MATHEMATICS

Class-VII

Topic-16

PERCENTAGE

16

PERCENTAGE

TERMINOLOGIES

Percentage, Fraction, Ratio, Decimal, % increase, % decrease, Successive Change in percentage.

INTRODUCTION

The term percent means one out of hundred. Percentage is used frequently in all walks of life. For eg. "20% off in shoes", "79% of people in U.K. have internet connection", "50% extra free".

Percentage is another way of comparing quantities .On the occasion of gandhi jayanti we can see the banner like 20% off (rebate) on **khadi** clothes in the shops of **khadi gramoudyog**.

16.1 PERCENTAGE

(a)   Fraction as a percent

A fraction with its denominator as 100 is called a **percent** and is equal to that percent as is the numerator. i.e. $\dfrac{75}{100} = 75 \times \dfrac{1}{100}$

$\qquad$ = 75 hundredths

$\qquad$ = 75 per hundred = 75%.

(b)   Ratio as a percent

A ratio with its second term 100 is also called a percent.

$8 : 100 = \dfrac{8}{100} = 8\%$.

(c)   Conversion of a percent into a fraction

To convert a percent into a fraction, we drop percent sign (%) and divide the remainder by 100.

Drop the percent sign (i.e. %) and divide the number by 100. Thus, $x\% = \dfrac{x}{100}$.

i.e. $36\% = \dfrac{36}{100} = \dfrac{9}{25}$.

(d)   Conversion of a fraction into a percent and vice versa

To convert a fraction into a percent we multiply the fraction by 100.

Multiply the fraction by 100 and put the percent sign % to obtain the required percent.

Thus, $\dfrac{a}{b} = \left(\dfrac{a}{b} \times 100 \right) \%$

For example : $\dfrac{4}{5} = \left(\dfrac{4}{5} \times 100 \right) = 80\%$.

To convert a ratio into a percent, we write it as a fraction and multiply it by 100.

For example : $6 : 5 = \dfrac{6}{5} = \left(\dfrac{6}{5} \times 100\right)\% = 120\%$.

To convert a percent into a decimal, we drop percent sign (%) and shift the decimal point two places to the left.

Illustration 16.1

Express each of the following as a decimal :

(i) 65%   **(ii)** 0.1%

Sol. **(i)** We have,

$$65\% = \dfrac{65}{100} = 0.65.$$

(ii) $0.1\% = \dfrac{0.1}{100} = \dfrac{1}{1000} = 0.001.$

(e) Conversion of a decimal into a percent

To convert a decimal into a percent, we shift the decimal point two places to the right.

Illustration 16.2

Express each of the following as percent.

(i) 0.037   **(ii)** 0.275

Sol. **(i)** $0.037 = \dfrac{37}{1000} = \left(\dfrac{37}{1000} \times 100\right)\% = 3.7\%$

(ii) $0.275 = \dfrac{275}{1000} = \left(\dfrac{275}{1000} \times 100\right)\% = 27.5\%$

(f) What percent of one quantity is of the another quantity ?

Let a and b be two numbers and we want to know, what percent of a is b ?
Let x % of 'a' be equal to 'b'.

Then, $\dfrac{x}{100} \times a = b$

$\Rightarrow$ $x = b \times \dfrac{100}{a}$ $\Rightarrow x = \dfrac{b}{a} \times 100$

Thus, b is $\left(\dfrac{b}{a} \times 100\right)\%$ of a.

(g) % increase or decrease

$$\text{Increase}\% = \left(\dfrac{\text{Increase}}{\text{Original value}} \times 100\right)\%$$

$$\text{Decrease}\% = \left(\dfrac{\text{Decrease}}{\text{Original value}} \times 100\right)\%$$

Illustration 16.3

Express 75 paise as a percent of Rs 5.

Sol. We have, Rs. 5 = 500 paise
Let x% of Rs. 5 be 75 paise.

