

SECTION – A

There are **FOUR** questions in this Section. Answer any **THREE**.

1. (a) What is fixed quantity subsidy? (10)
 (b) Discuss how fixed quantity subsidy may result in over consumption. (15)
 (c) Discuss welfare loss of per unit subsidy from market perspective. (10)
2. (a) Describe the welfare loss of progressive income tax from individual perspective. (10)
 (b) Show that the incidence of tax depends on the elasticity of demand and supply curves. (25)
3. (a) What do you understand by government intervention to redistribute income? (10)
 (b) Explain the arguments advanced in favor of and against the government intervention to redistribute income. Discuss with suitable examples. (25)
4. (a) Mathematically show that welfare cost of tax depends on elasticity of demand and supply curves and tax rate. (15)
 (b) Describe different kinds of tax structure with numerical example. (10)
 (c) Demonstrate that progressive income tax discourages labor supply. (10)

SECTION – B

There are **FOUR** questions in this Section. Answer any **THREE**.

5. (a) What is Externality? (10)
 (b) Explain welfare cost due to the presence of negative externality of production. (10)
 (c) Explain how externality can be internalized by applying 'Coase Theorem'. (15)
6. (a) Discuss how market outcome ensure both production efficiency and consumption efficiency. (25)
 (b) State few reasons of market failure. (10)
7. (a) Explain how each of the characteristics of public goods results in market failure. (10)
 (b) Derive the efficient provision of public goods both mathematically and graphically. (25)
8. (a) Discuss the Cyclical Majority Phenomenon in case majority voting. (10)
 (b) Briefly explain the Median Voter Rule. (10)
 (c) What do you mean by Log Rolling? Discuss the merits as well as short comings of it. (15)

SECTION – A

There are **FOUR** questions in this Section. Answer any **THREE**.

1. (a) Define Master Plan. Briefly discuss about the Dhaka Metropolitan Development Plan (DMDP) of Dhaka city. (12)
(b) Describe the preparation procedure of Master Plan. (23)
2. (a) Write down the functions of Local Plan. Describe the form and content of Local Plan. (20)
(b) State the importance of Detail Area Planning. (5)
(c) Briefly explain the demerits of Sites and Services Schemes. (10)
3. (a) Describe the basic principles and policies of Land Readjustment Technique. (20)
(b) Discuss about the revenue sources for upgrading low income settlement. To ensure a sustainable financing for upgrading settlement, which of those sources are most feasible from your perspective and why? (10)
(c) What do you understand by height zoning and density zoning? (5)
4. (a) Describe different methods which can be applied in Detail Area Planning? (22)
(b) In the application of land use zoning in an existing town, what aspects should be considered? (4)
(c) Which methods can be used for renewal process? Explain with example. (9)

SECTION – B

There are **FOUR** questions in this Section. Answer any **THREE**.

5. (a) Why it is necessary to regulate and guide land development process? (5)
(b) With a neat diagram show the hierarchy of land classification categories. (10)
(c) Land use plan making process is a sequence of several tasks. Briefly explain all these tasks for residential land use planning. (20)
6. (a) Compare the characteristics of “compact” and “sprawl” development. (10)
(b) Discuss the impacts of compact and sprawl development from social, economic and ecological perspectives. (9)

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- (c) Why did Kevin Lynch explored the human role in the interpretation of the city image? (2)
- (d) Briefly describe the elements of "City Image" with examples from Bangladesh. (14)
7. (a) What is the importance of development management plan? Briefly discuss the components of development management plan. (2+18=20)
- (b) Give example of two strategies that could be adopted to conserve historic building of Dhaka by upholding the interests of the private owners of those buildings. (8)
- (c) A planner need to understand the "Ecological Footprint" of a development-explain. (7)
8. (a) Discuss and compare the urbanization characteristics of "First World" and "Third World" countries. (10)
- (b) Explain the term "Urban Growth Boundary". (5)
- (c) Give a brief description of Urbanization trend in Bangladesh since liberation and its associated consequences. (8+12=20)
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SECTION – AThere are **FOUR** questions in this Section. Answer any **THREE**.

(Use the attached tables if necessary)

1. (a) Distinguish between linear trend and exponential trend of population projection. (15)

(b) Following table (Table 1) provides data on female population of an area according to age cohort. Project the number of total female population who will be eligible for 'elderly allowance' in the year 2030 if 30% of the total female population of age group '60 and above' meet the criteria for elderly allowance'. Assume there is no migration and all births survive. (20)

Table 1

Cohort	Ages	Population ('000) (2000)	Death ('000) (2000-2010)	Birth ('000) (2000-2010)
1	0-9	1000	100	0
2	10-19	950	80	200
3	20-29	980	50	500
4	30-39	780	100	300
5	40-49	610	85	150
6	50-59	520	92	0
7	60-69	350	85	0
8	70-79	200	75	0
9	80 & above	98	50	0

2. (a) The following table (Table 2) shows data on incomes and food expenditures on the seven households.

