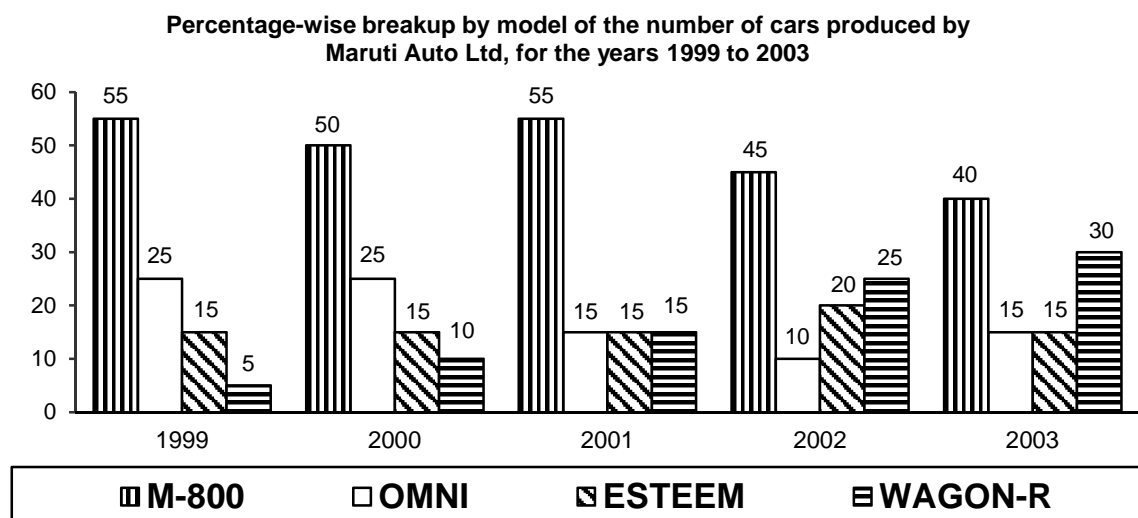


CHAPTER – 2 BAR GRAPHS

Worked out Examples:

These questions are based on the following graph.



2.01: If the total number of cars produced by Maruti Auto Ltd. in 2001 and 2003 was 12 lakhs and 15 lakhs respectively, then what is the percentage increase in the production of Omni from 2001 to 2003?

- (A) 0%
(B) 20%
(C) 25%
(D) None of these

Sol: It can be observed from the bar graph above, that the percentage production of Omni in 2001 and 2003 is the same, i.e., 15%. Hence the percentage increase in the production of Omni from 2001 to 2003 is the same as the percentage increase in the total production from 2001 to 2003 = $\frac{15-12}{12} \times 100 = 25\%$

Choice (C)

2.02: The total production of cars by Maruti Auto. Ltd. in the year 2002 was 1.3 times of that in the year 2000. If the number of Esteems produced in the year 2002, were 52,000, then how many Omnis were produced in the year 2000?

- (A) 50,000
(B) 70,000
(C) 65,000
(D) None of these

Sol: In the year 2002, number of esteems produced = 20% of total production.

If 20% is 52,000 then 100% is

$$= \frac{100}{20} \times 52,000 = 2,60,000$$

Hence, total production in 2002 = 2.6 lakhs.

$$\Rightarrow \text{Total production in 2000} = 2.6/1.3 \text{ Lakhs} = 2 \text{ Lakhs}$$

\therefore Number of Omni produced in 2000 = 25% of 2 lakhs = 50,000

Note: The above calculations can be written in a single step as

$$= \frac{100}{20} \times \frac{52,000}{1.3} \times \frac{25}{100} = \frac{25}{20} \times \frac{52,000}{1.3} = 50,000$$

Choice (A)

2.03: If the total production of cars by Maruti Auto Ltd. in the year 2003 was twice that in the year 1999, then how did the production of M-800 change from 1999 to 2003?