Then, x% of Rs. 5 = 75 paise

$\Rightarrow$ x% of 500 paise = 75 paise

$\Rightarrow \quad \dfrac{x}{100} \times 500 = 75$

$\Rightarrow \quad x = \dfrac{75 \times 100}{500}$

$\Rightarrow \quad x = 15.$

Hence, 15% of Rs 5 is 75 paise.

Illustration 16.4

Find 10% more than Rs. 90.

Sol. We have,

10% of Rs 90 = Rs $\left(\dfrac{10}{100} \times 90 \right)$ = Rs. 9

$\therefore \quad$ 10% more than Rs.90 = Rs. 90 + Rs. 9 = Rs. 99.

Illustration 16.5

Find 20% less than Rs. 70.

Sol. We have,

20% of Rs. 70 = $\left(\dfrac{20}{100} \times 70 \right)$ = Rs. 14

$\therefore \quad$ 20% less than Rs. 70 = Rs. (70 – 14) = Rs. 56.

(h)   Word problems

Illustration 16.6

When 50 is added to the 50% of a number, then the number becomes itself. Then, what will be the number ?

Sol. $50 + \dfrac{x}{2} = x$

$\Rightarrow \quad x - \dfrac{x}{2} = 50$

$\Rightarrow \quad x = 100.$

Illustration 16.7

55% of the population of a town are males. If the total population of the town is 64100, find the population of females in the town.

Sol. We have,

Population of the town = 64100.

$\therefore \quad$ 55% of the population = $\dfrac{55}{100} \times 64100 = 35255.$

It is given that 55% of the population are males.

$\therefore \quad$ Number of males = 35255

Hence, number of females in the town

= Total population – No. of males

= 64100 – 35255 = 28845.

Illustration 16.8

In an election, out of 75000 eligible voters 50000 cast their votes. What was the percentage of people casting votes ?

Sol. We have,

Total number of eligible voters = 75000.

Number of voters casting their votes = 50000.

∴ Percentage of voters casting their votes

$$= \frac{50000}{75000} \times 100 = \frac{200}{3} = 66.66$$

Hence, 66.66% voters cast their votes.

Illustration 16.9

If A's income is 20% less than that of B, then by how much percentage is B's income more than A's income.

Sol. A's income is 20% less than that of B.

∴ B's income is $\left[\frac{20}{100 - 20} \times 100 \right]$ % more than that of A $= \frac{20}{80} \times 100$ % = 25%.

Illustration 16.10

If B's income is 5% more than that of A, then by how much percentage is A's income less than B's income.

Sol. B's income is 5% more than that of A then percentage is by which A's income is less than B's income.

$$= \left[\frac{5}{100 + 5} \times 100 \right] \% = \frac{5}{105} \times 100\% = \frac{100}{21} \% .$$

Ask yourself

1. What percentage of 240 is 90 ?

2. 800 Kg of mortar consists of 55% sand, 33 % cement and rest lime. What is the mass of lime in mortar?

3. Chalk contains 10 % calcium, 3% carbon and 12 % oxygen. Find the amount of carbon and calcium (in gms) in $2\frac{1}{2}$ kg of chalk.

4. In an examination, Mohit secured 60% of the maximum marks which if 45 marks more than the pass marks. If the pass mark is 45% then find the maximum marks in the examination.

5. If 2a = 3b, b = $\frac{3}{4}$c , and c = 0.8d, then find by what percent is a less/more than d.

Answers

1. 37.5%   2. 96 kg   3. 75 gm, 250 gm   4. 300.

