

B.Tech. (ECE,ENC,EEIOT)-2<sup>nd</sup> Semester,

Sessional - II (September- 2022)

Subject Name: Calculus, Ordinary Differential Equation and Complex Variable

Subject Code: BSC106D (Mathematics-II)

M.M: 15 Marks

Time : 90 minutes

Note : Attempt all questions .

Each Question carry equal marks.

Que.1 Evaluate  $\iint e^{2x+3y} dx dy$  over the triangle bounded by  $x = 0, y = 0$  and  $x+y = 1$ . (CO1)

Que.2 Evaluate  $\int_1^e \int_1^y \int_1^x \log z dz dx dy$ . (CO-3)

Que.3 Determine the analytic function  $w = u+iv$ , if  $v = \log(x^2+y^2) + x-2y$ . (CO-3)

Que.4 Find the series expansion of  $f(z) = (z^2-1)/(z^2+5z+6)$  about  $z = 0$  in the region  $|z| < 2$ . (CO-4)

Que.5 Evaluate  $\oint_c \frac{2z^2 + 5}{(z+2)^3(z^2+4)} dz$ , where 'c' is the square with vertices at  $1+i, 2+i, 2+2i, 1+2i$ . (CO-4)