got 125 marks and failed by 40 marks. The maximum marks are:
(a) 500  (b) 600  
(c) 800  (d) 1000

Q.43 If the price of a book is first decreased by 25% and then increased by 20%, then the net change in the price will be:
(a) ₹ 10  (b) ₹ 20  
(c) ₹ 30  (d) ₹ 40

Q.44 A and B invest in a business in the ratio 3 : 2. If 5% of the total profit goes to charity and A's share is ₹ 855, the total profit is:
(a) ₹ 500  (b) ₹ 1000  
(c) ₹ 1500  (d) ₹ 2000

Q.45 The cost price of 20 articles is the same as the selling price of x articles. If the profit is 25%, then the value of x is:
(a) 15  (b) 16  
(c) 18  (d) 25

Q.46 A and B are partners in a business. A contributes $\frac{1}{4}$ of the capital for 15 months and B received $\frac{2}{3}$ of the profit. For how long B’s money was used?
(a) 3 months  (b) 6 months  
(c) 10 months  (d) 12 months

Q.47 If books bought at prices ranging from ₹ 200 to ₹ 350 are sold at prices ranging from ₹ 300 to ₹ 425, what is the greatest possible profit that might be made in selling eight books?
(a) ₹ 600  (b) ₹ 1200  
(c) ₹ 1800  (d) None of these

Q.48 Salaries of Ravi and Sumit are in the ratio 2 : 3. If the salary of each is increased by ₹ 4000, the new ratio becomes 40 : 57. What is Sumit’s salary?
(a) ₹ 34000  (b) ₹ 6800  
(c) ₹ 36700  (d) ₹ 50000

Q.49 Two bus tickets from city A to B and three tickets from city A to C cost ₹ 77 but three tickets from city A to B and two tickets from city A to C cost ₹ 73. What are the fares for cities B and C from A?
(a) ₹ 4, ₹ 23  (b) ₹ 13, ₹ 17  
(c) ₹ 15, ₹ 14  (d) ₹ 17, ₹ 13

Q.50 If the cost price of 12 pens is equal to the selling price of 8 pens, the gain percent is
(a) 12%  (b) 30%  
(c) 50%  (d) 60%

Q.51 The cost price of a table is ₹ 3,200. A merchant wants to make 25% profit by selling it. At the time of sale he declares a discount of 20% on the marked price. The marked price (in ₹) is:
(a) 5,000  (b) 6,000  
(c) 4,000  (d) 4,500

Q.52 Charging 30% above its production cost a radio maker puts a label of ₹ 286 on a radio as its price. But at the time of selling it, he allows 10% discount on the labelled price. What will his gain be?
(a) ₹ 257.40  (b) ₹ 254.40  
(c) ₹ 198  (d) ₹ 37.40

Q.53 A shopkeeper allows a discount of 12.5% on the marked price of a certain article and makes a profit of 20%. If the article costs the shopkeeper ₹ 210, then the marked price of the article will be
(a) ₹ 387  (b) ₹ 350  
(c) ₹ 386  (d) ₹ 288

Q.54 A shopkeeper buys an article for ₹ 360. He wants to make a gain of 25% on it after a discount of 10%. The marked price is
(a) ₹ 486  (b) ₹ 450  
(c) ₹ 500  (d) ₹ 460

Q.55 A shopkeeper marks his goods 40% above the cost price. He allows a discount of 5% for cash payment to his customers. He receives ₹ 1064 after paying the discount. His profit is
(a) ₹ 264  (b) ₹ 164  
(c) ₹ 200  (d) ₹ 800

Q.56 Tarun got 30% concession on the labelled price of an article and sold it for ₹ 8750 with 25% profit on the price he bought. What was the labelled price?
(a) ₹ 10000  (b) ₹ 12000  
(c) ₹ 13000  (d) ₹ 14000
Q.57 The price of 2 oranges, 3 bananas and 4 apples is ₹ 15. The price of 3 oranges, 2 bananas and 1 apple is ₹ 10. What will be the price of 4 oranges, 4 bananas and 4 apples?
(a) ₹ 10 (b) ₹ 15
(c) ₹ 20 (d) ₹ 25

Q.58 Selling an item for ₹ 1800 at a discount of 10%, a shopkeeper had a gain of ₹ 200. Had he sold the item without discount, the percentage of profit would have been
(a) 10% (b) 20%
(c) 25% (d) 30%

Q.59 Jasmine allows 4% discount on the marked price of her goods and still earns a profit of 20%. What is the cost price of a shirt if its marked price is ₹ 850?
(a) ₹ 650 (b) ₹ 720
(c) ₹ 700 (d) ₹ 680

Q.60 A shopkeeper sells the quantity in the same price rate for which he has bought. But he gives 20% less quantity to the customer. Find his profit percent.
(a) 15% (b) 20%
(c) 18% (d) 25%

Q.61 The C.P. of an article is 40% of the S.P. The percent that S.P. of C.P. is:
(a) 250 (b) 240
(c) 60 (d) 40

Q.62 The value of a machine depreciates at the rate of 10% every year. It was purchased 3 years ago. If its present value is ₹ 8748, its purchase price was:
(a) ₹ 10000 (b) ₹ 12000
(c) ₹ 14000 (d) ₹ 16000

Q.63 A trader mixes 26 kg of rice at ₹ 20 per kg with 30 kg of rice of other variety at ₹ 36 per kg and sells the mixture at ₹ 30 per kg. His profit percent is:
(a) No profit, no loss (b) 5%
(c) 8% (d) 10%

Q.64 The difference between the compound interest and simple interest on a certain sum for 2 years at 10% per annum is ₹ 300. Find the sum
(a) ₹ 31,000 (b) ₹ 31,500
(c) ₹ 30,000 (d) ₹ 30,500

Q.65 Lasya invested certain amount for two rates of simple interests at 5% p.a. and 4% p.a. What is the ratio of Lasya's investments if the interests from those investments are equal?
(a) 4 : 5 (b) 5 : 4
(c) 7 : 6 (d) 6 : 7

Q.66 A bank offers 5% compound interest calculated on half-yearly basis. A customer deposits ₹ 1600 each on 1st January and 1st July of a year. At the end of the year, the amount he would have gained by way of interest is:
(a) ₹ 120 (b) ₹ 121
(c) ₹ 123 (d) ₹ 122

Q.67 A sum of ₹ 25000 becomes ₹ 27250 at the end of 3 years when calculated at simple interest. Find the rate of interest.
(a) 1% (b) 2%
(c) 3% (d) 4%

Q.68 Find the present worth of ₹ 78000 due in 4 years at 5% interest per year.
(a) ₹ 55000 (b) ₹ 50000
(c) ₹ 45000 (d) ₹ 65000

Q.69 A certain principal amounts to ₹ 15000 in 2.5 years and to ₹ 16500 in 4 years at the same rate of interest. Find the rate of interest.
(a) 2% (b) 4%
(c) 6% (d) 8%

Q.70 Find the compound interest on ₹ 3000 at 5% for 2 years, compounded annually.
(a) ₹ 307.5 (b) ₹ 400.5
(c) ₹ 500.5 (d) ₹ 600.5

Q.71 Find the compound interest on ₹ 10000 at 12% rate of interest for 1 year, compounded half-yearly.
(a) ₹ 1230 (b) ₹ 1232
(c) ₹ 1234 (d) ₹ 1236

Q.72 The difference between SI and CI compounded annually on a certain sum of money for 2 years at 8% per annum is ₹ 12.80. Find the principal.
(a) ₹ 1000 (b) ₹ 3000
(c) ₹ 2000 (d) ₹ 4000

Q.73 Find the simple interest on ₹ 5000 at a certain rate if the compound interest on the same amount for 2 years is ₹ 253.125.
(a) ₹ 200 (b) ₹ 250
(c) ₹ 300 (d) ₹ 400
Q.74 Sum of ₹ 600 amounts to ₹ 720 in 4 years at simple interest. What will it amount to if the rate of interest increased by 2%?
   (a) ₹ 648  (b) ₹ 768  (c) ₹ 726  (d) ₹ 792