5. 10% less

Add your knowledge

Successive changes in percentage : Lets deal with this topic taking one example

e.g. The population of a variety of tiny bush in an experimental field increased10% in the first year, increased by 8% in the second year but decreased by 10% in the third year. If the present number of bushes in the experimental field is 26730, then find the number of bushes in the beginning .
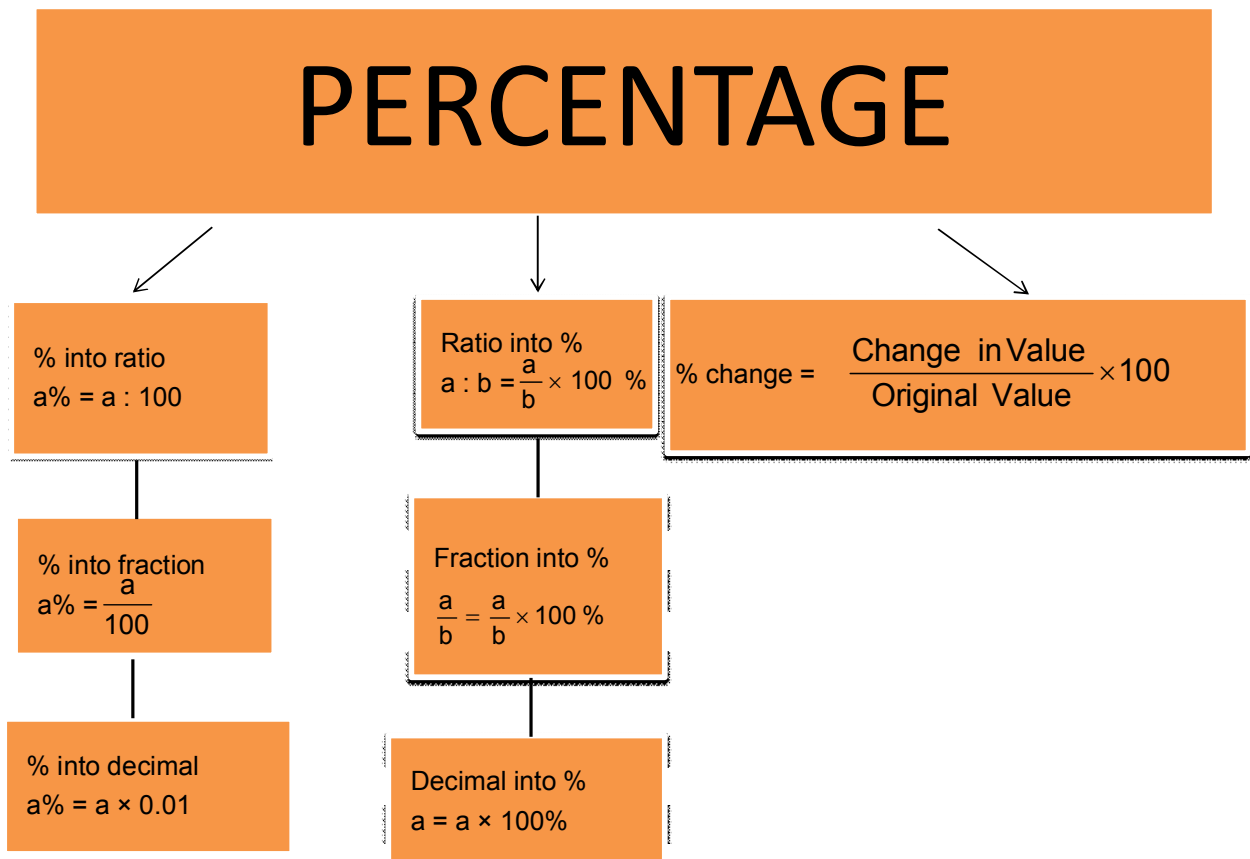
Sol. Let the number of bushes in the beginning is P So,

$$P \times \left(1+\frac{10}{100}\right)\left(1+\frac{8}{100}\right)\left(1-\frac{10}{100}\right) = 26730$$

$$\Rightarrow \quad P = \frac{26730}{\left(1+\frac{10}{100}\right)\left(1+\frac{8}{100}\right)\left(1-\frac{10}{100}\right)} \quad \Rightarrow \quad P = \left(26730 \times \frac{10}{11} \times \frac{25}{27} \times \frac{10}{9}\right)$$

