FBQ1: Let G = {1, -1, i, -i}. Then G is a group under usual multiplication of complex numbers, in this group, the order of i is _____.
Answer: 4

FBQ2:
Answer: (4,1)

FBQ3:
Answer: N

FBQ4: The order of (12) in is _____.Â
Answer: 2

FBQ5: In a permutation, any cycle of length two is called _____.Â
Answer: Transposition

FBQ6: A field K is called _____ of F if F is a subfield of K, thus Q is a subfield of R and R is a field extension of Q
Answer: Field extension

FBQ7:
Answer: Proper subfield

FBQ8:
Answer: Primitive

FBQ9: We call an integral domain R a _____ if every non â€“ zero element of R which is not a unit in R can be uniquely expressed as a product of a finite number of irreducible elements of R
Answer: Unique factorization domain

FBQ10:
Answer: Greatest Common divisor

FBQ11: Given two elements a and b in a ring R, we say that c is a _____ of a and b if c|a and c|b.Â
Answer: Common divisor

FBQ12: We call an integral domain R a _____ if every ideal in R is a principal ideal.
Answer: Principal ideal

FBQ13: _____.Â
Answer: 2

FBQ14: Let R be an integral domain, an element a R is called a unit or an _____ in R if we can find bR such that ab = 1 i.e if a has a multiplicative inverse
Answer: Invertible element

FBQ15: A domain on which we can define a Euclidean valuation is called _____.
Answer: Euclidean domain

FBQ16:
Answer: Euclidean Evaluation

FBQ17:
Answer: Root of multiplicity m

FBQ18: Let F be a field and f(x) Fx we say that an element a F is a _____ (or zero) of f(x) if f(a) = 0
Answer: Factor

FBQ19: If S is set, an object â€˜aâ€™ in the collection S is called an_____ of S
Answer: Element

FBQ20: A set with _____element in S is called an empty set
Answer: No

FBQ21: _____ method is sometimes used to list the element of a large set
Answer: Roster

FBQ22: The set of rational numbers and the set of real numbers are respectively represented by the symbol_____ and _____.
Answer: Q and R

FBQ23: The symboldenotes _____.
Answer: There exist

FBQ24: If A and B are two subsets of a set S, we can collect the element that are common to both A and B, we call this set the _____of A and B.Â
Answer: Intersection

FBQ25: A relation R defined on a set S is said to be _____ if we have
Answer: Reflexive

FBQ26: A relation R defined on a set S is said to be _____if
Answer: Symmetric

FBQ27: A relation R defined on a set S is said to be _____ if a R b and
Answer: Transitive

FBQ28: A relation R defined on a set S that is reflexive, symmetric and transitive is called _____ relation
Answer: Equivalence

FBQ29: A _____ f from a non â€“ empty set A to a non â€“ empty set B is

a rule which associates with every element of A exactly on element of B
Answer: Function

FBQ30: A function is called _____ if associates different elements of A with different element of B
Answer: Injective

FBQ31: A function is called _____ if the range of f is B.Â
Answer: Onto

FBQ32:
Answer: Projection

FBQ33: A function that is both one to one and onto is called _____
Answer: Bijective

FBQ34: _____ set.
Answer: Finite

FBQ35: A set that is not _____ is called infinite set
Answer: Finite

FBQ36: _____Â
Answer: Bijective

FBQ37: 1 and p
Answer: Prime

FBQ38: _____ number
Answer: Composite

FBQ39: _____ on A.Â
Answer: Identity function

FBQ40: _____ on S.Â
Answer: Binary operation

FBQ41:
Answer: Closed

FBQ42:
Answer: Associative

FBQ43:
Answer: Commutative

FBQ44: _____.Â
Answer: Distributive over

FBQ45:
Answer: Identity element

FBQ46: The Cayley table is named after the famous mathemathecian
Answer: Arthur Cayley

FBQ47: _____ system consists of a set with a binary operation which satisfies certain properties is called a group
Answer: Algebraic

FBQ48:
Answer: The integral power

FBQ49: is an equivalence relation, and hence partition Z into disjoint equivalence classes called _____ modulo n.Â
Answer: Congruence class

FBQ50: If the set X is finite, say X = (1,2,3, â€¦, n) then we denote S(x) by and each of is called a _____ on n symbols
Answer: Permutation

MCQ1: In a principle ideal Domain an element is prime if and only if it is
Answer: Reducible

MCQ2:
Answer: I only

MCQ3:
Answer: 3x+1

MCQ4:
Answer: II only

MCQ5:
Answer: II only

MCQ6:
Answer:

MCQ7:
Answer: 1

MCQ8:
Answer: f(a) = 1

MCQ9: Express x4+Â x3+5x2-xÂ as (x2Â +x+1)+rx in Q[x]
Answer: None of the options

MCQ10: Let F be a field. Let f(x) and g(x) be two polynomials in F[x] with g(x) â‰ 0.

