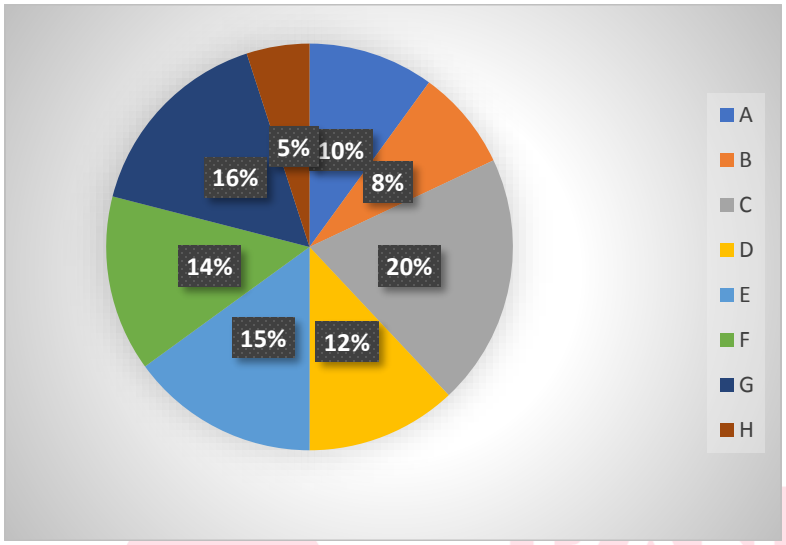
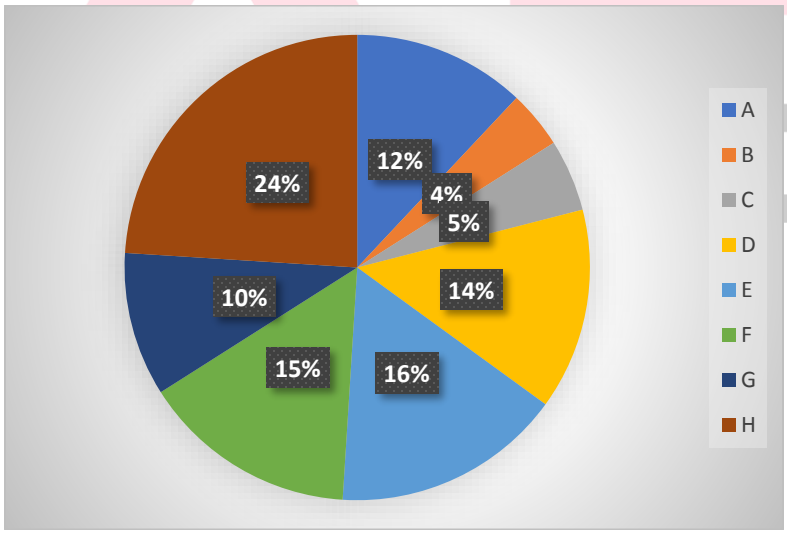
Quiz Date: 30th May 2020

Directions (1-5): The following pie-chart shows the distribution of the number of mobiles of different models produced by a Company in 2005 and 2010.



Total models in the year 2005 = 32000



Total models in the year 2010 = 60000

Q1. What is the difference between the central angle made by mobiles of Model D, E and F in the year 2005 and central angle made by models of Model A, C and G in the year 2010?
(a)47.6°
(b)58.2°
(c)64°
(d)67.5°
(e)50.4°

Q2. What is the percentage increase in number of mobiles of Model A and Model B together produced by the company from 2005 to year 2010?
(a)75%
(b)90%
(c)112.5%
(d)66.67%
(e)137.5%

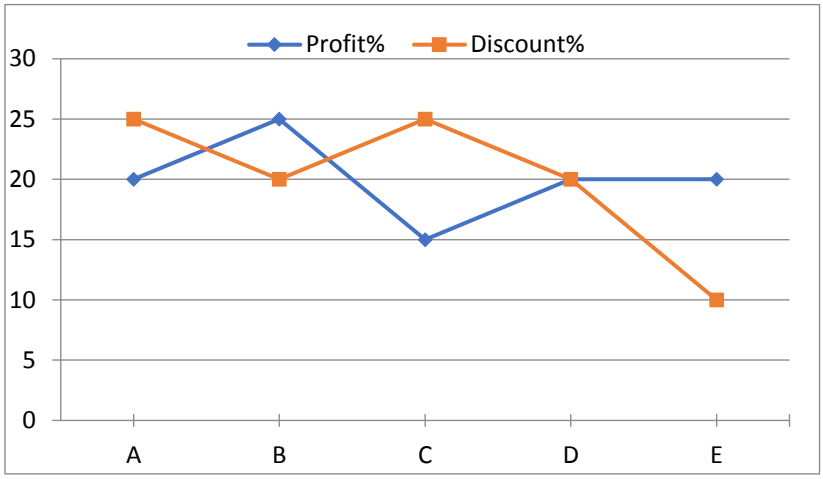
Q3. What is the ratio of the sum of number of mobiles of model D, E and F together in the year 2005 to the number of mobiles of model F, G and C in the year2010?
(a)164:225
(b)225:164
(c)150:38
(d)16:450
(e)None of these

