BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-2/T-1   BURP Examinations 2014-2015

Sub : **PLAN 211** (Urban Planning Principles)

Full Marks: 210   Time : 3 Hours

USE SEPARATE SCRIPTS FOR EACH SECTION

The figures in the margin indicate full marks.

SECTION – A

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

1. (a) "The size of a neighborhood is governed by two main factors" — What are these factors? Explain with examples.   (25)

    (b) Give a brief outline of the factors that influence the location and growth of an industry.   (10)

2. (a) With necessary illustrations describe the spatial relationship among different land uses in Town Centre, with special emphasis on business and civic centre.   (20)

    (b) What are the properties that should be obtained by a planned neighborhood unit?   (12)

    (c) How can we achieve the prime sociological objectives of planning a neighborhood?   (3)

3. (a) Briefly discuss the categories of industry.   (12)

    (b) The concentration of building and business has an influence on the traffic circulation. Keeping this in mind, what principles should be followed while designing an urban centre.   (16)

    (c) Define "Transit Oriented Development" and "Residential density".   (7)

4. (a) "In planning, certain natural tendencies should be taken care of in the spatial organization of land use and activities" — Explain this statement.   (10)

    (b) Briefly discuss about the growth control measures of Bangladesh.   (20)

    (c) From your perspective, whether urban fringe area should be considered as distinct unit in urban planning or not? Give proper justification.   (5)

PLAN 211

SECTION – B

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

5. (a) What do you understand by the term "Urban Spatial Structure"? **(7)**

    (b) Concentric zone theory and sector theory suggest inevitable predetermining patterns of location but Harris and Ullman suggested that land use patterns vary depending on local context. Briefly describe the theory of Harris and Ullman and explain the above statement. **(20)**

    (c) Briefly discuss Le Corbusier's concept of city planning. **(8)**

6. (a) Distinguish between the terms "Land Use" and "Land Cover". **(7)**

    (b) Which factors required to be addressed during site evaluation for a proposed shopping center? **(10)**

    (c) Write a short note on Huff's Gravity Model. **(10)**

    (d) Briefly discuss different categories of office spaces. **(8)**

7. (a) Our historic past is eroded both by human and natural forces — explain the statement. **(5)**

    (b) What are the motives of conservation? As a planner, which criteria would you consider for selecting an area/structure for conservation. **(3+5)**

    (c) The most conservative form of preservation is restoration — explain. **(7)**

    (d) Briefly discuss the recommended order of categories of land uses for urban land use design. **(15)**

8. (a) Briefly describe the categories of open space and the basic purposes it serves. **(7)**

    (b) Briefly explain the benefits of open space and elaborate your answer with examples from Dhaka city. **(12)**

    (c) Discuss the urbanization trend in Bangladesh since 1981 and briefly describe the associated consequences. **(8+8)**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-2/T-1   BURP Examinations 2014-2015

Sub : **PLAN 217** (Site and Area Planning)

Full Marks: 210   Time : 3 Hours

USE SEPARATE SCRIPTS FOR EACH SECTION

The figures in the margin indicate full marks.

SECTION – A

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

1.   (a) What aspects should be taken care of in locating deep tube wells and the grouping of

wells.   **(13)**

(b) Describe the basic principles of "cul-de-sac" street pattern with necessary sketch.   **(22)**

2.   (a) What do you understand by the term 'pocket spaces'? As a planner, how can you

utilize these spaces efficiently?   **(3+5=8)**

(b) You have been assigned a task of sub-division planning of an irregular shaped plot,

that has to be designed for residential purpose. The site has a flat topography.

Considering different aspects of neighborhood facilities, explain which layout pattern

will you follow to design the site for making the maximum utilization of land.   **(12)**

(c) What are the issues need to be considered regarding slope, alignment and dimension

of road in sub-division planning and why?   **(15)**

3.   (a) State the types of individual disposal facilities.   **(3)**

(b) Determine the required capacity of a storage tank that has to be designed for 430

sq. m roof area in Narayongonj industrial area, where average annual rainfall is 1.190 m.   **(7)**

(c) If you want to recharge ground water aquifer with harvested rainwater, what will be

the planning considerations for making it cost-effective.   **(5)**

(d) Briefly describe the steps where captured rainwater from roof top area gets

disinfected.   **(20)**

4.   Write short notes (any Five):   **(5×7=35)**

(a)   Basic elements of site selection,

(b)   Concept of house grouping,

(c)   Storage tank of Rain Water Harvesting System,

(d)   Advantages of public sewerage system,

(e)   Management practice of water supply system,

(f)   Water demand in urban areas.