$$\Rightarrow \quad P = 25000.$$

Concept Map

$$\boxed{\text{PERCENTAGE}}$$

% into ratio
a% = a : 100

% into fraction
$a\% = \dfrac{a}{100}$

% into decimal
a% = a × 0.01

Ratio into %
$a : b = \dfrac{a}{b} \times 100 \ \%$

Fraction into %
$\dfrac{a}{b} = \dfrac{a}{b} \times 100 \ \%$

Decimal into %
a = a × 100%

% change = $\dfrac{\text{Change in Value}}{\text{Original Value}} \times 100$

Summary

1. Percent means per hundred or for every hundred. By a certain percent, we mean that many hundredths.

2. To convert a percent into a fraction, we drop percent sign (%) and divide the remainder by 100

3. To convert a fraction into a percent we multiply the fraction by 100.

4. To convert a ratio into a percent, we write it as a fraction and multiply it by 100.

5. To convert a percent into a decimal, we drop percent sign (%) and shift the decimal point two places to the left.

6. To convert a decimal into a percent, we shift the decimal point two places to the right.

7. $x\% = \dfrac{x}{100} = x : 100$.

EXERCISE » 01

SECTION -A (FIXED RESPONSE TYPE)

MULTIPLE CHOICE QUESTIONS

1. Convert 57.5% into decimals :
   (A) 5.75   (B) 0.575   (C) 57.5   (D) 0.0575

2. Convert $17\frac{1}{5}$ % into decimals :
   (A) 0.172   (B) 1.72   (C) 17.2   (D) 0.0172

3. What percentage of 75 is 125 ?
   (A) 66.66%   (B) 16.66%   (C) 166.66%   (D) 106.66%

4. What is 45% of 500 ?
   (A) 215   (B) 275   (C) 225   (D) 230

5. In order to compute 0.15% of a number, it must be multiplied by :
   (A) 0.0015   (B) 0.015   (C) 0.15   (D) 1.5

6. 25% of 4 – 4% of 25 =
   (A) 0   (B) 1   (C) 2   (D) 4

7. Subtracting 40% of a number from the number, we get the result as 30. The number is :
   (A) 28   (B) 50   (C) 52   (D) 70

8. What is 20% of 50% of 60% of 200 ?
   (A) 12   (B) 18   (C) 120   (D) 180

9. 30% of 28% of 480 is the same as :
   (A) 15% of 56% of 240   (B) 60% of 28% of 240
   (C) 60% of 56% of 240   (D) None of these

10. 10% of 10% of a number is equal to Rs.10. Find that number.
    (A) 10000   (B) 1000   (C) 100   (D) 10

11. 25% of a number is less than 18% of 650 by 19. The number is :
    (A) 392   (B) 356   (C) 293   (D) 318

12. A's income is 25% more than B's income, then B's income in terms of A's income is :
    (A) 75%   (B) 80%   (C) 20%   (D) 96%

13. In a parking lot, 1 out of every 8 cars is blue. What percent of the car in this lot are blue ?
    (A) 1.25%   (B) 7%   (C) 9%   (D) 12.5%

14. Price of shirt decreased from Rs. 80 to Rs. 60. The percentage of decreased price is :
    (A) 25%   (B) 30%   (C) 40%   (D) 45%

15. If cost of an object in increased by 40% and then decreased by 20%. Cost of the object than initial cost is :

(A) 20% more   (B) 20% less   (C) 12% more   (D) 12% less

16. In a test, Arun scored 20% and failed by 10 marks. Bala scored 40% in the same test and 10 marks more than the pass mark. Find the maximum marks.

(A) 100   (B) 300   (C) 400   (D) 200

17. Ratan spend 70% of his income. His income increases by 25% and also his expenditure increases by 25%. Find the percentage increase in his saving.