Q4. The number of mobiles of Model A, B and D in the year 2010 is approximately what percent of the number of mobiles of Model C, G and H models in the year 2005?
(a)125%
(b)130%
(c)137%
(d)150%
(e)155%

Q5. The number of mobiles of Model G and model C in the year2005 is what percentage more than the number of same-model mobiles in 2010?
(a)12%
(b)17%
(c)24%
(d)28%
(e)35%

Directions (6-10): Line graph shows the profit % on CP of items (A, B, C, D& E) and discount% on MP of items.

Table shows number of items of each type shopkeeper have in IInd column and IIIrd column shows either MP or CP of item. Don't assume unless it is mentioned in that question. MP, CP and SP stands for Marked price, cost price and selling price of item respectively.



Items	Number of items	MP or CP (in Rs.)
A	50	160
B	100	80
C	50	184
D	200	110
E	150	200

Q6. If MP of item A is shown and CP of item D is shown, then calculate the ratio of SP of item A to SP of item D.
(a) 9 : 11
(b) 11 : 7
(c) 7 : 11
(d) 10 : 11
(e) 11 : 8

Q7. If shopkeeper bought 50 items of C for Rs. 6000, and a person bought all of the items of C from him, then calculate the total amount of discount obtained by that person.
(a) 2300
(b) 46
(c) can't be determined
(d) 900
(e) 3200

Q8. Let X be ratio of MP of 1 item to total SP of 2 items and Y be ratio of total MP of the 2 items to total CP of 3 items. Calculate Y : X of item E.
(a) 5 : 9

(b) 8 : 5
(c) can't be determined
(d) 9 : 5
(e) 7 : 5

Q9. X is MP of item B when CP is given in table and Y is CP of item A when MP is given in table. Calculate X : Y.
(a) 4 : 5
(b) 8 : 5
(c) 6 : 1
(d) 5 : 8
(e) 5 : 4

Q10. Discount given on per item of B is Rs. 25. Calculate overall amount obtained if he sold all the items.
(a) 8000
(b) 12500
(c) 9500
(d) 10000
(e) can't be determined

Directions (11-15): In each of these questions, two equations (I) and (II) are given. You have to solve both the equations and give answer
(a) if x < y
(b) if x ≤ y
(c) if x = y or no relation can be established
(d) if x > y
(e) if x ≥ y

Q11. I. $7x + 3y = 77$
II. $2x + 5y = \sqrt{2601}$

Q12. I. $3x^2 - \left(6 + \sqrt{17}\right)x + 2\sqrt{17} = 0$
II. $10y^2 - \left(18 + 5\sqrt{17}\right)y + 9\sqrt{17} = 0$

Q13. I. $20x^2 - 9x + 1 = 0$

II. $12y^2 - 7y + 1 = 0$

Q14. I. $12x^2 = 6x$
II. $y + x^2 = 0.45$

Q15. I. $6x^2 + 31x + 35 = 0$
II. $2y^2 + 3y + 1 = 0$

Solutions

S1. Ans.(e)
Sol. Required difference= $\frac{12+15+14}{100} \times 360 - \frac{(12+5+10)}{100} \times 360 = \frac{14}{100} \times 360 = 50.40$

S2. Ans.(d)
Sol. Model A and model B mobiles produced by the company in 2005 $= \frac{18}{100} \times 32000 = 5760$
Model A and model B mobiles produced by the company in 2010 $= \frac{12+4}{100} \times 60000 = 9600$
∴Required % $= \frac{9600-5760}{5760} \times 100 = 66.67\%$

S3. Ans.(a)
Sol. Required Ratio $= \frac{(12+15+14)\times 32}{(15+10+5)\times 60}$
$= \frac{41\times 8}{30\times 15} = \frac{41\times 4}{15\times 15} = 164 : 225$

S4. Ans.(c)
Sl. Required % $= \frac{\frac{12+4+14}{100}\times 60000}{\frac{20+16+5}{100}\times 32000} \times 100$
$= \frac{30\times 60}{41\times 32} \times 100 = 137.2\% \approx 137\%$

S5. Ans.(d)
Sol. Mobiles of model G and C in the year 2005 $= \frac{16+20}{100} \times 32000 = 11520$
Mobiles of model G and C in the year 2010 $= \frac{15}{100} \times 60{,}000 = 9000$
∴ Required % $= \frac{11520-9000}{9000} \times 100 = 28\%$

