L-2/T-1/URP **Date: 20/10/2019**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-2/T-1 BURP Examinations 2018-2019

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

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** questions.

1. (a) "Urban planning is a framework that helps (leaders) transform a vision into reality using space as key resource for development and engaging stakeholders along the way." Explain the statement highlighting the necessity of urban planning. **(15)**

   (b) Briefly state the design principles regarding character and quality of a town centre. **(10)**

   (c) Satellite towns are independent towns for daily necessities. Explain the statement. **(10)**

2. (a) Land use determines the need for transport and transport also determines spatial development. How? **(15)**

   (b) 'Transport and communications' and 'site and premises' affect location of industries. Do you agree with the statement? Justify your answer. **(14)**

   (c) Mention the major land use components of a town. **(6)**

3. (a) The role and function of town centres vary according to their hierarchy. Explain the statement. **(15)**

   (b) Land is not only a functional space devoted to various uses but also a setting for activity systems. Discuss briefly. **(10)**

   (c) Neatly sketch Clarence Perry's neighbourhood unit. **(10)**

4. Write short notes on the following–

   (a) Neotraditional neighbourhood design concept. **(15)**

   (b) Urban areas of Bangladesh. **(12)**

   (c) Urban fringe. **(8)**

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SECTION – B

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

5. (a) According to Le Corbusier "Material of city planning are: sky, space, trees, steel, cement, in that order and that hierarchy". — explain this statement. **(9)**

   (b) Distinguish between the terms "land cover" and "land use" with relevant examples. **(10)**

   (c) What are the assumptions of Huff's Gravity Model — explain with an example. **(16)**

6. (a) Explain how Multiple Nuclei Theory differs from Sector Theory. **(14)**

   (b) Briefly discuss the changing characteristics of shopping facilities of Dhaka since Pakistan period. **(15)**

   (c) Write short note on "Adaptive Use" of historic building. **(6)**

7. (a) In the light of global urbanization context, briefly discuss why "Urban Agenda" has become the priority of governments, local authorities and non governmental organizations. **(10)**

   (b) Briefly discuss the salient features of urbanization trend in Bangladesh and the consequences of such trend. **(15)**

   (c) What are the motives of conservation? **(3)**

   (d) Our historic past is eroded both by human and natural forces— explain with examples. **(7)**

8. (a) As a planner, discuss the importance of open space from physical, economic, environmental and social point of view. **(16)**

   (b) What are the major challenges of historic conservation in Bangladesh? **(8)**

   (c) Open spaces are designed to serve people of different age groups with active and passive recreational facilities– discuss the types and functions of local level open spaces. **(11)**

L-2/T-1/URP Date: 03/11/2019

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-2/T-1 BURP Examinations 2018-2019

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

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** questions.

1. (a) Suppose you have been assigned with the task of land subdivision planning of neighborhoods. Consider the following cases: **(27)**

   (i) The topography of the neighborhood is flat. You are required to prioritize convenient laying out of different utility facilities and greeneries close to the houses.

   (ii) The topography of the neighborhood is undulated. You are required to prioritize road safety.

   (iii) The topography of the neighborhood is flat. You are required to prioritize road safety and convenient laying out of different utility facilities.

   (b) Explain in brief how a neighborhood is different from a housing group. **(8)**

2. (a) A bungalow situated in a relatively low-rainfall area (600 mm per year), has a roof of corrugated metal sheets of 150 m^2. Another bungalow, situated in a comparatively high-rainfall area (950 mm per year), has a sandy lawn of steep slope of 300 m^2. The roof and the lawn are used as the catchment areas of rainwater harvesting system of the respective bungalows. Which of these bungalows can collect higher amount of rainwater? **(12)**

   (b) Along with coarse mesh, why a first flush device is recommended to use in a rainwater harvesting system? **(3)**

   (c) Why is it recommended to connect a new residential development, if possible, with an existing public sewer system? **(6)**

