(B) $2a$

(C) a^2

(D) None of these

25. If $u = sin^{-1}\left(\frac{x+2y+3z}{x^8+y^8+z^8}\right)$, then the value of $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} + z\frac{\partial u}{\partial z}$ is

(A) $7tan(u)$

(B) $-7sin(u)$

(C) $-7tan(u)$

(D) $7sin(u)$

26. If $u = x^2tan^{-1}(\frac{y}{x}) - y^2tan^{-1}(\frac{x}{y})$, then the value of $x^2\frac{\partial^2 u}{\partial x^2} + 2xy\frac{\partial u^2}{\partial x \partial y} + y^2\frac{\partial^2 u}{\partial y^2}$ is

(A) $2u$

(B) 0

(C) u

(D) $-2u$

27. The value of a and b such that $\lim_{x\to 0} \frac{x(1+acosx)-bsinx}{x^3} = 1$ is

(A) $a = -5/2, b = -3/2$

(B) $a = -5/2, b = 3/2$

(C) $a = 5/2, b = -3/2$

(D) $a = 5/2, b = 3/2$

28. For which value of $c\ \epsilon(a, b)$, the Rolle's theorem is verified for the function $f(x) = \log\left(\frac{x^2+ab}{x(a+b)}\right)$

(A) Arithmetic mean of a and b

(B) Geometric mean of a and b

(C) Harmonic mean of a and b

(D) none of the above

29. The maximum area of a right angled triangle with hypotenuse h is

(A) $h^2/6$

(B) $h^2/8$

(C) $h^2/2$

(D) $h^2/4$

Answer Key

Q. No.	Correct Choice	Q. No.	Correct Choice
1	C	31	A
2	C	32	D
3	D	33	A
4	B	34	C
5	C	35	A
6	C	36	C
7	A	37	C
8	D	38	D
9	C	39	C
10	D	40	B
11	C	41	B
12	C	42	B
13	D	43	D
14	D	44	C
15	D	45	A
16	C	46	B
17	C	47	D
18	D	48	A
19	B	49	A
20	A	50	A
21	D	51	B
22	A	52	A
23	C	53	A
24	A	54	B
25	C	55	C
26	A	56	A
27	A	57	D
28	B	58	A
29	D	59	C
30	B	60	A