S6. Ans.(d)
Sol.
MP of item A = Rs. 160
SP of item A = $\left(\frac{100-25}{100}\right) \times 160$ = Rs. 120, [Discount % is shown 25% in graph]
CP of item D = 110
Profit % is 20%, therefore SP of item D
= $\left(\frac{100+20}{100}\right) \times 100 = 132.$
Required ratio

120 : 132 = 10 : 11

S7. Ans.(a)
Sol.
50 items of C were bought for Rs. 6000.
CP for 1 item is Rs. 120.
SP of item C = $\left(\frac{100+15}{100}\right) \times 120$ = Rs. 138
SP of 50 item of C = 138 × 50 = Rs. 6900
Discount % for item C is shown 25%, therefore we can calculate MP of 1 item is Rs 184.
MP of 50 items of C = 184 × 50 = 9200
Hence, total amount of discount obtained by person is Rs. 9200- Rs. 6900= Rs 2300.

S8. Ans.(b)
Sol.
Let CP of item E is 'm'
Then
SP = $\left(\frac{100+20}{100}\right)$ m = $\frac{6}{5}$ m
MP $\left(\frac{100-10}{100}\right) = \frac{6}{5}$ m
MP = $\frac{6}{5}$m × $\frac{10}{9} = \frac{4}{3}$ m

X = $\frac{4}{3}$m : 2 × $\frac{6}{5}$m	Y = 2 × $\frac{4}{3}$m : 3 m
= $\frac{1}{3}$: $\frac{3}{5}$	Y = 8 : 9
= 5 : 9	

$\frac{Y}{X} = \frac{8}{9} \times \frac{9}{5} = \frac{8}{5}$

S9. Ans.(e)
Sol.
MP of item B can be calculated after calculating SP of Item B.
SP of item B = 80 × $\left(\frac{100+25}{100}\right)$ = 100
This SP is obtained after having discount of 20%, therefore
MP of item B = 100 × $\frac{100}{80}$
= Rs. 125 = X
CP of item A (Y):

MP = 160
After discount of 25%
SP = $\frac{75}{100} \times 160 = 120$
This SP is obtained after a profit of 20% therefore
CP = $120 \times \frac{100}{120}$
= 100 = Y
X : Y = 5 : 4

S10. Ans.(d)
Sol.
Discount% for item B is given 20%
It means 20% of MP = Rs. 25
100% of MP = Rs. 125
∴ SP of item = 125 – 25 = Rs. 100
SP of 100 items = Rs. 10000

S11. Ans.(d)
Sol.
I. $7x + 3y = 77$ ....(i)
II. $2x + 5y = \sqrt{2601}$ ...(ii)
Solving (i) & (ii)
$7x + 3y = 77$
$2x + 5y = 51$
$y = 7$
$x = 8$
So $x > y$

S12. Ans.(c)
Sol.
I. $3x^2 - (6 + \sqrt{17})x + 2\sqrt{17} = 0$
$3x^2 - 6x - \sqrt{17}x + 2\sqrt{17} = 0$
$3x\ (x - 2) - \sqrt{17}(x - 2) = 0$
$x = 2, \frac{\sqrt{17}}{3}$
II. $10y^2 - (18 + 5\sqrt{17})y + 9\sqrt{17} = 0$
$10y^2 - 18y - 5\sqrt{17}y + 9\sqrt{17} = 0$
$2y(5y - 9) - \sqrt{17}(5y - 9)$
$y = \frac{\sqrt{17}}{2}, \frac{9}{5}$
So no Relation can be established

S13. Ans.(b)
Sol.

I. $20x^2 - 9x + 1 = 0$
$20x^2 - 4x - 5x + 1 = 0$
$4x(5x - 1) - 1(5x - 1) = 0$
$x = \frac{1}{5}, \frac{1}{4}$
II. $12y^2 - 7y + 1 = 0$
$12y^2 - 4y - 3y + 1 = 0$
$4y(3y - 1) - 1(3y - 1) = 0$
$y = \frac{1}{3}, \frac{1}{4}$
So $y \geq x$

S14. Ans.(c)
Sol.
I. $12x^2 = 6x$
$12x^2 - 6x = 0$
$6x(2x - 1) = 0$
$x = \frac{1}{2}, 0$
II. $y + x^2 = 0.45$
Case I (putting value of $x = 0$)
$y + 0 = 0.45$
$y = 0.45$
No relation
Case II (putting value of $x = 0.5$)
$y + \frac{1}{4} = 0.45$
$y = .20$
So No relation can be established

S15. Ans.(a)
Sol.
I. $6x^2 + 31x + 35 = 0$
$6x^2 + 21x + 10x + 35 = 0$
$3x(2x + 7) + 5(2x + 7) = 0$
$x = \frac{-5}{3}, \frac{-7}{2}$
II. $2y^2 + 3y + 1 = 0$
$2y^2 + 2y + y + 1 = 0$
$2y(y + 1) + 1(y + 1) = 0$
$y = -1, \frac{-1}{2}$
So $y > x$