B.B.M. COLLEGE, BALIAPUR, DHANBAD

Internal Exam – 2024

SEMESTER – I to IV

Special Exam

Class – B.Sc. (Math) Time –
Sub. – GE Paper -II F.M. – 20 each Sem.

SEMESTER – I

Answer any two question

Time – 1 Hr **F.M. - 20**

(1) state and prove Leibnitz's theorem

(2) using E-d definition , prove that the function

F(x) = $\int x^2 \sin\frac{1}{x}$ if x ≠ o

 O , if x = o

 Is continuous at x=o.

(3) if $(\tan^{-1}x)^2$, prove that

$(1+x^2)\frac{d^2y}{dx^2} + 2x\ (1+x^2)\frac{dy}{dx} = 2$.

(4) Evaluate the integral $\int_{o}^{\frac{\pi}{2}} \sin^n x dx$.

(5) if v =x^2yz I + xy^2z j + xyz^2 k

SEMESTER – II

Answer any two question

Time – 1 Hr **F.M. - 20**

(1) solve : $\frac{dy}{dx}$ = e^{x+y} +x^2e^y .

(2)solve : $\frac{dy}{dx}$ + 1 = e^{x-y} .

(3) solve : $\frac{dy}{dx}$ =$\frac{x^2+y^2}{2x^2}$.

(4) solve : p^2 – 7p + 12 = o .

(5) solve by carpet's method

$(p^2 + q^2)$ y = qz .

SEMESTER – III

Answer any two question

Time – 1 Hr **F.M. - 20**

(1) define countable and uncountable sets.

(2) state and prove Bolzano – weierstrass theorem for sequoias .

(3) test the series converge or diverge whose general teem is

Un = $\sqrt{n^4 + 1}$ - $\sqrt{n^4 + 1}$.

(4) prove that the series

$\frac{1}{1^p}$ + $\frac{1}{2^p}$ + $\frac{1}{3^p}$ + ------ + $\frac{1}{n^p}$ ------ is convergent if P>1 and divergent if P≤1 .

(5) state and prove robe's test

Or

State and prove Cauchy root test .

SEMESTER – IV

Answer any two question

Time – 1 Hr **F.M. - 20**

(1) define a group with example .

(2) state and prove Lagrange's theorem .

(3) define normal subgroups .

(4) define a ring with examples .

(5) prove that every finite integral domain is a field .