- (A) It decreased by approximately 15%
(B) It increased by approximately 15%
(C) It increased by approximately 45%
(D) Cannot be determined

Sol: Let the total production of cars in 1999 = 100

$$\text{Total production: } \frac{1999}{100} \quad \frac{2003}{100 \times 2 = 200}$$

$$\text{M-800} \quad : \quad 55 \quad 40 \times 2 = 80$$

Percentage increase in production of M-800

$$= \frac{80-55}{55} \times 100 = \frac{5}{11} \times 100 = 45.45\%$$

Choice (C)

2.04: If the total production of cars by Maruti Auto Ltd, which was 37 lakhs in 1999, continuously increased by 10% every successive year, then by what percent did the production of Esteem increase from 1999 to 2003?

- (A) 0%
(B) 14.64%
(C) 46.41%
(D) None of these

Sol: Here the actual value of total production in 1999 is not important

Total production in 1999 = 100 (say)

⇒ Total production in 2003

$$= 100 \times 1.1 \times 1.1 \times 1.1 \times 1.1 = 146.41$$

As it is observed that the percentage of Esteem is same in 1999 and 2003 (i.e. 15%), the increase in the production of Esteem = the percentage increase in the total production be from 100 to 146.41 i.e. 46.41%
Choice (C)

2.05: Which of the following statements is definitely true?

- (A) The production of Wagon-R increased continuously over the given period.
- (B) For any of the given years, the production of M-800 was more than twice that of Omni.
- (C) If the total production in all the years was the same, then the highest percentage increase in

the production of any model over that of the previous year for any of the years during the given period, was recorded by Wagon-R.

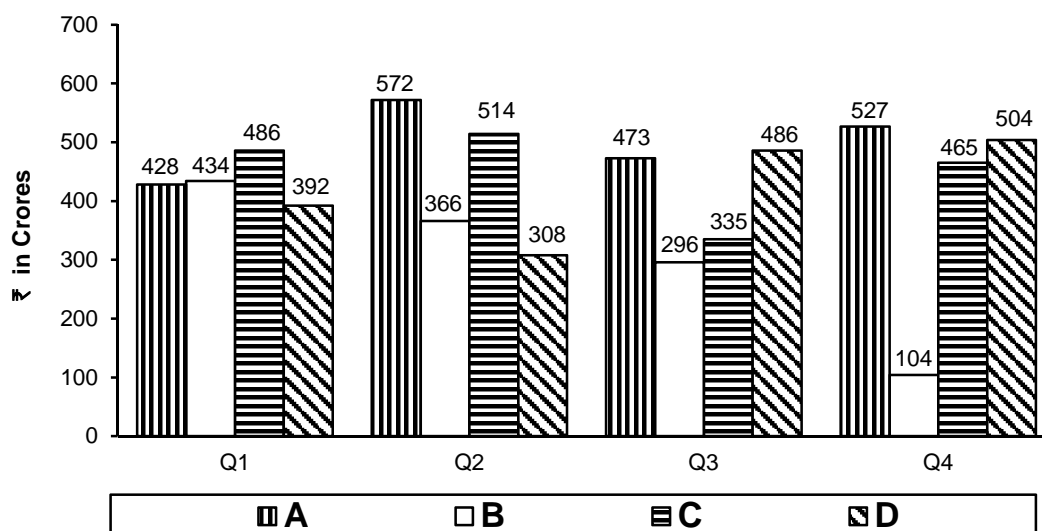
(D) All the above

Sol: As the total production of cars is not given for any of the years, statement (A) may or may not be true. In the year 2000 the production of M-800 was exactly twice that of Omni. Hence, statement (B) is false. Statement (C) is definitely true as in 1999, the percentage production of Wagon-R was 5% and in 2000, it was 10%, which is an increase of 100% (as 10 is twice of 5)
Choice (C)

Exercise – 2(a)

Directions for questions 1 to 5: These questions are based on the bar graph given below.

Sales turnover of four companies in different quarters of the year 2018



1. Which company has the highest sales turnover in the year 2018?

- (A) A (B) C (C) B (D) D

2. During the second quarter, the profits of A, B, C and D are in the ratio 8 : 7 : 6 : 5 respectively. For which of the four given companies, is profit as a percentage of sales turnover, the highest?

