I45

SECTION - B

26. The eigenvalues of the matrix $A = \begin{pmatrix} 1 & 0 & 1 \\ 0 & 1 & 0 \\ 1 & 0 & 1 \end{pmatrix}$ are

(A) $-1, 0, 2$

(B) $-1, 1, 2$

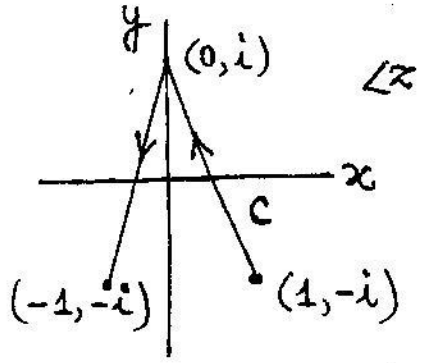
(C) $0, 1, 2$

(D) $1, 1, 2$

27. The value of the contour integral

$$\int_c dz$$

along c shown in the figure is



(A) 2

(B) $2\sqrt{5}$

(C) -2

(D) 0

28. The function

$$f(z) = \frac{e^{2z} - 1}{z^2}$$

has

(A) a first order pole at $z = 0$ with residue equal to 0

(B) no pole at z=0

(C) a second order pole at $z = 0$ with residue equal to 1

(D) a first order pole at $z = 0$ with residue equal to 2

29. Given the function $f(x) = x^2$, $g(x) = \sqrt{x}$, the compositions $f \circ g$ and $g \circ f$ are given by

(A) $f \circ g(x) = x^2$, $g \circ f(x) = x^{3/2}$

(B) $f \circ g(x) = x^{3/2}$, $g \circ f(x) = x^{3/2}$

(C) $f \circ g(x) = x$, $g \circ f(x) = |x|$

(D) $f \circ g(x) = x$, $g \circ f(x) = x$