Radar Graph

Solution

1. Answer: (C)
From the given graph it is clear that,
∵ Percentage of Q students who passed = 20%
∴ Percentage Q of students who failed = 100 – 20 = 80%
∴ No. of students who failed are = (80/100) ×1200 thousand
= 960 thousand.

2. Answer: (C)
⇒ Passed student in 'Q' = (20/100) ×1200 = 240 thousands,
⇒ Passed students in 'R' = (50/100) × 800 = 400 thousands,
∴ Total = (240 + 400) thousand
= 640 thousands.

3. Answer: (B)
⇒ Students passed in state 'S' = 80% of 200 = 80/100×200
⇒ Students failed in state 'S' = 20% of 200 = 20/100×200
∴ Required ratio = 80/20 = 4/1
⇒ Ratio = 4 : 1.

4. Answer: (C)
⇒ Students passed in state 'T' = 30% of 1400 = 30/100×1400
= 420 thousands.
⇒ Students failed in state 'Q'
= 80/100×1200
= 960 thousands.
∴ Required ratio = (420/960) = 7/16
⇒ Ratio = 7 : 16

5. Answer: (C)
⇒ Total number of students passed in the states 'R' and 'T'
= (50/100×800+30/100×1400)thousands
= 400 + 420
= 820 thousands.

6. Answer: (D)
From the given data,
Total number of votes acquired by A during 2008-2012 (in lakhs) = 2.4 + 2.8 + 3.35 + 4.4 + 4.45 = 17.4
Average number of votes acquired by A during 2008-2012 (in lakhs) = 17.4/5 = 3.48
Total number of votes acquired by B during 2008-2012 (in lakhs) = 3.8 + 3.4 + 4.3 + 4.2 + 4.1 = 19.8
Average number of votes acquired by B during 2008-2012 (in lakhs) = 19.8/5 = 3.96
Required percentage = $\frac{3.96-3.48}{3.48} \times 100 = 13.79 \approx 14$

7. Answer: (B)
From the given data,
Number of votes acquired by A in 2012 (in lakhs) = 4.45
Number of votes acquired by C in 2012 (in lakhs) = 1.8
Required ratio of votes in 2013 (C : A) = 3 : 2
Total number of votes required by C in 2013 (in lakhs) =3/2×4.45=6.675
Number of votes required in 2013 than in 2012 (in lakhs) = 6.675 – 1.8 = 4.875

8. Answer: (E)
From the given data,
Total number of votes acquired by B during 2008-2011 (in lakhs) = 3.8 + 3.4 + 4.3 + 4.2 = 15.7
Average number of votes acquired by B during 2008-2011 (in lakhs) = 15.7/4 = 3.925
Number of votes acquired by B during 2012 (in lakhs) = 4.1
Required % to maintain average Click and drag to move=
$\frac{3.925-4.1}{4.1} \times 100 = -4.3$
Negative sign shows the % should be decreased.

∴ the votes of B in 2012 should decrease by 4.3% in 2012 in order to maintain the average

9. Answer: (C)

From the given data,
Number of votes acquired by B in 2011 (in lakhs) = 4.2
Number of votes 12% more than that acquired by B(in lakhs) = 4.2 + (12% of 4.2) = 4.704
Number of votes acquired by C in 2011 (in lakhs) = 2.6
Minimum % increase required by C to exceed number of votes of B
$= \frac{4.704-2.6}{2.6} \times 100 = 80.9\%$

10. Answer: (B)

From the given data,
Total number of votes acquired by all the three parties in 2009 (in lakhs) = 2.8 + 3.4 + 2.2 = 8.4
Number of votes acquired by B in 2009 (in lakhs) = 3.4
Required percentage = $\frac{3.4}{8.4} \times 100 = 40.05\%$

11. Answer: (B)

We know that
% profit = (Income – Expenditure)/Expenditure x 100
Percent profit earned by HBK in 2014 = (80000 – 50000)/50000 x 100
= 30000/50000 x 100
= 60%
Percent profit earned by RTG in 2016 = (140000 – 125000)/125000 x 100
= 15000/125000 x 100
= 12%
Required percentage = (60 – 12)/12 x 100
= 48/12 x 100
= 400%

12. Answer: (C)

We know that
% profit = (Income – Expenditure)/Expenditure x 100
Percent profit earned by RTG in 2015 = (120000 – 90000)/90000 x 100
= 30000/90000 x 100
= 100/3%
Income of RTG in 2017 = 120000 x 120/100
= Rs.144000
Expenditure of RTG in 2017 = 90000 x 90/100 = Rs.81000
Percent profit earned by RTG in 2017 = (144000 – 81000)/81000 x 100
= 63000/81000 x 100
= 700/9%
Required ratio = 100/3: 700/9
= 3:7

13. Answer: (B)

Income of HBK in all the years together = 140000 + 160000 + 80000 + 120000 + 60000 = Rs.560000
Expenditure of RTG in all the years together = 85000 + 60000 + 135000 + 90000 + 125000
= Rs.495000
Required difference = 560000 – 495000 = Rs.65000

14. Answer: (E)

We know that
% profit = (Income – Expenditure)/Expenditure x 100
Profit percent of HBK in 2012 = (140000 – 60000)/60000 x 100
= 80000/60000 x 100
= 400/3%
Profit percent of RTG in 2012 = (100000 – 85000)/85000 x 100
= 15000/85000 x 100
= 300/17%
Required percentage = (400/3)/(300/17) x 100
= 755.55%
= 756% approx.

15. Answer: (D)

Percentage decrease in the income of HBK from 2012 to 2016
= (140000 – 60000)/140000 x 100
= 80000/140000 x 100
= 57.14%

Percentage increase in the income of RTG from 2012 to 2016
= (140000 – 100000)/100000 x 100
= 40000/100000 x 100
= 40%
Intended sum = 57.14 + 40 = 97.14%

16. Answer: (A)
Total number of balls in Bag x
= 6+4+2+3=15
Ways of selection of two Pink balls
= n**(E)**= $^{6}C_{2}$
Ways of selection of two balls
= n(S) =$^{15}C_{2}$
So, probability = $^{6}C_{2}$ /$^{15}C_{2}$ = 6×5/15×14
= 1/7

17. Answer: (B)
Total number of balls=12
= $^{12}C_{3}$
Total number of balls = $^{4}C_{2}$= 6
Ways to pick one Brown balls = $^{5}C_{1}$= 5
Probability = 6×5/220 = 3/22

18. Answer: (C)
Ways of selection of 4 balls= $^{15}C_{4}$
Ways of selection of one Brown ball= $^{2}C_{1}$
Ways of selection of one Brown ball= $^{4}C_{2}$
Ways of selection of one Pink ball= $^{6}C_{1}$
Probability = 24/455

19. Answer: (A)
Total balls=12
Total outcomes=$^{12}C_{2}$
Favorable outcomes= $^{2}C_{2}$ =1
Probability= 1/66

20. Answer: (D)
Total Ways to select two Brown balls= $^{2}C_{2}$
Total Ways to select two Orange balls= $^{3}C_{2}$
Probability of both Brown balls= 1 / $^{15}C_{2}$
Probability of both Orange balls= 3 / $^{15}C_{2}$
Probability = 1 / ($^{15}C_{2}$ + 3 / $^{15}C_{2}$)
= 4/105