UNIVERSITY OF THE PUNJAB

Fifth Semester – 2019

Examination: B.S. 4 Years Program

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Signature of Supdt.:

PAPER: Econometrics-I **MAX. TIME: 15 Min.**

Course Code: ECON-302 Part–I (Compulsory) **MAX. MARKS: 10**

Attempt this Paper on this Question Sheet only.
Please encircle the correct option. Division of marks is given in front of each question.
This Paper will be collected back after expiry of time limit mentioned above.

Q.1. Encircle the right answer, cutting and overwriting is not allowed. (1x10=10)

1.	Suppose that a test that the true value of the intercept coefficient is zero results in non-rejection. What would be the appropriate conclusion? a) Drop the intercept and re-run the regression b) Retain the intercept c) Re-compute the test statistic d) The regression line is running exactly through the origin
2.	If an estimator is said to have minimum variance, which of the following statements is NOT implied? a) The probability that the estimate is a long way away from its true value is minimised b) The estimator is efficient c) Such an estimator would be termed "best" d) Such an estimator will always be unbiased
3.	In the context of simultaneous equations modelling, which of the following statements is true concerning an endogenous variable? a) The values of endogenous variables are determined outside the system b) There can be fewer equations in the system than there are endogenous variables c) Reduced form equations will not contain any endogenous variables on the RHS d) Reduced form equations will contain only endogenous variables on the RHS
4.	Near multicollinearity occurs when a) Two or more explanatory variables are perfectly correlated with one another b) The explanatory variables are highly correlated with the error term c) The explanatory variables are highly correlated with the dependent variable d) Two or more explanatory variables are highly correlated with one another
5.	Which one of the following is examined by looking at a goodness of fit statistic? a) How well the population regression function fits the data b) How well the sample regression function fits the population regression function c) How well the sample regression function fits the data d) How well the population regression function fits the sample regression function.

P.T.O.

6.	What would be then consequences for the OLS estimator if heteroscedasticity is present in a regression model but ignored? a) It will be biased b) It will be inconsistent c) It will be inefficient d) All of (a), (b) and (c) will be true.
7.	Which of the following could be used as a test for autocorrelation up to third order? a) The Durbin Watson test b) White's test c) The RESET test d) The Breusch-Godfrey test
8.	If OLS is applied separately to each equation that is part of a simultaneous system, the resulting estimates will be a) Unbiased and consistent b) Biased but consistent c) Biased and inconsistent d) It is impossible to apply OLS to equations that are part of a simultaneous system
9.	The order condition is a) A necessary and sufficient condition for identification b) A necessary but not sufficient condition for identification c) A sufficient but not necessary condition for identification d) A condition that is neither necessary nor sufficient for identification
10.	Negative residual autocorrelation is indicated by which one of the following? a) A cyclical pattern in the residuals b) An alternating pattern in the residuals c) A complete randomness in the residuals d) Residuals that are all close to zero

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Roll No. .....

PAPER: Econometrics-I

Course Code: ECON-302 Part – II

MAX. TIME: 2 Hrs. 45 Min.

MAX. MARKS: 50

ATTEMPT THIS (SUBJECTIVE) ON THE SEPARATE ANSWER SHEET PROVIDED

Q2. Explain the following briefly. 4 x 5 =20

(i) Coefficient of Determination
(ii) Perfect and partial multicollinearity
(iii) Indirect Least Squares
(iv) Order and Rank conditions
(v) Generalized Least Square

Q3. Consider the following regression output: 10

$$\hat{Y}_i = 0.2033 + 0.6560X_t$$
$$\text{se} = (0.0976)\ (0.1961)$$
$$r^2 = 0.397 \quad \text{RSS} = 0.0544 \quad \text{ESS} = 0.0358$$

where Y = labor force participation rate (LFPR) of women in 1972 and X = LFPR of women in 1968. The regression results were obtained from a sample of 19 cities in the United States.

a. How do you interpret this regression?
b. Test the hypothesis: $H_0: \beta_2 = 1$ against $H_1: \beta_2 > 1$. Which test do you use? And why? What are the underlying assumptions of the test(s) you use?
c. Suppose that the LFPR in 1968 was 0.58 (or 58 percent). On the basis of the regression results given above, what is the mean LFPR in 1972? Establish a 95% confidence interval for the mean prediction.
d. How would you test the hypothesis that the error term in the population regression is normally distribute? Show the necessary calculations.

Q4. Consider the sets of data given in the following two tables: 10

Table 1

Y	X2	X3
1	2	4
2	0	2
3	4	12
4	6	0
5	8	16

Table 2

Y	X2	X3
1	2	4
2	0	2
3	4	0
4	6	12
5	8	16

The only difference between the two tables is that the third and fourth values of $X3$ are interchanged.

a) Regress Y on $X2$ and $X3$ in both tables, obtaining the usual OLS output.
b) What difference do you observe in the two regressions? And what accounts for this difference?

Q5. From the data for 46 states in the United States for 1992, Baltagi obtained the following regression results†: 10

$$\widehat{\log C} = 4.30 - 1.34 \log P + 0.17 \log Y$$
$$\text{se} = (0.91) \quad (0.32) \qquad (0.20) \qquad \bar{R}^2 = 0.27$$

where C = cigarette consumption, packs per year
P = real price per pack
Y = real disposable income per capita

a. What is the elasticity of demand for cigarettes with respect to price? Is it statistically significant? If so, is it statistically different from one?
b. What is the income elasticity of demand for cigarettes? Is it statistically significant? If not, what might be the reasons for it?
c. How would you retrieve R^2 from the *adjusted* R^2 given above?