

1
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FIRST YEAR HIGHER SECONDARY IMPROVEMENT EXAMINATION
ANSWER KEY
PART III
OCTOBER 2022

CODE: F.Y. ~~854~~ 854

VERSION: A

SCORE: 60

SUB. MATHEMATICS (SCIENCE) Time: 2 hrs 30 mts

| Qn No. | Sub Qns | Answer key | Score | Total Score |
|--------|---------|---|---------------|-------------|
| 1. | (i) | ${}^6P_3 - {}^5P_2 = 6 \times 5 \times 4 - 5 \times 4$ $= 20(6-1) = 100$ | $\frac{1}{2}$ | |
| | (ii) | No of words = $\frac{4!}{2!}$ $= \frac{4 \times 3 \times 2 \times 1}{1 \times 2} = 12$ | $\frac{1}{2}$ | |
| | | | 1 | 3 |
| 2. | (i) | $\frac{x}{3} \geq \frac{x}{2} + 1$ $\frac{x}{3} \geq \frac{x+2}{2}$ $2x \geq 3x+6$ $2x-3x \geq 6$ $-x \geq 6$ $x \leq -6$ | $\frac{1}{2}$ | |
| | (ii) | | $\frac{1}{2}$ | |
| | | | 1 | 3 |
| 3. | (i) | $\sin x = -\sqrt{1 - \cos^2 x}$ $= -\sqrt{1 - \left(-\frac{3}{5}\right)^2}$ $= -\sqrt{1 - \frac{9}{25}}$ $= -\sqrt{\frac{16}{25}} = -\frac{4}{5}$ | $\frac{1}{2}$ | |
| | | Remark: Any other method give 1 score | $\frac{1}{2}$ | |

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| Qn No. | Sub Qns | Answer key | Score | Total Score |
|--------|-------------|--|-------------------------------------|-------------|
| | (ii) | $\tan\left(\frac{19\pi}{3}\right) = \tan\left(\frac{18\pi + \pi}{3}\right)$ $= \tan\left(6\pi + \frac{\pi}{3}\right)$ $= \tan\left(\frac{\pi}{3}\right) = \sqrt{3}$ | $\frac{1}{2}$ $\frac{1}{2}$ 1 | 3 |
| 4. | (i) (ii) | (a) $(x+1)^2$ The graph of x^2 is shifted 1 units to the left. | 1 2 | 3 |
| 5. | | $\left(x^2 + \frac{3}{x}\right)^4 = (x^2)^4 + 4(x^2)^3 \times \frac{3}{x} + 6(x^2)^2 \left(\frac{3}{x}\right)^2$ $+ 4(x^2) \left(\frac{3}{x}\right)^3 + \left(\frac{3}{x}\right)^4$ $= x^8 + 12x^6 \times \frac{1}{x} + 6x^4 \frac{9}{x^2}$ $+ 4x^2 \times \frac{27}{x^3} + \frac{81}{x^4}$ $= x^8 + 12x^5 + 54x^2 + \frac{108}{x} + \frac{81}{x^4}$ | 2 $\frac{1}{2}$ $\frac{1}{2}$ | 3 |

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ANSWER KEY

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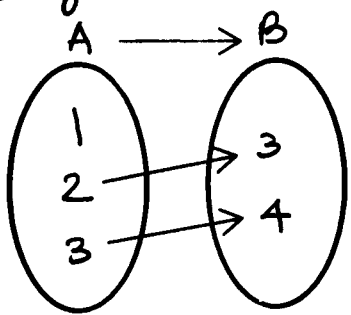
| Qn No. | Sub Qns | Answer key | Score | Total Score |
|--------|---------|--|----------------------|-------------|
| 6. | (i) | $6x + 5y - 5 = 0$ $5y = -6x + 5$ $y = -\frac{6}{5}x + \frac{5}{5}$ $\text{slope} = -\frac{6}{5}$ <p>Remark: Any other method give 1 Score.</p> | 1/2 1/2 | |
| | (ii) | $\text{Distance} = \left \frac{6(1) + 5(1) - 5}{\sqrt{(6)^2 + (5)^2}} \right $ $= \left \frac{6 + 5 - 5}{\sqrt{36 + 25}} \right $ $= \frac{6}{\sqrt{61}}$ | 1 1/2 1/2 | 3 |
| 7. | (i) | <p>Equation of the circle is</p> $(x - (-1))^2 + (y - 2)^2 = 5^2$ $x^2 + 2x + 1 + y^2 - 4y + 4 = 25$ $x^2 + y^2 + 2x - 4y + 5 = 25$ $x^2 + y^2 + 2x - 4y - 20 = 0$ | 1 1 1/2 1/2 | 3 |