Q.75 How long will it take a certain amount to increase by 30% at the rate of 15% simple interest?
   (a) 1%   (b) 2%   (c) 3%   (d) 4%

Q.76 If the simple interest on a sum of money for 2 years at 5% per annum is ₹ 60, what is the compound interest on the same at the same rate and for the same time?
   (a) ₹ 63.5  (b) ₹ 62  (c) ₹ 61.5  (d) ₹ 64

5. Ratio and Proportion

Q.77 The ratio of the ages of two persons is 4 : 7 and the age of one of them is greater than that of the other by 30 years. The sum of their ages (in years) is
   (a) 110  (b) 100  (c) 70  (d) 40

Q.78 30 gm of sugar was mixed in 180 ml water in a vessel A, 40 gm of sugar was mixed in 280 ml water in vessel B and 20 gm of sugar was mixed in 100 ml of water in vessel C. The solution in vessel B is
   (a) Sweeter than that in C
   (b) Sweeter than that in A
   (c) As sweet as that in C
   (d) Less sweet than that in C

Directions (Q.79 to Q.81): Study the following information carefully and answer the questions that follow:

The students of a school have an option to study only Hindi, only Sanskrit or a composite subject Hindi and Sanskrit. Out of the 175 students in the school, boys and girls are in the ratio of 3 : 4 respectively. 40% of boys have opted for only Hindi; 44% of the students have opted for only Sanskrit. Out of the total number of girls 32% have opted for the composite subject. The number of boys who opted for only Sanskrit and that for composite subject are in the ratio of 2 : 1 respectively.

Q.79 What is the ratio between the number of boys who have opted for only Hindi and the number of girls who have opted for the composite subject respectively?
   (a) 15 : 16  (b) 10 : 7  (c) 10 : 9  (d) 11 : 12

Q.80 How many boys have opted for the composite subject?
   (a) 30  (b) 15  (c) 21  (d) 32

Q.81 How many girls have opted for only Sanskrit?
   (a) 72  (b) 47  (c) 51  (d) 77

Q.82 A bus starts from city A. The number of men in the bus is twice the number of women. In city Z, 5 women enter and 20 men leave the bus. Now, the number of women and men are equal. In the beginning, how many passengers entered the bus?
   (a) 25  (b) 50  (c) 100  (d) 75

Q.83 A bag contains 50 P, 25 P and 10 P coins in the ratio 5 : 9 : 4, amounting to ₹ 206. Find the number of coins of each type respectively.
   (a) 360, 160, 200  (b) 160, 360, 200
   (c) 200, 360, 160  (d) 200, 160, 300

Q.84 Tea worth of ₹ 135/kg and ₹ 126/kg are mixed with a third variety in the ratio 1 : 1 : 2. If the mixture is worth ₹ 153 per kg, the price of the third variety per kg will be ______?
   (a) ₹ 169.50  (b) ₹ 170
   (c) ₹ 175.50  (d) ₹ 180

Q.85 A mixture contains alcohol and water in the ratio 4 : 3. If 5 liters of water is added to the mixture, the ratio becomes 4 : 5. Find the quantity of alcohol in the given mixture.
   (a) 10  (b) 12
   (c) 15  (d) 18

Q.86 A, B, C started a business with their investments in the ratio 1 : 3 : 5. After 4 months, A invested the same amount as before and B as well as C withdrew half of their investments. The ratio of their profits at the end of the year is:
   (a) 1 : 2 : 3  (b) 3 : 4 : 15
   (c) 3 : 5 : 10  (d) 5 : 6 : 10

Q.87 A man spends 35% of his income on food, 25% on children’s education and 80% of the remaining on house rent. What percent of his income he is left with?
   (a) 6%  (b) 8%
   (c) 10%  (d) 12%
Q.88 The diagonal of a rectangle is 17 cm long and its perimeter is 46 cm. Find the area of the rectangle.
(a) 110  (b) 120  (c) 130  (d) 140

Q.89 A sum of ₹427 is to be divided among A, B and C such that 3 times A's share, 4 times B's share and 7 times C's share are all equal. The share of C is:
(a) 84  (b) 140  (c) 196  (d) 240

Q.90 Seats for Mathematics, Physics and Biology in a school are in the ratio 5 : 7 : 8. There is a proposal to increase these seats by 40%, 50% and 75% respectively. What will be the ratio of increased seats?
(a) 1 : 2 : 3  (b) 2 : 3 : 4  (c) 3 : 4 : 5  (d) 4 : 5 : 6

Q.91 The students in three classes are in the ratio 2 : 3 : 5. If 20 students are increased in each class, the ratio of changes to 4 : 5 : 7. The total number of students before the increase was
(a) 100  (b) 120  (c) 130  (d) 140

Q.92 The ratio of the number of boys and girls in a school is 2 : 3. If 25% of the boys and 30% of the girls are scholarship holders, the percentage of the school students who are not scholarship holders is
(a) 72  (b) 36  (c) 54  (d) 60

Q.93 The age of Ram is double as that of Shyam and half as that of Suresh. If the sum of their ages is 70, what is the age of Ram?
(a) 20  (b) 40  (c) 30  (d) 10

Q.94 If out of 10 selected students for an examination, 3 were of 20 years age, 4 of 21 and 3 of 22 years, the average age of the group is
(a) 22 years  (b) 21 years  (c) 21.5 years  (d) 20 years

Q.95 Rajeev starts a business with ₹10000, Deepu joins him after 2 months with 20% more investment than Rajeev, after 2 months Shakti joins him with 40% less than Deepu. If the profit earned by them at the end of the year is equal to the twice of the difference between investment of Rajeev and ten times the investment of Shakti. Find the profit of Rajeev?
(a) ₹50000  (b) ₹48000  (c) ₹38000  (d) ₹40000

Q.96 The present ages of 3 brothers are in the proportion 3 : 4 : 5. After 10 years the sum of their ages will be 78. What are their ages now?
(a) 12, 16 and 20  (b) 15, 20 and 25  (c) 21, 28 and 35  (d) 24, 32 and 40

Q.97 Circle A is 4 cm in diameter; circle B is 5 cm in diameter. Circle C has its circumference equal to the sum of the circumferences of both A and B together. What will be the ratio of the area of circle C, with respect to the area of circle A and circle B respectively?
(a) 5.0625 and 1.84  (b) 3.875 and 1.84  (c) 5.0625 and 3.24  (d) 3.875 and 3.24

Q.98 The average weight of 8 persons increases by 2.5 kg when a new person comes in place of one of them weighing 65 kg. What might be the weight of the new person?
(a) 70 kg  (b) 75 kg  (c) 80 kg  (d) 85 kg

Q.99 The average of runs of a cricket player of 10 innings was 32. How many runs must he make in his next innings so as to increase his average of runs by 4?
(a) 76  (b) 79  (c) 85  (d) 87

Q.100 The average of five consecutive odd numbers is 61. What is the difference between the highest and lowest numbers:
(a) 4  (b) 8  (c) 12  (d) 16

Q.101 Gaurav spends 30% of his monthly income on food articles, 40% of the remaining on conveyance and clothes and saves 50% of the remaining. If his monthly salary is ₹18,400, how much money does he save every month?
(a) ₹3864  (b) ₹4903  (c) ₹5849  (d) ₹6789
Q. 102 The average weight of a class of 24 students is 35 kg. If the weight of the teacher be included, the average rises by 400 g. The weight of the teacher is:
(a) 45 kg  
(b) 46 kg  
(c) 47 kg  
(d) 48 kg

Q. 103 After replacing an old member by a new member, it was found that the average age of five members of a club is the same as it was 3 years ago. What is the difference between the ages of the replaced and the new member?
(a) 12  
(b) 13  
(c) 14  
(d) 15

Q. 104 A sum of ₹ 312 was divided among 100 boys and girls in such a way that the boy gets ₹ 3.60 and each girl ₹ 2.40, the number of girls is
(a) 35  
(b) 40  
(c) 45  
(d) 50

Q. 105 Pupil's marks were wrongly entered as 83 instead of 63. Due to that the average marks for the class got increased by half. The number of pupils in the class is:
(a) 45  
(b) 40  
(c) 39  
(d) 37

