

**VP(4)-ECO(14A)**  
**Math ECO & Econometrics**

**( 2 )**

**2016-18**

*Full Marks : 70*

*Time : 3 hours*

Answer any five questions

*The questions are of equal value.*

*Candidates are required to give their answers in their own words as far as practicable.*

1. Solve the differential equations:

$$(i) \left( \frac{1+x^2}{1+y} \right) \approx xy \frac{dy}{dx}$$

$$(ii) \frac{dy}{dx} = e^{x-y} + x^2 e^{-y}$$

2. State the condition of equilibrium if in the Cobweb Model the supply curve is assumed to have negative slope.

3. Explain dynamic Multiplier with change in investment.

4. Critically examine Modern theory of interest.

5. From the following data obtain the two regression equations using the method of Least Squares.

|   |   |   |   |   |    |
|---|---|---|---|---|----|
| x | 2 | 4 | 6 | 8 | 10 |
| y | 5 | 7 | 9 | 8 | 11 |

6. State the assumptions of ordinary Least Squares.

7. What is hypothesis testing ? Explain the Procedure of hypothesis testing.

8. State and explain the Gauss-Markov Theorem.

9. What is multi-collinearity ? Mention tests for detecting multi-collinearity.

10. Write notes on any two of the following:

(i) Heteroscedasticity

(ii) Dummy variables

(iii) TOBIT Model

( Turn Over )