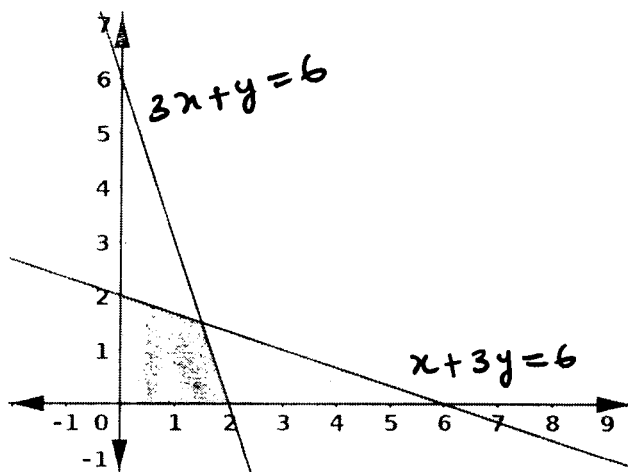
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| Qn No. | Sub Qns | Answer key | Score | Total Score |
|--------|---------|--|--|-------------|
| 8. | (i) | <u>VIII</u> Octant or xOy^1z^1 | 1 | |
| | (ii) | $\text{Distance} = \sqrt{(3-4)^2 + (-1-3)^2 + (-2-1)^2}$ $= \sqrt{(-1)^2 + (-4)^2 + (-3)^2}$ $= \sqrt{1+16+9} = \sqrt{26}$ | 1 1 | 3 |
| 9. | (i) | $\lim_{x \rightarrow 3} (x^2 - 4) = (3)^2 - 4$ $= 9 - 4 = 5$ | $\frac{1}{2}$ $\frac{1}{2}$ | |
| | (ii) | $\lim_{x \rightarrow 2} \left(\frac{x^2 - 4}{x - 2} \right) = \lim_{x \rightarrow 2} \frac{(x-2)(x+2)}{(x-2)}$ $= \lim_{x \rightarrow 2} (x+2)$ $= 2 + 2 = 4$ | 1 $\frac{1}{2}$ $\frac{1}{2}$ | 3 |
| 10. | | $z = -1 + i\sqrt{3}$ $r = \sqrt{(-1)^2 + (\sqrt{3})^2}$ $= \sqrt{1+3} = \sqrt{4} = 2$ $\tan \alpha = \left \frac{\sqrt{3}}{-1} \right = \sqrt{3}$ $\Rightarrow \alpha = \frac{\pi}{3}$ <p>Here z lies in the second quadrant.</p> $\theta = \pi - \alpha = \pi - \frac{\pi}{3} = \frac{2\pi}{3}$ $-1 + i\sqrt{3} = r(\cos \theta + i \sin \theta)$ $= 2 \left(\cos \frac{2\pi}{3} + i \sin \frac{2\pi}{3} \right)$ <p>Remark: Any other method give 3 score.</p> | 1 $\frac{1}{2}$ $\frac{1}{2}$ 1 | 3 |

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| Qn No. | Sub Qns | Answer key | Score | Total Score |
|--------|---------|--|--|-------------|
| 11. | (i) | Not a statement. Since x and y are not known. It can be zero or not. | 1 | |
| | (ii) | Converse: 'If a triangle is isosceles, it is equilateral.' Contrapositive: 'If a triangle is not isosceles, it is not equilateral.' | 1 | 3 |
| 12. | (i) | Range = $13 - 4 = 9$ | 1 | |
| | (ii) | $\bar{x} = \frac{6+7+10+12+13+4+8+12}{8}$ $= \frac{72}{8} = 9$ $ x_i - \bar{x} : 3, 2, 1, 3, 4, 5, 1, 3$ Mean deviation about mean $= \frac{\sum x_i - \bar{x} }{8}$ $= \frac{22}{8} = 2.75$ | $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ | 3 |
| 13. | (i) | $B = \{2, 3, 5, 7\}$ | 1 | |
| | (ii) | $A - B = \{4, 6\}$ $A \cup B = \{2, 3, 4, 5, 6, 7\}$ $(A \cup B)' = \{1, 8, 9, 10\}$ | 1 1 1 | 4 |

