

FYBSC
SEMESTER 1
MATHS II
SAMPLE QUESTIONS

1. For any $n \in \mathbb{N}$. $(55n + 2, 22n + 1) = \dots\dots\dots$
(a) 11 (b) 0 (c) 1 (d) None of these
2. $a_1 = 4, a_n = 4a_{n-1}, n > 1$ then $a_{100} \bmod 7 = \dots\dots\dots$
(a) 2 (b) 3 (c) 4 (d) 5
3. If $a \mid 1$, then
(a) $a = \pm 1$ (b) $a = 0$ (c) $a = 1$ (d) None of these
4. If $(a, b) = 2, (b, 4) = 2$ then $(a + b, 4) = \dots\dots\dots$
(a) 1 (b) 2 (c) 4 (d) None of these
5. $A = \{1, 2, 3\}, B = \{a, b, c, d\}$ then which of the following relations is a function from A to B.
(a) $R = \{(1, a), (1, b), (2, c), (3, d), (3, a)\}$. (b) $R = \{(1, a), (2, a), (3, a)\}$.
(c) $R = \{(1, a), (2, c)\}$. (d) $R = \{(1, a), (2, b), (3, c), (3, d)\}$.
6. Let $f : X \rightarrow Y$ be a function.
(i) Range f is a collection of those elements of Y that have atleast one pre-image in X .
(ii) Range f is a collection of images of all the elements of X .
(iii) Range $f = \{f(x) \mid x \in X\}$.
(a) Only (i) is true. (b) Only (ii) is true. (c) Only (iii) is true. (d) All of (i), (ii), (iii) are true.
7. Division is a binary operation on
(a) \mathbb{Z} (b) \mathbb{Q} (c) \mathbb{R} (d) $\mathbb{R}^* = \mathbb{R} \setminus \{0\}$
8. Degree of a non-zero constant polynomial is
(a) 1 (b) 0 (c) 2 (d) Not defined.
9. If $f(x) = x^4 + 2x^2 - 5x + 1$ and $\deg(f(x) + g(x)) = 7$ then $\deg(g(x))$ is
(a) 4 (b) 7 (c) 3 (d) 2
10. If $f(x) = x^2 + 1$ and $g(x) = x^4 - 1$ then G.C.D of $f(x)$ and $g(x)$ is
(a) $x^2 - 1$ (b) $x^2 + 1$ (c) $x - 1$ (d) $x + 1$