Q. 106 The average salary, per head, of all the employees of an institution is ₹ 60. The average salary of 12 officers is ₹ 400; the average salary, per head, of the workers is ₹ 56. The total number of workers in the institution is
(a) 1030  
(b) 1035  
(c) 1020  
(d) 1032

Q. 107 The average of 50 numbers is 38. If two numbers, namely 45 and 55 are discarded, the average of the remaining numbers is
(a) 37.5  
(b) 37.9  
(c) 36.5  
(d) 37.0

Q. 108 The average age of a cricket team of 11 players is the same as it was 3 years back because 3 of the players whose current average age is 33 years were replaced by 3 youngsters. The average age of the newcomers is
(a) 23 years  
(b) 21 years  
(c) 22 years  
(d) 20 years

Q. 109 The mean of 20 items is 55. If two items 45 and 30 are removed, the new mean of the remaining items is
(a) 65.1  
(b) 65.3  
(c) 56.9  
(d) 56

Q. 110 The average of 11 numbers is 10.9. If the average of the first six numbers is 10.5 and that of the last six numbers is 11.4, then the middle number is:
(a) 10.5  
(b) 11.5  
(c) 12.5  
(d) 13.5

Q. 111 The captain of a cricket team of 11 members is 26 years old and the wicket keeper is 3 years older. If the ages of these two are excluded, the average age of the remaining players is one year less than the average age of the whole team. What is the average age of the team?
(a) 20 years  
(b) 21 years  
(c) 23 years  
(d) 25 years

Q. 112 A batsman makes a score of 87 runs in the 17th inning and thus increases his average by 3. Find his average after 17th inning?
(a) 38  
(b) 39  
(c) 40  
(d) 41

Q. 113 10 years ago, the average age of a family of 4 members was 24 years. Two children having been born (with age difference of 2 years), the present average age of the family is the same. The present age of the youngest child is:
(a) 1  
(b) 2  
(c) 3  
(d) 4

Q. 114 The average height of boys in a hall is 180 cm and that of girls is 150 cm. If the average height of the gathering is 165 cm, then find the number of girls present in the hall if the number of boys present in the hall are 78?
(a) 56  
(b) 64  
(c) 87  
(d) 78

Q. 115 Out of 9 persons, 8 persons spent ₹ 30 each for their meals. The ninth one spent ₹ 20 more than the average expenditure of all the nine. The total money spent by all of them was:
(a) ₹ 292.50  
(b) ₹ 297.50  
(c) ₹ 298  
(d) ₹ 298.50

Q. 116 Mahesh is ‘60’ years old. Ram is ‘5’ years junior to Mahesh and ’4’ years senior to Raju. The youngest brother of Raju is Babu and he is ‘6’ years junior to him. What is the age difference between Mahesh and Babu?
(a) 18 years  
(b) 15 years  
(c) 13 years  
(d) 6 years
Q.117 In aid of charity, every student in a class contributes as many rupees as the number of students in that class. With the additional contribution of ₹ 2 by one student only, the total collection is ₹ 443. Then how many students are there in the class?
(a) 12   (b) 21
(c) 43   (d) 45

Q.118 An agricultural field is in the form of a rectangle having length X1 meters and breadth X2 meters (X1 and X2 are variable). If X1 + X2 = 40 meters, then the area of the agricultural field will not exceed which one of the following values?
(a) 400 sq. m   (b) 300 sq. m
(c) 200 sq. m   (d) 80 sq. m

Q.119 The sum of the ages of 5 members comprising a family, 3 years ago was 80 years. The average age of the family today is the same as it was 3 years ago, because of an addition of a baby during the intervening period. How old is the baby?
(a) 6 months   (b) 1 year
(c) 2 years    (d) 2 years and 6 months

Q.120 The average monthly income of a person in a certain family of 5 is ₹ 10,000. What will be the average monthly income of a person in the same family if the income of one person increased by ₹ 1,20,000 per year?
(a) ₹ 12,000   (b) ₹ 16,000
(c) ₹ 20,000   (d) ₹ 34,000

Q.121 3 years ago, the average age of a family of 5 members was 17 years. A baby having been born, the average age of the family is same today. The present age of the baby is
(a) 1 year    (b) 2 years
(c) 1.5 years (d) 3 years

Q.122 The average of 11 numbers is 63. If the average of first six numbers is 60 and the last six numbers is 65, then the 6th number is
(a) 57   (b) 60
(c) 62   (d) 64

Q.123 A grocer has a sale of ₹ 6435, ₹ 6927, ₹ 6855, ₹ 7230 and ₹ 6562 for 5 consecutive months. How much sale must he have in the sixth month so that he gets an average sale of ₹ 6500?
(a) ₹ 4991   (b) ₹ 5467
(c) ₹ 5987   (d) ₹ 6453

Q.124 A and B walk around a circular park. They start at 8 a.m. from the same point in the opposite directions. A and B walk at a speed of 2 rounds per hour and 3 rounds per hour respectively. How many times shall they cross each other after 8.00 a.m. and before 9.30 a.m.?
(a) 7   (b) 6
(c) 5   (d) 8

Q.125 W can do 25% of a work in 30 days, X can do $\frac{1}{4}$ of the work in 10 days, Y can do 40% of the work in 40 days and Z can do $\frac{1}{3}$ of the work in 13 days. Who will complete the work first?
(a) W   (b) X
(c) Y   (d) Z

Q.126 A man, a woman and a boy together finish a piece of work in 6 days. If a man and a woman can do the work in 10 and 24 days respectively. The days taken by a boy to finish the work is
(a) 30   (b) 35
(c) 40   (d) 45

Q.127 A can do a piece of work in 12 days and B in 15 days. They work together for 5 days and then B left. The days taken by A to finish the remaining work is
(a) 3   (b) 5
(c) 10   (d) 12

Q.128 A can do a piece of work in 10 days, B in 15 days. They work together for 5 days, the rest of the work is finished by C in two more days. If they get ₹ 3000 as wages for the whole work, what are the daily wages of A, B and C respectively (in ₹):
(a) 200, 250, 300   (b) 300, 200, 250
(c) 200, 300, 400   (d) None of these

Q.129 In an examination, a student scores 4 marks for every correct answer and loses 1 mark for every wrong answer. If he attempts all 60 questions and secures 130 marks, the number of questions he attempts correctly is:
(a) 35   (b) 38
(c) 40   (d) 42

Q.130 Two pipes A and B can fill a tank in 15 minutes and 20 minutes respectively. Both the pipes are opened together but after 4 minutes, pipe A is turned off. What is the total time required to fill the tank?
Q.131 12 men can complete a work in 8 days. 16 women can complete the same work in 12 days. 8 men and 8 women started working and worked for 6 days. How many more men are to be added to complete the remaining work in 1 day?
(a) 8  (b) 12  (c) 16  (d) 24

Q.132 A, B and C can do a piece of work in 24 days, 30 days and 40 days respectively. They began the work together but C left 4 days before the completion of the work. In how many days was the work completed?
(a) 11 days  (b) 12 days  (c) 13 days  (d) 14 days

Q.133 A certain number of men can finish a piece of work in 100 days. If there were 10 men less, it would take 10 days more for the work to be finished. How many men were there originally?
(a) 75  (b) 82  (c) 100  (d) 110

Q.134 3 pumps working 8 hours a day, can empty a tank in 2 days. How many hours a day must 4 pumps work to empty the tank in 1 day?
(a) 9  (b) 10  (c) 11  (d) 12

Q.135 P is the brother of Q and R. S is R’s mother. T is P’s father. Which of the following statements cannot be definitely true?
(a) T is Q’s father  (b) S is P’s mother  (c) P is S’s son  (d) Q is T’s son

Q.136 Three pipes A, B and C can fill a tank in 6 hours. After working at it together for 2 hours, C is closed and A and B can fill the remaining part in 7 hours. The number of hours taken by C alone to fill the tank is:
(a) 10  (b) 12  (c) 14  (d) 16

