Student ID: _____

NAVRACHANA UNIVERSITY
SLSE, BSc PROGRAME
END SEMESTER EXAMINATION
2nd Year, Semester - IV
Academic Year 2016 – 2017

Subject: Differential Equations ODE&PDE (Major/Minor)
Course Code: MA209/217 Marks: 40
Date: 11/05/2017 Time: 1:00PM – 3:00PM

Instructions:
- ➔ Calculator is permitted.
- ➔ Write answers in answer book only.

Section-A

Q-1) Answer ALL Questions. 8x2=16

1. Solve $\frac{dy}{dx} = e^{3x+y} + x^2 e^y$
2. Solve $(x^2 + xy)dy + (3xy + y^2)dx = 0$
3. Solve $(x^2 - 4xy - 2y^2)dx + (y^2 - 4xy - 2x^2)dy = 0$
4. Solve $\frac{dy}{dx} + y\,secx = tanx$
5. Form the partial differential equation by eliminating the constantsa,b from the following

   $2z = \frac{x^2}{a^2} + \frac{y^2}{b^2}$
6. Solve $p^2 + q^2 = 5$
7. Solve $(p+q)(z - xp - yq) = 1$
8. Solve $xp + yq = z$

Section-B

Q-2) Answer the following questions. (Any Four) 4X6=24

(1) Solve $(D^2 - 5D + 6)y = cos3x$

(2) Solve $(D^2 + 2)y = x^2 e^{3x}$

(3) Solve $x^2 \frac{d^2y}{dx^2} - x\frac{dy}{dx} + 2y = xlog\,x$

(4) Solve $(y^2 + z^2)p - xyq + zx = 0$

(5)(i) Solve $p + q = sinx + sin\,y$

(ii) $p^2z^2 + q^2 = p^2q$

(6) Solve $(D^2 - 3DD' + 2D'^2)z = e^{2x-y} + \cos(x + 2y)$