Table 2

Income (.000 Taka)	55	83	38	61	33	49	67
Food expenditure ('000 Taka)	14	24	13	16	9	15	17

- (i) Find the least squares regression line for the given data. (15)
- (ii) Calculate the value of 'co-efficient of determination' and 'correlation co-efficient'. (4+2=6)
- (iii) Interpret the value of both the co-efficients as derived in question no. 2(ii) (2+4=6)
- (iv) Calculate a 95% confidence interval for the population slope. (8)
3. (a) Distribution between seasonal and cyclical variation in time series analysis. (10)
- (b) The URP Department of BUET conducted a training workshop for three professional groups (two from the DNCC and DSCC and the other from RAJUK) on 'Land Use

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Planning'. The authority kept record about the performance score of all the participants to determine participants of which institution are more attentive during workshop. Based on the following scores (Table 3) (out of 100), help URP Department find whether the institutions differ in interest on land use planning. Use a rank sum test with a 10% level of significance.

(25)

Table 3

Participants	Test scores								
DNCC	74	88	83	93	55	70			
DSCC	78	80	65	57	89				
RAJUK	68	83	50	91	83	77	94	81	92

4. Write short notes on the following-

(7×5=35)

- (i) Parametric tests
- (ii) Seasonal index
- (iii) Scatter plot
- (iv) Population forecast
- (v) Interval level data
- (vi) Ordinary least squares (OLS) estimates
- (vii) Normal curve.

SECTION – B

There are **FOUR** questions in this Section. Answer any **THREE**.

The abbreviations have their usual meanings.

5. (a) A planner of a Pourashava has been assigned with the task of preparing a plan for the improvement of the slums in the Pourashava. For this purpose he needs information, one of which is the level of household income in the slums. From his initial observation he hypothesizes that the average monthly income of the households in the slums is Taka 14,500/-. He then selects a sample of 100 households and finds that the average household income is 13,000/- Taka with a standard deviation of 2100 Taka. At a 0.05 level of significance should he conclude that the household income of the slum dwellers is less than the hypothesized 14,500 Taka?

(17 ½)

(b) The mayor of a small town received 41 percent of the total votes during the mayoral election a few years ago. His commitment was to make the town livable for its citizens. A researcher wants to know about the current perception of the voters regarding his activities towards the fulfillment of his commitment. The researcher randomly selects 350 voters out of a total of 10,200 voters and finds that 39 percent of the voter approve his activities. Should the researcher conclude that the mayor's approval rate in terms of the

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proportion of voters is not the same as it was during the election? Test at a significance level $\alpha = 0.01$.

(17 ½)

6. Three areas in Dhaka city were compared to see whether the areas varied in terms of land price. The followings table (Table 4) are the prices of land per katha in three areas (six observations in each area):

Table 4

Area-A (Lakh Taka)	Area-B (Lakh Taka)	Area-C (Lakh Taka)
45	59	41
40	43	37
50	47	43
39	51	40
53	39	52
44	49	37

- (a) State the null hypothesis and alternate hypothesis. (5)
- (b) Calculate SST, SSE and SS_{total} . (15)
- (c) Develop an ANOVA table. (10)
- (d) At the 0.05 significance level, is there a difference in the mean price of land in three areas? (5)
7. (a) A group of executives was classified according to monthly income and age. The purpose was to find out the relationship between age and income. The information is given in the table (Table 5)

Table 5

Age (Year)	Income (Lakh Taka)			Total
	Less than 100	100-199	200 or more	
Under 40	6	9	5	20
40-54	18	19	8	45
55 and older	11	12	17	40
Total	35	40	30	105

- (a) State the null and alternate hypothesis. (5)
- (b) Compute the Chi-square Statistic. (20)
- (c) Graphically show the decision rule. (5)
- (d) At the 0.01 significance level test that level of income is not related to age. (5)
8. A researcher wanted to know the perception of ward residents whether the councilors of three wards in a pourashava were carrying out their activities to fulfill their commitments.

