**Definite Integration**

**Choose the most appropriate option (a, b, c or d).**

Q 1. is equal to

(a) 2 (b) 1 (c) 0 (d) none of these

Q 2. is

(a) π (b) π/2 (c) π/4 (d) none of these

Q 3. is

(a) e (b) e – 1 (c) 1 – e (d) e + 1

Q 4. is

(a) π/2 (b) 2 (c) 2/π (d) none of these

Q 5. is

(a) loge 5 (b) 0 (c) loge 4 (d) none of these

Q 6. equals

(a)  (b)  (c)  (d) 

Q 7. , where k ≠ 0 is a constant and n ∈ N, is equal to

(a) ke (b) k-1 . e (c) ke-1 (d) k-1 . e-1

Q 8. k ≠ -1, is equal to

(a) 2k (b)  (c)  (d) none of these

Q 9. Let (a, b) and (λ, μ) be two points on the curve y = f(x). If the slope of the tangent to the curve at (x, y) be φ(x) then is

(a) λ - a (b) μ - b (c) λ + μ - a – b (d) none of these

Q 10. If then g(x + π) equals

(a) g(x) + g(π) (b) g(x) – g(π) (c) g(x) g(π) (d) g(x)/g(π)

Q 11. If af(x) + , x ≠ 0, a ≠ b, then equals

(a)  (b)  (c)  (d) none of these

Q 12. is equal to

(a) π + 1 (b) 1 + π/2 (c) π + 3/2 (d) none of these

Q 13. The value of is

(a) 0 (b) 2 (c) 1 (d) none of these

Q 14. If then a2- a1, a3 – a2, a4 – a3, …. are in

(a) AP (b) GP (c) HP (d) none of these

Q 15. Let . Then a2 + a4, a3 + a5, a4 + a6 are in

(a) AP (b) GP (c) HP (d) none of these

Q 16. is equal to

(a) 2 (b) -2 (c) 2/π (d) 2π

Q 17. Let , x > 0. If = F(x) – F(1) then one of the possible values of k is

(a) 4 (b) -4 (c) 16 (d) none of these

Q 18. If then is

(a) nonexistent (b)  (c)  (d) none of these

Q 19. The value of , where t = x3, is

(a)  (b)  (c)  (d) none of these

Q 20. The value of , where g(1) = g(2), is equal to

(a) 1 (b) 2 (c) 0 (d) none of these

Q 21. If +x2f(x) = 0, x > 0, and ≤ x ≤ 2, then I is

(a) f(2) – f(1/2) (b) f(1/2) – f(2) (c) 0 (d) none of these

Q 22. is equal to

(a) 2 (b) -2 (c) 1/2 (d) -1/2

Q 23. If f(x) satisfies the conditions of Rolle’s theorem in [1, 2] then is equal to

(a) 1 (b) 3 (c) 0 (d) none of these

Q 24. The value of is

(a)  (b)  (c)  (d) none of these

Q 25. If f(x) be a quadratic polynomial such that f(0) = 2, f'(0) = -3 and f"(0) = 4 then is equal to

(a) -3 (b) 16/3 (c) 0 (d) none of these

**Choose the correct options. One or more options may be correct.**

Q 26. Let , n ∈ N. Then

(a) In-2 > In (b) n(In-2 – In) = In-2 (c) In : In-1 = n : (n – 1) (d) none of these

Q 27. Let , n ∈ N. Then

(a) I1 = I3 + 2I5 (b) In + In-2 =  (c) I (d) none of these

1a 2b 3b 4c 5a 6b 7d 8b 9b 10a

11b 12d 13d 14c 15c 16a 17c 18b 19a 20c

21c 22a 23c 24a 25b 26ab 27ac