| Qn No. | Sub Qns | Answer key | Score | Total Score |
|--------|---------|--|-------------|-------------|
| 14. | (i) | No of Subsets = $2^3 = 8$ | 1 | |
| | (ii) | $n(E \cup F) = 55$ $n(E) = 29$ $n(F) = 30$ $n(E \cup F) = n(E) + n(F) - n(E \cap F)$ $55 = 29 + 30 - n(E \cap F)$ $n(E \cap F) = 59 - 55 = 4$ | 1 1 1 | 4 |
| 15. | (i) | $A = \{1, 2, 3\}$, $B = \{3, 4\}$ $A \times B = \{(1, 3), (1, 4), (2, 3), (2, 4), (3, 3), (3, 4)\}$ | 1 | |
| | (ii) | $x = 2 \Rightarrow y = 3$ | 1 | |
| | (a) | $x = 3 \Rightarrow y = 4$  | 1 | |
| | (b) | Not a function. Since 1 do not have an image. | 1 | 4 |
| 16. | (i) | $(3 - 4i)(-2 + i) = -6 + 3i + 8i - 4i^2$ $= -6 + 11i + 4$ $= -2 + 11i$ | 1 1 | |

| Qn No. | Sub Qns | Answer key | Score | Total Score | | | | | | | | | | | | |
|--------|-----------------------------------|---|-----------------------------------|-------------|---|---|---|---|---|---|---|---|---|---|--|---|
| | (ii) | $x^2 + x + 1 = 0$ $x = \frac{-1 \pm \sqrt{(1)^2 - 4 \times 1 \times 1}}{2 \times 1}$ $= \frac{-1 \pm \sqrt{-3}}{2}$ $= \frac{-1 \pm i\sqrt{3}}{2}$ | 1 1 | 4 | | | | | | | | | | | | |
| 17. | | $x + 3y = 6$ <table border="1" data-bbox="279 806 518 907"> <tr><td>x</td><td>0</td><td>6</td></tr> <tr><td>y</td><td>2</td><td>0</td></tr> </table> $3x + y = 6$ <table border="1" data-bbox="279 1019 518 1131"> <tr><td>x</td><td>0</td><td>2</td></tr> <tr><td>y</td><td>6</td><td>0</td></tr> </table>  <p>Remark: Drawing axis give 1 score. Drawing lines give 2 score.</p> | x | 0 | 6 | y | 2 | 0 | x | 0 | 2 | y | 6 | 0 | | 4 |
| x | 0 | 6 | | | | | | | | | | | | | | |
| y | 2 | 0 | | | | | | | | | | | | | | |
| x | 0 | 2 | | | | | | | | | | | | | | |
| y | 6 | 0 | | | | | | | | | | | | | | |
| 18. | (i) (ii) (a) (b) | $n = 8 + 2 = 10$ ${}^{10}C_3 = \frac{10 \times 9 \times 8}{1 \times 2 \times 3} = 120$ $\text{No of committees} = {}^7C_4$ $= \frac{7 \times 6 \times 5 \times 4}{1 \times 2 \times 3 \times 4} = 35$ At least two men $= {}^3C_2 \times {}^4C_2 + {}^3C_3 \times {}^4C_1$ $= \frac{3 \times 2}{1 \times 2} \times \frac{4 \times 3}{1 \times 2} + 1 \times 4 = 22$ | 1 1/2 1/2 1 1 | 4 | | | | | | | | | | | | |