- (A) C (B) B (C) A (D) D

Directions for questions 3 to 5: Type in your answer in the input box provided below the question.

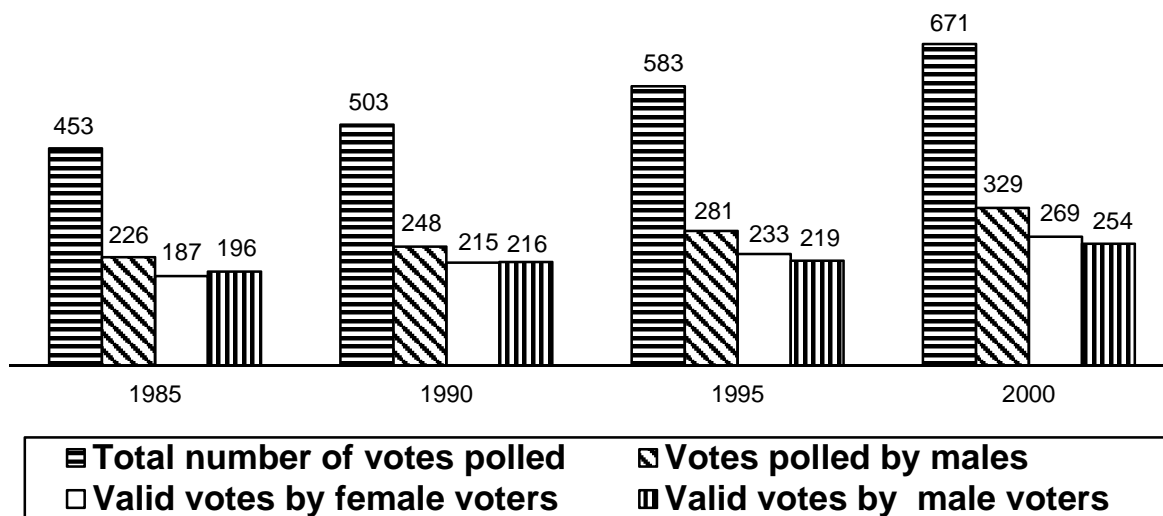
3. For how many quarters is the sales turnover of company A, more than 25% of the total sales turnover of all the four given companies for that particular quarter?

4. What is the approximate percentage decrease in the total sales turnover of all the given companies from the second quarter to the third quarter?

5. For how many companies is the sales turnover consistently increasing or decreasing?

Directions for questions 6 to 10: These questions are based on the following graph.

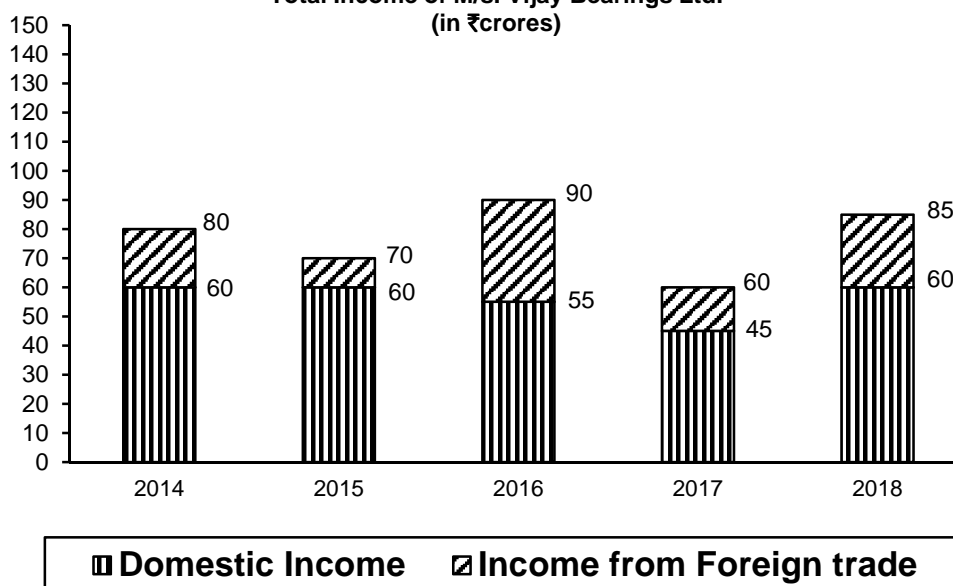
**Details of Electorate in Different Years
(in millions)**



