L-3/T-1/ARCH Date : 14/01/2017

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-3/T-1 B. Arch. Examinations 2015-2016

Sub : **ARCH 341** (Art and Architecture IV)

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 the followings: **(15×2=30)**

   (a) Alai Darwaza.

   (b) Extension of Qutb Complex.

2. (a) With illustration describe the different parts of an ideal mosque. **(15)**

   (b) Explain why the design scheme of khirki mosque was not replicated later. **(5)**

3. (a) Show the evolution of dome during the slave dynasty with necessary illustrations. **(10)**

   (b) Describe the salient features of the tomb of Iltutmish. **(10)**

4. (a) Describe the 'Hawa Mahal' of Kotla Firoz Shah at Delhi with sketches. **(10)**

   (b) Briefly describe the octagonal tomb of Telengani with illustrations. **(10)**

SECTION – B

There are **FOUR** questions in this section. Answer **Q. No. 8** and any **TWO** from the rest.

5. (a) Draw an isometric view and show the essential features of an Indian Mosque. **(22)**

   (b) Explain different types of domes of Mughul architecture including those of Humayun's tomb, tomb of Itmatud Dowla and Tajmahal. Comment on their places of origin, evolution etc. Use sketches.

   (c) Explain how the drum of the dome is negotiated in the front elevation of a Mughul mosque.

6. (a) Illustrate and describe Fatehpur Sikri with reference to: **(22)**

   (i) Concept of Multiple axis.

   (ii) Planning, layout and zoning.

   (iii) Visual unity.

   (b) State in brief the architectural features of Raja Birbal's palace.

Contd P/2

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7. Explain the architectural features of (any two) of the following with sketches: **(22)**

   (i) Buland Darwaza: mitigation of scale and proportion from both inside and outside.

   (ii) Akbar's Mousolcum: an architectural retrogression.

   (iii) Diwan-i-Khas of Fatehpur Sikri: specialities of central pillar.

8. (a) Draw the site plan and elevation of Tajmahal and elucidate: **(26)**

   (i) the logical proportion in its measurements.

   (ii) the quality and texture of its materials in relation to the atmospheric condition and backdrop.

   (iii) landscaping features and ornamental gardens with their purpose.

   (b) Elucidate the factors determining the aesthetic qualities of Tajmahal which marks the 'Perfect Monument' in the evolution of architecture during the Mughul period.

L-3/T-1/ARCH **Date : 18/01/2017**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-3/T-1 B. Arch. Examinations 2015-2016

Sub : **ME 363** (Mechanical Equipment)

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**.

Refrigeration and A/C Data Book will be provided.

Assume reasonable values for missing data. All symbols have their usual meaning.

1. (a) Make comparison between window type and split type air conditioning system with respective schematic diagram. **(12)**

   (b) Briefly describe the working principle of central air conditioning system with schematic diagram. **(11 ⅓)**

2. (a) Draw the schematic diagram of electric traction lift and show its different components. **(8 ⅓)**

   (b) What are the requirements for the ideal performance passenger elevators? **(5)**

   (c) For an office building, downtown, diversified use, 15 rentable floors above the lobby, each 1500 m^2.net. Floor-to-floor height = 3.7 m, determine a workable elevator system arrangement. **(10)**

3. (a) What are the major reasons for spread of Fire? **(5)**

   (b) Classify fire and specify which type of extinguisher will be used for different type of fire. **(8 ⅓)**

   (c) Make brief comparison between Standpipe-Hose system and Sprinkler system for fire protection with respective schematic diagram. **(10)**

4. (a) For a facility having building of light hazard-II type, 20 rentable floors, each 1000 m^2 net. Floor-to-floor height = 3.7 m. According to BNBC determine the storage capacity of water for fire protection for that building. **(8 ⅓)**

   (b) Draw the typical diagram for fire protection in different water supply zones with gravity tanks of a tall building (according to BNBC). **(7)**

   (c) Draw the schematic diagram of different arrangements of escalator. **(8)**

Contd P/2

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SECTION – B

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

Assume reasonable value (if necessary) for design calculations.

Use supplied Tables and Charts of Air Conditioning Handbook.