| Qn No. | Sub Qns | Answer key | Score | Total Score |
|--------|---------|--|--|-------------|
| 19. | (i) | $t_{r+1} = {}^n C_r a^{n-r} b^r$ $= {}^9 C_r (x^2)^{9-r} \left(-\frac{1}{x}\right)^r$ $= {}^9 C_r x^{18-2r} (-1)^r x^{-r}$ $= {}^9 C_r x^{18-3r} (-1)^r$ | $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ | |
| | (ii) | <p>For term independent of x</p> $18 - 3r = 0$ $-3r = -18$ $r = 6$ $t_{6+1} = {}^9 C_6 (-1)^6 = {}^9 C_6$ | $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ 1 | 4 |
| 20. | (i) | $a_4 = 43, a_7 = 76$ $76 - 43 = (7 - 3)d$ $33 = 3d$ $\Rightarrow d = 11$ <p>Remark: Any other method give 2 score.</p> | 1 $\frac{1}{2}$ $\frac{1}{2}$ | |
| | (ii) | $a + 3d = 43$ $a + 33 = 43$ $a = 10$ $S_{10} = \frac{10}{2} (2 \times 10 + 9 \times 11)$ $= 5(20 + 99)$ $= 5 \times 119 = 595$ | 1 $\frac{1}{2}$ $\frac{1}{2}$ | 4 |

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| Qn No. | Sub Qns | Answer key | Score | Total Score |
|--------|---------|--|--|-------------|
| 21. | | $S_n = 5 + 55 + 555 + \dots$ $= 5(1 + 11 + 111 + \dots)$ $= \frac{5}{9}(9 + 99 + 999 + \dots)$ $= \frac{5}{9}((10-1) + (100-1) + (1000-1) + \dots)$ $= \frac{5}{9}(10 + 10^2 + 10^3 + \dots - 1 - 1 - \dots)$ $= \frac{5}{9}\left(\frac{10(10^n - 1)}{10 - 1} - n\right)$ $= \frac{50}{81}(10^n - 1) - \frac{5}{9}n$ | $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ 1 1 | 4 |
| 22. | (i) | <p>Slope = $\frac{6 - (-2)}{3 - 2} = 8$</p> <p>Equation of line is</p> $y - (-2) = 8(x - 2)$ $y + 2 = 8x - 16$ $\Rightarrow 8x - y - 18 = 0$ | 1 1 $\frac{1}{2}$ $\frac{1}{2}$ | |
| | (ii) | $y = 8x + 18$ <p>y-intercept = 18</p> <p>Remark: Any other method give 1 score.</p> | $\frac{1}{2}$ $\frac{1}{2}$ | 4 |

| Qn No. | Sub Qns | Answer key | Score | Total Score |
|--------|---------|--|------------------|-------------|
| 23. | (i) | (d) YZ Plane | 1 | |
| | (ii) | $x = \frac{2 \times 3 + 3 \times 1}{2 + 3} = \frac{9}{5}$ $y = \frac{2 \times 4 + 3 \times (-2)}{2 + 3} = \frac{2}{5}$ $z = \frac{2 \times (-5) + 3 \times (3)}{2 + 3} = \frac{-1}{5}$ <p>Point of division is $\left(\frac{9}{5}, \frac{2}{5}, -\frac{1}{5}\right)$</p> | 1 1 1 | 4 |
| 24. | | <p>Assume that $\sqrt{2}$ is rational.</p> <p>$\Rightarrow \sqrt{2} = \frac{p}{q}$, p and q has no common factors.</p> $p^2 = 2q^2 \quad \text{--- ①}$ <p>$\Rightarrow 2$ divides p^2</p> <p>$\Rightarrow 2$ divides p.</p> <p>Then $p = 2c$</p> $\text{①} \Rightarrow (2c)^2 = 2q^2$ $4c^2 = 2q^2$ $\Rightarrow q^2 = 2c^2 \Rightarrow 2 \text{ divides } q^2$ <p>$\Rightarrow 2$ divides q.</p> <p>$\therefore 2$ is a common factor for p and q. which contradicts our assumption. Hence $\sqrt{2}$ is irrational.</p> | 1 1 1 1 | 4 |