6. In 1985, what percentage of the votes polled by the female voters was invalid?
(A) 5.8% (B) 41.3% (C) 17.6% (D) 56.7%
7. What was the percentage increase in the number of valid votes from 1995 to 2000?
(A) 15.7% (B) 16.3% (C) 17.6% (D) 18.8%
8. During which of the following years was the percentage of invalid votes in the total number of votes polled, the least?
(A) 1985 (B) 1990 (C) 1995 (D) 2000
9. What was the difference between the number of votes polled by males and females in 2000 which are invalid?
(A) 2 millions (B) 5 millions
(C) 7 millions (D) 15 millions
10. During which of the following years was the ratio of number of votes polled by males to that polled by females, the greatest?
(A) 1985 (B) 1990
(C) 1995 (D) 2000

Directions for questions 11 to 15: Study the following graph and answer these questions.

**Total Income of M/s. Vijay Bearings Ltd.
(in ₹crores)**



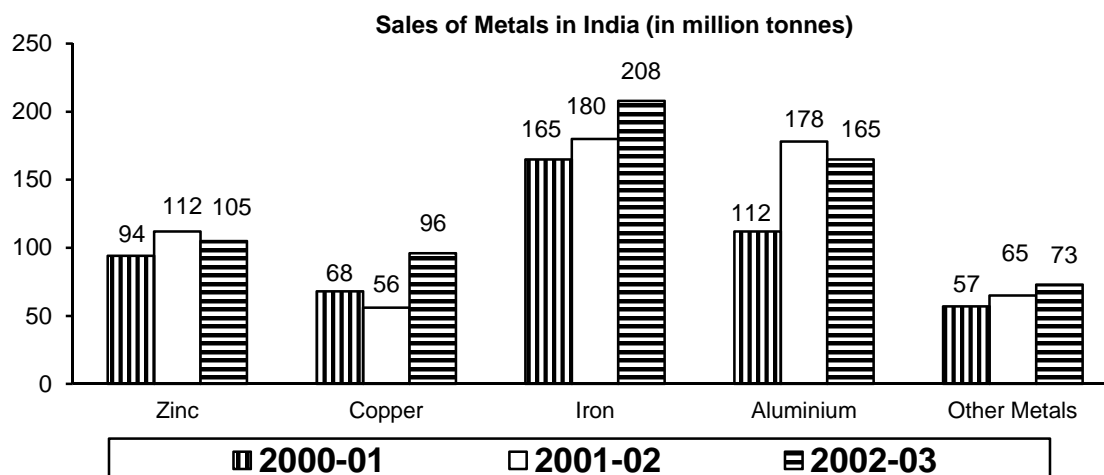
Total Income = Income from Foreign Trade + Domestic Income

$$\text{Percentage of profit} = \left(\frac{\text{Profit}}{\text{Expenditure}} \right) \times 100$$

Total Income = Profit + Expenditure

11. What is the average income of M/s. Vijay Bearings Ltd. from foreign trade?
 (A) ₹8 crores (B) ₹20 crores
 (C) ₹21 crores (D) ₹19 crores
12. The percentage of profit made by M/s. Vijay Bearings Ltd. in 2016 is 25%. What is the expenditure in 2016?
 (A) ₹67.5 crores (B) ₹75 crores
 (C) ₹62.5 crores (D) ₹72 crores
13. If the cost per bearing unit in 2018 is 20% more than that in 2017, then the number of units exported in 2018 is how much more than that in 2017?
 (A) 8000
 (B) 6000
 (C) 7000
 (D) Cannot be determined
14. In which year is the ratio of income from foreign trade to total income the highest for M/s. Vijay Bearings Ltd.?
 (A) 2018
 (B) 2014
 (C) 2016
 (D) 2017
15. If, in 2015, the income from Japan is 20% of the income from foreign trade, then it accounted for what percentage of total income?
 (A) $2\frac{6}{7}\%$
 (B) $3\frac{5}{8}\%$
 (C) $3\frac{7}{8}\%$
 (D) $3\frac{5}{7}\%$