PLAN 217

SECTION – B

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

5. (a) What do you understand by combination drainage system? Explain any two typical plans of this drainage system with neat diagram. **(15)**

   (b) Name ten common sources of noise with their decibel scale. What types of barriers can be used to control noise? **(5+10=15)**

   (c) Write down the stages of site planning cycle. **(5)**

6. (a) What are the main criteria that should be considered while designing an industrial district? **(20)**

   (b) "Topography affects climate by its influence on air movement, as well as by its orientation to the sun" — Explain the statement with necessary illustrations. **(15)**

7. (a) What are the objectives for designing a shopping centre? Explain the typical layouts of shopping centres with necessary illustrations. **(20)**

   (b) What are the sensuous forms and criteria of site perception? Explain each of them. **(15)**

8. Write short notes on the following topics: **(5×7=35)**

   (a) The process of 'cut' and 'fill' in a site,

   (b) Microclimatic Heat Exchange,

   (c) Shading,

   (d) Sun angle,

   (e) Shapes of different types of spaces.

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-2/T-1   B.URP Examinations 2014-2015

Sub : **PLAN 291** (Statistics for Planners I)

Full Marks: 210   Time : 3 Hours

USE SEPARATE SCRIPTS FOR EACH SECTION

The figures in the margin indicate full marks.

SECTION – A

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

1. (a) Differentiate between descriptive and inferential statistics.   **(5)**

    (b) In what ways a histogram differs from a bar chart.   **(5)**

    (c) The table below contains the marks (out of 100) of a student in seven projects of a sessional course and their respective weights according to the difficulty level. To get an improvement of grade, the student attempted twice for this course and received Marks 1 and Marks 2.

Project	Marks 1	Marks 2	Weight (%)
1	63	68	15
2	70	60	15
3	75	82	5
4	72	76	10
5	78	80	5
6	86	83	20
7	80	80	30

   (c) (i)   Calculate the arithmetic mean for the above two distribution of marks. Compare the value of the two means.   **(10)**

       (ii) Does this measure correctly say whether the student made an improvement over the first attempt? If not then explain your answer by determining the value of the other measure and comparing it with the first one.   **(15)**

2. To understand the travel behaviour of the residents of Dhaka city, data on travel cost has been collected from 52 trip makers.

Travel Cost (Tk.)	No. of Trip Makers
0–150	12
150–300	10
300–450	8
450–750	6
750–900	8

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Contd... Q. No. 2

    (a) Using the data provided in the table, draw the sketch of a histogram to show the distribution of travel cost. **(10)**

    (b) For statistical analysis, it is required that the data is normally distributed. Comment on the extent to which this data satisfies the requirement. **(25)**

3.   (a) "For correct statistical analysis, it is important to identify the level of measurement of the collected data" — Explain this statement with suitable examples. **(15)**

    (b) A primary survey has been conducted in 2005 and 2015 to compare the dispersion in the distances travelled by children to reach secondary school. Using the data provided in the following table, compare the travel distances from the two years by computing the coefficient of variation. **(20)**

Distance (km)	No. of Children (2005)	No. of Children (2015)
0.0 – 0.5	23	5
0.5 – 1.0	76	65
1.0 – 1.5	64	62
1.5 – 2.0	32	40
2.0 – 2.5	20	36
2.5 – 3.0	0	10

4.   (a) Make a comparison between absolute and relative measures of dispersion. **(10)**

    (b) What is a "Box-and-Whisker Plot"? Name some of its applications. **(5)**

    (c) Construct a box-and-whisker plot for the dataset given below and determine whether this dataset contain any outlies. **(20)**