Then I There exist two polynomial q(x) and r(x) in F[x] such that f(x) = q(x)g(x) + r(x), where degr(x) < degg(x).IIThe polynomial q(x) and r(x) are unique, which of the following is a properties of Division AlgorithmÂ
Answer: I only

MCQ11: Which of the following polynomial ring is free from zero divisor
Answer: Z6Â

MCQ12: . Let R be a ring and f(x) and g(x) be two non â€“ zero element of R[x]. Then deg(f(x)g(x)) â‰¤ degf(x) + degg(x) with equality if
Answer: R does not have a zero divisor

MCQ13: If p(x), q(x) âˆˆ Z[x] then the deg(p(x).q(x)) is
Answer: Max (deg p(x), deg q(x))

MCQ14: If f(x) = a0+a1x+â€¦+anxn and g(x) = b0+b1x+â€¦+bmxm are two polynomial in R[x], we define their product f(x).g(x) = c0+c1x+â€¦+cm+nxm+1 where ci is Â
Answer: aiÂ bi âˆ€ i = 0,1, â€¦, m+n

MCQ15: Consider the two polynomials p(x), q(x) in Z[x] by p(x) = 1+2x+3x2, q(x) = 4+5x+7x3. Then p(x) + q(x) is
Answer: 5+7x+3x2+7x3

MCQ16: Determine the degree and the leading coefficient of the polynomial
Â Â Â Â Â Â Â 1+x3+x4+0.x5 is
Answer: (3,1)

MCQ17: The Degree of a polynomial written in this form deg(âˆ‘i=0naixi) if anÂ â‰ 0 is
Answer: 0

MCQ18: Let R be a domain and x âˆˆ R be nilpotent then xn = 0 for some n âˆˆ N. Since R has no zero divisors this implies that
Answer: x = 1

MCQ19: An ideal m Z of Z is maximal if and only if m is
Answer: An even number

MCQ20: Â Every maximal ideal of a ring with identity is
Answer: A field

MCQ21: Â Let R be a ring with identity. An ideal M in R is Maximal if and only if R/M is
Answer: A field

MCQ22: An ideal p of a ring R with identity is a prime ideal of R if and only if the quotient ring is
Answer: An integral domain

MCQ23: Â The characteristics of a field is either
Answer: None of the options

MCQ24: Zn is a field if and only if
Answer: n is an even number

MCQ25: Â Which of the following is an axioms of a field
Answer: Is commutative

MCQ26: Â Let R be a ring, the least positive integer n such that nx = 0 âˆ€ xÂ âˆˆ R is called
Answer: The order of R

MCQ27: Which of the following is not a property of an integral domain
Answer: Is a commutative ring

MCQ28: A non â€“ zero element in a ring R is called zero divisor in R if there exist a non â€“ zero element b in R such that
Answer: ab = 0

MCQ29: If H is a subgroup of a group G and a, b âˆˆ G then which of the following statement is true
Answer: Ha = H Iff   aâˆˆ H

MCQ30: Let G be a group and aâˆˆG such that O(G) = t, then an=Â am, if and only if
Answer: None of the options

MCQ31: Which of these does not hold for â€˜Ã—â€™ distributive over , and â€˜ â€“
Answer: AÃ— (BC) = AÃ—B AÃ—C

MCQ32: The symmetric difference of two given sets A and B, denoted by A âˆ† B is defined by
Answer: A âˆ† B = (A â€“ B) or (B â€“ A)

MCQ33: The (relative) complement (or difference) of a set A with respect to a set B denoted by B â€“ A (or B\A) is the set
Answer: B â€“ A = {x B :xâˆˆA}

MCQ34: Which of the following is of the operations and
Answer: Associative A(BC) = (AB) C and A(BC) = (AB)C for three sets A,B,C

MCQ35: The intersection of two sets A and B written as AB is
Answer: The set AB = {x:xâˆˆA and xâˆˆB}

MCQ36: A set X of n elements has
Answer: 2n subsets

MCQ37: If G is a finite group such that O(G) is neither I nor a prime, then G has
Answer: Non â€“ trivial proper subgroup

MCQ38: Which of the following is not the definition of Euler Phi â€“ function MCQ39:

Every group of prime order is
Answer: Non â€“ abelian

MCQ40: An element is of infinite order if and only if all its power are
Answer: Real

MCQ41: Consider the following set of 8 2 Â´ 2 matrices over Â¢. Q8 = {Â±I, Â±A, Â±B, Â±C} where I = , A = , B = , C = and i = -1. If H = <A> is a subgroup, how many distinct right cosets does it have in Q8Â
Answer: 8

MCQ42: Let H = 4Z. How many distinct right coset of H in Z do we have?
Answer: 2

MCQ43: A function f : A B is called one â€“ one if and only if different element of B. some time is called
Answer: Bijective

MCQ44: Let G be a group, g â^ G and m, n â^ Z. which of the following does not hold
Answer: (gm)n = gmn

MCQ45: Let G be a group. If there exist g â^ G has the form x = gn for some n â^ Z then G is
Answer: A cyclic group

MCQ46: Let H = {I, (1, 2)} be a subgroup of S3. The distinct left cosets of H in S3are
Answer: H, (123)H, (12)H

MCQ47: The order of in Q8 is
Answer: 4

MCQ48: The order of (12) in S3 isÂ
Answer: 1

MCQ49: A group generated by g is given by <g> = {e, g, g2, â€¦,gm-1} the order of g is
Answer: 0

MCQ50: Let H be a subgroup of a finite group G. We call the number of distinct of H in G _____.
Answer: index