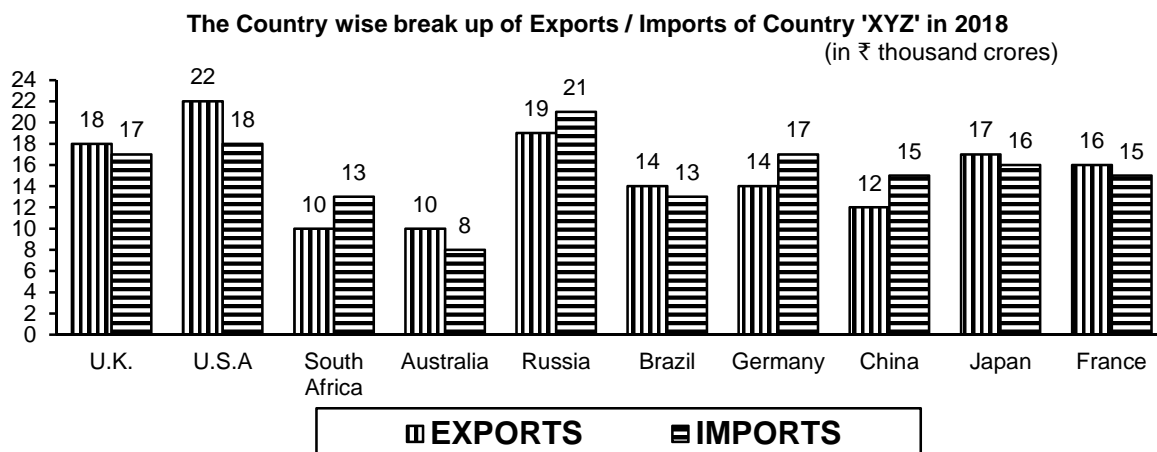
Directions for questions 16 to 20: The questions are based on the following graph.



16. The sales target for the sales of metals in the year 2002-2003 was 20% more than that of the actual sales in the year 2000-2001. What is the approximate percentage deficit or surplus achieved in the actual sales in the year 2002-2003?
 (A) 8% deficit
 (B) 9% surplus
 (C) 30% surplus
 (D) 120% deficit
17. The sales of Tin in 2000-2001 were 41.32% of the total sales of that of "Other metals" and they increased by 10% every subsequent year. In 2002-2003 what percentage of the total sales were the sale of Tin?
 (A) 3.8%
 (B) 4.4%
 (C) 7.7%
 (D) Cannot be determined
18. If, for every year, the total sales of all metals is 80% of their quantity available and the total sales in the year 2003-04 for every metal was 25% more than that in the year 2002-2003, then what was the quantity of copper available in the year 2003-2004 (in million tonnes)?
 (A) 120 (B) 150 (C) 1480 (D) 164
19. What is the average annual percentage increase in the sales of all the metals from the year 2000-2001 to the year 2002-2003?
 (A) 10.2% (B) 11.2%
 (C) 30.6% (D) 15.2%
20. What is the approximate ratio between the sales of Gold, which is 25% of that of "Other metals", in 2002-2003 to the sales of silver, which is 20% of that of "Other metals", in 2000-01?
 (A) 0.625 (B) 0.976 (C) 1.6 (D) 1.976

Exercise – 2(b)