Q.137 A can do a piece of work in 4 days and B can do it in 12 days. In how many days will they finish the work, both working together?
(a) 4 days  (b) 6 days  (c) 2 days  (d) 3 days

Q.138 A and B can together finish a work in 30 days. They worked at it for 20 days and then B left. The remaining work was done by A alone in 20 more days. A alone can finish the work in
(a) 60 days  (b) 54 days  (c) 48 days  (d) 50 days

Q.139 A can do a work in 15 days and B in 20 days. If they work on it together for 4 days, then the fraction of the work that is left is:
(a) $\frac{1}{4}$  (b) $\frac{1}{10}$  (c) $\frac{7}{15}$  (d) $\frac{8}{15}$

Q.140 A, B and C can do a piece of work in 20, 30 and 60 days respectively. In how many days can A do the work if he is assisted by B and C on every third day?
(a) 12 days  (b) 15 days  (c) 16 days  (d) 18 days

Q.141 A cistern is provided with two pipes A and B. A can fill it in 20 minutes and B can empty it in 30 minutes. If A and B be kept open alternately for one minute each, how soon will the cistern be filled?
(a) 121 minutes  (b) 110 minutes  (c) 115 minutes  (d) 120 minutes

Q.142 A can do a piece of work in 6 days, B in 10 days and C in 15 days. They jointly complete the work and earn ₹ 300. The sum of their wages for 2 days is
(a) ₹ 180  (b) ₹ 200  (c) ₹ 160  (d) ₹ 120

Q.143 A town having teenagers (boys and girls) of 5000 requires 150 litre of water per head. It has a tank measuring 20 m x 15 m x 5 m. The water of this tank will suffice for ________ days.
(a) 8  (b) 6  (c) 4  (d) 2

Q.144 A can do a piece of work in 16 days and B in 24 days. They take the help of C and three together finish the work in 6 days. If the total remuneration for the work is 400, the amount (in rupees) each will receive, in proportion, to do the work is
(a) A : 150, B : 100, C : 150  (b) A : 100, B : 150, C : 150  (c) A : 150, B : 150, C : 100  (d) A : 100, B : 150, C : 100
Q. 145 A software engineer has the capability of thinking 100 lines of code in five minutes and can type 100 lines of code in 10 minutes. He takes a break for five minutes after every ten minutes. How many lines of codes will he complete typing after an hour?
   (a) 250         (b) 220
   (c) 150         (d) 200

Q. 146 There is an order of 19000 quantity of a particular product from a customer. The firm produces 1000 quantity of that product per day out of which 5% are unfit for sale. In how many days will the order be completed?
   (a) 18         (b) 19
   (c) 20         (d) 22

Q. 147 Ram and Shyam work on a job together for four days and complete 60% of it. Ram takes leave then and Shyam works for eight more days to complete the job. How long would Ram take to complete the entire job alone?
   (a) 6 days       (b) 8 days
   (c) 10 days      (d) 11 days

Q. 148 A cylindrical overhead tank of radius 2 m and height 7 m is to be filled from an underground tank of size 5.5 m x 4 m x 6 m. How much portion of the underground tank is still filled with water after filling the overhead tank completely?
   (a) $\frac{1}{3}$     (b) $\frac{1}{2}$
   (c) $\frac{1}{4}$     (d) $\frac{1}{6}$

Q. 149 Five Men can paint a building in 20 days, 8 Women can paint the same building in 25 days and 10 Boys can paint it in 30 days. If a team has 2 Men, 6 Women and 5 Boys, how long will it take to paint the building?
   (a) 12 days       (b) 13 days
   (c) 14 days       (d) 15 days

Q. 150 A group of workers estimate to finish a work in 10 days, but 5 workers could not join the work. If the rest of them finished the work in 12 days, the number of members present in the team originally is
   (a) 50         (b) 45
   (c) 35         (d) 30

Q. 151 A small production unit now works 6 days per week with $3 \frac{1}{3}$ hours of first shift every one of the 6 days and 3 hours of second shift for each of the first 5 days. Wage negotiations led to an agreement to work on 5 days a week with both shifts together clocking $7 \frac{1}{2}$ hours per day with an 8% increase in weekly wages. How much change in the hourly production would mean parity in the agreement for both management and employees?
   (a) 3.68%       (b) 2.15%
   (c) 1.82%       (d) 1.33%

[Q. 151 ESE Prelims 2018]

8. Time, Speed and Distance

Q. 152 A train 50 metres long passes a platform of length 100 metres in 10 seconds. The speed of the train in metre/second is
   (a) 50         (b) 10
   (c) 15         (d) 20

Q. 153 A train running at the speed of 84 km/hr passes a man walking in opposite direction at the speed of 6 km/hr in 4 seconds. What is the length of train (in metre)?
   (a) 150         (b) 100
   (c) 120         (d) 90

Q. 154 The speed of a car increases by 2 kms after every one hour. If the distance travelled in the first one hour was 35 kms. What was the total distance travelled in 12 hours?
   (a) 456 kms     (b) 482 kms
   (c) 552 kms     (d) 556 kms

Q. 155 A train travelling at a speed of 55 km/hr travels from place X to place Y in 4 hours. If its speed is increased by 5 km/hr., then the time of journey is reduced by
   (a) 25 minutes  (b) 35 minutes
   (c) 20 minutes  (d) 30 minutes

Q. 156 A thief steals a car at 1.30 p.m. and drives it off at 40 km/hr. The theft is discovered at 2 p.m. and the owner sets off in another car at 50 km/ hr. He will overtake the thief at
   (a) 5 p.m.      (b) 4 p.m.
   (c) 4.30 p.m.   (d) 6 p.m.
Q. 157 A boat can travel with a speed of 30 km/hr in still water. If the speed of the stream is 6 km/hr, find the time taken by the boat to go 108 km downstream.
   (a) 2 hrs       (b) 5 hrs
   (c) 3 hrs       (d) 4 hrs

Q. 158 I walk a certain distance and ride back taking a total time of 37 minutes. I could walk both ways in 55 minutes. How long would it take me to ride both ways?
   (a) 30 minutes   (b) 19 minutes
   (c) 37 minutes   (d) 20 minutes

Q. 159 Ram and Ravi start together from a point in opposite direction on scooters. Ram’s speed is 21 km/h and Ravi’s speed is 15 km/h. What will be the distance between them after 20 minutes?
   (a) 25 km       (b) 16 km
   (c) 12 km       (d) 45 km

Q. 160 A train crosses a platform in 30 seconds travelling with a speed of 60 km/h. If the length of the train be 200 metres, then the length (in metres) of the platform is
   (a) 400       (b) 300
   (c) 200       (d) 500

Q. 161 In 100 m race, A covers the distance in 36 seconds and B in 45 seconds. In this race A beats B by:
   (a) 20 m      (b) 25 m
   (c) 22.5 m    (d) 9 m

Q. 162 Kamal consistently runs 240 meters a day and on Saturday he runs for 400 meters. How many kilometers will he run in four weeks?
   (a) 5.75 kms   (b) 7.36 kms
   (c) 8.2 kms    (d) 6.98 kms

9. Progression

Q. 163 Five bells begin to toll together and toll respectively at intervals of 5, 6, 7, 10 and 12 seconds. How many times they will toll together in half an hour excluding the one at the start.
   (a) 7 times    (b) 4 times
   (c) 3 times    (d) 5 times

Q. 164 If the 4th and 9th term of a geometric progression are 54 and 13122 respectively. Find the 6th term.
   (a) 386       (b) 486
   (c) 684       (d) 866

Q. 165 A rebouncing ball rebounces to a height equal to \( \frac{4}{5} \) of its previous bounce. If the ball is dropped from the height of 120 m, what is the approximate total distance travelled by the ball by the time it comes to rest?
   (a) 1040 mts   (b) 1080 mts
   (c) 980 mts    (d) 960 mts

Q. 166 In a zoo, there are rabbits and pigeons. If heads are counted, there are 340 heads and if legs are counted there are 1060 legs. How many pigeons are there?
   (a) 170        (b) 180
   (c) 120        (d) 150