   (d) "Neither complete segregation nor complete aggregation is advantageous for housing group" — do you agree with this statement? Give reasons in support of your answer. **(8)**

   (e) Explain how neighborhood traffic calming improves safety. **(6)**

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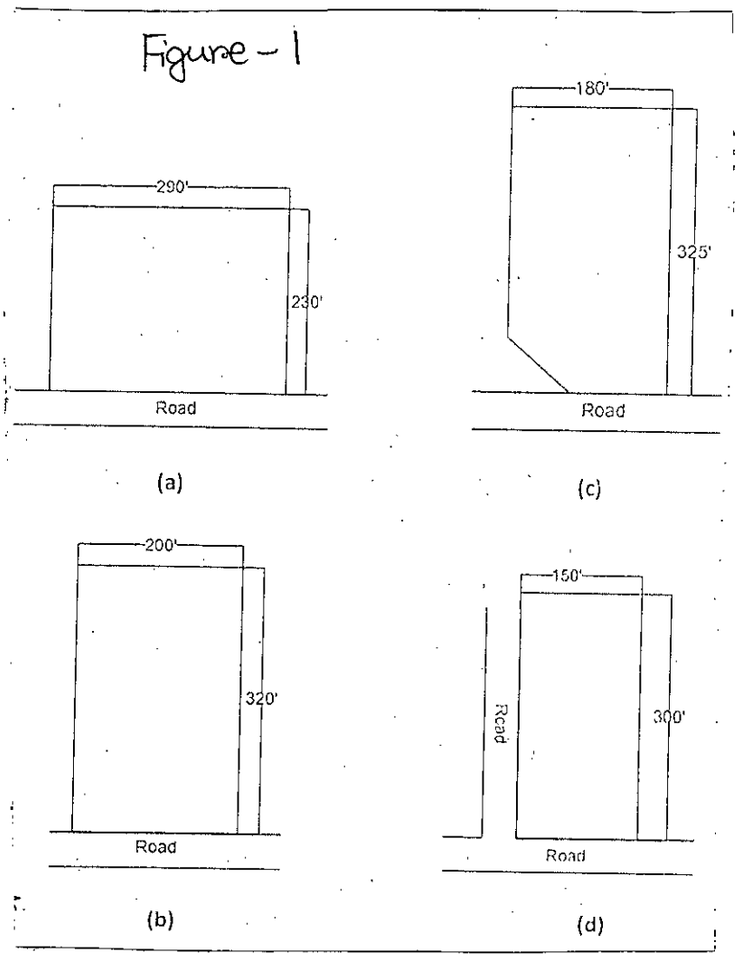
3. (a) A neighborhood planning project is designed to attract families with children. Another project aims at housing mainly adult and senior citizens. Both of these projects are going to adopt circular cul-de-sac. A planner proposes 48 feet turning radius for the outer limit of the cul-de-sac in both of these projects. Do you agree with this proposal? Give justification in support of your answer. **(15)**

(b) How do location and adjacent land use affect the success of land subdivision planning? **(10)**

(c) Explain in brief the major considerations of neighborhood traffic calming measures. **(10)**

4. (a) Take a look at the diagrams in Figure 1. Which one would you prefer the most from the perspective of land subdivision plot planning? Explain your answer. **(2+20=22)**



(b) "Cesspool is preferable to septic tank for private individual sewer system" — do you agree? Explain in brief. **(6½)**

(c) What factors would you consider in deciding whether harvested rainwater is to be stored or used for recharging groundwater? **(6½)**

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SECTION – B

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

5. (a) Write down with a neat diagram how you conduct site planning of a site for primary school. State the steps followed in site planning process. **(10+10)**

   (b) "Site planning is a critical thinking process." — Explain the quoted sentence. **(15)**

6. (a) Briefly discuss the principles of site planning of shopping centres. Show with sketches the different layouts of shopping centres. Give your opinion on existing site plan of some shopping centres in Dhaka city. **(5+10+5)**

   (b) Describe how shading concept can be applied while planning of a new site. **(15)**

7. (a) Explain from site planning perspective how you feel when you enter into BUET site from outside area. **(25)**

   (b) List the landscaping elements of a site. **(10)**

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

   (i) Albedo
   (ii) Sensuous forms
   (iii) Grading
   (iv) Drainage system
   (v) Air movement.