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The researcher randomly selected 230 residents in each ward and the proposition that was put to them was “the ward councilor has been very active to fulfill his election commitments?” The selected residents were asked to respond whether they agreed to it. The response were categorized into five types as follows (Table 6)

Table 6

Agreement	Responses		
	Ward-I	Ward-II	Ward-III
Strongly Agree	80	70	50
Agree	60	50	40
Neutral	20	10	10
Disagree	40	60	70
Strongly Disagree	30	40	60
Total	230	230	230

- (a) Constant a suitable scale and specify the computational formula. (10)
 - (b) Compute the indexes of agreement. (20)
 - (c) Interpret the results. (5)
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✓
DISTRIBUTION OF χ^2

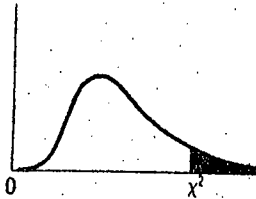
Degrees of Freedom	Probability						
	.50.	.30.	.20.	.10.	.05.	.02.	.01.
1	.455	1.074	1.642	2.706	3.841	5.412	6.635
2	1.386	2.408	3.219	4.605	5.991	7.824	9.210
3	2.366	3.665	4.642	6.251	7.815	9.837	11.345
4	3.357	4.878	5.989	7.779	9.488	11.668	13.277
5	4.351	6.064	7.289	9.236	11.070	13.388	15.086
6	5.348	7.231	8.558	10.645	12.592	15.033	16.812
7	6.346	8.383	9.803	12.017	14.067	16.622	18.475
8	7.344	9.524	11.030	13.362	15.507	18.168	20.090
9	8.343	10.656	12.242	14.684	16.919	19.679	21.666
10	9.342	11.781	13.442	15.987	18.307	21.161	23.209
11	10.341	12.899	14.631	17.275	19.675	22.618	24.725
12	11.340	14.011	15.812	18.549	21.026	24.054	26.217
13	12.340	15.119	16.985	19.812	22.362	25.472	27.688
14	13.339	16.222	18.151	21.064	23.685	26.873	29.141
15	14.339	17.322	19.311	22.307	24.996	28.259	30.578
16	15.338	18.418	20.465	23.542	26.296	29.633	32.000
17	16.338	19.511	21.615	24.769	27.587	30.995	33.409
18	17.338	20.601	22.760	25.989	28.869	33.346	34.805
19	18.338	21.689	23.900	27.204	30.144	33.687	36.191
20	19.337	22.775	25.038	28.412	31.410	35.020	37.566
21	20.337	23.858	26.171	29.615	32.671	36.343	38.932
22	21.337	24.939	27.301	30.813	33.924	37.659	40.289
23	22.337	26.018	28.429	32.007	35.172	38.968	41.638
24	23.337	27.096	29.553	33.196	36.415	40.270	42.980
25	24.337	28.172	30.675	34.382	37.652	41.566	44.314
26	25.336	29.246	31.795	35.563	38.885	42.856	45.642
27	26.336	30.319	32.912	36.741	40.113	44.140	46.963
28	27.336	31.391	34.027	37.916	41.337	45.419	48.278
29	28.336	32.461	35.139	39.087	42.557	46.693	49.588
30	29.336	33.530	36.250	40.256	43.773	47.962	50.892

Appendix L is abridged from Table IV of Fisher and Yates: *Statistical Tables for Biological, Agricultural, and Medical Research*, published by Oliver and Boyd Ltd., Edinburgh, and by permission of the authors and publishers.

Appendix B

Critical Values of Chi-Square

This table contains the values of χ^2 that correspond to a specific right-tail area and specific number of degrees of freedom.



Example: With 17 df and a .02 area in the upper tail, $\chi^2 = 30.995$

Degrees of Freedom, df	Right-Tail Area			
	0.10	0.05	0.02	0.01
1	2.706	3.841	5.412	6.635
2	4.605	5.991	7.824	9.210
3	6.251	7.815	9.837	11.345
4	7.779	9.488	11.668	13.277
5	9.236	11.070	13.388	15.086
6	10.645	12.592	15.033	16.812
7	12.017	14.067	16.622	18.475
8	13.362	15.507	18.168	20.090
9	14.684	16.919	19.679	21.666
10	15.987	18.307	21.161	23.209
11	17.275	19.675	22.618	24.725
12	18.549	21.026	24.054	26.217
13	19.812	22.362	25.472	27.688
14	21.064	23.685	26.873	29.141
15	22.307	24.996	28.259	30.578
16	23.542	26.296	29.633	32.000
17	24.769	27.587	30.995	33.409
18	25.989	28.869	32.346	34.805
19	27.204	30.144	33.687	36.191
20	28.412	31.410	35.020	37.566
21	29.615	32.671	36.343	38.932
22	30.813	33.924	37.659	40.289
23	32.007	35.172	38.968	41.638
24	33.196	36.415	40.270	42.980
25	34.382	37.652	41.566	44.314
26	35.563	38.885	42.856	45.642
27	36.741	40.113	44.140	46.963
28	37.916	41.337	45.419	48.278
29	39.087	42.557	46.693	49.588
30	40.256	43.773	47.962	50.892

