

DEPARTMENT OF MATHEMATICS  
BARASAT GOVERNMENT COLLEGE  
**SELF ASSESSMENT TEST-2 [SAT-2]**  
SEMESTER-II (GENERAL)- 2020  
Subject: Mathematics  
Course Code: MTMGCOR02T  
DATE OF SAT-2: 01/05/2020

Maximum Marks: 25

Time: 1 Hr.

[Answer all questions]

1. a) Form a PDE by eliminating  $h$  &  $k$  from the equation  $(x - h)^2 + (y - k)^2 + z^2 = \lambda^2$ . [ 3 ]
- b) *Eliminate  $a$  and  $b$  from  $z = axe^y + \frac{1}{2}a^2e^{2y} + b$*  [ 2 ]
2. a) Form a partial differential equation by eliminating arbitrary function  $f$  from  $lx + my + nz = f(x^2 + y^2 + z^2)$ . [ 2 ]
- b) Form a partial differential equation by eliminating arbitrary functions  $f$  &  $g$  from  $z = f(x^2 - y) + g(x^2 + y)$ . [ 3 ]
3. Solve  $(z^2 - 2yz - y^2)p + (xy + zx)q = xy - zx$  . [ 5 ]
4. *Apply Charpit's method to find a complete integral of  $z = pq$ .* [ 5 ]
5. *Find a complete integral of  $z^2 = pqxy$ , by using Charpit's method.* [ 5 ]