5. (a) With a simple diagram showing necessary equipment mention the 4 processes of an ideal vapor-compression refrigeration cycle. Plot the processes in (i) P-h and in (ii) T-s diagram. **(10)**

   (b) Draw and label a split type air-conditioner with necessary equipment separated by a wall. **(8 ⅓)**

   (c) A vapor-compression refrigeration system has to handle a cooling load of 1.75 ton. Find the power required by its compressor in kW if COP of the system is 3.5. **(5)**

6. (a) What are the desirable properties of a refrigerant? Give an example a most widely used refrigerant with its chemical formula and boiling point. **(8 ⅓)**

   (b) A refrigeration system of a vapor-compression cycle with R 134a has a cooling capacity of 8 kW. The refrigerant enter the compressor as saturated vapor at 0.15 MPa and is compressed iso-entropically to 2 MPa. The refrigerant leaves the condenser as saturated liquid and expands adiabatically through an expansion valve. Draw the processes in a P-h plot and determine following: (Use P-h diagram for R 134a) **(15)**

   (i) Mass flow rate of the refrigerant.

   (ii) The quality of the refrigerant at the end of the throttling process

   (iii) The power input to the compressor

   (iv) COP

7. (a) An air-conditioning system takes outdoor air at 10°C and 30% RH at a steady rate of 45 m^3/min to condition it to 25°C and 60% RH. The outdoor air is first heated to 22°C in the heating chamber and then humidified in the humidifier (by the injection of hot steam). Determine (i) the rate of heat supply in the heating chamber and (ii) mass flow rate of steam required in the humidifier (Assume, the entire process takes place at atmospheric pressure). **(13 ⅓)**

   (b) 1 kg of air at 25°C and 0.012 kg/kg dry air is mixed with 3 kg of air at 40°C and 0.02 kg/kg dry air to form a mixture. Determine the following properties of the mixture: **(10)**

   (i) Dry bulb temperature

   (ii) Absolute humidity

   (iii) Enthalpy

Contd P/3

ME 363/ARCH

8. Estimate the cooling load for a classroom of 50 students with following data: **(23 1/3)**

Location : Chittagong, Bangladesh

Dimension: East-West 11m, North-South 8 m, height 3.64 m

Highest time/month: 1800 hrs/June

Roof: Suspended ceiling, 12.7 mm Gypsum board

Walls: 254 mm brick with 12.7 mm plaster both sides

Lights: 400 Watts, on for 8 hours, B classification

Ventilation: 7.5 *l*/s

Infiltration: 0.5

Assume no heat transfer through floor. East and West walls, door and windows in south only into a varanda.

1 Door: 1.22 × 2.13 m high × 25 mm thick plywood

2 windows: 1.83 m × 1.22 high × 3 mm clear glass

Use the Tables and Charts provided.

T1: Recommended Elevator Intervals & Waiting Times

Facility Type	Interval (sec)	Waiting Time[a] (sec)
OFFICE BUILDINGS		
Excellent service	15–24	9–14
Good service	25–29	15–17
Fair service	30–39	18–23
Poor service	40–49	24–29
Unacceptable service	50+	30+
RESIDENTAL		
Prestige apartments	50–70	30–42
Middle-income apartments	60–80	36–48
Low-income apartments	80–120	48–72
Dormitories	60–80	36–48
Hotels—first quality	30–50	18–30
Hotels—second quality	50–70	30–42

T2: Minimum PHC

Facility	Percent of Population to Be Carried in 5 Minutes
OFFICE BUILDINGS	
Center city	12–14
Investment	11.5–13
Single-purpose	14–16
RESIDENTAL	
Prestige	5–7
Other	6–8[a]
Dormitories	10–11
Hotels—first quality	12–15
Hotels—second quality	10–12