TABLE IV(b) Values of $F_{0.01}$

Degrees of freedom for denominator	Degrees of freedom for numerator																		
	1	2	3	4	5	6	7	8	9	10	12	15	20	24	30	40	60	120	∞
1	4.052	5.000	5.403	5.625	5.764	5.859	5.928	5.982	6.023	6.056	6.106	6.157	6.209	6.235	6.261	6.287	6.313	6.339	6.366
2	98.5	99.0	99.2	99.2	99.3	99.3	99.4	99.4	99.4	99.4	99.4	99.4	99.4	99.5	99.5	99.5	99.5	99.5	99.5
3	34.1	30.8	29.5	28.7	28.2	27.9	27.7	27.5	27.3	27.2	27.1	26.9	26.7	26.6	26.5	26.4	26.3	26.2	26.1
4	21.2	18.0	16.7	16.0	15.5	15.2	15.0	14.8	14.7	14.5	14.4	14.2	14.0	13.9	13.8	13.7	13.7	13.6	13.5
5	16.3	13.3	12.1	11.4	11.0	10.7	10.5	10.3	10.2	10.1	9.89	9.72	9.55	9.47	9.38	9.29	9.20	9.11	9.02
6	13.7	10.9	9.78	9.15	8.75	8.47	8.26	8.10	7.98	7.87	7.72	7.56	7.40	7.31	7.23	7.14	7.06	6.97	6.88
7	12.2	9.55	8.45	7.85	7.46	7.19	6.99	6.84	6.72	6.62	6.47	6.31	6.16	6.07	5.99	5.91	5.82	5.74	5.65
8	11.3	8.65	7.59	7.01	6.63	6.37	6.18	6.03	5.91	5.81	5.67	5.52	5.36	5.28	5.20	5.12	5.03	4.95	4.86
9	10.6	8.02	6.99	6.42	6.06	5.80	5.61	5.47	5.35	5.26	5.11	4.96	4.81	4.73	4.65	4.57	4.48	4.40	4.31
10	10.0	7.56	6.55	5.99	5.64	5.39	5.20	5.06	4.94	4.85	4.71	4.56	4.41	4.33	4.25	4.17	4.08	4.00	3.91
11	9.65	7.21	6.22	5.67	5.32	5.07	4.89	4.74	4.63	4.54	4.40	4.25	4.10	4.02	3.94	3.86	3.78	3.69	3.60
12	9.33	6.93	5.95	5.41	5.06	4.82	4.64	4.50	4.39	4.30	4.16	4.01	3.86	3.78	3.70	3.62	3.54	3.45	3.36
13	9.07	6.70	5.74	5.21	4.86	4.62	4.44	4.30	4.19	4.10	3.96	3.82	3.66	3.59	3.51	3.43	3.34	3.25	3.17
14	8.86	6.51	5.56	5.04	4.70	4.46	4.28	4.14	4.03	3.94	3.80	3.66	3.51	3.43	3.35	3.27	3.18	3.09	3.00
15	8.68	6.36	5.42	4.89	4.56	4.32	4.14	4.00	3.89	3.80	3.67	3.52	3.37	3.29	3.21	3.13	3.05	2.96	2.87
16	8.53	6.23	5.29	4.77	4.44	4.20	4.03	3.89	3.78	3.69	3.55	3.41	3.26	3.18	3.10	3.02	2.93	2.84	2.75
17	8.40	6.11	5.19	4.67	4.34	4.10	3.93	3.79	3.68	3.59	3.46	3.31	3.16	3.08	3.00	2.92	2.83	2.75	2.65
18	8.29	6.01	5.09	4.58	4.25	4.01	3.84	3.71	3.60	3.51	3.37	3.23	3.08	3.00	2.92	2.84	2.75	2.66	2.57
19	8.19	5.93	5.01	4.50	4.17	3.94	3.77	3.63	3.52	3.43	3.30	3.15	3.00	2.92	2.84	2.76	2.67	2.58	2.49
20	8.10	5.85	4.94	4.43	4.10	3.87	3.70	3.56	3.46	3.37	3.23	3.09	2.94	2.86	2.78	2.69	2.61	2.52	2.42
21	8.02	5.78	4.87	4.37	4.04	3.81	3.64	3.51	3.40	3.31	3.17	3.03	2.88	2.80	2.72	2.64	2.55	2.46	2.36
22	7.95	5.72	4.82	4.31	3.99	3.76	3.59	3.45	3.35	3.26	3.12	2.98	2.83	2.75	2.67	2.58	2.50	2.40	2.31
23	7.88	5.66	4.76	4.26	3.94	3.71	3.54	3.41	3.30	3.21	3.07	2.93	2.78	2.70	2.62	2.54	2.45	2.35	2.26
24	7.82	5.61	4.72	4.22	3.90	3.67	3.50	3.36	3.26	3.17	3.03	2.89	2.74	2.66	2.58	2.49	2.40	2.31	2.21
25	7.77	5.57	4.68	4.18	3.86	3.63	3.46	3.32	3.22	3.13	2.99	2.85	2.70	2.62	2.53	2.45	2.36	2.27	2.17
30	7.56	5.39	4.51	4.02	3.70	3.47	3.30	3.17	3.07	2.98	2.84	2.70	2.55	2.47	2.39	2.30	2.21	2.11	2.01
40	7.31	5.18	4.31	3.83	3.51	3.29	3.12	2.99	2.89	2.80	2.66	2.52	2.37	2.29	2.20	2.11	2.02	1.92	1.80
60	7.08	4.98	4.13	3.65	3.34	3.12	2.95	2.82	2.72	2.63	2.50	2.35	2.20	2.12	2.03	1.94	1.84	1.73	1.60
120	6.85	4.79	3.95	3.48	3.17	2.96	2.79	2.66	2.56	2.47	2.34	2.19	2.03	1.95	1.86	1.76	1.66	1.53	1.38
∞	6.63	4.61	3.78	3.32	3.02	2.80	2.64	2.51	2.41	2.32	2.18	2.04	1.88	1.79	1.70	1.59	1.47	1.32	1.00