Table 1: Runoff coefficients for various catchment surfaces

S. No.	Type of Catchment	Coefficient
1.	Roof catchment	
	1.1 Tiles	0.8 - 0.9
	1.2 Corrugated metal sheets	0.7 - 0.9
2.	Ground surface covering	
	2.1 Untreated ground catchments	
	2.1.1 Soil on slope less than 10%	0.0 - 0.3
	2.1.2 Rocky material catchment	0.2 - 0.5
	2.1.3 Business area	
	2.1.3.1 Down town	0.7 - 0.95
	2.1.3.2 Neighbourhood	0.5 - 0.7
	2.2 Residential complexes in urban areas	
	2.2.1 Single family	0.3 - 0.5
	2.2.2 Multiunits, detached	0.4 - 0.6
	2.2.3 Multiunits, attached	0.6 - 0.75
	2.3 Residential complexes in suburban areas apartments	0.5 - 0.7
	2.4 Industrial	
	2.4.1 Light	0.5 - 0.7
	2.4.2 Heavy	0.6 - 0.9
	2.5 Parks, cemeteries	0.1 - 0.25
	2.6 Playgrounds	0.2 - 0.35
	2.7 Railroad yard	0.2 - 0.35
	2.8 Unimproved land areas	0.1 - 0.3
	2.9 Aspheltic or concrete pavement	0.7 - 0.95
	2.10 Brick pavement	0.7 - 0.85
	2.11 Lawns, sandy soil having slopes	
	2.11.1 Flat 2%	0.05 - 0.10
	2.11.2 Average 2 - 7%	0.1 - 0.15
	2.11.3 Steep 7%	0.15 - 0.2
	2.12 Lawns, clayey soil having slopes	
	2.12.1 Flat 2%	0.13 - 0.17
	2.12.2 Average 2 - 7%	0.18 - 0.22
	2.12.3 Steep 7%	0.25 - 0.35
	2.13 General driveways and walls	0.15 - 0.3

Table 2: Turning Radii of Selected Types of Vehicles

Vehicle type	Turning radius* (ft)
Small car	19.5
Standard car	22.5
Large car	23
School bus	43.5
Ambulance	30
Trash truck	32
Fire truck	48

*The outer limits of a circular cul-de-sac.

L-2/T-1/BURP Date : 09/11/2019

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-2/T-1 B. URP Examinations 2018-2019

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) The average age of the buildings on a certain city block is greater than 40 years old. If four of the buildings were built two years ago, and none of the buildings are more than 80 years old, what would be the minimum number of total buildings on that block? **(10)**

(b) Write short note on discrete variable vs. continuous variable. **(5)**

(c) Table 1 lists the homeownership rate (%) (called middle-income (called 'middle buying') group across the five wards. Calculate the residential stability index combining these two variables where homeownership rate would be given twice the weight of home buyers belonging to middle-income group. **(20)**

Table - 1

Ward	Ownership (%)	Middlebuying
01	30.33	30,000
02	69.45	17,500
03	55.12	23,700
04	42.23	35,600
05	72.67	42,300

2. (a) The average weight of a set of 100 bags of rice is 90 kg, and the standard deviation of the weights is 8 kg. A random bag 'X' weighs 2 standard deviation below the average weight of the bags. Another random bag 'Y' weighs 5 kg more than the average. What is the difference between the z-scores of these two bags? **(10)**

(b) Positive integers a, b, c, d, and e are such that $a < b < c < d < e$. If the average of the five numbers is 6 and $d-b = 3$, then what is the greatest possible range of the five integers? **(10)**