(A) 25   (B) 30   (C) 10   (D) No change

18. The ratio of the number of boys and girls in a school is 3 : 2. If 20% of the boys and 30% of the girls are scholarship holders, the percentage of the students who are not scholarship holders is:

(A) 50%   (B) 72%   (C) 75%   (D) 76%

FILL IN THE BLANKS

1. 1% as a decimal is _____.

2. To convert a percent into a fraction, we drop percent sign (%) and divide the remainder by _____.

3. x% of 75 =9 then x =

4. What percent of 50 is 5 ? _____.

5. A dress was bought for Rs. 120 and was sold for Rs. 150. The gain % is _____.

TRUE / FALSE

1. Percent means per hundred or for every hundred.

2. To convert a fraction into a percent multiply by 100.

3. 40% of 60 is greater than 25% of 90.

4. If 13% of a number is 28, then 26.52% of the same number is 57.12

5. If A is r % more than B, then B is less than A by $\left[\dfrac{r}{(100-r)} \times 100\right]$ %

MATCH THE COLUMN

1.

	Column –I		Column – II
(A)	10% less than 15	(p)	91
(B)	4 : 5	(q)	48
(C)	30% more than 70	(r)	80%
(D)	5½	(s)	13.5

SECTION -B (FREE RESPONSE TYPE)

VERY SHORT ANSWER TYPE

1. Find 36% of 30.

2. What percent of 3.6 km is 360 metres?

3. Express 54 seconds as a percentage of 2 hours.

4. Find 20% of 40% of 60% of 300.

5. A man , whose salary is Rs 7500 a year, receives an increase of 8 % . Find his new salary.

6. If 75% of students in a class have a bicycle, what percent of the students do not have bi cycles ?

7. In an examination, Piyush scored 490 marks. If he secured 70% marks, find the maximum marks.

8. Simran purchased a scooter for Rs 40000. In the next year, the price of the scooter reduced to 37,000. Find the percentage decrease in the price of the scooter.

SHORT ANSWER TYPE

9. The weight of a 10 year old girl was 32 kg. But it was misread as 36 kg. Find the error percent

10. The price of an article is cut 10%. To restore it to its former value, by what percentage the new price must be increased ?

11. If 41% of a number is less than 76% of the same number by 105, what is the number ?

12. A's salary is 50% more than B's. How much percent is B's salary less than A's ?

13. A mock IIT-JEE exam constitutes of 150 questions. Each correct answer fetches 4 marks. There is a penalty of 2 marks for every incorrect answer and a penalty of 1 mark for every unattempted question. Find the percentage of marks scored by the students by attempting 120 questions of which $33\dfrac{1}{3}\%$ are incorrect.

LONG ANSWER TYPE

14. If 20% of a and 40% of b is 230, and 40% of a and 20% of b is 190, then b is what percentage more or less than a?

15. The population of a town increases 8% annually. If its present population is 126360, what was it a year ago?

16. In an examination, it is required to get 45% marks to pass. A student got 138 marks and failed by 15%. What were the maximum marks ?

17. In an office 60% of the employees are women. 30% of the women employees have children and 20% of the men employees have children. What percentage of the employees has children?

18. C.P. of an article is 40% of the S.P. What percent is the S.P. that of C.P ?

19. Of the 1000 inhabitants of a town, 60% are males of whom 20% are literate. If of all the inhabitants, 25% are literate, then what percent of the females of the town are literate ?

20. $\frac{5}{9}$ part of the population in a village are males. If 30% of the males are married, then what will be the percentage of unmarried females in the total population ?

