18MAB102T - Surprise Test 1 - May 1

* Required

Answer ALL Questions

Each question carries ONE mark.

1 *

$$\int_1^a \int_1^b \frac{dx\,dy}{x\,y} =$$

(A) $\log a + \log b$ (B) $\log a$ (C) $\log b$ (D) $\log a \log b$

- [ ] A
- [ ] B
- [ ] C
- [x] D

2 *

$$\int_0^{\pi/2} \int_0^{\sin\theta} dr\, d\theta =$$

(A) 1 (B) $\frac{\pi}{2}$ (C) $\frac{\pi}{3}$ (D) $\frac{\pi}{4}$

- (●) A
- ( ) B
- ( ) C
- ( ) D

3 *

$$\int_0^2 \int_0^2 e^{x+y}\, dx\, dy =$$

(A) $(e-1)^2$ (B) $(e^2-1)^2$ (C) 1 (D) 0

- ( ) A
- (●) B
- ( ) C
- ( ) D

4 *

$\int_0^1 \int_0^x dy\, dx =$

(A) 1 (B) -1 (C) $\frac{1}{2}$ (D) $\frac{1}{3}$

- [ ] A
- [ ] B
- [x] C
- [ ] D

5 *

Area of the region R in polar coordinates is

(A) $\iint_R dr\, d\theta$ (B) $\iint_R r^2\, dr\, d\theta$

(C) $\iint_R r\, dr\, d\theta$ (D) $\iint_R (r+1)\, dr\, d\theta$

- [ ] A
- [ ] B
- [x] C
- [ ] D

6 *

The region of integration of the integral $\int_0^1 \int_0^x f(x,y)\ dy\ dx$ is

(A) square (B) rectangle (C) triangle (D) circle

- A
- B
- C
- D

7 *

Change the order of integration in $\int_0^a \int_x^a f(x,y)\ dy\ dx$.

(A) $\int_0^a \int_0^y f(x,y)\ dx\ dy$ (B) $\int_0^a \int_0^x f(x,y)\ dy\ dx$

(C) $\int_0^1 \int_1^{x^2} f(x,y)\ dx\ dy$ (D) $\int_0^1 \int_0^x f(x,y)\ dx\ dy$

- A
- B
- C
- D

8 *

To change Cartesian into Polar coordinates in double integration, the transformation used is

(A) $x = r\cos\theta, y = r\sin\theta$ (B) $x = a\cos\theta, y = b\sin\theta$
(C) $x = r\sin\theta, y = r\cos\theta$ (D) $x = a\sec\theta, y = b\tan\theta$

- (●) A
- ( ) B
- ( ) C
- ( ) D

9 *

$$\int_0^2 \int_1^2 \int_1^2 dz\,dy\,dx =$$

(A) 1 (B) 2 (C) 3 (D) 4

- ( ) A
- (●) B
- ( ) C
- ( ) D

10 *

Volume of a region R is given by

(A) $\iiint_R dv$ (B) $2\iint_R dx\,dy$

(C) $\iint_R dy\,dx$ (D) $\iint_R dx\,dy$

- (●) A
- ( ) B
- ( ) C
- ( ) D

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