FY BSc SEM I MATHS PAPER II SAMPLE QUESTIONS

Q Choose correct alternative in each of the following

1. If the g.c.d.of two positive integers is 5 and l.c.m. of those integers is 70 Then their product is----
   (a) 350
   (b) 450
   (c) 300
   (d) 400
2. The sum of all binomial coefficients in the expansion of $(a + b)5$ is-
   (a)64
   (b)128
   (c)32
   (d) None of these
3. The domain of $f(x) = \sqrt{1 - x^2}$, $is --$
   (a)(0,1)
   (b) [0,1]
   (c) [-1,1]
   (d) (0,1]
4. What is the g.c.d. of 17 and 19 is ---
   (a) 1
   (b)17
   (c) 19
   (d) None of the above
5. Inverse of a function $f: A \to B$ exist if it is -------
   (a)Only surjective
   (b)Only injective
   (c) Bijective
   (d)None
6. If a/b and b/a then --------
   (a) a = b
   (b) $a = \pm b$
   (c) a=b=0
   (d) 0
7. If $\deg\big(f(x).g(x)\big) = 12$ and deg $(f(x)) = 4$ then deg (g(x))=
   (a) 8
   (b) 5
   (c) 3
   (d)None
8. A quadratic polynomial whose roots are 2 and 3 is ---------
   (a)$x^2 + x + 6$
   (b) $x^2 - 5x + 6$
   (c) $x^2 - 5x - 6$
   (d)None

9. For a cubic polynomial $x^3 + 2x^2 + 3x + 4$, $r_1r_2r_3$ =------
   (a) -2
   (b) 3
   (c) -4
   (d) 4

10. Consider the binary operation $*$ on $\mathbb{Z}$ as follows, for $a,\in\mathbb{Z}$ $a*b=a+b+3$. Identity element of $\mathbb{Z}$ under the binary operation $*$
   (a)0
   (b) 1
   (c) -3
   (d) 3

11. The relation R defined on the set A={ 1 ,2 ,3 } $by\ R = \{ (1 ,2)(2 , 1)\}$ is -----
   (a) Reflexive
   (b) Symmetric
   (c) Transitive
   (d) None of the above

12 The value of $\emptyset(12) = ----$
   (a) 11
   (b) 8
   (c) 4
   (d) 3

13 A relation on $\mathbb{Z}$ $given\ by\ a\ and\ b\ iff\ a \neq b\ , is ---$
   (a) Reflexive
   (b) Symmetric
   (c) Transitive
   (d) Eqivalance

14 A monic polynomial is the one whose ----
   (a) Degree is one
   (b) Leading coefficient is 1
   (c) Constant term is 1
   (d) None of the above

15 If degree of $f(x) = 3\ and\ degree\ of\ g(x) = 5\ then\ degree\ of\ f(x) + g(x) = ----$
   (a) 8
   (b) 15
   (c) 5
   (d) 3

16 Sum of all cube roots of unity is----------
   (a) 1
   (b) 0
   (c) 2
   (d) None of above

17 If $r_1, r_2\ , r_3\ are\ roots\ of\ polynomial\ x^3 + 4x^2$+3x+5 then $r_1 + r_2 + r_3\ =$
   (a) 4
   (b) -4
   (c) 3
   (d) -3

18 Two integers are said to be co-prime,if----------

(a) Each one is prime
(b) Their g.c.d.doesnot exist
(c) Their g.c.d. is 1
(d) None of above

19 Product of two positive integer is 2290 and their g.c.d.is 5, then their l.c.m. is ----------

(a) 1
(b) 5
(c)458
(d)2290

20 If a and b are two integers such that , a/b $then\ , (a\ , b) is - - -$

(a) 0
(b) 1
(c) a
(d) b

21 $\emptyset(1) = - - - -$

(a) 0
(b) 1
(c) 2
(d) Not defined

22 Unit digit of 3^{10} is----------

(a) 0
(b) 9
(c) 1
(d) -1

23 $f : N \to N\ be\ defined\ as\ f(x) = 2x - 1\ then\ f\ is - - - - -$

(a) Bijective
(b) Surjective but not injective
(c) Injective but notsurjective
(d) None of above

24 If $f : Z \to Z\ is\ defined\ as\ f(x) = x - 1 then\ f(0) is - - - -$

(a) 1
(b) -1
(c) 0
(d) None of above

25$f : A \to B\ and\ g : B \to C\ be\ functions\ .If\ gof\ is\ surjective\ then - - - - -$

(a) $f\ is\ surjective$
(b) $f\ is\ bijective$
(c) g is surjective
(d) g is bijective