EXERCISE » 02

SECTION -A (COMPETITIVE EXAMINATION QUESTION)
MULTIPLE CHOICE QUESTIONS

1. Total percentage by which $\frac{4}{5}$ of 70 is less than $\frac{5}{7}$ of 112 is :

(A) 42% (B) 30% (C) 24% (D) 36%

2. Two-fifth of one-third of three-seventh of a number is 15. What is 40 percent of that number ?
(A) 72 (B) 84 (C) 105 (D) 140

3. In a certain season, the Indian cricket team had a 40% success rate in the first 80 matches it played. What is the minimum number of additional matches it must play so that it has a 60% success rate for the season ?
(A) 30 (B) 40 (C) 45 (D) 35

4. In all the three sections of woodland High School, there are 50, 70 and 80 students and those who secured F grade are 10%, 20%, and 30%, respectively. What percentage of the total students in the high school secured F grade?
(A) 12.5 (B) 15.6 (C) 21.5 (D) 23.4

5. In an examination there were 1100 Boys and 900 Girls. 50% of the boys and 40 % girls passed the examination. The percentage of candidates who failed is :
(A) 45% (B) 54.5% (C) 45.5% (D) 55%

6. If A is 20% more than B, by what percent is B less than A?
(A) 16.66% (B) 26.36% (C) 9.09% (D) 27.27%

7. If 25% of a number is subtracted from a second number, the second number reduces to its five-sixth. What is the ratio of the first number to the second number ?
(A) 1 : 3 (B) 2 : 3 (C) 3 : 2 (D) Data inadequate

8. A candidate should score 45% marks of the total marks to pass the examination. He gets 520 marks and fails by 20 marks. The total marks in the examination are :
(A) 1000 (B) 1100 (C) 1200 (D) 1400

9. The price of an article is decreased by 20% By what percentage must its consumption be increased so that the expenditure on it increases by 10%? Choose the correct answer from the following option.

(A) 10% (B) 25% (C) $33\frac{1}{3}$% (D) 37.5%

10. On an occasion, 40% of the young men wear grey hats, 60% of the remaining young men wear black hats. What percentage of the young men wears neither grey hats nor black hats? (No young man wers both grey hat and black hat)
(A) 12% (B) 18% (C) 24% (D) 25%

SECTION -B (TECHIE STUFF)

11. An organization has 32 members. It hopes to increase the membership by 50% each year. If this is done, how many members will the organization have in 5 years ?

(A) 243   (B) 200   (C) 162   (D) 112

12. 10% of the voters did not cast their votes in an election between two candidates. 10% of the votes polled were found invalid. The successful candidate got 54% of the valid votes and won by majority of 1620 votes. The number of voters enrolled on the voter's list was

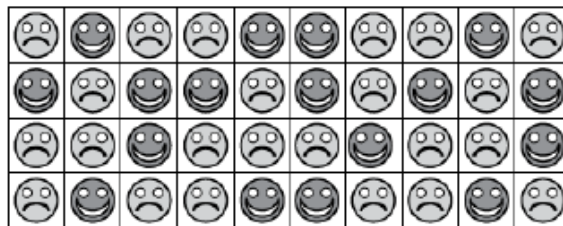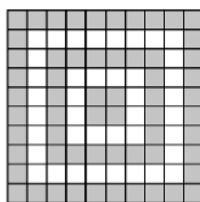(A) 25000   (B) 33000   (C) 35000   (D) 40000

EXERCISE ≫ 03

(PREVIOUS YEAR EXAMINATION QUESTIONS)

1. In a mathematics test , tina answered 18 out of 25 questions correctly . How many percent more correct answers than wrong answers did she get? **[NSTSE 2009]**

(A)11%   (B) 44%   (C)157%   (D)280%

2. If the numbers $\frac{4}{5}$, 81% and 0.801 are arranged from smallest to largest , the correct order is: **[NSTSE 2009]**

(A) $\frac{4}{5}$, 81%, 0.801   (B) 81% , 0.801 , $\frac{4}{5}$

(C) 0.801, $\frac{4}{5}$, 81%   (D) $\frac{4}{5}$, 0.801, 81%

3. Priya reads $\frac{1}{3}$ of a book on saturday and 70% of the remaining pages on sunday . She then had 6q pages left to read. Find the total number of pages in the book in terms of q.