(c) A biologist analysis the number of paramecia visible under a microscope for a collection of protozoa samples. The average number of paramecia visible is 8.1 per sample, and the standard deviation is 2.4. The distribution of paramecia visible across the samples is approximately normally distributed. What is the number of paramecia visible at the 75^{th} percentile on the distribution of samples? **(15)**

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3. (a) Suppose, an undergraduate studying in 'X' university needs him to sign up for two academic terms in each year. He earns the following transcript (table-2) for January 2011 term. Calculate his January 2011 grade point average (GPA).
Assume that a grade point of 'A+' corresponds to a numeric value of 4, 'B+' holds a value of 3.33, and 'C' holds a value of 2. **(8)**

Table-2

Course	Credits	Grade
Statistics	4	A+
Economics	3	B+
Intro to Database	3	C
Human Settlement	1	A+

(b) Refer back to question 3(a). Suppose, his program has collaboration with another university 'Y' whom he got selected to study five terms (June 2011 through June 2013) after the first term of January 2011. His cumulative GPA for all the time at university 'Y' is 3.6 when accounted for 58 credits. Calculate his cumulative GPA of the entire stay at university 'X' and 'Y' starting from January 2011 through June 2013. **(7)**

(c) Refer back to question 3(a) and (b). Suppose, after getting back to university 'X', the student plans to enroll for 12 credits and would like to have a GPA of 3.75 at the end of January 2014. Is it possible? Why or why not? **(10)**

(b) Four students contributed to a charity drive, and the average amount contributed by each student was Tk. 20. If no student gave more than Tk. 25, what is the minimum amount that any student could have contributed? **(10)**

4. (a) Calculate the followings from table-3 and figure 1.
(i) what is the total amount received by the universities as grants? **(10)**
(ii) Suppose, in the next year, 2016, University D's expenses and enrollment remain about the same, but in addition to their current revenues, they receive an additional BDT 50,000,000 grant. This creates an opportunity for them to reduce tuition. Calculate the percentage reduction in average tuition attributable to this additional grant. **(10)**

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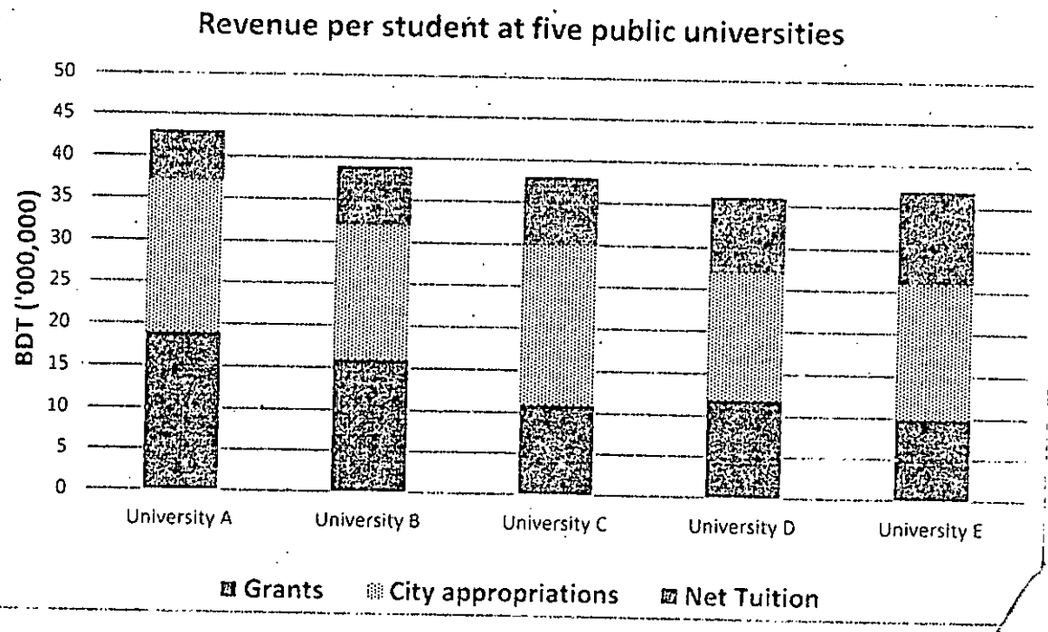
Contd … Q. No. 4(a)