Q. 167 Standing on a platform, Rajan told Kumar that Varanasi was more than 20 km but less than 25 km from there. Kumar knew that it was more than 18 km but less than 22 km from there. If both of them are correct, then which of the following is the true distance of Varanasi from the platform?
   (a) 20 km      (b) 22 km
   (c) 19 km      (d) 21 km

Q. 168 AB is a vertical trunk of a huge tree with A being the point where the base of the trunk touches the ground. Due to a cyclone, the trunk has been broken at C which is at a height of 12 meters, broken part is partially attached to the vertical portion of the trunk at C. If the end of the broken part B touches the ground at D which is at a distance of 5 meters from A, then the original height of the trunk is:
   (a) 20 m      (b) 25 m
   (c) 30 m      (d) 35 m

Q. 169 In a class of 60 students, where the number of girls is twice that of boys. Kamal, a boy, ranked seventeenth from the top. If there are 9 girls ahead of Kamal, the number of boys in rank after him is:
   (a) 13        (b) 12
   (c) 7         (d) 3

Q. 170 The sum of three consecutive terms of a geometric progression is 13 and their product is 27. Find the terms
   (a) 1, 3, 6    (b) 1, 3, 9
   (c) 3, 6, 9    (d) 3, 6, 12
Q.171 Nikhil gets ₹ 250 from his parents every week for his expenses. He puts ₹ 5 in his piggy bank on everyday except Sunday when he puts ₹ 10 in the piggy bank. He eats subsidized lunch in the college canteen for ₹ 10 on all college days except Saturday when he treats himself to the special lunch for ₹ 25. Bus fare to college is ₹ 4 each way. He has got a holiday on Sunday. This week, Nikhil wants to buy a book which costs ₹ 100. For this, he was walking to and from the college. He is left with ₹ 3 after buying the book. Assuming no other expenses, how many times did Nikhil walk this week?
(a) 2  
(b) 3  
(c) 4  
(d) 5

Q.172 If a light flashes every 6 seconds, how many times will it flash in \( \frac{3}{4} \) of an hour?
(a) 450  
(b) 451  
(c) 350  
(d) 425

Q.173 The total age of A and B is 12 years more than the total age of B and C. C is how many years younger than A?
(a) 12  
(b) 13  
(c) 14  
(d) 15

Q.174 L, M, N and O are brothers. L is darker than O, N is the fairest of all. M is fairer than O. Who is the darkest of all?
(a) N  
(b) O  
(c) L  
(d) M

Q.175 Joan's age is 42 years and Kelvin's age is 26 years. How many years ago was Kelvin's age half of Joan's age?
(a) 6 years  
(b) 4 years  
(c) 10 years  
(d) 8 years

Q.176 In a school, the bell is rung once after each half an hour. The school starts at 8:00 a.m. and closes at 1:30 p.m. The bell is rung 3 times continuously, at the time of beginning at the time of lunch break at 10:00 and 10:30 a.m. and at the end. How many times is the bell rung every day?
(a) 21  
(b) 22  
(c) 19  
(d) 20

Q.177 A piece of cloth measured with a metre stick, one cm short, is 100 metres long. Reckoning the metre stick as being right, the actual length of the cloth (in cm) is
(a) 3,900  
(b) 9,900  
(c) 8,000  
(d) 6,100

Q.178 A man having height 169 cm is standing near a pole. He casts a shadow 130 cm long. What is the length of the pole if it gives a shadow 420 cm long?
(a) 550 cm  
(b) 589 cm  
(c) 323 cm  
(d) 546 cm

Q.179 Anu's present age is 9 years more than that of what Raj's age will be after five years. Raj's present age is seven years more than that of what Renu's age was 4 years ago. Renu's present age is 19 years. What will be Anu's age after 5 years?
(a) 39 years  
(b) 36 years  
(c) 46 years  
(d) 41 years

Q.180 The twice of sum of the ages of a father and his son is 8 times the age of the son. If the average age of the father and the son is 30 years, what is father's age?
(a) 42 years  
(b) 45 years  
(c) 36 years  
(d) 38 years

Q.181 Avanthi's age is \( \frac{1}{6} \) th of her father's age. Her father's age will be twice of Kapil's age after 10 years. If Kapil's eighth birthday was celebrated two years ago, then what is Avanthi's present age?
(a) 6 years  
(b) 4 years  
(c) 7 years  
(d) None

Q.182 What is the sum of first 50 natural number?
(a) 1725  
(b) 1275  
(c) 1225  
(d) 1775

Q.183 Find the sum of all even numbers from 25 to 50.
(a) 949  
(b) 494  
(c) 994  
(d) 444

Q.184 What is the maximum sum of series 60, 58, 56, 54 .... ?
(a) 933  
(b) 930  
(c) 936  
(d) None of these

Q.185 Find the sum of all natural numbers between 100 and 1000 which are multiple of 5?
(a) 99450  
(b) 98450  
(c) 97450  
(d) 96450
Q.186 In an arithmetic progression, 7 times the 7th term equals to 11 times the 11th term, then what is 18th term?
(a) 0  (b) 1  (c) 2  (d) 3

Q.187 A monkey starts climbing up a tree 20 ft. tall. Each hour, it hops 3 ft and slips back 2 ft. How much time would it take the monkey to reach the top?
(a) 21 hours  (b) 12 hours  (c) 18 hours  (d) 15 hours

10. Permutation and Combination

Q.188 From a group of 7 men and 6 women, five persons are to be selected to form a committee so that at least 3 men are there on the committee. In how many ways can it be done?
(a) 564  (b) 645  (c) 735  (d) 756

Q.189 In how many different ways can the letters of the word ‘LEADING’ be arranged in such a way that the vowels always come together?
(a) 360  (b) 480  (c) 720  (d) 5040

Q.190 In how many different ways can the letters of the word ‘CORPORATION’ be arranged so that the vowels always come together?
(a) 810  (b) 1440  (c) 2880  (d) 50400

Q.191 Out of 7 consonants and 4 vowels, how many words of 3 consonants and 2 vowels can be formed?
(a) 210  (b) 1050  (c) 25200  (d) 21400

Q.192 In how many ways can the letters of the word ‘LEADER’ be arranged?
(a) 72  (b) 360  (c) 144  (d) 720

Q.193 How many 3-digit numbers can be formed from the digits 2, 3, 5, 6, 7 and 9, which are divisible by 5 and none of the digits is repeated?
(a) 5  (b) 10  (c) 15  (d) 20

Q.194 In how many ways a committee, consisting of 5 men and 6 women can be formed from 8 men and 10 women?
(a) 266  (b) 5040  (c) 11760  (d) 86400

Q.195 A box contains 2 white balls, 3 black balls and 4 red balls. In how many ways can 3 balls be drawn from the box, if at least one black ball is to be included in the draw?
(a) 32  (b) 48  (c) 64  (d) 96

Q.196 In how many different ways can the letters of the word ‘DETAIL’ be arranged in such a way that the vowels occupy only the odd positions?
(a) 32  (b) 48  (c) 36  (d) 60

Q.197 How many 4-letter words with or without meaning, can be formed out of the letters of the word, ‘LOGARITHMS’, if repetition of letters is not allowed?
(a) 40  (b) 400  (c) 5040  (d) 2520

11. Probability

Q.198 Tickets numbered 1 to 20 are mixed up and then a ticket is drawn at random. What is the probability that the ticket drawn has a number which is a multiple of 3 or 5?
(a) \(\frac{1}{2}\)  (b) \(\frac{2}{5}\)  (c) \(\frac{8}{15}\)  (d) \(\frac{9}{20}\)

Q.199 A bag contains 2 red, 3 green and 2 blue balls. Two balls are drawn at random. What is the probability that none of the balls drawn is blue?
(a) \(\frac{10}{21}\)  (b) \(\frac{11}{21}\)  (c) \(\frac{2}{7}\)  (d) \(\frac{5}{7}\)

Q.200 In a box, there are 8 red, 7 blue and 6 green balls. One ball is picked up randomly. What is the probability that it is neither red nor green?
(a) \(\frac{1}{3}\)  (b) \(\frac{3}{4}\)  (c) \(\frac{7}{19}\)  (d) \(\frac{8}{21}\)

Q.201 What is the probability of getting a sum 9 from two throws of a dice?
Q.202 Three unbiased coins are tossed. What is the probability of getting at most two heads?