| Qn No. | Sub Qns | Answer key | Score | Total Score |
|--------|---------|---|----------|-------------|
| 25. | (i) | $\cos 5x - \cos x$ $= -2 \sin \left(\frac{5x+x}{2} \right) \sin \left(\frac{5x-x}{2} \right)$ $= -2 \sin(3x) \sin(2x)$ | 1 | |
| | (ii) | $\sin x = \frac{1}{2}$ <p>Principle solutions are,</p> $\Rightarrow x = \frac{\pi}{6}, x = \pi - \frac{\pi}{6}$ $= \frac{5\pi}{6}$ <p>Remark: Any other method given 2 score.</p> | 1 | |
| | (iii) | $\cos A = \frac{b^2 + c^2 - a^2}{2bc}$ $= \frac{(24)^2 + (30)^2 - (18)^2}{2 \times 24 \times 30}$ $= \frac{576 + 900 - 324}{1440}$ $= \frac{1152}{1440} = \frac{4}{5}$ | 1 1/2 | 6 |
| 26. | (i) | $\text{LHS} = 1^2 + 2^2 + 3^2 = 14$ $\text{RHS} = \frac{3(3+1)(2 \times 3 + 1)}{6} = \frac{3 \times 4 \times 7}{6} = 14$ <p>Hence true for $n=3$</p> | 1 | |
| | (ii) | $n=1$ $\text{LHS} = 1^2 = 1$ $\text{RHS} = \frac{1(1+1)(2+1)}{6} = \frac{6}{6} = 1 \therefore \text{true for } n=1$ | 1 | |

| Qn No. | Sub Qns | Answer key | Score | Total Score |
|--------|---------|---|---|-------------|
| | | <p>Assume that $p(n)$ is true for $n=k$.</p> $P(k): 1^2 + 2^2 + \dots + k^2 = \frac{k(k+1)(2k+1)}{6}$ <p>Show that $p(n)$ is true for $n=k+1$</p> $P(k+1): 1^2 + 2^2 + \dots + k^2 + (k+1)^2$ $= \frac{k(k+1)(2k+1)}{6} + (k+1)^2$ $= \frac{k(k+1)(2k+1) + 6(k+1)^2}{6}$ $= \frac{(k+1)(k(2k+1) + 6(k+1))}{6}$ $= \frac{(k+1)(2k^2 + 7k + 6)}{6}$ $= \frac{(k+1)(k+2)(2k+3)}{6}$ <p>\therefore true for $n=k+1$.</p> <p>Hence by PMI $p(n)$ is true for all natural numbers.</p> | <p>1</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>6</p> | |
| 27. | (i) | <p>Given focus as $(0, 5)$</p> $\Rightarrow a = 5$ <p>standard equation is $y^2 = 4ax$</p> $\Rightarrow y^2 = 4 \times 5x$ $\Rightarrow y^2 = 20x$ | <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> | |

| Qn No. | Sub Qns | Answer key | Score | Total Score |
|--------|---------|--|---|-------------|
| | (ii) | <p>(a) $\frac{x^2}{25} + \frac{y^2}{9} = 1 \Rightarrow a = 5, b = 3$</p> <p>$\Rightarrow c^2 = a^2 - b^2$</p> <p>$c^2 = 25 - 9 = 16$</p> <p>$c = 4$</p> <p>Eccentricity = $\frac{c}{a} = \frac{4}{5}$</p> <p>(b) Foci: $(\pm c, 0) \Rightarrow (\pm 4, 0)$</p> <p>length of latus rectum = $\frac{2b^2}{a}$</p> <p>$= \frac{2 \times 9}{5} = \frac{18}{5}$</p> | <p>$\frac{1}{2}$</p> <p>1</p> <p>$\frac{1}{2}$</p> <p>$\frac{1}{2}$</p> <p>1</p> | 6 |
| 28. | (i) | <p>$y = x^3 + 5x^2 - 11$</p> <p>$\frac{dy}{dx} = 3x^2 + 10x$</p> | 1 | |
| | (ii) | <p>$y = x \sin x$</p> <p>$\frac{dy}{dx} = x \cos x + \sin x$</p> | 2 | |
| | (iii) | <p>$y = \frac{x-1}{x+1}$</p> <p>$\frac{dy}{dx} = \frac{(x+1) \times 1 - (x-1) \times 1}{(x+1)^2}$</p> <p>$= \frac{x+1 - x+1}{(x+1)^2} = \frac{2}{(x+1)^2}$</p> | 1 | 2 |
| | | | | 6 |

