Question 1

Correct

Mark 1.00 out of 1.00

Flag question

The integral $\int_{|z|=2\pi} \frac{\sin z}{(z-\pi)^2} dz$ where the curve is taken anti-clockwise, equals ____

Select one:

- a. $-2\pi i$ ✓
- b. $2\pi i$
- c. 0
- d. $4\pi i$

The correct answer is: $-2\pi i$

Question 2

Correct

Mark 1.00 out of 1.00

Flag question

If f is analytic within and on a simple closed, positively oriented contour C and if z_0 is any point interior to C, then $\int_C \frac{f(z)}{(z-z_0)^{n+1}} dz$ equals:

Select one:

a. $\frac{2\pi i}{n!} f^n(z_0)$ ✓

b. $\frac{n!}{2\pi i} f^n(z_0)$

c. $\frac{2\pi i}{n+1} f^n(z_0)$

d. $\frac{2\pi i}{(n+1)!} f^n(z_0)$

The correct answer is: $\frac{2\pi i}{n!} f^n(z_0)$

Question 3

Correct

Mark 1.00 out of 1.00

Flag question

The value of the integral $\int_C \frac{dz}{(z-a)^{10}}$, where C is $|z - a| = 3$ is :

Select one:

- a. 0 ✓
- b. $2\pi i$
- c. πi
- d. None of the above

The correct answer is: 0

Question 4

Correct

Mark 1.00 out of 1.00

Flag question

The integral $\int_C \frac{ze^z}{z^2+9}dz$ has non zero value if C is

_____

Select one:

- a. $|z|=1$
- b. $|z|=2$
- c. $|z-1|=1$
- d. $|z|=4$ ✓

The correct answer is: $|z|=4$

Question 5

Correct

Mark 1.00 out of 1.00

Flag question

$f(z)=\frac{1}{z+1}-\frac{2}{z+3}$. If C is a counterclockwise path in the z-plane such that $|z+1|=1$, the value of $\frac{1}{2\pi i}\oint_C f(z)dz$ is

Select one:

a. -2

b. -1

c. 1

d. 2

The correct answer is: 1

Question 6

Correct

Mark 1.00 out of 1.00

Flag question

Integration of the complex function ,

$f(z)=\frac{z^2}{z^2-1}$ in the counterclockwise direction, around $|z-1|=1$ is_____

Select one:

a. $-\pi i$

b. 0

c. πi ✓

d. $2\pi i$

The correct answer is: πi

Question 7

Correct

Mark 1.00 out of 1.00

Flag question

The only bounded entire functions are:

Select one:

a. Real valued functions

b. harmonic functions

c. Constant functions ✓

d. Exponential function

The correct answer is: Constant functions

Question 8

Correct

Mark 1.00 out of 1.00

Flag question

If f is continuous in a domain D and if $\int_C f(z)dz = 0$ for every simple closed positively oriented contour C in D, then:

Select one:

a. f is a constant in D

b. f is analytic in D ✓

c. f is real valued in D

d. f is purely imaginary in D

The correct answer is: f is analytic in D

Question 9

Correct

Mark 1.00 out of 1.00

Flag question

$\int \frac{z^2-4}{z^2+4} dz$ evaluated anticlockwise around the circle $|z-i|=2$ is

Select one:

a. -4π ✓

b. 0

c. $2+\pi$

d. 2 + 2i

The correct answer is: -4π

Question 10

Correct

Mark 1.00 out of 1.00

Flag question

Converse of Cauchy's integral theorem is known as:

Select one:

a. Liouville's theorem

b. Goursat's theorem

c. Morera's theorem ✓

d. Euler's theorem

The correct answer is: Morera's theorem