Waiting Time for Bus Arrival (min.)	No. of People
0 – 5	3
5 – 10	4
10 – 15	30
15 – 20	55
20 – 35	78
35 – 40	10

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SECTION – B

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

5. The following table shows the distribution of blood types in the general population (in terms of proportion):

	A	B	AB	O
Rh+	0.34	0.09	0.04	0.38
Rh–	0.06	0.02	0.01	0.06

   (a) Prepare a tree diagram of the distribution of blood types.   **(10)**

   (b) What is the probability a person will have type O blood?   **(5)**

   (c) What is the probability a person will be Rh–?   **(5)**

   (d) What is the probability a person will be Rh– given she or he has type O blood?   **(5)**

   (e) What is the probability a person will have type B blood given he or she is Rh+?   **(5)**

   (f) What is the probability a married couple will both have type AB blood?   **(5)**

6. (a) A survey reveals that five percent of the bus drivers have passed S.S.C. examination. Suppose 10 bus drivers are selected randomly. What is the probability that

   (i)   two of the drivers have passed S.S.C. examination?   **(7)**

   (ii) none have passed S.S.C. examination?   **(7)**

   (iii) at least one has passed S.S.C. examination?   **(7)**

   (b) Airline passengers arrive randomly and independently at the passenger-screening facility at a major international airport. The mean arrival rate is 10 passengers per minute.

   (i) What is the probability of no arrivals in a 1-minute period?   **(7)**

   (ii) What is the probability of at least one arrival in a 15-second period?   **(7)**

7. According to a survey the average daily income of rickshaw pullers in a city is Taka 442 with a standard deviation of Taka 90.

   (a) What is the probability that a rickshaw puller earns between Taka 400 and Taka 500?   **(10)**

   (b) What is the minimum income of the top 20% of the rickshaw pullers (who earn highest income)?   **(15)**

   (c) For a randomly selected rickshaw puller, what is the probability he earns less than Taka 250 per day?   **(10)**
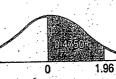
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8. (a) A sample of 60 items resulted in a sample mean of 80 and a sample standard deviation of 15.

     (i)   Compute the 95% confidence interval for the population mean. **(8)**

     (ii) Assume that the same sample mean and sample standard deviation were obtained from a sample of 120 items. Provide a 95% confidence interval for the population mean. **(8)**

     (iii) What is the effect of a larger sample size on the interval estimate of a population mean? **(3)**

   (b) A simple random sample of 800 units generates a sample proportion P = 0.70.

     (i)   Provide a 90% confidence interval for the population proportion. **(8)**

     (ii) Provide a 95% confidence interval for the population proportion. **(8)**

Areas under the Normal Curve

Example:
If $z = 1.96$, then
$P(0$ 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	0.2881	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	0.4959	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	0.4989	0.4989	0.4989	0.4990	0.4990

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-2/T-1   BURP Examinations 2014-2015

Sub : **CE 209** (Construction Materials and Civil Engineering Structures)

Full Marks: 140   Time : 3 Hours

USE SEPARATE SCRIPTS FOR EACH SECTION

The figures in the margin indicate full marks.

SECTION – A

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

1. (a) "Compressive strength of concrete, water-cement ratio and workability are interrelated" — explain. **(10)**

   (b) A pile cap contains 4 piles. The length and diameter of each pile is 60 ft and 18 in. respectively. If the concrete mix ratio for constructing both pile cap and piles is 1:1.5:3 (by Volume), how many bags of cement are required to prepare concrete for this pile foundation? Also, mention the amount of sand (cft), aggregate (cft) and water (litre) are required to prepare concrete mix, if the water cement ratio is 0.45 (by Weight), Given: dimension of pile cap is 10 ft length, 10 ft width and 10 in. thick. **(13⅓)**

2. (a) Briefly explain the basic soil properties. **(10)**

   (b) In its natural state, a moist soil has a volume of 0.33 ft^3 and weighs 39.93 lb. The oven-dried weight of the soil is 34.54 lb. Calculate the moisture content (%), moist unit weight (lb/ft^3) and dry unit weight (lb/ft^3) of soil. **(6)**

