S.S.R. DEGREE COLLEGE, (AUTONOMOUS) NIZAMABAD (C.C:5029)
II-SEMESTER INTERNAL ASSESSMENT-II EXAMINATIONS
SUB: MATHS
QUESTION BANK

I. Multiple Choice Questions **10 X ½ = 5 Marks**

1. Which of the following is convergent series (d)

   a)$\varepsilon\frac{1}{n}$ b)$\varepsilon(-1)^n$ c)$\varepsilon sin\,{}^1/_n$ d)$\varepsilon\frac{1}{n^2}$

2. A positive term series $\varepsilon\frac{1}{n^p}$ is convergent (c)

   a)P=1 b)P<1 c)P>1 d)None

3. The geometric series $\sum_{n=0}^{\infty} r^n$ is (c)

   a)cgs it r<1 b)Divergent if r>1 c)A & B d)None

4. The series $1+\frac{1}{2!}+\frac{1}{3!}+\frac{1}{4!}+ --is$ (a)

   a)Convergent b)Divergent c)Cannot say d) None

5. If f (x)= |x| then $\lim_{x\to 0}\frac{f(x)-f(0)}{x-0}$ = _____ (b)

   a)0 b)-1 c)1 d)does not exist

6. If f^1(c) < 0 then 'f' is (c)

   a)Increasing functions at x =c b) decreasing function at x=c

   c)Both (a) & (b) d) None of these

7. If f (X) = | x | + | x – 1| x∈R is (c)

   a)Continuous on R b) Not derivable at x = 0

   c) Both A & B d) None

8. The derivative of a function f(x) = X^2 is f^1 (x) = (b)

   a)x^2+1 b)x c)0 d)2x

9. If (x) = x^n then f^1(x)

   a)$x^n = a^n$ b)X ½ c)$n.x^{n-1}$ d)$n.x^n\lim_{n\to 0^+} logx =$

10. $\lim_{x\to a} x^k$ = _____ (B)

    a)k b)a^K c)K^2 d)a

11. $\lim_{x\to 0^+} logx$= (A)

    a)-∞ b)a^k c)K^2 d)None

12. The function cosx on [o,π] is (D)

    a)Increasing b)Continuous c)Differentiable d)Strictly decreasing

13. The lower sum is always (C)

a)Greater than the upper sum b)Equal to the upper sum

c) Less than or equal to the upper sum d)Cannot define

14. The Riemann integral represents (B)

a)Slope of a curve b)Area under the curve

c)Volume of a soild d)Length of curve

15. A constant function 'K' is integrable the $\int_a^b kdx$ (A)

a)K(b-a) b)K(a-b) c)a-b d)b-a

16. If (3x+1) is integrable on [1,2] then $\int_1^2 (3x+1)dx =$ (B)

a)$\frac{7}{2}$ b)$\frac{11}{2}$ c)$\frac{-11}{2}$ d)$\frac{-7}{2}$

II. Fill In The Blanks 10 X ½ = 5 Marks

1. The series εun is converges then $\lim_{n\to\infty} un =$ **convergent**
2. The series 1-$\frac{1}{2}+\frac{1}{3}-\frac{1}{4}+--is$ **convergent**
3. If $\lim_{x\to c} f(x) = l$ then $\lim_{x\to c} |f(x)|$= $\underline{|l|}$
4. If 'f' is differentiable function then 'f' is **Continuous function**
5. The **Domain** of F is the set of points at which 'f' is differentiable.
6. If 'f' is differentiable at a point a then 'f' is **continuous** at 'a'
7. The derivative of f(x) = x + 2 at x = a is 1
8. If x_0 and y_0 are both end points of [a,b] then 'f' is a **constant** functions
9. A Riemann sum is a sum of **rectangular areas**
10. Let 'f' be a bounded real valued function on [a,b] then L(p,f) = $\sum_{i=1}^n mi\delta i$
11. Let 'f' be a bounded real valued function on [a,b] the u (p,f) = $\sum_{i=1}^n Mi\delta i$
12. A bounded function is Riemann integrable on [a,b] $\int_a^b f(x)dx = \int_a^b f(x)dx$
13. If a c c < b then $\int_a^b f(x)dx = \int_a^c \boldsymbol{f(x)dx} + \int_a^b \boldsymbol{f(x)dx}$
14. The fundamental theorem of calculus connects integration and **Differentiation**
15. If f: [a,b] → R is a bdd function then L (P,-f) = **-U(P,f)**
16. If 'f' is monotonic on [a,b] then $\int_b^a (\boldsymbol{fx})\boldsymbol{dx}$ **exist**
17. The fundamental theorem of calculus connects integration and **Differentiation**
18. If 'f' is differentiable function then 'f' is **continuous function**

III. Answer the following questions **2 X 5 = 10 Marks**

1. State & prove Cauchy Root test?
2. State & Prove DAlember's Ratio test?
3. State & Prove Lagranges mean value theorem
4. State & Prove cauchy's mean value theorem