Table-3

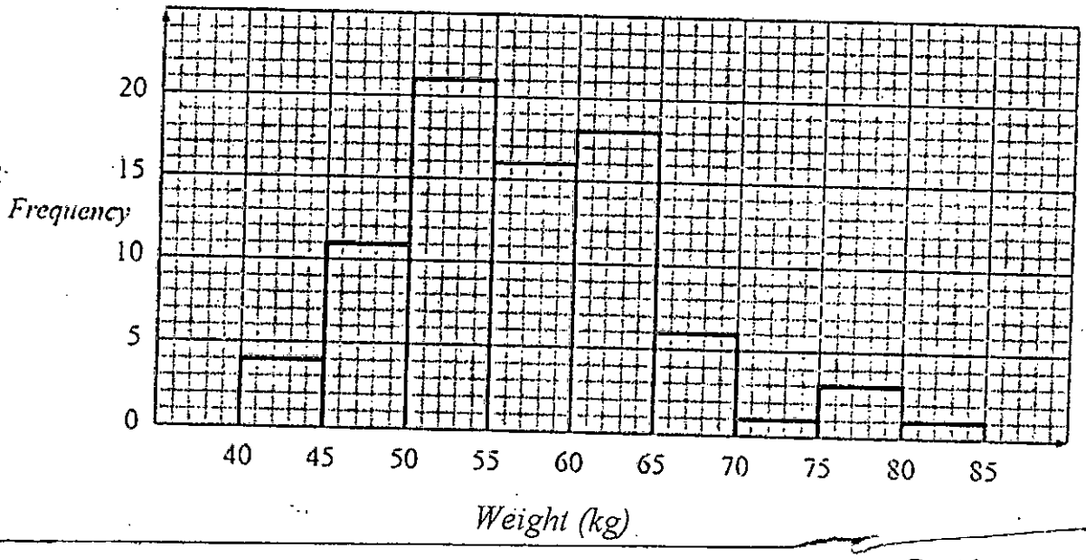
University	Enrolled students
University A	25,000
University B	12,000
University C	33,000
University D	36,000
University E	85,000

Figure - 1



(b) Estimate the 1st quartile and 73rd percentile from this distribution (Figure-2) and interpret the corresponding t-scores. **(15)**

Figure - 2



Contd P/4

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SECTION – B

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

5. (a) Write 'True' or 'False' against each statement. In case of false statement correct the statement. **(6×2=12)**

(i) A standard normal probability distribution of a variable has a mode value 0.

(ii) Probabilities for the normal random variable are given by areas under student's t-distribution/curve.

(iii) The probability distribution of a sample data is called sampling distribution.

(iv) The sampling distribution on $\bar{x}$ from non-normal population approaches towards normality whenever the sample size is not more than 30.

(v) The mean of the sampling distribution of a proportion is equal to the proportion of the population.

(vi) For Poisson random variable, the mean and standard deviation are the same.

(b) A recent study by the Department of Environment (DoE) has determined that the amount of contaminants in the ponds of Comilla Zilla (in parts per million) is normally distributed with mean 64 ppm and standard deviation is 4.2 ppm. Suppose 35 ponds are randomly selected and sampled. What is the probability that the sample average amount of contaminants is- **(20)**

(i) Below 62 ppm?

(ii) Between 64 and 70 ppm?

(iii) Exactly 74 ppm?

(iv) Above 94 ppm?

