RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

SECOND YEAR [BATCH 2015-18]
B.A./B.Sc. FOURTH SEMESTER (January – June) 2017
Mid-Semester Examination, March 2017

Date : 15/03/2017

ECONOMICS (Honours)

Time : 11 am – 1 pm   Paper : IV   Full Marks : 50

[Use a separate Answer Book <u>for each group</u>]

<u>Group – A</u>

1. a) Discuss the historical context of Lewis model.   [3]

    b) What is dualism?   [3]

    c) Explain the assumptions of the Lewis model.   [4]

2. Write a short note : "The role of institutions in economic development"   [5]

3. A farming family owns some land. Two people are needed to farm each acre of land that they own. There are six people in the family. The going wage in the market is Rs. 1000.Each acre of land can produce Rs. 3000 worth output. The family is always free to lease out land but the labour required to farm it must be compensated at Rs. 1000 per person. Another problem is the family can hire labour but that involves supervision cost Rs. 2000 to monitor them.

    a) Calculate the rent per acre the family hope to obtain by leasing out land.   [1]

    b) For a six person family, what is the minimum acreage necessary for it to be optimal to lease out land? Explain your answer.   [2]

    c) Is there a threshold acreage after which the family will no longer lease out land, but hire a supervisor and employ wage labour?   [2]

OR

What do you mean by screening in the context of land rent tenancy contract? How this justifies the preponderance of the practice of sharecropping tenancy contract even though it is inefficient in Marshallian sense? What are the facts that make screening argument to justify sharecropping tenancy contract invalid?   [1+2+2]

4. What do you mean by Marshallian efficiency principle in land rent tenancy contract? Why the incidence of retaining more than 100% of an extra output in fixed rent tenancy contract is inefficient even though the tenant might put in extra effort? Show graphically.   [2·5+2·5]

OR

    a) Show that in a world of uncertainty a poor risk averse tenant will always prefer a sharecropping tenancy contract over fixed rent contract. Assume that the land owner is risk neutral.   [2·5]

    b) What is the land owner himself is risk averse? How do you think the market for contract will emerge? Explain.   [2·5]

<u>Group – B</u>

6. A random sample of 12 observations is used to estimate a simple linear regression relationship between two variables. Here is a partial ANOVA table :

Source of Variation	df	SS	MS
Regression			
Error			10
Total		350	

What percentage of the variation in the dependent variable is explained by the variation in the independent variable (to the nearest integer)?   [5]

Answer <u>any two</u> questions from the <u>Question Nos. 7 to 9</u> :   [2×10]

7. You are given the following information regarding the joint distribution of X (the age of a person) and Y (the number of days they choose to spend at a meditation camp) :

| | | Values of Y | | |
		0	1	2	3
Values of X	20	0.25	0.02	0	0
	40	0.25	0.06	0.02	0
	60	0.15	0.12	0.08	0.05

Considering X as independent variable and Y as the dependent variable, find the PRF (Population Regression Function) values as X =20, 40 and 60. Looking at the calculated PRF values, do you find any trend ?   [10]

8. Sir Francis Galton, a cousin of James Darwin, examined the relationship between the height of children and their parents towards the end of the 19th century. It is from this study that the name "regression" originated. You decide to update his findings by collecting data from 122 college students, and estimate the following relationship:

$Studenth = 19.6 + 0.73 \times Midparh$, $R^2 = 0.45$
       (7.2)   (0.10)

where Studenth is the height of students in inches, and Midparh is the average of the parental heights. (Values in parentheses are estimated standard errors for the estimated intercept and slope coefficients.)

If children, on average, were expected to be of the same height as their parents, then this would imply two hypotheses, one for the slope and one for the intercept. (i) What should the null hypothesis be for the intercept? Calculate the relevant statistic and carry out the hypothesis test at the 1% level. (ii) What should the null hypothesis be for the slope? Calculate the relevant statistic and carry out the hypothesis test at the 5% level.   [5+5]

9. In the context of the simple linear regression with intercept (between y & x, where y : dependent & x : independent), show that the coefficient of determination coincides with the squared coefficient of correlation between y and x.   [10]

TABLE IV *t*-DISTRIBUTION*
Values of $t_{\alpha, \nu}$

α \ ν	0·05	0·025	0·01	0·005
1	6·314	12·706	31·821	63·657
2	2·920	4·303	6·965	9·925
3	2·353	3·182	4·541	5·841
4	2·132	2·776	3·747	4·604
5	2·015	2·571	3·365	4·032
6	1·943	2·447	3·143	3·707
7	1·895	2·365	2·998	3·499
8	1·860	2·306	2·896	3·355
9	1·833	2·262	2·821	3·250
10	1·812	2·228	2·764	3·169
11	1·796	2·201	2·718	3·106
12	1·782	2·179	2·681	3·055
13	1·771	2·160	2·650	3·012
14	1·761	2·145	2·624	2·977
15	1·753	2·131	2·602	2·947
16	1·746	2·120	2·583	2·921
17	1·740	2·110	2·567	2·898
18	1·734	2·101	2·552	2·878
19	1·729	2·093	2·539	2·861
20	1·725	2·086	2·528	2·845
21	1·721	2·080	2·518	2·831
22	1·717	2·074	2·508	2·819
23	1·714	2·069	2·500	2·807
24	1·711	2·064	2·492	2·797
25	1·708	2·060	2·485	2·787
26	1·706	2·056	2·479	2·779
27	1·703	2·052	2·473	2·771
28	1·701	2·048	2·467	2·763
29	1·699	2·045	2·462	2·756
30	1·697	2·042	2·457	2·750
40	1·684	2·021	2·423	2·704
60	1·671	2·000	2·390	2·660
120	1·658	1·980	2·358	2·617
∞	1·645	1·960	2·326	2·576