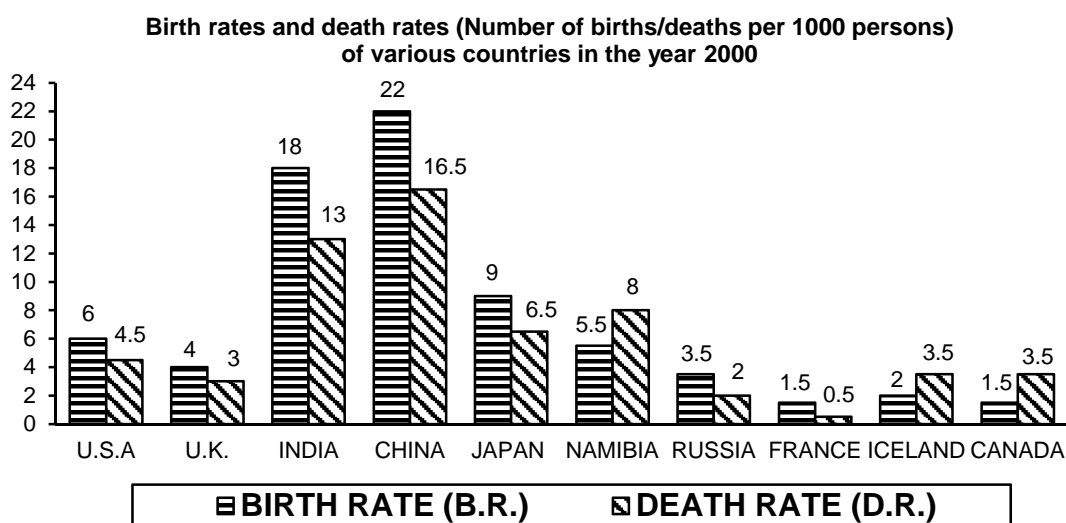
Directions for questions 1 to 5: These questions are based on the following graph.



Trade Surplus = Exports – Imports; Trade Deficit = Imports – Exports

- The cumulative trade deficit of country XYZ is approximately what percent of its average imports from each of the above mentioned countries?
(A) 65% (B) 9%
(C) 6.5% (D) 0.6%
- If the average cost of exports is ₹2000 per ton and that of imports is ₹3000 per ton, then by what percent is the total tonnage of exports more/less than the total tonnage of imports?
(A) 33.3% more (B) 49% less
(C) 32.8% more/less (D) 49% more
- By what percentage are the imports from the country to which the exports are the highest more than the exports to the country from which the imports are the least?
(A) 175% (B) 80%
(C) 55.55% (D) 125%
- Which of the following statements is definitely true?
(A) Country XYZ has a cumulative trade surplus of ₹1 crore.
(B) The cumulative trade deficit of country XYZ is approximately one-fifteenth of its total imports.
(C) The trade deficit of country XYZ considering its trade with China alone is 300% more than its cumulative trade deficit/surplus.
(D) The difference between the highest exports to any country and the lowest imports from any country is equal to the average of the exports to Brazil and Germany.
- What is the ratio of the total imports from Brazil, Japan, South Africa, Russia and China, to the total exports to the other five countries?
(A) 0.975 (B) 1.026
(C) 0.96 (D) None of these

