# Model Question G.E.-3 Mathematics

# Multiple Choice Questions

# A ………… is an ordered collection of objects.

# a) Relation b) Function c) Set D) Proposition

# If then

# a) A=B

# b) B

# c) A is proper subset of B

# d) None

# Which of the following is generalized distribution law

# a)

# b)

# c)

# If then

# a)

# b)

# c)

# d)

# If

# a) {2,4,6,8,5,7}

# b) {2}

# c)

# d) {1,2,5}

# Find the false statement “If be two relations on A then

# a) is reflexive.

# b) is symmetric.

# c) is transitive.

# d) is transitive.

# What is the order of the differential equation

# a) 0.5

# b) 1

# c) 2

# d) 0

# What is the degree of the differential equation

# 

# a) 0

# b) 1

# c) 2

# d) 3

# Which of these differential equation is not in the Clairaut’s form

# a)

# b)

# c)

# d)

# The integrating factor of the differential equation

# is

# a)

# b)

# c) 2

# d) 1

# Which of the following statements is false

# a) If a function f is not defined at x=a then it is not continuous at x=a.

# b) All polynomial functions are continuous.

# c) Product of two continuous functions is continuous.

# d) If f is continuous the is not continuous.

# is equal to

# a) 0

# b)

# c)

# d) none

# The function is

# a) continuous and differentiable

# b) continuous but not differentiable.

# c) not continuous but differentiable.

# d) neither continuous nor differentiable.

# If f and g are continuous on [a,b] and have equal finite derivatives in [a,b] then f-g

# a) constant

# b) f/g

# c) g

# d)

# What is the value of c if the function is continuous and differentiable over [1,5]

# a) 3

# b) 1

# c) 4

# d) 2

# A group ( G, \*) is said to be abelian if

# a)

# b)

# c)

# d)

# is a

# a) Semigroup

# b) Cyclic group

# c) Subgroup

# d) Abelian group

# A cyclic group is always

# a) Abelian group

# b) Semigroup

# c) monoid

# d) subgroup

# The multiplicative identity of natural nos. is

# a) 0

# b) -1

# c) 1

# d) 2

# If a function is differentiable at a point (a,b) then

# a) may or may not exist.

# b) both exist.

# c) only one of exist.

# d) both does not exist.

# The function f should be ………. On [a,b] according to Rolle’s theorem

# a) continuous

# b) non-continuous

# c) integral

# d) non- existent

# The function f is differentiable on (a,b) according to Rolle’s theorem

# a) True

# b) False

# A subgroup has the properties of

# a) closure, associative

# b) commutative, associative, closure

# c) inverse, identity, associative

# d) closure, associative, identity, inverse.

# Short Answer type questions

# Define union and intersection for an indexed family of sets.

# If be an indexed family of subsets of X then prove that

# a)

# b)

# Define an equivalence relation on a set giving an example.

# Write Cauchy’s definition of continuity.

# Define Group and subgroup.

# Define order of a group and cyclic group.

# Define homomorphism.

# Define simultaneous limit and repeated limits.

# Evaluate

# Solve

# Solve

# Long answer type questions

# State and prove De-Morgan’s law.

# State and prove fundamental theorem on equivalence relation.

# State and Prove Rolle’s theorem.

# Prove that continuity is necessary but not sufficient condition for the existence of a finite derivative.

# Discuss the continuity of the function at

# Prove that the order of any subgroup of a finite group divides the order of the group.

# Prove that a non-void subset H of a group G is a subgroup of G if and only if

# Solve

# Solve

# Let .Show that the partial derivatives exist everywhere in the region , although is discontinuous at (0,0).