Online Assessment (Even Sem/Part-I/Part-II Examinations 2019 - 2020

Course Name - Algebra and Calculus
Course Code - BCA203C

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Answer all the questions. Each question carry one mark.

9. 1.Integers less than 15 and relatively prime to 15 are

Mark only one oval.

- 3,7,8,9,11,12,13
- 2,4,7,8,11,13,14
- 1,3,5,10,15
- 2,3,7,9,1,13,14

10. 2.

For $z_3, [2]+[2]=$

Mark only one oval.

- [1]
- [0]
- [2]
- [3]

11. 3. For all odd integer a, gcd(3a,3a+2)=

Mark only one oval.

- 1
- 2
- 3
- None of these

12. 4. When two integers m and n are relatively prime then g.c.d(m,n)=

Mark only one oval.

- n
- mn
- 1
- m

13. 5. The remainder when the sum 4!+5!+6!+...+50! is divided by 4 is

Mark only one oval.

- 1
- 2
- 3
- 0

14. 6. If $3x+4 \equiv 9 \pmod{17}$ then one possible value of x is

Mark only one oval.

- 8
- 11
- 13
- None of these

15. 7.If G is a tree with n vertices, then the number of edges of G are

Mark only one oval.

- n
- (n-1)
- n(n-1)
- n(n+1)

16. 8. A vertex whose degree 0 is called

Mark only one oval.

- isolated vertex
- pendant vertex
- even vertex
- None of these

17. 9. The maximum number of edges of a simple graph with 5 vertices and 2 components is

Mark only one oval.

- 2
- 7
- 5
- 6

18. 10. Minimal spanning tree is found by

Mark only one oval.

- Dijkstra's algorithm
- Ford-Fukerson's algorithm
- Floyd algorithm
- Kruskal's algorithm

19. 11. Tree contains at least

Mark only one oval.

- one vertex
- Two vertex
- Three vertex
- None of these

20. 12. In a graph if e=[u, v], Then u and v are called

Mark only one oval.

- Endpoints of e
- Neighbors
- Adjacent nodes
- All of above

21. 13. Sum of the degree of a graph is always

Mark only one oval.

- Even
- Odd
- Prime
- None of these

22. 14. If a graph has 6 vertices and 15 edges then the size of its adjacency matrix is

Mark only one oval.

- 6X6
- 6X15
- 15X6
- 15X15

23. 15.

If $\lim_{(x,y)\to(a,b)} f(x,y)=l$ and $\lim_{(x,y)\to(a,b)} f(x,y)=m$ then which of the following is true?

Mark only one oval.

- l > m
- l < m
- l = m
- l = 2m

24. 16. If F(x,y)=0, then

Mark only one oval.

- Always y dependent on x
- Always x and y are independent
- Always x depend on y
- None of these

25. 17. The critical point of the function f(x,y)=xy is

Mark only one oval.

- (-1,1)
- (1,1)
- (1,-1)
- (0,0)

26. 18.

$$\lim_{(x,y)\to(0,0)} \frac{y}{x}$$

Mark only one oval.

- 1
- 0
- ∞
- limit does not exists

27. 19. The area of the triangle whose vertices are (1,3), (0,0), (1,0) is

Mark only one oval.

- 8
- 3/2
- 0
- None of these

28. 20.

The value of $\int_2^4 \int_1^3 \int_9^{10} dxdydz$ is

Mark only one oval.

- 4
- 5
- 2
- None of these

29. 21.

The value of the triple integral $\int_{x=-1}^{1}\int_{y=-2}^{2}\int_{z=-3}^{3} x\,y^2z^3\,dxdydz$ is

Mark only one oval.

- 1/12
- 1/24
- 0
- 6

30. 22.

The differential equation $(a_1x-b_1y)dx+(a_2x-b_2y)dy=0$ is exact if

Mark only one oval.

- a1 = b2
- b1 = b2
- a1 = —b2
- a2 = —b1

31. 23.

If $x^m y^n$ be the IF of the equation $(2ydx+3xdy)+2xy(3ydx+4xdy)=0$ then the value of m and n are respectively

Mark only one oval.

- 1, 3
- 2, 1
- 2, 2
- 1, 2

32. 24.

If the differential equation $\left(y+\frac{1}{x}+\frac{1}{x^2y}\right)dx+\left(x-\frac{1}{y}+\frac{A}{xy^2}\right)dy=0$ is exact, then the value of A is

Mark only one oval.

- 2
- 1
- 0
- -1

33. 25.

The differential equation $x\frac{dy}{dx}+y=y^2\sin x$ is a first order

Mark only one oval.

- linear equation in x
- linear equation in y
- Bernoulli's equation
- homogeneous equation

34. 26.

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35. 27.

The integrating factor of $\cos x \frac{dy}{dx} + y \sin x = 1$ is

Mark only one oval.

- tan x
- cos x
- sec x
- sin x

36. 28. For a given differential equation, if C.F.=Acos2x+Bsin2x , then the Wronskian is

Mark only one oval.

- 1
- 2
- cos2x
- sin2x

37. 29.

The C.F of the equation $x^2\frac{d^2y}{dx^2}-2x\frac{dy}{dx}=3x$ is

Mark only one oval.

$c_1x+c_2e^{3x}$

Option 1

$c_1e^x+c_2e^{3x}$

Option 2

$c_1+c_2e^{3x}$

Option 3

None of these

38. 30.

$$\frac{1}{D^2-2D+5}(10\sin x)=$$

Mark only one oval.

- sinx + cosx
- 3sinx - cosx
- 2sinx + cosx
- 4sinx