

## Sample questions Mathematics

| S. No. | Questions                                                                                                                                                                                    | Answer | Marks |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------|
| 1.     | $0.121212\dots =$<br>(i) $\frac{12}{101}$<br>(ii) $\frac{1212}{10000}$<br>(iii) $\frac{121}{999}$<br>(iv) $\frac{12}{99}$                                                                    |        | 1     |
| 2.     | $1.0000\dots =$<br>(i) $\frac{1}{0.9999\dots}$<br>(ii) $\frac{10.000\dots}{9.9}$<br>(iii) $\frac{1.1111\dots}{11.1111\dots} \times 11$<br>(iv) $.9 + \frac{1}{9}$                            |        | 1     |
| 3.     | $x^2 >  x $ , if<br>(i) $x > 0$<br>(ii) $-1 < x < 1$<br>(iii) $x < 0$<br>(iv) $x < -1$                                                                                                       |        | 1     |
| 4.     | $x^2 - 3x + 2 < 0$ if<br>(i) $x > 2$<br>(ii) $x < 1$<br>(iii) $0 < x < 1$<br>(iv) $1 < x < \frac{3}{2}$                                                                                      |        | 1     |
| 5.     | A circle through the intersection of $x^2 + y^2 = 2x$ & $2x = 1$ is<br>(i) $x^2 + y^2 = 2$<br>(ii) $x^2 + y^2 + 4x - 3 = 0$<br>(iii) $2x^2 + 2y^2 - 4x - 1 = 0$<br>(iv) $x^2 + y^2 = 2x - 1$ |        | 1     |

| S. No. | Questions                                                                                                                                                                                                                             | Answer | Marks |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------|
| 6.     | $x - \alpha y = a$ & $x + \beta y = b$ are two lines and so $(x - \alpha y)(x + \beta y) = ab$ represents<br>(i) a pair of straight lines<br>(ii) a pair of lines if $a=b=0$<br>(iii) a pair of lines if $ab=1$<br>(iv) none of these |        | 1     |
| 7.     | The distance between $3x + 4y = 10$ & $3x + 4y = 20$ is<br>(i) 10<br>(ii) 2<br>(iii) 5<br>(iv) $7\frac{1}{2}$                                                                                                                         |        | 1     |
| 8.     | The limit $\lim_{x \rightarrow \infty} (x^2 + 1)^{\frac{1}{x}} =$<br>(i) e<br>(ii) 1<br>(iii) $\infty$<br>(iv) 0                                                                                                                      |        | 1     |
| 9.     | The limit $\lim_{x \rightarrow 0} (x + 1)^{\frac{1}{x}} =$<br>(i) e<br>(ii) 1<br>(iii) $\infty$<br>(iv) 0                                                                                                                             |        | 1     |
| 10.    | $\lim_{x \rightarrow 2} \frac{x^3 - 8}{x^2 - 4} =$<br>(i) $\infty$<br>(ii) 2<br>(iii) 3<br>(iv) 0                                                                                                                                     |        | 1     |