Table A.7 Critical Values F_{α, v_1, v_2} for the F Distribution

$\alpha = .05$

$v_2 \backslash v_1$	1	2	3	4	5	6	7	8	9	10	12	15	20	24	30	40	60	120	∞
1	161.4	199.5	215.7	224.6	230.2	234.0	236.8	238.9	240.5	241.9	243.9	245.9	248.0	249.1	250.1	251.1	252.2	253.3	254.3
2	18.51	19.00	19.16	19.25	19.30	19.33	19.35	19.37	19.38	19.40	19.41	19.43	19.45	19.45	19.46	19.47	19.48	19.49	19.50
3	10.13	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.81	8.79	8.74	8.70	8.66	8.64	8.62	8.59	8.57	8.55	8.53
4	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00	5.96	5.91	5.86	5.80	5.77	5.75	5.72	5.69	5.66	5.63
5	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77	4.74	4.68	4.62	4.56	4.53	4.50	4.46	4.43	4.40	4.36
6	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10	4.06	4.00	3.94	3.87	3.84	3.81	3.77	3.74	3.70	3.67
7	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68	3.64	3.57	3.51	3.44	3.41	3.38	3.34	3.30	3.27	3.23
8	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39	3.35	3.28	3.22	3.15	3.12	3.08	3.04	3.01	2.97	2.93
9	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18	3.14	3.07	3.01	2.94	2.90	2.86	2.83	2.79	2.75	2.71
10	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02	2.98	2.91	2.85	2.77	2.74	2.70	2.66	2.62	2.58	2.54
11	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.90	2.85	2.79	2.72	2.65	2.61	2.57	2.53	2.49	2.45	2.40
12	4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.80	2.75	2.69	2.62	2.54	2.51	2.47	2.43	2.38	2.34	2.30
13	4.67	3.81	3.41	3.18	3.03	2.92	2.83	2.77	2.71	2.67	2.60	2.53	2.46	2.42	2.38	2.34	2.30	2.25	2.21
14	4.60	3.74	3.34	3.11	2.96	2.85	2.76	2.70	2.65	2.60	2.53	2.46	2.39	2.35	2.31	2.27	2.22	2.18	2.13
15	4.54	3.68	3.29	3.06	2.90	2.79	2.71	2.64	2.59	2.54	2.48	2.40	2.33	2.29	2.25	2.20	2.16	2.11	2.07
16	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54	2.49	2.42	2.35	2.28	2.24	2.19	2.15	2.11	2.06	2.01
17	4.45	3.59	3.20	2.96	2.81	2.70	2.61	2.55	2.49	2.45	2.38	2.31	2.23	2.19	2.15	2.10	2.06	2.01	1.96
18	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46	2.41	2.34	2.27	2.19	2.15	2.11	2.06	2.02	1.97	1.92
19	4.38	3.52	3.13	2.90	2.74	2.63	2.54	2.48	2.42	2.38	2.31	2.23	2.16	2.11	2.07	2.03	1.98	1.93	1.88
20	4.35	3.49	3.10	2.87	2.71	2.60	2.51	2.45	2.39	2.35	2.28	2.20	2.12	2.08	2.04	1.99	1.95	1.90	1.84
21	4.32	3.47	3.07	2.84	2.68	2.57	2.49	2.42	2.37	2.32	2.25	2.18	2.10	2.05	2.01	1.96	1.92	1.87	1.81
22	4.30	3.44	3.05	2.82	2.66	2.55	2.46	2.40	2.34	2.30	2.23	2.15	2.07	2.03	1.98	1.94	1.89	1.84	1.78
23	4.28	3.42	3.03	2.80	2.64	2.53	2.44	2.37	2.32	2.27	2.20	2.13	2.05	2.01	1.96	1.91	1.86	1.81	1.76
24	4.26	3.40	3.01	2.76	2.62	2.51	2.42	2.36	2.30	2.25	2.18	2.11	2.03	1.98	1.94	1.89	1.84	1.79	1.73
25	4.24	3.39	2.99	2.76	2.60	2.49	2.40	2.34	2.28	2.24	2.16	2.09	2.01	1.96	1.92	1.87	1.82	1.77	1.71
26	4.23	3.37	2.98	2.74	2.59	2.47	2.39	2.32	2.27	2.22	2.15	2.07	1.99	1.95	1.90	1.85	1.80	1.75	1.69
27	4.21	3.35	2.96	2.73	2.57	2.46	2.37	2.31	2.25	2.20	2.13	2.06	1.97	1.93	1.88	1.84	1.79	1.73	1.67
28	4.20	3.34	2.95	2.71	2.56	2.45	2.36	2.29	2.24	2.19	2.12	2.04	1.96	1.91	1.87	1.82	1.77	1.71	1.65
29	4.18	3.33	2.93	2.70	2.55	2.43	2.35	2.28	2.22	2.18	2.10	2.03	1.94	1.90	1.85	1.81	1.75	1.70	1.64
30	4.17	3.32	2.92	2.69	2.53	2.42	2.33	2.27	2.21	2.16	2.09	2.01	1.93	1.89	1.84	1.79	1.74	1.68	1.62
40	4.08	3.23	2.84	2.61	2.45	2.34	2.25	2.18	2.12	2.08	2.00	1.92	1.84	1.79	1.74	1.69	1.64	1.58	1.51
60	4.00	3.15	2.76	2.53	2.37	2.25	2.17	2.10	2.04	1.99	1.92	1.84	1.75	1.70	1.65	1.59	1.53	1.47	1.39
120	3.92	3.07	2.68	2.45	2.29	2.17	2.09	2.02	1.96	1.91	1.83	1.75	1.66	1.61	1.55	1.50	1.43	1.35	1.25
∞	3.84	3.00	2.60	2.37	2.21	2.10	2.01	1.94	1.88	1.83	1.75	1.67	1.57	1.52	1.45	1.39	1.32	1.22	1.00