(a) \( \frac{1}{6} \)  (b) \( \frac{1}{8} \)  
(c) \( \frac{1}{9} \)  (d) \( \frac{1}{12} \)

Q.203 Two dice are thrown simultaneously. What is the probability of getting two numbers whose product is even?

(a) \( \frac{1}{2} \)  (b) \( \frac{3}{4} \)  
(c) \( \frac{3}{8} \)  (d) \( \frac{5}{16} \)

Q.204 In a class, there are 15 boys and 10 girls. Three students are selected at random. The probability that 1 girl and 2 boys are selected, is:

(a) \( \frac{21}{46} \)  (b) \( \frac{25}{117} \)  
(c) \( \frac{1}{50} \)  (d) \( \frac{3}{25} \)

Q.205 In a lottery, there are 10 prizes and 25 blanks. A lottery is drawn at random. The probability of getting a prize?

(a) \( \frac{1}{10} \)  (b) \( \frac{2}{5} \)  
(c) \( \frac{2}{7} \)  (d) \( \frac{5}{7} \)

Q.206 A card is drawn from a pack of 52 cards. The probability of getting a queen of club or a king of heart is:

(a) \( \frac{1}{13} \)  (b) \( \frac{2}{13} \)  
(c) \( \frac{1}{26} \)  (d) \( \frac{1}{52} \)

Q.207 There are 5 boxes and each box contains 5 balls of different colours, i.e. Red, Yellow, White, Orange and Black. A person wants to pick 5 balls of different colours, a different coloured ball from each box. If from the first box in the first draw, he has drawn an orange ball and from the second box, he has drawn a red ball, find the maximum number of trials that are needed to be made by the person to accomplish his task if a ball picked is not replaced?

(a) 12  (b) 11  
(c) 20  (d) 60

12. Set Theory

Directions (Q.208 to Q.210): Consider the given information and answer the three items that follow:

Six boxes A, B, C, D, E and F have been painted with six different colours viz., violet, indigo, blue, green, yellow and orange and arranged from left to right (not necessarily either kept or painted with the colours in the same order). Each box contains a ball of any one of the following six games: cricket, hockey, tennis, golf, football and volleyball (not necessarily in the same order). The golf ball is in violet box and is not in the box D. The box A which contains tennis ball is orange in colour and is at the extreme right. The hockey ball is neither in box D nor in box E. The box C having cricket ball is painted green. The hockey ball is neither in the box painted blue nor in the box painted yellow. The box C is fifth from right and next to box B. The box B contains volleyball. The box containing the hockey ball is between the boxes containing golf ball and volleyball.

Q.208 Which one of the following boxes contains the golf ball?

(a) F  (b) E  
(c) D  (d) None of the above

Q.209 Which of the following statements is/are correct?

(a) D is painted yellow 
(b) F is painted indigo 
(c) B is painted blue 
(d) All of the above

Q.210 The football is in the box of which colour?

(a) Yellow 
(b) Indigo 
(c) Cannot be determined as data is inadequate 
(d) Blue

Directions (Q.211 to Q.213): Consider the given information and answer the three items that follow:

When three friends A, B and C met, it was found that each of them wore an outer garment of a different colour. In random order, the garments are; jacket, sweater and tie; and the colours are: blue, white and black. Their surnames in random order Ribeiro, Kumar and Singh. Further, we know that:
1. Neither B nor Ribeiro wore a white sweater
2. C wore a tie
3. Singh's garment was not white
4. Kumar does not wear a jacket
5. Ribeiro does not like to wear the black color
6. Each of the friends wore only one outer garment of only one colour

Q.211 What is C's surname?
   (a) Ribeiro
   (b) Kumar
   (c) Singh
   (d) Cannot be determined

Q.212 What is the colour of the tie?
   (a) Black
   (b) Blue
   (c) White
   (d) Cannot be determined

Q.213 Who wore the sweater?
   (a) A
   (b) B
   (c) C
   (d) Cannot be determined

Q.214 A cube has all its faces painted with different colours. It is cut into smaller cubes of equal sizes such that the side of the small cube is one-fourth the big cube. The number of small cubes with only one of the sides painted is:
   (a) 32
   (b) 24
   (c) 16
   (d) 8

Directions (Q.215 to Q.219): Study the following information carefully and answer the questions that follow:

Students of a class play only one or two or three games out of the three games — Badminton, Football and Cricket. 5 students play only Cricket, 8 students play only Football and 7 students play only Badminton. 4 students play only two games — Cricket and Football, 3 students play only two games — Badminton and Football and other 4 students play only two games Badminton and Cricket. 2 students play all the three games.

Q.215 How many students play Badminton?
   (a) 14
   (b) 17
   (c) 12
   (d) None of these

Q.216 How many students play Football?
   (a) 8
   (b) 17
   (c) 15
   (d) 14

Q.217 How many students play Cricket with Badminton?
   (a) 9
   (b) 10
   (c) 4
   (d) 6

Q.218 How many students play Cricket with Football?
   (a) 7
   (b) 4
   (c) 6
   (d) 15

Q.219 How many students are there in the class?
   (a) 33
   (b) 31
   (c) 36
   (d) 35

Directions (Q.220 to Q.221): Study the following information carefully and answer the questions that follow:

Five horses, Red, White, Grey, Black and Spotted participated in a race. As per the rules of the race, the persons betting on the winning horse get four times the bet amount and those betting on the horse that came in second get thrice the bet amount. Moreover, the bet amount is returned to those betting on the horse that came in third, and the rest lose the bet amount. Raju bets ₹3000, ₹2000 and ₹1000 on Red, White and Black horses respectively and ends up with no profit and no loss.

Q.220 Which of the following cannot be true?
   (a) At least two horses finished before Spotted
   (b) Red finished last
   (c) There were three horses between Black and Spotted
   (d) There were three horses between White and Red

Q.221 Suppose, in addition, it is known that Grey came in fourth. Then which of the following cannot be true?
   (a) Spotted came in first
   (b) Red finished last
   (c) White came in second
   (d) Black came in second

13. Blood Relationship

Q.222 A, B, C, D, E, F and G are members of a family consisting of four adults and three children, two of whom, F and G are girls. A and D are brothers and A is a doctor. E is an engineer married to one of the brothers and has two children. B is married to D and G is their child. Who is C?
   (a) E's daughter
   (b) F's father
   (c) G's brother
   (d) A's son
Q.223 Pointing towards a person, a man said to a woman, “His mother is the only daughter of your father.” How is the woman related to that person?
(a) Sister (b) Daughter
(c) Mother (d) Wife

Q.224 Pointing out to a girl a man said “My uncle is the uncle of this girl’s uncle”. How is the man related to that girl?
(a) Cousin (b) Brother
(c) Father in law (d) Father

Q.225 In a family, there are six members A, B, C, D, E and F. A and B are a married couple, A being the male member. D is the only son of C, who is the brother of A. E is the sister of D. B is the daughter-in-law of F, whose husband has died. How is E related to C?
(a) Nephew (b) Daughter
(c) Sister (d) Son-in-Law

Q.226 If S is the brother of N, the sister of N is M, the brother of P is J and the daughter of S is P then who is the uncle of J?
(a) J (b) S
(c) N (d) M

Q.227 There are six persons A, B, C, D, E and F. C is the sister of F, B is the brother of E’s husband, D is the father of A and grandfather of F. There are two fathers, three brothers and a mother in the group. Who is the mother?
(a) E (b) D
(c) B (d) A

Q.228 A girl introduced a boy as the son of the daughter of the father of her uncle. The boy is girl’s
(a) Uncle (b) Nephew
(c) Brother (d) Son

Q.229 There are six persons A, B, C, D, E and F. C is the sister of F, B is the brother of E’s husband, D is the father of A and grandfather of F. There are two fathers, three brothers and a mother in the group. Who is E’s husband?
(a) A (b) B
(c) C (d) F