(c) According to a recent study, seven out of ten people want designated by-cycle lane along the road of Khulna city. If this result is based on a samples of 1,000 people, what is the point estimate of the corresponding population parameter? **(3)**

6. (a) What is 'Composite Index'? Write the uses of composite index number. **(2+3=5)**

(b) For a continuous probability distribution, why is $P(a < x < b)$ equal to $P(a \leq x \leq b)$? **(5)**

(c) The probability that a randomly selected student from BUET is a fourth year student is 0.25 and the joint probability that the student is studying URP and a fourth year student is 0.04. Find the conditional probability that a student selected at random is studying URP given that he is a fourth year student. **(5)**

Contd P/5

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Contd ... Q. No. 6

(d) (i) Suppose a commuter rail service receives an average of 3.7 complaints per day from its passengers. Let x be the number of complaints by the passengers on any given day. Assume that the service receives as maximum as five complaints on any particular day. Using the Poisson formula draw a graph of the probability distribution. (14)

(ii) Find the mean and standard deviation for the probability distribution. (4)

(iii) For how many complaints per day, does the highest probability appear? (2)

7. (a) In a sample of 500 families, 70 have a yearly income of less than BDT 40,000, 220 have a yearly income of BDT 40,000 to 80,000, and the remaining families have a yearly income of more than BDT 80,000. Suppose one family is randomly selected from these 500 families. Find the probability that this family has a yearly income of (11)

(i) less than BDT 40,000.

(ii) more than BDT 80,000.

(iii) stating the two properties of the probability, mention that whether the results satisfy the properties of the probability.

(b) Find the following probability for the standard normal curve. $P(z > -0.75)$ (4)

(c) According to a recent study, 3600 out of 7,800 households of Shankari bazaar want redevelopment of the area. Suppose a sample of 240 households is selected from the area, and 158 of them want redevelopment. Calculate the sampling error. (5)

(d) A research team has planned to study the nature of mixed use development in the designated residential and mixed use areas in Dhaka. While designing the data collection process, some team members have suggested to use random sampling method to collect plot level data from the selected study areas. Some others opined for systematic sampling. However, no one suggested to go for stratified sampling. How would you evaluate each of these suggestions? Given the context, justify your suggestion. (15)

8. (a) The following variable are listed to understand the nature of location shift by slum dwellers in Dhaka city. Mention the level of measurement for each of the variable. (6)

(i) Age (in year) of the respondent

(ii) Educational background of the respondent

1: Illiterate 2: Primary 3: Secondary 4: Higher secondary 5: Above

(iii) Monthly expenditure (in Taka) residential location.

(iv) Number of times shifted residential location.

Contd P/6

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Contd ... Q. No. 8(a)

(v) Year of last shift.

(vi) Reason behind location shift.

1 : Closer to the job

2 : Less house rent

3 : Fire hazard

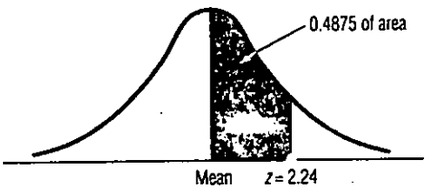
4 : Others.

(b) What does 90% confidence level mean? **(5)**

(c) A random sample of 20 acres gave a mean yield of wheat equal to 41.2 bushels per acre with a standard deviation of 3 bushels. Assuming that the yield of wheat per acre is normally distributed, construct (i) a 90%, and (ii) a 99% confidence internal for the population mean. **(17)**

(d) Suppose the confidence internal obtained in question 8. (c) (ii) is too wide. How can the width of this interval be reduced? Discuss all possible alternatives. In your opinion, which alternative is the best? **(5+2=7)**

Appendix Table 1

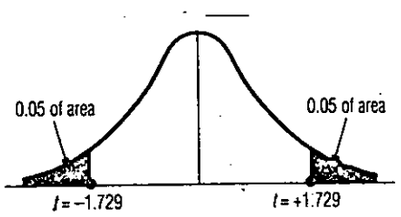


Appendix Table 1

Areas under the Standard Normal Probability Distribution between the Mean and Positive Values of z

Example: To find the area under the curve between the mean and a point 2.24 standard deviations to the right of the mean, look up the value opposite 2.2 and under 0.04 in the table; 0.4875 of the area under the curve lies between the mean and a z value of 2.24.

