Directions (Q. 1-5): In the following pie-charts the percentage of different categories of employees of two companies $A$ and $B$ are given and the table shows the percentage of Male employees among them. The total employees in Company A is 6500 and that in Company B is 9000.

Company A


## Company B



$$
-E 1=E 2-E 3=E 4-E 5-E 6
$$

| Employee | \%Male in A | \%Male in B |
| :---: | :---: | :---: |
| E1 | $40 \%$ | $45 \%$ |
| E2 | $60 \%$ | $48 \%$ |
| E3 | $40 \%$ | $55 \%$ |
| E4 | $48 \%$ | $52 \%$ |
| E5 | $55 \%$ | $60 \%$ |
| E6 | $60 \%$ | $57 \%$ |

1. What is the total number of female employees of category E4 in Company A?
(a) 975
(b) 468
(c) 507
(d) 864
(e) None of these
2. What is the average number of male employees of all categories in Company B?
(a) 722
(b) 756
(c) 764
(d) 775
(e) 786
3. What is the difference between the total number of male and female employees in Company A?
(a) 156
(b) 160
(c) 162
(d) 168
(e) 172
4. The total number of female employees in categories E1, E2 and E3 together in Company B is what percentage of the total employees in Company B?
(a) $24 \%$
(b) $26.5 \%$
(c) $27.5 \%$
(d) $28.5 \%$
(e) $32.5 \%$
5. The total male employees of category E5 and E6 in Company B is approximately what percentage more than the total male employees of category E4 and E5 in Company A?
(a) $11 \%$
(b) $13 \%$
(c) $15 \%$
(d) $17 \%$
(e) $19 \%$

Q6. A pharmaceutical company received Rs. 3 million in royalties on the first Rs. 20 million in sales of the generic equivalent of one of its products and then Rs. 9 million in royalties on the next Rs. 108 million in royalties on the next Rs. 108 million in sales. By approximately what percent did the ratio of royalties to sales decrease from the first Rs. 20 million in sales to the next Rs. 108 million in sales?
(a) $10.27 \%$
(b) $20.63 \%$
(c) $38.6 \%$
(d) $44.44 \%$
(e) None Of these.

Q7. In Chittaranjan, only two newspapers Jan Jagran and Jan Khabar are published. It is known that $25 \%$ of the city population reads Jan Jagran and 20\% reads Jan Khabar while $8 \%$ reads both the newspapers. It is also known that $30 \%$ of those who read Jan Jagran but not Jan Khabar look into advertisement and 40\% of those who read Jan Khabar but not Jan Jagran look into advertisement while $50 \%$ of those who read both the newspapers look into advertisements. What is the percentage of the population who read an advertisement?
(a) $13.9 \%$
(b) $15.8 \%$
(c) $17.2 \%$
(d) $21.4 \%$
(e) None of these

Q8. In my office, at least $50 \%$ of the people read an enewspaper. Among those who read an e-newspaper, at most $25 \%$ read more than one e-paper. Only one of the following statements follows from the statements given below. Which one is it?
(a) At the most $37.5 \%$ read exactly one e-paper.
(b) At least $37.5 \%$ read exactly one e-paper.
(c) At the most $19.8 \%$ read exactly one e-paper.
(d) At least $19.8 \%$ read exactly one e-paper.
(e) none of these

Q9. In Times Model School, 60\% of the students are boys. In an aptitude test, $80 \%$ of the girls scored more than 40 marks (out of a maximum possible 150 marks). If $60 \%$ of the total students scored more than 40 marks in the same test, find the fraction of the boys who scored 40 marks or less?
(a) $3 / 5$
(b) $6 / 7$
(c) $5 / 7$
(d) $7 / 15$
(e) none of these

Q10. In a recent opinion poll held during April, $60 \%$ of the respondents favoured India Against Corruption (IAC) while the rest favoured Indian political parties (IPP). It was found in May polls that $10 \%$ of IAC supporters switched their preference to IPP, while the same percentage of IPP's supporters also switched their preference to IAC. What percentage of the electorate should now switch their preference from IAC to IPP so that they are equal?
(a) $14 \%$
(b) $19 \%$
(c) $24 \%$
(d) $29 \%$
(e) None of these

Directions: For the two given equations I and II.
Give answer:
(a) If $p$ is greater than $q$.
(b) If $p$ is smaller than $q$.
(c) If $p$ is equal to $q$.
(d) If $p$ is either equal to or greater than $q$.
(e) If $p$ is either equal to or smaller than $q$.