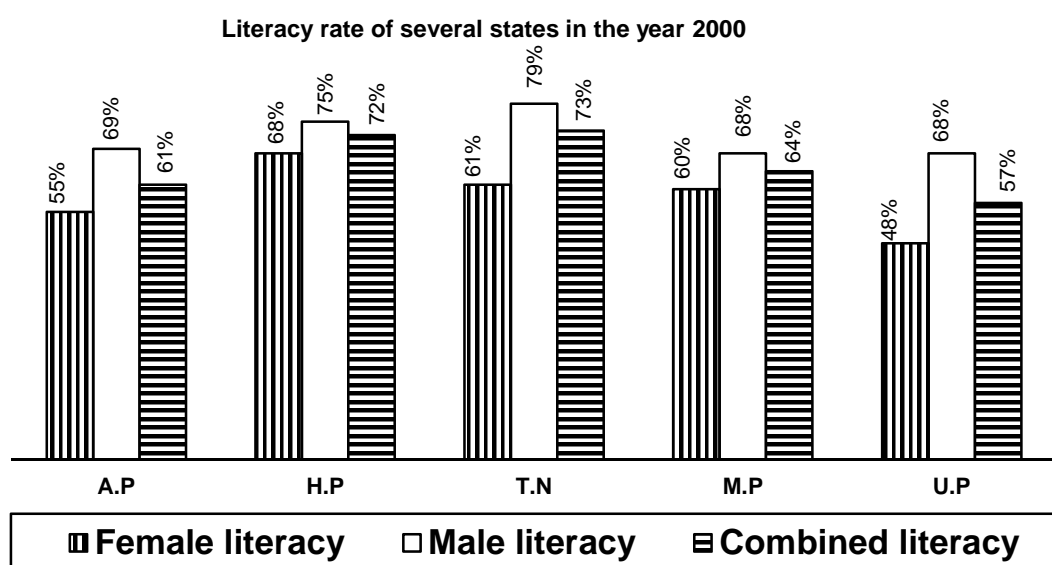
Directions for questions 6 to 10: These questions are based on the following graph.



Note: Rate of growth of population = Birth Rate – Death Rate

6. If the rate of growth of population is expressed in percentage terms instead of number of persons per 1000 persons, then among the countries with a positive growth rate of population the rate of growth of population of the country whose population is growing by the fastest rate is how many percentage points more than that of the country whose population is growing by the slowest rate?
 (A) 4.5 (B) 0.45
 (C) 0.045 (D) None of these
7. If the total population of USA in the year 2000 was 250 million and of Russia is 150 million, then by what percent are the total birth in USA more than the total deaths in Russia?
 (A) 80% (B) 200% (C) 300% (D) 400%
8. The infant mortality rate is defined as number of deaths of new born babies for every 1000 births.
- If the total population of Japan in the year 2000 is 150 million and its infant mortality rate is 3. What is the number of infants dying at birth expressed as a percentage of the total number of deaths in Japan?
 (A) 0.4% (B) 4% (C) 40% (D) 400%
9. If the given rates remain constant for the next ten years, then what will be the approximate percentage increase in the population of India after 2 years from the year 2000?
 (A) 0.5% (B) 1%
 (C) 2.5% (D) Cannot be determined
10. For how many of the given countries is the rate of growth of population, when expressed in percentage terms, greater than 0.25%?
 (A) 4 (B) 3
 (C) 2 (D) None of these

Directions for questions 11 to 15: These questions are based on the bar graph and the table given below.



$$\text{Literacy rate} = \frac{\text{Number of literates}}{\text{Total population}}$$

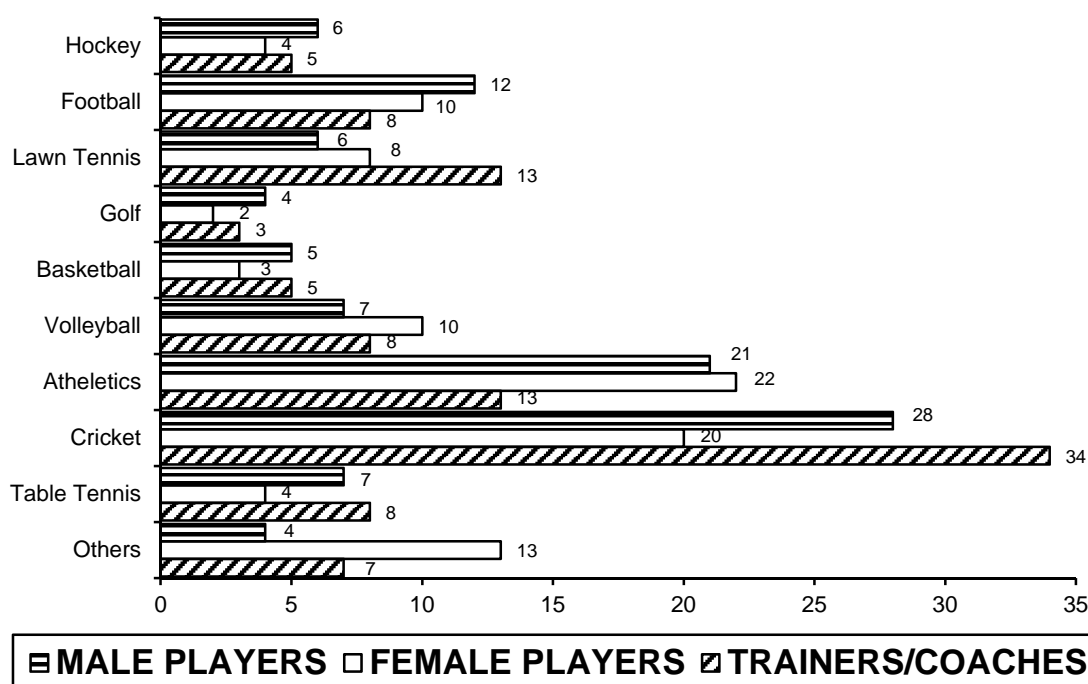
Population (in crores) of the given states in the year 2000 is as follows:

A.P.	H.P.	T.N.	M.P.	U.P.
7	6.3	6.5	6	16

11. What is the ratio of number of females to the number of males in the state of T.N.?
 (A) 3 : 5
 (B) 1 : 2
 (C) 3 : 4
 (D) None of these
12. In which of the following states is the number literate males, the highest?
 (A) H.P.
 (B) T.N.
 (C) M.P.
 (D) U.P.
- Directions for questions 13 to 15:** Type in your answer in the input box provided below the question.
13. What is the total number of literate males and literate females in the state of U.P.?
14. By what percentage is the population of U.P. less than the total population of the other four states?
15. What is the number of males in the state of H.P.?

Directions for questions 16 to 20: These questions are based on the following graph.

Percentage of male sports persons, female sports persons and trainers/coaches out of their respective total strengths in India



Male players = 1,50,000

Female players = 1,10,000

Trainers/Coaches = 5,000

16. The number of female players participating in Volleyball is approximately what percent of the total number of players participating in Hockey?
(A) 100% (B) 10%
(C) 122% (D) 82%
17. What is the approximate ratio of the number of male players per trainer in Golf to the number of female players per trainer in Basketball?
(A) 3 : 1 (B) 5 : 7
(C) 10 : 30 (D) None of these
18. If 40%, 30% and 20% of coaches, female players and male players respectively of Athletics, participate in track events, then how many players are trained by each coach on an average for track events? Assume that no player is trained by more than one coach.
(A) 223 (B) 125
(C) 52 (D) None of these
19. If male players and female players are paid ₹1,00,000 and ₹50,000 respectively per match in cricket and the male and female players are paid in ₹5,00,000 and ₹2,00,000 respectively per match in Lawn Tennis, then by approximately what percent are the total earnings of Lawn tennis players more than the total earning of cricket players, if each player plays 50 matches only?
(A) 10% (B) 18% (C) 25% (D) 42%
20. If, under the category "Others" the number of Chess players is half the number of Wrestlers and the sum of the number of Chess players and Wrestlers is half the total number of players under the category "Others", then the chess players form approximately what percentage of the female players in basketball?
(A) 50% (B) 100%
(C) 200% (D) None of these

Key

Exercise – 2(a)

- | | | | | |
|-------|------|-------|-------|-------|
| 1. A | 5. 1 | 9. A | 13. D | 17. B |
| 2. B | 6. C | 10. A | 14. C | 18. B |
| 3. 3 | 7. A | 11. C | 15. A | 19. D |
| 4. 10 | 8. B | 12. D | 16. B | 20. C |

Exercise – 2(b)

- | | | | | |
|------|------|-------|-----------|-------|
| 1. C | 5. A | 9. B | 13. 10.88 | 17. A |
| 2. D | 6. B | 10. C | 14. 38 | 18. C |
| 3. B | 7. D | 11. B | 15. 3.6 | 19. B |
| 4. D | 8. A | 12. D | 16. D | 20. B |