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MM 30

Time 1 hour

Section A1 mark each

- On rationalizing the denominator $\frac{1}{n + \sqrt{n+1}}$ where $n = 5$ becomes
(a) $\frac{5 - \sqrt{6}}{19}$ (b) $5 + \sqrt{6}$ (c) $\frac{1}{5 + \sqrt{6}}$ (d) $\frac{1}{5 - \sqrt{6}}$
- Value of $(256)^{0.16} \times (256)^{0.09}$ is
(a) 4 (b) 16 (c) 64 (d) 256.25
- $\sqrt{8} \times \sqrt{6} \times \sqrt{27} =$
(a) 12 (b) 18 (c) 36 (d) 30

Section B 2 marks each

- Let x be rational and y be irrational. Is xy necessarily irrational? Justify your answer with an example.
- $\frac{1}{\sqrt{8} + \sqrt{32}}$ is equal to
(a) $\sqrt{2}$ (b) $-\sqrt{2}$ (c) $\frac{1}{\sqrt{2}}$ (d) $\frac{\sqrt{2}}{12}$
- $0.12\bar{3}$ in $\frac{p}{q}$ the form where p and q are integers and q is not zero
(a) $\frac{37}{300}$ (b) $\frac{37}{30}$ (c) $\frac{27}{300}$ (d) $\frac{37}{200}$
- Write a rational number between $\sqrt{2}$ and $\sqrt{3}$
- Prove with help of two examples sum of a rational and irrational number may be rational or irrational.

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Section C 3 marks each

9. Represent $\sqrt{29}$ on number line. Prove your construction.
10. Represent 1.2926 on number line by successive magnification
11. Represent $\sqrt{2.9}$ on number line. Prove your construction.

Section C 4 marks each

12. If $a = 1 - \sqrt{2}$, find the value of
 $\left(a - \frac{1}{a}\right)^2$, $\left(a - \frac{1}{a}\right)^3$, $\sqrt{a} - \frac{1}{\sqrt{a}}$
13. $\frac{\sqrt{3} + \sqrt{2}}{3\sqrt{2} - 2\sqrt{3}} = -2a - b\sqrt{6}$. Find a and b

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