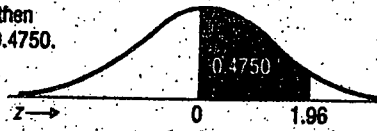
Appendix Tables

(continued)

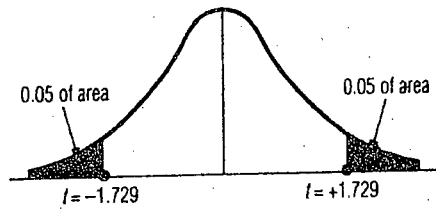
Appendix D

Areas under the Normal Curve

Example:
If $z = 1.96$, then
 $P(0 \text{ to } z) = 0.4750$.



z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	0.0000	0.0040	0.0080	0.0120	0.0160	0.0199	0.0239	0.0279	0.0319	0.0359
0.1	0.0398	0.0438	0.0478	0.0517	0.0557	0.0596	0.0636	0.0675	0.0714	0.0753
0.2	0.0793	0.0832	0.0871	0.0910	0.0948	0.0987	0.1026	0.1064	0.1103	0.1141
0.3	0.1179	0.1217	0.1255	0.1293	0.1331	0.1368	0.1406	0.1443	0.1480	0.1517
0.4	0.1554	0.1591	0.1628	0.1664	0.1700	0.1736	0.1772	0.1808	0.1844	0.1879
0.5	0.1915	0.1950	0.1985	0.2019	0.2054	0.2088	0.2123	0.2157	0.2190	0.2224
0.6	0.2257	0.2291	0.2324	0.2357	0.2389	0.2422	0.2454	0.2486	0.2517	0.2549
0.7	0.2580	0.2611	0.2642	0.2673	0.2704	0.2734	0.2764	0.2794	0.2823	0.2852
0.8	0.2884	0.2910	0.2939	0.2967	0.2995	0.3023	0.3051	0.3078	0.3106	0.3133
0.9	0.3159	0.3186	0.3212	0.3238	0.3264	0.3289	0.3315	0.3340	0.3365	0.3389
1.0	0.3413	0.3438	0.3461	0.3485	0.3508	0.3531	0.3554	0.3577	0.3599	0.3621
1.1	0.3643	0.3665	0.3686	0.3708	0.3729	0.3749	0.3770	0.3790	0.3810	0.3830
1.2	0.3849	0.3869	0.3888	0.3907	0.3925	0.3944	0.3962	0.3980	0.3997	0.4015
1.3	0.4032	0.4049	0.4066	0.4082	0.4099	0.4115	0.4131	0.4147	0.4162	0.4177
1.4	0.4192	0.4207	0.4222	0.4236	0.4251	0.4265	0.4279	0.4292	0.4306	0.4319
1.5	0.4332	0.4345	0.4357	0.4370	0.4382	0.4394	0.4406	0.4418	0.4429	0.4441
1.6	0.4452	0.4463	0.4474	0.4484	0.4495	0.4505	0.4515	0.4525	0.4535	0.4545
1.7	0.4554	0.4564	0.4573	0.4582	0.4591	0.4599	0.4608	0.4616	0.4625	0.4633
1.8	0.4641	0.4649	0.4656	0.4664	0.4671	0.4678	0.4686	0.4693	0.4699	0.4706
1.9	0.4713	0.4719	0.4726	0.4732	0.4738	0.4744	0.4750	0.4756	0.4761	0.4767
2.0	0.4772	0.4778	0.4783	0.4788	0.4793	0.4798	0.4803	0.4808	0.4812	0.4817
2.1	0.4821	0.4826	0.4830	0.4834	0.4838	0.4842	0.4846	0.4850	0.4854	0.4857
2.2	0.4861	0.4864	0.4868	0.4871	0.4875	0.4878	0.4881	0.4884	0.4887	0.4890
2.3	0.4893	0.4896	0.4898	0.4901	0.4904	0.4906	0.4909	0.4911	0.4913	0.4916
2.4	0.4918	0.4920	0.4922	0.4925	0.4927	0.4929	0.4931	0.4932	0.4934	0.4936
2.5	0.4938	0.4940	0.4941	0.4943	0.4945	0.4946	0.4948	0.4949	0.4951	0.4952
2.6	0.4953	0.4955	0.4956	0.4957	0.4958	0.4960	0.4961	0.4962	0.4963	0.4964
2.7	0.4965	0.4966	0.4967	0.4968	0.4969	0.4970	0.4971	0.4972	0.4973	0.4974