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



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-1//URP **Date: 26/10/2019**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-2/T-1 BURP Examinations 2018-2019

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

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 any **THREE** questions.

1. (a) List the engineering properties and uses of plastics. **(7)**

   (b) Describe in brief the different methods of fabrication of plastics. **(5)**

   (c) Difference between thermo-plastic and thermo-setting plastic. **(5)**

   (d) Write down the properties and uses of cast iron. **(6⅓)**

2. (a) Classify soil according to grain size. **(4)**

   (b) Briefly explain the Compressibility and Permeability properties of Soil. **(6)**

   (c) A soil mass has s wet unit weight of 120 lb/cft, moisture content of 16% and a specific gravity of 2.68. Calculate the following: **(8)**

   (i) Dry unit weight (ii) Void ratio (iii) porosity (iv) Degree of saturation

   (d) Briefly describe the factors that affect the physical properties of steel. **(5⅓)**

3. (a) Write down the advantages of concrete over other engineering materials. **(4)**

   (b) Briefly describe the functions of aggregate and water in concrete. **(6)**

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

   (i) Workability of concrete

   (ii) Bleeding of concrete

   (iii) Segregation of concrete

   (d) Describe the functions of Gypsum and Alumina in cement. **(4⅓)**

4. (a) Draw typical cross-sections of a flexible pavement and a rigid Pavement. **(4)**

   (b) Describe the different types of building foundation with neat sketches. **(6)**

   (c) What are the different types of building depending on the character of occupancy? **(4)**

   (d) Estimate the volume of earthwork excavation and brickwork for the boundary wall shown in Figure 1. **(9⅓)**

Contd P/2

CE 209

SECTION – B

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

5. (a) What are the characteristics and qualities of good building stones? **(6)**

   (b) Write down the uses of stones. Briefly explain the various field tests for bricks. **(4+4)**

   (c) Provide a brief description of brick classification according to PWD in our country. **(9⅓)**

6. (a) Write down the characteristics of good bricks. **(5)**

   (b) Briefly describe the harmful ingredients in brick earth. **(7⅓)**

   (c) Differentiate between Intermittent and Hoffman's Kiln. What is frog mark of a brick? What are the factors that affect the quality of bricks? **(5+2+4)**

7. (a) Briefly describe different types of sands according to source and mention their uses. **(6)**

   (b) Define 'Fineness Modulus' and briefly describe various field tests for sand. **(6)**

   (c) The following table shows the results of sieve analysis of two aggregates. If the aggregate 1 is mixed with aggregate 2 in the ratio of 1.5:2.5, what will be the Fineness Modulus (FM) of the combined aggregate? **(11⅓)**

Sieve size	Material Retained (gm)	
	Aggregate 1	Aggregate 2
¾ inch	0.0	0.0
⅜ inch	0.0	14.0
#4	6.0	27.0
#8	18.5	45.0
#16	78.6	88.0
#30	142.0	115.0
#40	103.5	81.0
#50	85.0	65.0
#100	50.0	45.0
#200	13.4	18.0
Pan	3	2.0

8. (a) Draw a neat sketch of timber section and show different parts of it. **(5)**

   (b) What are veneer, plywood and reconstructed wood? **(6)**

   (c) Differentiate between: **(6)**

   (i) Heart wood and Sap Wood; and (ii) Natural seasoning and artificial seasoning.