   (c) Draw a typical gradation curve of well, poor, uniform and gap graded aggregate. **(7⅓)**

3. (a) Write short notes on: **(12)**

       (i)   Rapid hardening cement

       (ii) Initial setting time of cement

       (iii) Slump test

       (iv) Segregation of concrete

   (b) Describe the functions/hydration of minerals constituents of cement.: **(11⅓)**

       C_3A, C_3S, C_2S and C_4AF

4. (a) What are the characteristics and qualities of good building stones? **(8⅓)**

   (b) Briefly describe different types of sand according to their sources. **(6)**

   (c) Write short notes on: **(9)**

       (i)   Uses of slag

       (ii) FRP

       (iii) Thermo plastics

CE 209

SECTION – B

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

Assume any reasonable value of missing data.

5. (a) Describe harmful ingredients of 'Brick Earth'. **(16)**

   (b) Briefly explain field test of bricks. **(7¾)**

6. (a) Write down short notes on the following: **(12)**

   (i) Effective Rainfall

   (ii) FIR

   (iii) GIR

   (iv) GCA

   (b) Write down the differences among 'watershed canal', 'contour canal' and 'side slope canal'. **(11¾)**

7. (a) Describe the advantages and disadvantages of 'natural seasoning' of timber. **(7¾)**

   (b) Write down the differences among different methods of surface irrigation. **(16)**

8. (a) Write down the advantages and disadvantages of pre-cast and cast-in-situ pile. **(8¾)**

   (b) Discuss the differences among 'flexible pavement', 'rigid pavement' and 'composite pavement'. **(15)**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-2/T-1   BURP Examinations 2014-2015

Sub : **HUM 179** (Sociology)

Full Marks: 210   Time : 3 Hours

USE SEPARATE SCRIPTS FOR EACH SECTION

The figures in the margin indicate full marks.

SECTION – A

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

1. (a) Consider cities around the world are becoming increasingly more homogenous (consider McDonald's, KFC, Coke, Hollywood films, CNN etc.) while simultaneously offering inhabitants greater choice and opportunities than they had before globalization. What opportunities have appeared in your region owing to globalization? **(20)**

   (b) How did mobile phones and social networking turn out to be mere extensions and amplifiers of the mass media? **(15)**

2. (a) Extended 'Safety-net' programs might help in reducing poverty from Bangladesh. Explain your opinion in the light of this statement with relevant examples. **(15)**

   (b) How 'role status conflict' and 'lack of conformity and obedience' can produce social disorganization in society? **(10)**

   (c) Identify Merton's types of deviances in society by citing examples from your society. **(10)**

3. (a) What were the major social effects happened during Industrial Revolution in Great Britain? **(15)**

   (b) Discuss the relevant social causes of rural-urban migration in Bangladesh. **(10)**

   (c) Describe the key differences between 'Urban Ecology' and 'New Urban Sociology'. **(10)**

4. Write short notes on any THREE of the following **(35)**

   (a)   Top ten Megalopolises in the world.

   (b)   World system theory.

   (c)   Professional Crime.

   (d)   Joint family.

HUM 179

SECTION – B

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

5. (a) 'Sociological imagination is an unusual type of creative thinking' – justify this statement with suitable example. **(10)**

   (b) Illustrate Emile Durkheim's contribution in the field of sociology. **(10)**

   (c) Write the principles and properties of functionalist perspective of sociology. **(15)**

6. (a) 'Language manifests cultural traits of a society'. Explain. **(10)**

   (b) Explain the following concepts with suitable examples: **(25)**

   (i) subculture

   (ii) counter culture

   (iii) ethnocentrism

   (iv) social norms

   (v) dominant ideology

7. (a) Professional, scientific and technical personnel are increasingly important from the beginning at the late 20th century' – R. T. Schaefer. Discuss. **(15)**

   (b) Point out the elements of demography used by sociologists. Cite present status of these elements. **(10)**

   (c) Discuss the sustainable ways to reduce environmental pollution from Bangladesh. **(10)**

4. Write short notes on any THREE of the following: **(35)**

   (a) Systems of social stratification

   (b) Cooley's theory of self

   (c) Agents of socialization

   (d) Social mobility