2.8	0.4974	0.4975	0.4976	0.4977	0.4977	0.4978	0.4979	0.4979	0.4980	0.4981
2.9	0.4981	0.4982	0.4982	0.4983	0.4984	0.4984	0.4985	0.4985	0.4986	0.4986
3.0	0.4987	0.4987	0.4987	0.4988	0.4988	0.4988	0.4988	0.4989	0.4989	0.4990



Appendix Table 2

Areas in Both Tails Combined for Student's *t* Distribution

Example:
To find the value of *t* that corresponds to an area of 0.10 in both tails of the distribution combined, when there are 19 degrees of freedom, look under the 0.10 column, and proceed down to the 19 degrees of freedom row; the appropriate *t* value there is 1.729.

Degrees of Freedom	Area in Both Tails Combined			
	0.10	0.05	0.02	0.01
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
Normal Distribution	1.645	1.960	2.326	2.576

L-2/T-2/URP

Date : 10/08/2015

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-2/T-2 B. URP Examinations 2013-2014

Sub : **ARCH 233** (Landscape Planning and Design)

Full Marks : 140

Time : 3 Hours

The figures in the margin indicate full marks.

USE SEPARATE SCRIPTS FOR EACH SECTION

SECTION – A

There are **FOUR** questions in this Section. Answer Q. No. 1 and any **TWO** from the rest.

1. Write short notes on:- (Any two) (10×2=20)
 - (a) Italian Gardens
 - (b) English Gardens
 - (c) Mughal Gardens

2. Define Landscape Design and Landscape Planning. Briefly describe the essential considerations for a Landscape Design Project. (25)

3. Briefly discuss different methods of Landscape design with necessary illustrations. (25)

4. Define Landscape Ecology. What are the goals of Landscape Ecology? Describe those in brief. (25)

SECTION – B

There are **FOUR** questions in this Section. Answer Q. No. 5 and any **TWO** from the rest.

5. Write short notes on- (10×2=20)
 - (a) Community based conservation process.
 - (b) Site planning consideration.

 6. Define ecological services. Briefly discuss the ecological services offered by Sundarban (Mangrove forest) (25)

 7. State the important considerations to be taken for creating a vibrant urban space. (25)

 8. Discuss the different steps involved in planting of trees. (25)
-

L-2/T-2/URP

Date : 08/07/2015

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-2/T-2 BURP Examinations 2013-2014

Sub : HUM 281 (Political Science and Local Government)

Full Marks : 210

Time : 3 Hours

The figures in the margin indicate full marks.

