BACHELOR OF ARTS EXAMINATION, 2019

(2nd Year, 4thSemester)

ECONOMICS (Honours)

APPLIED ECONOMICS

SKILL ENHANCEMENT COURSE 2 (SE 2)

Time : Two hours   Full Marks : 30

Answer any **two** questions

1. a. Show how one can test for constant returns to scale for the following Cobb-Douglas type production function: $Q = AL^{\alpha}K^{\beta}$, Where Q is output, L denotes labour units, K is capital and A is exogenous technology parameter.   [4]

b. The following regression equation is estimated and the results are presented in table 1 below.

$price = b_1 + b_2 rooms + b_3 sqfeet + u$, where price: housing price, rooms: number of bedrooms, sqfeet: size of the house measured in square feet

Table 1: Basic regression results

Source	SS	df	MS	Number of observations= 88
				F(2, 85) = 72.96, Prob > F= 0.0000
Model	580009.152	2	290004.576	R-squared= 0.6319
Residual	337845.354	85	3974.65122	Adj R-squared= 0.6233
Total	917854.506	87	10550.0518	Root MSE= 63.045
price	Coef.	Std. Err.	t	P>t
sqrft	1284362	0138245	9.29	0.000
bdrms	15.19819	4835179	1.60	0.113
_cons	-19.315	31.04662	-0.62	0.536

Breusch-Pagan LM test= 24.14

Interpret the above table and perform the test for heteroscedasticity.   [6]

c. Use the following Table 1b and perform the Jarque-Bera Test for Normality in residuals. Clearly mention the Jarque-Bera Test statistic, the null hypothesis for the test and the distribution of the statistic.   [5]

[Turn over

Table1b: Summary of residuals
Percentiles   Smallest

1%	-127.6273	-127.6273		
5%	-79.00599	-113.9293		
10%	-68.79101	-103.4301	Obs	88
25%	-42.95159	-94.97694	Sum of Wgt.	88
50%	-7.050622		Mean	0.000000215
		Largest	Std. Dev.	62.31597
75%	32.65354	114.7075		
90%	63.14372	197.9906	Variance	3883.28
95%	78.45648	205.8092	Skewness	1.122124
99%	229.003	229.003	Kurtosis	5.688608

2. a. What is the difference between probability sampling and non probability sampling? [4]

b. Use the random number table and write down procedure of selecting 11 samples.   [4]

c. What steps you should follow in designing a questionnaire for primary survey?   [4]

d. How will you determine sample size in primary survey?   [3]

3.a. The following table 3 reports heights in inches. Use the following table and fill the ANOVA table.   [12]

Treatment 1	Treatment 2	Treatment 3	Treatment 4
60 inches	50	48	47
67	52	49	67
42	43	50	54
67	67	55	67
56	67	56	68
62	59	61	65
64	67	61	65
59	64	60	56
72	63	59	60
71	65	64	65

b. How much of the variance in height is explained by treatment group?   [3]