

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

Course Name - Mathematics-II

Course Code - DCSE204/DEE204/DECE204/DME204/DCE204

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Answer all the questions. Each question carry one mark.

9. 1. The differential equation whose general solution is $y = A \sin x$ is

Mark only one oval.

$$\frac{dy}{dx} = y \cos x$$

Option 1

$$\frac{dy}{dx} = y \cot x$$

Option 2

$$\frac{dy}{dx} = y \tan x$$

Option 3

None of these

10. 2. Two events A and B are mutually exclusive if

Mark only one oval.

$$P(A \cap B) = P(A) \cdot P(B)$$

Option 1

$$P(A \cap B) = 1$$

Option 2

$$P(A \cap B) = 0$$

Option 3

none of these

11. 3. After rounding off to three places of decimals the number 57.1092 becomes

Mark only one oval.

57.109

57.100

57.110

0.109

12. 4.

The integrating factor of the equation $\frac{dy}{dx} + \frac{1}{x}y = x^2$ is

Mark only one oval.

x

Option 1

e^x

Option 2

logx

Option 3

none of these

Option 4

13. 5. The probability of any event A satisfies

Mark only one oval.

$$P(A) \geq 1$$

Option 1

$$P(A) < 0$$

Option 2

$$0 \leq P(A) \leq 1$$

Option 3

None of these

Option 4

14. 6. Condition for independence of two events A and B is

Mark only one oval.

$$P(A \cap B) = P(A) \cdot P(B)$$

Option 1

$$P(A + B) = P(A) \cdot P(B)$$

Option 2

$$P(A - B) = P(A) \cdot P(B)$$

Option 3

$$P(A \cap B) = P(A) \cdot P(B / A)$$

Option 4

15. 7. If two events are exhaustive then

Mark only one oval.

$$P(A \cap B) = 1$$

Option 1

$$P(A \cup B) = 1$$

Option 2

$$P(A \cap B) = 0$$

Option 3

$$P(A \cup B) = 0$$

Option 4

16. 8.

$$\int \frac{dx}{x \log x} =$$

Mark only one oval.

 $\log x + c$ $\log(\log x) + c$

$$e^x + c$$

 Option 3 None of these.

17. 9.

One of the roots of $3x^3 + 5x - 40 = 0$ lies in between
Mark only one oval.

- 1 and 2
 0 and 1
 2 and 3
 None of these

18. 10. If $\text{var}(x)=5$ and $y=5x+6$ then $\text{var}(y) =$

Mark only one oval.

- 125
 150
 6
 None of these

19. 11. The relation among mean, median and mode is

Mark only one oval.

- Mode=3 Median-2 Mean
 Mode=3 Median+2 Mean
 Mode=2 Median-3 Mean
 Mode=2 Median + 3 Mean

20. 12. The variance of 1,5,6 is

Mark only one oval.

3.67

4.67

9.1

0.67

21. 13.

The mode of the frequency distribution

x_i : 3 2 1 0

f_i : 10 36 24 8

Mark only one oval.

0

2

4

3

22. 14. The mode of the observations 2,1,1,2,3,5,2,1,2,6,4,2,1,3 is

Mark only one oval.

3

4

2

1

23. 15. The A.M of 7,5,2,6,x is 4; then x=

Mark only one oval.

- 0
- 4
- 1
- None of these

24. 16. The A.M of x-2, 10, x+3 , 7 is 9 . The value of x is

Mark only one oval.

- 10
- 9
- 0
- 11

25. 17.

Let A and B be two events and $P(\bar{A}) = 0.3, P(B) = 0.4, P(A\bar{B}) = 0.5$; then $P(A + \bar{B}) =$

Mark only one oval.

- 0.5
- 0.8
- 1
- None of these

26. 18. Two unbiased coins are tossed one after another, the probability that one is head and other is tail is

Mark only one oval.

- 1/4
- 1/2
- 3/4
- None of these

27. 19. A coin is tossed successively three times .The probability of getting exactly one head is

Mark only one oval.

- 1/8
- 1/6
- 3/8
- 2/5

28. 20. Probability of an impossible event is

Mark only one oval.

- $-\infty$
- 1
- 0
- None of these

29. 21.

$$\int \frac{\cos 2x dx}{(\sin x + \cos x)^2} =$$

Mark only one oval.

- $\log|\sin x + \cos x|$
- $\log|\sin x - \cos x|$
- $-\log|\sin x + \cos x|$
- None of these

30. 22.

$$\int \frac{\sin^2 x}{\cos^4 x} dx = A \tan^3 x \text{ then } A \text{ is}$$

Mark only one oval.

- 3
- 1/3
- 3
- 4

31. 23.

$$\int \frac{1}{x} \left(x + \frac{1}{x} \right) dx$$

Mark only one oval.

$$\left(x - \frac{1}{x} \right) + c$$

Option 1

$$\left(x^2 - \frac{1}{x^2} \right) + c$$

Option 2

$$\left(1 - \frac{1}{x^2} \right) + c$$

Option 3

$$\left(x + \frac{1}{x} \right) + c$$

Option 4

32. 24.

$$\int \sin^{-1}(\cos x) dx =$$

Mark only one oval.

$$\frac{\pi}{2}x - \frac{x^2}{2} + c$$

Option 1

$$\frac{\pi}{2}x + \frac{x^2}{2} + c$$

Option 2

$$-\frac{\pi}{2}x - \frac{x^2}{2} + c$$

Option 3

None of these

33. 25.

$$\int_1^e \frac{\log x}{x} dx =$$

Mark only one oval.

1/2

2

1/e

e

34. 26.

The order and degree of the differential equation $\left(\frac{dy}{dx}\right)^2 - 2\frac{dy}{dx} = 3x$ are

Mark only one oval.

2,1

2,2

1,1

1,2

35. 27.

The general solution of the differential equation $\frac{d^2y}{dx^2} + x \frac{dy}{dx} = 0$ contains

Mark only one oval.

- 1 arbitrary constant
- 2 arbitrary constant
- 3 arbitrary constant
- 4 arbitrary constant

36. 28.

$$\int_0^{\frac{\pi}{2}} \frac{\cos x dx}{1 + \sin x} =$$

Mark only one oval.

 $\frac{\pi}{2}$ log4 Option 2 $\frac{\pi}{\sqrt{3}}$ Option 3 log2

37. 29.

$$\frac{1}{D} \left(x^{\frac{5}{2}} \right) =$$

Mark only one oval.

$$\frac{7}{2} x^{\frac{7}{2}}$$

Option 1

$$\frac{2}{7} x^{\frac{7}{2}}$$

Option 2

$$x^{\frac{7}{2}}$$

Option 3

$$x^{\frac{5}{2}}$$

Option 4

38. 30.

If $P(A+B) = \frac{2}{7}$ then the probability of $P(\bar{A}.\bar{B})$ is

Mark only one oval.

- 1/7
- 2/7
- 5/7
- None of these

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