USE SEPARATE SCRIPTS FOR EACH SECTION

SECTION – A

There are **FOUR** questions in this Section. Answer any **THREE**.

1. (a) Define state. Identify the differences between society and state. **(15)**
(b) How do you define sovereignty? Discuss various types of sovereignty with examples. **(20)**
2. (a) What is meant by the term 'nationalism'? Describe the demerits of nationalism. **(15)**
(b) Explain the legal rights of a citizen in a state. **(20)**
3. (a) Define democracy. Which factors are necessary for the success of Democracy? **(15)**
(b) How will you define the concept of governance? Discuss the constraints of good governance in South Asia. **(20)**
4. (a) What is bureaucracy? Discuss the role and functions of bureaucracy in a state. **(15)**
(b) Analyze the advantages and disadvantages of unitary form of government. **(20)**

SECTION – B

There are **FOUR** questions in this Section. Answer any **THREE**.

5. (a) Analyze the law-making process in Bangladesh. **(15)**
(b) Make a brief discussion on the political system of United States of America (USA). **(20)**
 6. (a) Describe the problems of participation of women in rural local government in Bangladesh. **(15)**
(b) What is local government? Explain the structure and composition of urban local government bodies in Bangladesh. **(20)**
 7. (a) Discuss the income sources of local government institutions in Bangladesh. **(15)**
(b) Examine the relations between elected functionaries and their bureaucratic counterparts in Bangladesh. **(20)**
 8. (a) Write short notes on any three of the following: **(35)**
(i) Bicameral Legislature (ii) Six-point program (iii) Bangladesh foreign policy.
(iv) Decentralization.
-

SECTION - A

There are **FOUR** questions in this Section. Answer any **THREE**.

1. (a) Explain the techniques of measuring the shape of a polygon feature in GIS. (8)
(b) What is Euler function? Explain with examples how Euler function works to determine spatial integrity of different types of polygon features. (15)
(c) What is meant by 'perforated polygon' and 'fragmented polygon'? (6)
(d) Distinguish between 'sliver poly' and 'weird poly'. (6)

2. (a) What are the six major areas of entity errors that need to be addressed? Give an example of each. (12)
(b) Describe the basic vector data structure. How it differs from raster in its ability to locate objects in space? How does it deal with the space between objects and other spatial relationships composed to raster? (9)
(c) Give some examples of 'discrete data' and 'continuous data'. (6)
(d) Describe a method of measuring sinuosity of linear objects. (8)

3. (a) Provide detailed explanations of different types of overlay in vector data structure. (17)
(b) Give three concrete, real-world examples of topological relationships of geographic features. (6)
(c) What is the difference between kriging and weighted interpolation methods? (6)
(d) What do you mean by 'nearest neighbor'? Give a short description on nearest neighbor analysis of GIS. (6)

4. (a) Give an example of a simple reclassification procedure that aggregates two or more classes together into a single class. How is this done in raster and in vector data models? (10)
(b) What is dissolve operation? How is it used for reclassifying areas? How does it work? (5)
(c) What is the difference between a high-pass and a low-pass filter? Describe how both work and give their respective purposes. (6)
(d) Describe with a example simple raster method of measuring distance through a friction surface. (5)

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Contd ... Q. No. 4

- (e) Write short notes on the followings (any three) : **(3×3=9)**
- (i) Connectivity analysis
 - (ii) Point pattern analysis
 - (iii) Location allocation analysis
 - (iv) DEM and TIN
 - (v) Buffers

SECTION – B

There are **FOUR** questions in this Section. Answer any **THREE**.

5. (a) Describe the significance of spectral signature in remote sensing. **(05)**
- (b) Describe the elements for visually interpreting an image. **(15)**
- (c) Describe the technique applied for spiral feature manipulation. **(15)**
6. Write notes on the following (any five): **(5×7=35)**
- (i) Radiometric Resolution
 - (ii) Spectral Rationing
 - (iii) Criteria for choosing remote sensing image.
 - (iv) Basic image interpretation task
 - (v) Landsat-7
 - (vi) SPOT-5
7. (a) What are the sources of geometric and radiometric errors in satellite image? **(5)**
- (b) Describe the differences between **(10)**
- (i) Active and Passive sensor
 - (ii) Temporal Resolution and Revisit Time
- (c) 'Ideal remote sensing system does not exist' - do you agree? Justify your answer. **(10)**
- (d) Define sun-synchronous satellite and geo-stationary satellite. **(10)**
8. (a) Briefly describe the computer based techniques to interpret remotely sensed images. **(20)**
- (b) Briefly describe the ways how electromagnetic energy interacts with the atmosphere. **(15)**
-