   (d) Describe different types of natural defects of timber. **(6⅓)**

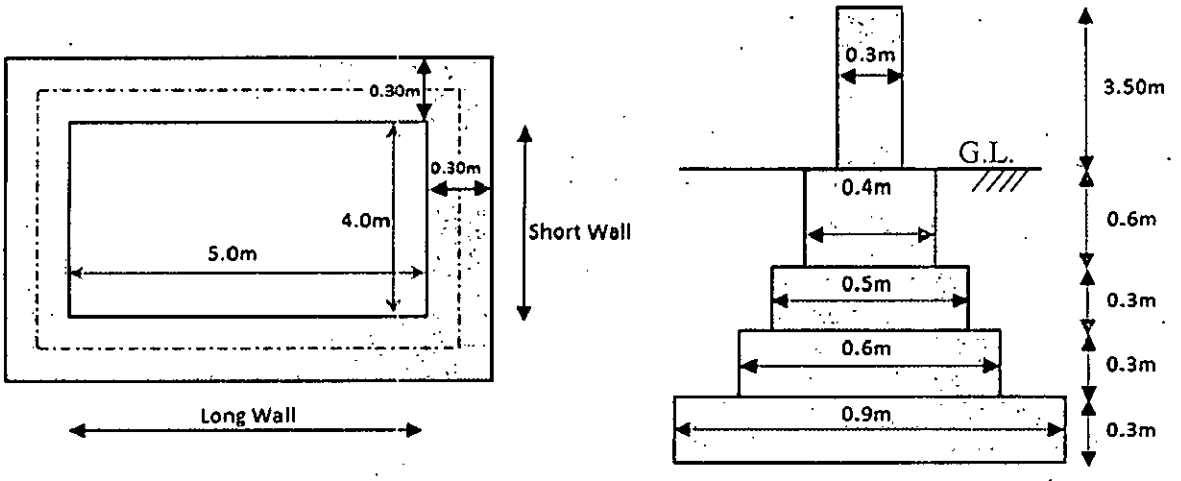


Figure 1 for question 4(d)

L-2/T-1/URP **Date : 30/10/2019**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-2/T-1 BURP Examinations 2018-2019

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) What are social differences between 'pre-industrial cities', 'industrial cities' and 'post- industrial cities'? **(12)**

   (b) Discuss the factors that influence a city's growth. **(12)**

   (c) Discuss the pollution issues that are prevalent in Dhaka city. Write down possible methods to address these issues. **(11)**

2. (a) How does socialization shape human behaviour? Write your answer highlighting the roles of different agents of socialization. **(12)**

   (b) Briefly discuss C.H. Cooley's looking glass self theory of socialization. **(12)**

   (c) Evaluate the different functions of nuclear family and patriarchal family. **(11)**

3. (a) What is meant by human ecology and pollution? **(10)**

   (b) Briefly discuss the role of physical environment in social development. **(13)**

   (c) Discuss the negative impacts of global warming. **(12)**

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

   (a) Sources of social change

   (b) Crime, deviance, juvenile delinquency, white collar crime

   (c) Nature of capitalism

   (d) Social consequences of industrial revolution.

Contd P/2

HUM 179

SECTION - B

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

5. (a) 'Sociological imagination is a creative thinking about human society and social relationship'- Explain. **(10)**

   (b) 'Ethnocentrism is a habit to judge other's ways of life by the standards of our own group'- explain. **(10)**

   (c) Briefly discuss the functionalist theoretical perspective of sociology. **(15)**

6. (a) Discuss the advantages and disadvantages of survey method. **(15)**

   (b) Assume you are an urban planner, would like to research on 'the socio-cultural challenges of female headed household in Dhaka city'. How would you design your research work? **(20)**

7. (a) What is social stratification? Discuss different types of social stratification with examples. **(15)**

   (b) 'The theory of all hitherto existing society is the history of class struggles'- explain the statement on the basis of Karl Marx's view of social stratification. **(20)**

8. Write short notes on any three of the following: **(35)**

   (a) Knowledge economy.

   (b) Absolute poverty and relative poverty.

   (c) Deindustrialization.

   (d) Types of alienation.
