



**ODISHA PUBLIC SERVICE COMMISSION  
CUTTACK**

**NOTICE**

NO .....<sup>1914</sup>...../PSC., Dt. ....<sup>26/3/18</sup>.....  
(DR - IV) (2PE-4-2015-16)

It is for information of all concerned, particularly the applicants, who have opted the optional subject of "**Econometrics**" in the written examination for recruitment to the post of **Asst. Director in Group - B of OPS cadre** under Planning & Convergence Department, pursuant to Advertisement No. **06 of 2016-17** that, the detail syllabus of the said subject (**Copy enclosed**) is published in the website of the Commission. The detail programme of the written examination will be published shortly.

The candidates are advised to go through the website of the Commission at <http://www.opsc.gov.in> for details.

*14/2/18*  
Secretary

The detail syllabus of the Optional Subject **"ECONOMETRICS"** for recruitment to the post of Assistant Director of OPS cadre under Planning & Convergence Department, pursuant to Advertisement No. 06 of 2016-17.

## ECONOMETRICS

### Module-I

Two variable linear regression models – assumptions, estimation and properties of estimators; Gauss Markov Theorem, Coefficient of determination; Analysis of Variance and its application in regression analysis.

Estimation of non-linear equations: Parabolic, exponential, geometric, hyperbolic, Gompertz and logistic functions.

### Module-II

K-Variable linear regression, Estimation of parameters, properties of ANOVA and its uses.

Multivariate probability distribution, marginal and conditional, Multivariate normal distribution and its properties, Discriminant analysis and its uses.

### Module-III

Heteroscedasticity- Consequences, detection and remedy; Generalized Least square and Weighted least square estimation; Auto-correlation; Detection; Consequences and remedy;

Prediction in two – variable and K- variable linear regression models;

Multicollinearity Problem: Nature, causes, detection consequences and remedy.

Specification Errors and Errors of Measurement, Examples and Application.

### Module-IV

Dummy variable models: Estimations: Testing the structural stability of regression models; interaction effects; Seasonal analysis; Piecewise Linear regression, Dummy dependent variable models: Logit, Probit and Tobit models with applications.

Autoregressive and Distributed lag models: Koyck model, Partial adjustment model, Adaptive expectation model, instrumental variables, Almon's approach to Distributed lag models, causality Tests: Granger test and Sim test. Applications.

**Module-V**

Simultaneous equation models. Bias and inconsistency of OLS estimators, identification problem, Rules of identification, Order and Rank Conditions. Method of estimation, Recursive methods and OLS, indirect least Square method (ILS), 2 SLS, 3SLS, and ML methods, Applications.

Stationarity tests, unit root, spurious regression and cointegration, Dicky fuller test and Engel-Granger test, Arima model and forecasting, Vector Auto Regression and Var modelling, Applications.