[NSTSE 2010]

(A) 180q   (B) 90q   (C) 30 q   (D) 16 q

4. Malini answered 75% of the 40 problems on her history homework correctly. How many problems on her homework did she answer correctly. **[IMO-2010]**

(A) 19   (B) 30   (C) 28   (D) 10

5. Mr. Arvind spends 30% of his money on education and he has total Rs.15,000. How many rupees does he spend on his education? **[IMO-2011]**

(A) Rs.5000   (B) Rs.4500   (C) Rs.1000   (D) Rs.5500

6. In our office there are 60% female employees. 50% of all the male employees are computer literate. If there 62% employees are computer literate out of the total 1600 employees, then the number of female employees who are computer literate is _____.

[IMO-2011]

(A) 690   (B) 672   (C) 960   (D) Can't be determined

7. Two equal containers are filled with a mixture of milk and water. The concentration of milk in each of the containers is 20% and 25% respectively. What is the ratio of water in both the containers respectively? **[IMO-2011]**

(A) 15 : 16　　　　(B) 16 : 15　　　　(C) 4:5　　　　(D) 5:4

8. Sachin obtained 430 marks out of maximum of 500 marks b. What increase or decrease in % is required to get 90% ? **[NSTSE 2012]**

(A) 3 % increase　　(B) 430 is 90% score　(C) 2% decrease　(D) 4 % increase

9. How is quarter of 3% written as decimal ? **[NSTSE 2012]**

(A) 0.0025　　　　(B) 0.75　　　　(C) 0.0075　　　　(D) 0.25

10. If $\frac{1}{2}$ of a number is 166, then what is 30% of the number? **[IMO-2012]**

(A) 99.6　　　　(B) 83　　　　(C) 64.5　　　　(D) 49.8

11. The cost of a bag was 55% the cost of a skirt. If Mitika intended to buy both the bag and the skirt, then how much money must she have, if the skirt costs Rs.31.50 more than the bag? **[IMO-2012]**

(A) Rs.38.50　　　(B) Rs.70　　　(C) Rs.108.50　　　(D) Rs.120.55

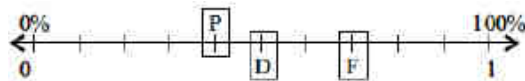**12.** What percentage of the faces are smiling? **[IMO-2012]**

(A) 41.5　　　　(B) 57.5　　　　(C) 62.5　　　　(D) 42.5

13. 20% of the students were absent in an examination. 15% of those who appeared failed. If 340 students passed, what was the total number of students? **[IMO-2012]**

(A) 550　　　　(B) 450　　　　(C) 400　　　　(D) 500

14. If 24 carat gold is 100 % pure gold , then what perecentage of pure gold is in 22 carat gold?

[NSTSE 2013]

(A) $61\frac{2}{3}$ %　　　(B) $71\frac{2}{3}$ %　　　(C) $81\frac{2}{3}$ %　　　(D) $91\frac{2}{3}$ %

15. What percentage of the figure is shaded? **[IMO-2013]**

(A) 50%　　　　(B) 60%　　　　(C) 70%　　　　(D) 65%

16. Half of 1 percent written as a decimal is **[IMO-2013]**
(A) 0.005   (B) 0.05   (C) 0.02   (D) 0.2

17. 40% of 1640 + ? = 35% of 980 + 150% of 850 **[IMO-2013]**
(A) 372   (B) 842   (C) 962   (D) 1052

18. A man buys an article for 27.50 and sells it for Rs.28.60. Find his gain percent.**[IMO-2013]**
(A) 4 %   (B) 5 %   (C) 2 %   (D) 8 %

