

No. of Printed Pages : 06

Following Paper ID and Roll No. to be filled in your Answer Book.

**PAPER ID : 09915**Roll  
No.

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**B. Tech. Examination 2021-22**

(Even Semester)

**MATHEMATICS - III***Time : Three Hours]**[Maximum Marks : 60*

Note :- Attempt all questions.

1. Attempt any four parts of the following : 5×4=20

(a) Show that the complex variable function  $f(z) = |z|^2$  is differentiable only at origin.

(b) Define a harmonic function. Show that the function :

$$u(x, y) = x^4 - 6x^2y^2 + y^4$$

is harmonic.

(c) If  $|f(z)|$  is constant, prove that  $f(z)$  is also constant.*[P. T. O.]*