Q.230 There are six persons A, B, C, D, E and F. C is the sister of F, B is the brother of E’s husband, D is the father of A and grandfather of F. There are two fathers, three brothers and a mother in the group. Which of the following is a group of brothers?
(a) ABD (b) ABF
(c) BFC (d) BDF

Q.231 A is the mother of B and C. If D is the husband of C. What is A to D?
(a) Mother (b) Sister
(c) Aunt (d) Mother-in-law

Q.232 A man said to a lady, “Your mother’s husband’s sister is my aunt.” How is the lady related to the man?
(a) Sister (b) Daughter
(c) Mother (d) Grand daughter

Q.233 A family consists of six members P, Q, R, X, Y and Z. Q is the son of R but R is not mother of Q. P and R are a married couple. Y is the brother of R. X is the daughter of P. Z is the brother of P. Who is the father of Q?
(a) P (b) R
(c) X (d) Z

Q.234 A, B, C, D, E and F are members of a club. There are two married couples in the group. A is the brother of D’s husband. C is the president of Women’s Association. F is a Sitar Player, and Bachelor. B’s wife is not a member of the Club. Four of them belong to the same family. B and F are colleagues in the club. How is F related to B?
(a) Wife (b) Husband
(c) Father (d) It is not possible to determine

Q.235 Introducing a man, a woman said, “His wife is the only daughter of my father.” How is that man related to the woman?
(a) Father-in-law (b) Husband
(c) Maternal uncle (d) Brother

Q.236 A family consists of six members P, Q, R, S, T and U. There are two married couples. Q is a doctor and the father of T. U is grandfather of R and is a contractor. S is grandmother of T and is a housewife. There is one doctor, one contractor, one nurse, one housewife and two students in the family. What is the profession of P?
(a) Nurse (b) Doctor
(c) Contractor (d) Housewife
Q.237 Pointing to Manju, Raju said, “The son of her only brother is the brother of my wife”. How is Manju related to Raju?
(a) Mother’s sister
(b) Grandmother
(c) Mother-in-law
(d) Sister of father-in-law

Q.238 Introducing a man to her husband, a woman said, “His brother’s father is the only son of my grandfather.” How is the woman related to this man?
(a) Mother (b) Aunt
(c) Sister (d) Daughter

Q.239 How is Radha’s mother’s daughter-in-law’s daughter related to Radha?
(a) Sister (b) Mother
(c) Cousin (d) Aunt

Q.240 A is the husband of B. E is the daughter of C. A is the father of C. How is B related to E?
(a) Mother (b) Grandmother
(c) Aunt (d) Cousin

Q.241 Mr. Ramu’s mother’s father-in-law’s only son’s only daughter’s son is Chetan. How is Ramu related to Chetan?
(a) Uncle (b) Nephew
(c) Niece (d) Cousin

Q.242 If A is the son of Q, Q and Y are sisters, Z is the mother of Y, P is the son of Z, then which of the following statements is correct ?
(a) P is the maternal uncle of A
(b) P and Y are sisters
(c) A and P are cousins
(d) None of the above

Q.243 There are five books A, B, C, D and E placed on a table. If A is placed below E, C is placed above D, B is placed below A and D is placed above E, then which of the following books touches the surface of the table?
(a) C (b) B
(c) A (d) E

Q.244 Pointing to a man in a photograph, a woman said, “His brother’s father is the only son of my grandfather.” How is the woman related to the man in the photograph?
(a) Sister (b) Aunt
(c) Grandmother (d) Daughter

Q.245 A told B, “The girl I met yesterday was the youngest daughter of the brother-in-law of my friend’s mother.” How is the girl related to A’s friend?
(a) Niece (b) Cousin
(c) Friend (d) Daughter

Q.246 A and B are young ones of C. C is the father of A but B is not the son of C. How are B and C related?
(a) Niece and Uncle
(b) Daughter and Father
(c) Nephew and Uncle
(d) Daughter and Mother

Q.247 A man pointing to a photograph says, “The lady in the photograph is my nephew’s maternal grandmother.” How is the lady in the photograph related to the man’s sister who has no other sister?
(a) Mother-in-law (b) Cousin
(c) Sister-in-law (d) Mother

Q.248 F is the brother of A, C is the daughter of A, K is the sister of F and G is the brother of C then who is the uncle of G?
(a) C (b) F
(c) K (d) None of the above

Q.249 A woman walking with a boy meets another woman and on being asked about her relationship with the boy, she says, “My maternal uncle and his maternal uncle’s maternal uncle are brothers.” How is the boy related to the woman?
(a) Husband (b) Brother-in-law
(c) Son (d) Grandson

Q.250 Six members of a family A, B, C, D, E and F are travelling together. B is the son of C but C is not the mother of B. A and C are married couple. E is the brother of C. D is the daughter of A. F is the brother of B. How many male members are there in the family?
(a) 4 (b) 3
(c) 2 (d) 1

Q.251 Consider following statements:
(I) A, B, C, D, E and F are six members of a family.
(II) One couple has parents and their children in the family.
(III) A is the son of C and E is the daughter of A.
(IV) D is the daughter of F who is the mother of E.
Which of the following pairs is the parents of the couple?
(a) CF  (b) AB
(c) AF  (d) BC

Q.252 A woman introduces a man as the son of the brother of her mother. How is the man related to the woman?
(a) Uncle (b) Grandson
(c) Cousin (d) Son

Directions (Q.253 to Q.258): A, B, C, D, E, F and G are the seven members of a family. There are two married couple and two children in the 3rd generation.
1. G is B’s mother  2. D is E’s mother
3. F is C’s son  4. B is E’s Aunt

Q.253 How is D related to B?
(a) Sister (b) Sister-in-law
(c) Mother (d) Aunt

Q.254 If C is B’s husband, how is F related to E?
(a) Brother (b) Sister
(c) Cousin (d) Cannot be determined

Q.255 If A is G’s son, how is A related to F?
(a) Uncle (b) Father
(c) Cousin (d) Brother

Q.256 Who is E’s father? (Use the data if necessary from the previous question)
(a) B  (b) A
(c) C  (d) G

Q.257 How many females are there in the family? (Use the data if necessary from the previous question)
(a) 3  (b) 4
(c) 5  (d) Cannot be determined

Q.258 A is B’s sister. C is B’s mother. D is C’s father. E is D’s mother. Then, how is A related to D?
(a) Grandfather (b) Grandmother
(c) Daughter (d) Granddaughter

Q.259 In a family there are husband, wife, two sons and two daughters. All the ladies were invited to a dinner. Both sons went out to play. Husband did not return from office. Who was at home?
(a) Only wife was at home
(b) All ladies were at home
(c) Only sons were at home
(d) Nobody was at home

Q.260 Pointing out to a lady, a girl said, “She is the daughter-in-law of the grandmother of my father’s only son.” How is the lady related to the girl?
(a) Sister-in-law (b) Mother
(c) Aunt (d) Can’t be determined

14. Coding and Decoding

Q.261 SCD, TEF, UGH, _______ WKL
(a) CMN (b) UIJ
(c) VIJ (d) IJT

Q.262 B2CD, _________, BCD4, B5CD, BC6D
(a) B2C2D (b) BC3D
(c) B2C3D (d) BCD7

Q.263 FAG, GAF, HAI, IAH, ______ __
(a) JAK (b) HAL
(c) HAK (d) JAI

Q.264 ELFA, GLHA, ILJA, ______ MLNA
(a) OLPA (b) KLMA
(c) LLMA (d) KLLA

Q.265 CMM, EOO, GQQ, ______, KUU
(a) GRR (b) GSS
(c) ISS (d) ITT

Q.266 ZA5, Y4B, XC6, W3D, ______
(a) E7V (b) V2E
(c) V5E (d) VE7

Q.267 QPO, NML, KJI, ______, EDC
(a) HGF (b) CAB
(c) JKL (d) GHI

Q.268 JAK, KBL, LCM, MDN, ______
(a) OEP (b) NEO
(c) MEN (d) PFQ

Q.269 BCB, DED, FGF, HIH, ______
(a) JKH (b) HJH
(c) IJI (d) JHIJ

Q.270 P5QR, P4QS, P3QT, ______, P1QV
(a) PQW (b) PQV2
(c) P2QU (d) PQ3U

Q.271 QAR, RAS, SAT, TAU, ______
(a) UAI (b) UAT
(c) TAS (d) TAT

Q.272 DEF, DEF2, DE2F, ________ D2E2F3
(a) DEF3 (b) D3EF3
(c) D2E3F (d) D2E2F2
15. Cubes and Dice

Directions (Q.273 to Q.277):
The sheet of paper shown in the figure (X) given on the left hand side, in each problem, is folded to form a box. Choose from amongst the alternatives (1), (2), (3) and (4), the boxes that are similar to the box that will be formed.