Q11.
I. $6 p^{2}+5 p+1=0$
II. $20 q^{2}+9 q=-1$

Directions: study the following graph carefully to answer the given questions

12. If the quantity sold of item $D$ increases by $50 \%$ and the price reduces by $10 \%$, then what is the total value of the quantity sold of item D?
(a) 675
(b) 6750
(c) 67550
(d) 67500
(e) None of these
13. Approximately, what is the average price per kg of item

A, B and C?
(a) 9.50
(b) 8
(c) 7.50
(d) 9
(e) 11.66
14. What is the ratio of the total value of quantity sold of item $E$ to that of item $F$ ?
(a) $15: 14$
(b) $3: 2$
(c) $5: 7$
(d) $7: 5$
(e) None of these
15. The value of the quantity sold of item $C$ is what percent of the total value of the quantity sold of item $E$ ?
(a) $111 \%$
(b) $85 \%$
(c) $90 \%$
(d) $87.5 \%$
(e) None of these

S6. Ans. (d)
Sol. The ratio of royalties to sales for the first Rs. 20 million in sales is $3 / 20$, and the ratio of royalties to sales for the next Rs. 108 million in sales is $9 / 108=1 / 12$. The percent decrease in the royalties to sales ratios is

$$
\begin{aligned}
& \frac{\frac{1}{12}-\frac{3}{20}}{\frac{3}{20}} \times 100=\left(\frac{1}{12}-\frac{3}{20}\right) \times \frac{20}{3} \times 100 \\
& =\left(\frac{5-9}{60}\right) \times \frac{20}{3} \times 100 \\
& =\frac{-4}{60} \times \frac{20}{3} \times 100=\frac{-4}{9} \times 100 \\
& =-0.4444 \times 100=-44.44 \\
& =44.44 \% \text { decrease }
\end{aligned}
$$

## S7. Ans. (a)

Sol. Let the population of the city be 100 . Then,
People reading Jan Jagran=25
People reading Jan Khabar=20
People reading both $=8$
People reading only Jan Jagran=17
People reading only Jan Khabar=12
Therefore, required percentage of people who read an advertisement=(5.1+4.8+4)=13.9\%.

S8. Ans.(b)
Sol. Let the number of people in my office=100 At least 50 people read an e-newspaper.
At most 12.5 people read more than one e-newspaper. Therefore, at least 37.5 people read only one enewspaper.
Hence, at least $37.5 \%$ read exactly one e-newspaper.
S9. Ans. (d)
Sol. Let the total number of students be y . Then,
Number of boys=3y/5
Number of girls=2y/5
Number of girls scoring more than 40
marks $=4 / 5 \times 2 \mathrm{y} / 5=8 \mathrm{y} / 25$
Total number of students scoring more than 40 marks=3y/5
$\therefore$ Required fraction $=7 / 25 \times 5 / 3=7 / 15$
Hence, the fraction of the boys who scored 40 marks or less is $7 / 15$.

S10. Ans. (a)
Sol. Let the total number of respondents=100
People favoured IAC=60
People favoured IPP=40
New no. of people favouring IAC $=60+4-6=58$
New no. of people favouring IPP $=40+6-4=42$
Required percentage $=(58-50)^{*} 100 / 58=14 \%$ Approx
S11. Ans.(b)
Sol. I. $6 p^{2}+5 p+1=0$
$(3 p+1)(2 p+1)=0$
$p=-1 / 3,-1 / 2$
II. $20 q^{2}+9 q+1=0$
$(4 q+1)(5 q+1)=0$
$q=-1 / 4,-1 / 5$
$\therefore p<q$

12 d.

Quantity of $D=\frac{40 \times 150}{100}=60$ quintals
Price of $\mathrm{D}=\frac{12.5 * 90}{100}=$ Rs 11.25 per kg
Required amount $=60 * 100 * 11.25=$ Rs 67500
13. e

Average price $=\frac{17.5+10+7.5}{3}=\frac{35}{3}=R s 11.66$
14. a

Required ratio $=\frac{15 * 25 * 100}{35 * 10 * 100}=15: 14$
15. c.

Required $\%=\frac{45 * 7.5 * 100}{25 * 15 * 100} * 100=90 \%$

