S.R. Fatepuria College

Class Test Examination- 2020

Semester- 4, Paper- CC-T-08

Subject-Mathematics(Honours)

F.M. – 10 **Time- 30 Minutes**

1) Answer any two questions :- 2x1= 2

a) State the first Mean Value theorem of integral calculas.

b) State the necessary condition for Riemann integral of a function.

c) State the Cauchy condition for uniform convergence of sequence of real valued function on a set E.

2) Answer any two questions :- 2x4= 8

a) Let f be a real-valued function on the closed interval [a,b] and P be any partition of [a,b]. Define upper integral sum U(P,f) and lower integral sum L(P,f) and obtain the definitions of the upper and lower Riemann integrals of f on [a,b].

b) State and prove DarbouX theorem.

c) Show that every function continuous on a closed interval is Riemann-integrable over that interval.

Semester- 4, Paper- CC-T-10

Subject-Mathematics(Honours)

F.M. – 10 **Time- 30 Minutes**

1) Answer any two questions :- 2x1= 2

a) Give an example of a finite integral domain.

b) Is (2Z, +, .) is a commutative ring with unity ?

c) Give the definition of divisors of zero.

2) Answer any one question :- 1x2= 2

a) If a ring R contains a left divisor (or a right divisor) or zero , prove that R contains a both sided divisor of zero.

b) In a ring (R,+,.) show that

(i) a.0 = 0.a = 0

(ii) a(-b) = (-a).b = -(a.b) for all a,b in R.

3) Answer any two questions :- 3x2= 6

a) Prove that a finite integral domain is a field.

b) The cancelationlaw holds in a ring R if and only if R has no divisor of zero.

c) Left R be finite ring with n elements and S be a surbring of R containing m elements. Prove that m is a divisor of n.