Indian Institute of Technology Kharagpur
Department of Humanities and Social Sciences
Five-Year Integrated M.Sc. in Economics; First Class Test (Autumn Semester: 2022-23)
Subject: Econometric Analysis II (HS30207/HS40007)
Time: 30mins Full Marks 20 Date: 15 September 2022

Answer Keys

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Answer										
Question	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Answer										

Select the most appropriate alternative for the following: $1 \times 20 = 20$

1. Inclusion of separate dummy variables for each category along with the intercept will cause:
   A) Omitted variable bias; B) Heteroscedasticity; C) Autocorrelation; D) Multicollinearity

2. Dummy variables are variables of:
   A) Ratio scale; B) Interval scale; C) Ordinal scale; D) Nominal scale

3. Inclusion of lagged dependent variable as an independent variable can make the OLS estimators:
   A) Biased but consistent coefficient; B) Biased and inconsistent; C) Unbiased but inconsistent; D) Unbiased and consistent but inefficient

4. For the model $Y_i = \alpha + \beta_1 X_{1i} + ... + \beta_k X_{ki} + u_i$, $ESS = \beta_1 \sum x_{1i} \hat{y}_i + ... + \beta_k \sum x_{ki} \hat{y}_i$
   A) True; B) False; C) Uncertain

5. Omission of a relevant variable from a regression model, will cause the following:
i) The standard errors will be biased
ii) If the variable is uncorrelated with the included variables, the slope coefficients will be inconsistent
iii) If the variable is uncorrelated with the included variables, the intercept will be inconsistent
iv) If the variable is uncorrelated with the included variables, both the slope coefficients and the intercept will be consistent and unbiased but inefficient.
   A) (ii) and (iv) only; B) (i) and (iii) only; C) (i), (ii) and (iii) only; D) (i), (ii), (iii) and (iv)

6. Which of the following statistical test(s) can be applied for the selection of a non-nested model?
i) Restricted F Test
ii) Likelihood Ratio Test
iii) Lagrange Multiplier Test
iv) Davidson Mackinnon J Test

   A) (i) and (ii) only; B) (iii) only; C) (ii), (iii) and (iv) only; D) (iv) only

7. The logistic functional form:
   A) Forces the dependent variable to lie between zero and one; B) Is suitable if the dependent variable is a probability; C) Never allows the dependent variable to be 0 or 1; D) All of the above

8. The first difference of the logarithm of Y equals:
   A) The first difference of Y; B) The difference between the lead and the lag of Y; C) Nearly the growth rate of Y when the growth rate is small; D) Exactly the growth rate of Y

9. If a variable (X) Granger causes another variable (Y):
   A) Variable X is exogenous; B) Variable X is not necessarily exogenous; C) Variable X is endogenous; D) Variable X is not endogenous

10. In order to examine if female workforce earns less than their male counterpart, the following model is estimated: $Y_i = \beta_1 + \beta_2 D_i + u_i$, where Y=average earnings per day in rupees, D=1 for female workforce and 0 for the male counterpart. Here, β_2 refers to:
A) Average earnings of male; B) Average earnings of female; C) Differential intercept coefficient for earnings by male workforce; D) Differential intercept coefficient earnings by female workforce

11. Given the model, $Y_i = \alpha_1 + \alpha_2 D_{2i} + \alpha_3 D_{3i} + \alpha_4 (D_{2i} * D_{3i}) + \beta X_i + U_i$, the mean value of Y, when both dummy variables take the value 1 is given by
A) $\alpha_1 + \alpha_2 + \alpha_3 + \alpha_4$; B) $\alpha_1 + \alpha_2 + \alpha_3 + \alpha_4 + \beta X_i$; C) $\alpha_2 + \alpha_4$; D) $\alpha_2 + \alpha_4 + \beta X_i$

12. A long-run increase or decrease in data is known to be
A) Seasonal variations; B) Trend variations; C) Cyclic variations; D) Random variations

13. In a multiple regression model, analysis of variance (ANOVA) is carried out through
A) t-test; B) z-test; C) Chi-square test; D) F-test

14. Analysis of covariance (ANCOVA) can be used in case of
A) Quantitative and qualitative regressors; B) Only qualitative regressors; C) Quantitative regressand and qualitative regressor; D) None of the above

15. The Newey-West criterion for selection of lag length is the nearest integer of:
A) $p_{\max} = 4 \times \left(\frac{T}{100}\right)^{\frac{2}{9}}$; B) $p_{\max} = 2 \times \left(\frac{T}{100}\right)^{\frac{2}{9}}$; C) $p_{\max} = 2 \times \left(\frac{T}{100}\right)^{\frac{1}{9}}$
D) $p_{\max} = 2 \times \left(\frac{T}{100}\right)^{\frac{4}{9}}$

16. Errors in measurement of the dependent variable will cause the OLS estimators to be:
A) Biased but consistent; B) Biased and inconsistent; C) Unbiased but inconsistent; D) Unbiased and consistent but inefficient

17. The Wald test of model selection is based on
A) t-statistic; B) z-statistic; C) Chi- square Statistic; D) F-statistic

18. The Davidson-Mackinnon test is applied for:
A) Selection of appropriate model; B) Testing equality of two slope coefficients; C) Testing equality of variance of random disturbance term of different sub-periods; D) Testing normality of the random disturbance term

19. Which of the following will not be a consequence of using non-stationary data in level form?
A) The ordinary R^2 may be spuriously high; B) The test statistics may not follow standard distributions; C) Statistical inferences may be invalid; D) Parameter estimated may be biased

20. Which of the following are the characteristics of a stationary process?
(i) It crosses its mean value frequently
(ii) It has constant mean and variance
(iii) It contains no trend component
(iv) It will be stationary in first difference form
(A) (ii) and (iv) only; B) (i) and (iii) only; C) (i), (ii), and (iii) only; D) (i), (ii), (iii), and (iv)