Q.273 Choose the box that is similar to the box formed from the given sheet of paper (X).

(x) (1) (2) (3) (4)

(a) 1 and 2 only
(b) 2 and 4 only
(c) 2 and 3 only
(d) 1 and 4 only

Q.274 Choose the box that is similar to the box formed from the given sheet of paper (X).

(x) (1) (2) (3) (4)

(a) 1 and 4 only
(b) 3 and 4 only
(c) 1 and 2 only
(d) 2 and 3 only

Q.275 How many dots lie opposite to the face having three dots, when the given figure is folded to form a cube?

(x)

(a) 2
(b) 4
(c) 5
(d) 6

Q.276 Choose the box that is similar to the box formed from the given sheet of paper (X).

(x) (1) (2) (3) (4)

(a) 1 and 3 only
(b) 1 and 4 only
(c) 2 and 4 only
(d) 3 and 4 only

Q.277 Choose the box that is similar to the box formed from the given sheet of paper (X).

(x) (1) (2) (3) (4)

(a) 1 and 2 only
(b) 2 and 3 only
(c) 2 and 4 only
(d) 1, 2, 3 and 4

Directions (Q.278 to Q.282):
The sheet of paper shown in the figure (X) given on the left hand side, in each problem, is folded to form a box. Choose from amongst the alternatives (1), (2), (3) and (4), the boxes that are similar to the box that will be formed.

Q.278 Choose the box that is similar to the box formed from the given sheet of paper (X).

(x) (1) (2) (3) (4)

(a) 1 only
(b) 1 and 3 only
(c) 1, 3 and 4 only
(d) 1, 2, 3 and 4

Q.279 Choose the box that is similar to the box formed from the given sheet of paper (X).

(x) (1) (2) (3) (4)

(a) 1 only
(b) 2 only
(c) 1 and 3 only
(d) 1, 2, 3 and 4 only
Q.280 Choose the box that is similar to the box formed from the given sheet of paper (X).

(a) 1 only  (b) 2 only  (c) 3 only  (d) 4 only

Q.281 Choose the box that is similar to the box formed from the given sheet of paper (X).

(a) 1 only  (b) 2 only  (c) 3 only  (d) 4 only

Q.282 Choose the box that is similar to the box formed from the given sheet of paper (X).

(a) 2 and 3 only  (b) 1, 2 and 4 only  (c) 2 and 4 only  (d) 1 and 4 only

Q.283

The above diagram is the unfolded view of a cube. When it is again folded to form a cube which face comes opposite to B.

(a) B  (b) A  (c) C  (d) E

Q.284

The above diagrams are 3-different views of the same cube. Which of the following options matches the above cube.

(a) 15 m East  (b) 15 m South  (c) 30 m East  (d) 20 m West

16. Directions

Q.285 A person X was driving in a place where all roads ran either north-south or east-west, forming a grid. Roads are at a distance of 1 km from each other in a parallel. He started at the intersection of two roads, drove 3 km north, 3 km west and 4 km south. Which further route could bring him back to his starting point, if the same route is not repeated?

(a) 3 km east, then 2 km south  (b) 3 km east, then 1 km north  
(c) 1 km north, then 2 km west  (d) 3 km south, then 1 km north

Q.286 A person climbs a hill in a straight path from point ‘O’ on the ground in the direction of north-east and reaches a point ‘A’ after travelling a distance of 5 km. Then, from the point ‘A’ he moves to point ‘B’ in the direction of north-west. Let the distance AB be 12 km. Now, how far is the person away from the starting point ‘O’?

(a) 7 km  (b) 13 km  (c) 17 km  (d) 11 km

Q.287 A person walks 12 km due north, then 15 km due east, after that 19 km due west and then 15 km due south. How far is he from the starting point?

(a) 5 km  (b) 9 km  (c) 37 km  (d) 61 km

Q.288 Sharada started to move in the direction of south. After moving 15 metres, she turned to her left twice and moved 15 metres each time. Now how far is she and in which direction from her starting point?

(a) 15 m East  (b) 15 m South  (c) 30 m East  (d) 20 m West
Q.289 Sonia started from her house and travelled 4 km towards east. Then she turned left and travelled 6 km. Then she turned right and travelled 4 km. Now at what distance is she from starting point?
(a) 14 km  (b) 8 km  (c) 5 km  (d) 10 km

Q.290 On a straight road AB, 100 m long, five balls are placed two metres apart, first ball is 2 m from end A. Now a worker, starting at A, has to transport all the balls to B, by carrying only one boll at a time. The minimum distance he has to travel (in metres) is:
(a) 472  (b) 422  (c) 744  (d) 844

Q.291 After walking 6 kms, I turned right and travelled a distance of 2 kms, then turned left and covered a distance of 10 km. In the end I was moving towards the north. From which direction did I start my journey?
(a) North  (b) South  (c) South-West  (d) North-East

Q.292 Raju who is facing east, turns 100° in the anticlockwise direction and then 145° in the clockwise direction. Which direction is he facing now?
(a) South-East  (b) South  (c) North-West  (d) West

Q.293 From her school Meenu walks 20 metres towards north. She, then turns left and walks 40 metres. She again turns left and walks 20 metres. Further she moves 20 metres after turning to the right. How far is she from her original position?
(a) 20 m  (b) 30 m  (c) 50 m  (d) 60 m

Q.294 A watch shows 4:30. If the minute hand points to east, in what direction will the hour hand point?
(a) North-West  (b) South-East  (c) North-East  (d) North

Q.295 On an election day Santhosh walked from a place, 10 km towards South to reach the polling station, then turned left up to 2 km, then took a right turn, and took another 4 kms walk. Again he turned right and walked for 12 kms and took a 14 km walk by turning to North, and there he could see the polling station at a 12 km distance after taking a right turn. In which direction is the polling station situated?

Q.296 One evening, two friends Riya and Priya were talking to each other, with their backs towards each other, sitting in a park. If Riya’s shadow was exactly to the left of her, then which direction was Priya facing?
(a) North-East  (b) North  (c) East  (d) South

Q.297 Two buses start from the opposite points of a main road, 150 kms apart. The first bus runs for 25 kms and takes a right turn and then runs for 15 kms. It then turns left and runs for another 25 kms and takes the direction back to reach the main road. In the meantime, due to a minor breakdown, the other bus has run only 35 kms along the main road. What would be the distance between the two buses at this point?
(a) 65 kms  (b) 75 kms  (c) 80 kms  (d) 85 kms

Q.298 Fifteen boys are standing in a row facing opposite direction alternately from left to right. If the fourth boy from left is facing towards the east then the fifth boy from the right is facing which direction?
(a) South  (b) North-west  (c) East  (d) West

Q.299 Vishwanath was walking on the road early morning after the sunrise and his shadow was falling to his left. Which direction was he facing?
(a) East  (b) North  (c) West  (d) Either East or West

Q.300 Raju cycled 10 km South from his house, turned right and went 5 km and again turned right and cycled 10 km and then turned left and cycled 10 km. How many kilometers will he have to cycle back to reach his house?
(a) 10 km  (b) 5 km  (c) 20 km  (d) 15 km

Q.301 One morning after sunrise, Gangadhar was walking facing a pole. The shadow of the pole fell exactly to his right, which direction was he facing?
(a) South  (b) West  (c) North  (d) East