19. A pudding is made of 200 g sugar , 800 g eggs , 600 g flour and 200 g dry fruits . What percent of sugar is present in the pudding ? **[NSTSE 2014]**
(A)$11\frac{1}{9}$%   (B) $16\frac{2}{3}$%   (C) $6\frac{1}{4}$%   (D) $3\frac{1}{2}$%

20. When a number is reduced by 4 , it becomes 80% of itself . Find the number.
[NSTSE 2014]
(A) 20   (B) 30   (C) 40   (D) 50

21. What is the percentage of the least number in the greatest number among $\frac{3}{5}, \frac{9}{5}, \frac{1}{5}$ and $\frac{7}{5}$.
[NSTSE 2014]
(A) $11\frac{1}{9}$%   (B) $9\frac{2}{3}$%   (C) 10%   (D) 25%

22. In a school of 100 students, only 2 out of 5 students can participate in a quiz. What is the percentage of students that participate in the quiz? **[IMO-2014]**
(A) 20%   (B) 40%   (C) 50%   (D) 30%

23. Solve for x : 3(2x – 1) + 25% of x = 97 **[IMO-2014]**
(A) 20   (B) 24   (C) 12   (D) 16

24. $\dfrac{25\% \text{ of } 50\% \text{ of } 100\%}{25 \text{ of } 100 \times 50\% \text{ of } 100}$ is equal to _____. **[IMO-2014]**
(A) 0.0001%   (B) 0.1%   (C) 0.01%   (D) 1%

25. In a school, only 2 out of 5 students can participate in a quiz. What is the chance that a student picked at random makes it to the competition? **[IMO-2014]**
(A) 20%   (B) 40%   (C) 50%   (D) 30%

26. Fill in the blanks with P(Percentage), F(Fraction), D(Decimal) on the number line.
[IMO-2014]

	P	D	F
(A)	40%	0.5	7/10
(B)	30%	0.6	7110
(C)	35%	0.8	3/8
(D)	48%	0.7	4/9

ANSWER KEY »

EXERCISE » 01

SECTION -A (FIXED RESPONSE TYPE)

MULTIPLE CHOICE QUESTIONS

Ques.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	B	A	C	C	A	A	B	A	B	B	A	B	C	A	C
Ques.	16	17	18												
Ans.	A	A	D												

FILL IN THE BLANKS

1. 0.01 **2.** 100 **3.** 12 **4.** 10 **5.** 25%

TRUE / FALSE

1. True **2.** True **3.** True **4.** True **5.** False

MATCH THE COLUMN

1. (A) → s, (B) → r, (C) → p, (D) → t, (E) → q

SECTION -B (FREE RESPONSE TYPE)

VERY SHORT ANSWER TYPE

1. 10.8 **2.** 10%. **3.** 0.75% **4.** 14.4 **5.** Rs. 8100

6. 25% **7.** 700 **8.** 7.5%

SHORT ANSWER TYPE

9. 12.5% **10.** $11\frac{1}{9}\%$ **11.** 300 **12.** $33\frac{1}{3}\%.$

13. 35%

LONG ANSWER TYPE

14. 80% **15.** 117000 **16.** 460 **17.** 26% **18.** 250%

19. 32.5% **20.** $27\frac{7}{9}$

EXERCISE » 02

SECTION -A (COMPETITIVE EXAMINATION QUESTION)

MULTIPLE CHOICE QUESTIONS

Ques.	1	2	3	4	5	6	7	8	9	10
Ans.	B	C	B	C	B	A	B	C	D	C

SECTION -B (TECHIE STUFF)

Ques.	11	12
Ans.	A	A

EXERCISE » 03

(PREVIOUS YEAR EXAMINATION QUESTIONS)

Ques.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	C	D	C	B	B	B	B	D	C	A	C	D	D	D	B
Ques.	16	17	18	19	20	21	22	23	24	25	26				
Ans.	A	C	A	A	A	A	B	D	A	B	A				