| Qn No. | Sub Qns | Answer key | Score | Total Score | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------|---------|--|-------------------|-------------|-----------|---------|-------------|----|---|-----|------|------|----|---|-----|------|-------|----|----|-----|------|-------|----|----|-----|------|-------|----|---|-----|------|-------|----|---|-----|------|-------|----|---|-----|------|-------|--|----|------|--|--------|------------------|---|
| 29. | | <table border="1"> <thead> <tr> <th>x_i</th> <th>f_i</th> <th>$x_i f_i$</th> <th>x_i^2</th> <th>$x_i^2 f_i$</th> </tr> </thead> <tbody> <tr> <td>35</td> <td>3</td> <td>105</td> <td>1225</td> <td>3675</td> </tr> <tr> <td>45</td> <td>7</td> <td>315</td> <td>2025</td> <td>14175</td> </tr> <tr> <td>55</td> <td>12</td> <td>660</td> <td>3025</td> <td>36300</td> </tr> <tr> <td>65</td> <td>15</td> <td>975</td> <td>4225</td> <td>63375</td> </tr> <tr> <td>75</td> <td>8</td> <td>600</td> <td>5625</td> <td>45000</td> </tr> <tr> <td>85</td> <td>3</td> <td>255</td> <td>7225</td> <td>21675</td> </tr> <tr> <td>95</td> <td>2</td> <td>190</td> <td>9025</td> <td>18050</td> </tr> <tr> <td></td> <td>50</td> <td>3100</td> <td></td> <td>202250</td> </tr> </tbody> </table> $\bar{x} = \frac{\sum x_i f_i}{\sum f_i} = \frac{3100}{50} = 62$ $\sigma^2 = \frac{\sum x_i^2 f_i}{\sum f_i} - (\bar{x})^2$ $= \frac{202250}{50} - (62)^2 = 201$ $\sigma = \sqrt{201} = 14.18$ | x_i | f_i | $x_i f_i$ | x_i^2 | $x_i^2 f_i$ | 35 | 3 | 105 | 1225 | 3675 | 45 | 7 | 315 | 2025 | 14175 | 55 | 12 | 660 | 3025 | 36300 | 65 | 15 | 975 | 4225 | 63375 | 75 | 8 | 600 | 5625 | 45000 | 85 | 3 | 255 | 7225 | 21675 | 95 | 2 | 190 | 9025 | 18050 | | 50 | 3100 | | 202250 | 3 1 1 1 | 6 |
| x_i | f_i | $x_i f_i$ | x_i^2 | $x_i^2 f_i$ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 35 | 3 | 105 | 1225 | 3675 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45 | 7 | 315 | 2025 | 14175 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 55 | 12 | 660 | 3025 | 36300 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 65 | 15 | 975 | 4225 | 63375 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 75 | 8 | 600 | 5625 | 45000 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 85 | 3 | 255 | 7225 | 21675 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 95 | 2 | 190 | 9025 | 18050 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 50 | 3100 | | 202250 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30. | (i) | <p>Define the following events.</p> <p>F: Event of student likes football.</p> <p>C: Event of student likes Cricket.</p> <p>$n(F) = 43$, $n(C) = 40$, $n(F \cap C) = 25$</p> <p>$n(F \cup C) = n(F) + n(C) - n(F \cap C)$</p> $= 43 + 40 - 25$ $= 68$ <p>$P(F \cup C) = \frac{68}{75}$</p> | 1/2 1/2 1/2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | (ii) | <p>$P(F' \cap C') = P[(F \cup C)'] = 1 - P(F \cup C)$</p> $= 1 - \frac{68}{75} = \frac{7}{75}$ | 1 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Qn No. | Sub Qns | Answer key | Score | Total Score |
|--------|---------|--|-------------------------------------|-------------|
| | (iii) | $n(C \cap F') = n(C) - n(C \cap F)$ $= 40 - 25 = 15$ $P(C \cap F') = \frac{15}{75} = \frac{3}{25}$ | $\frac{1}{2}$ $\frac{1}{2}$ 1 | 6 |
| | | | | |