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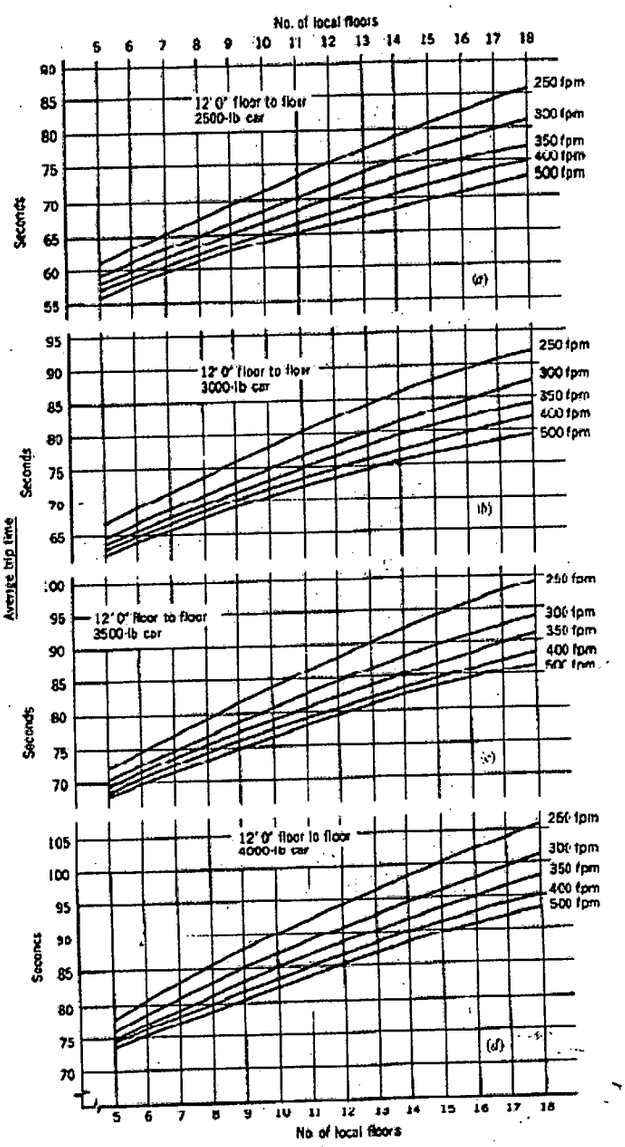
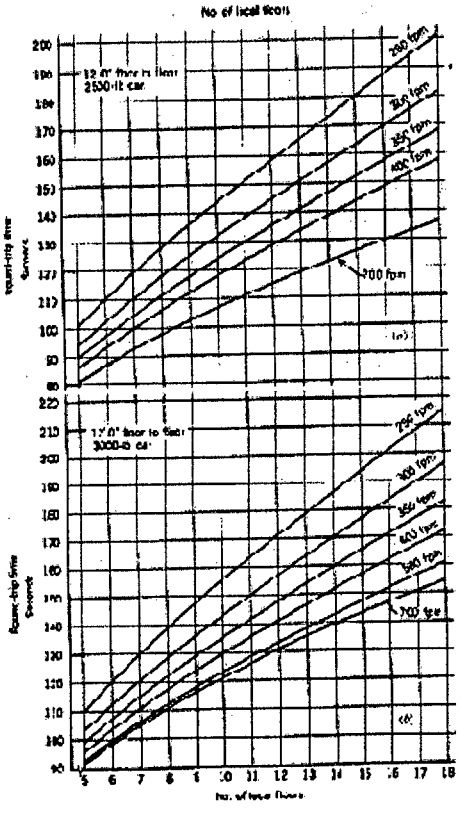
T3: Car Passenger Capacity (p)

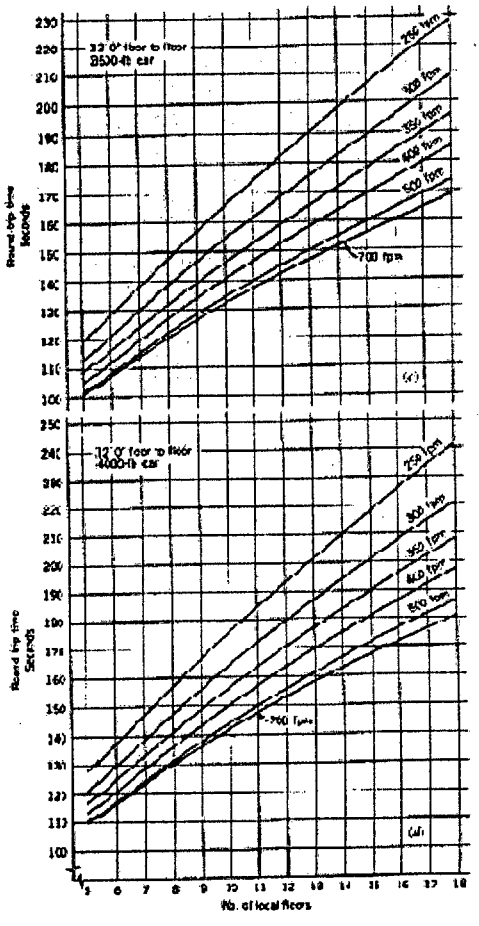
Elevator Capacity lb (kg)	Maximum Passenger Capacity	Normal Passenger[a] Load per Trip
2000 (907)	12	10
2500 (1134)	17	13
3000 (1361)	20	16
3500 (1588)	23	19
4000 (1814)	28	22

C1: Average Trip Time (AVRTP)



C2: Round Trip (RT) Time





T4: Population of Typical Buildings[a]

Building Type	Net Area
OFFICE BUILDINGS	FT2 PER PERSON (M2/PERSON)
Diversified (multiple tenancy)	
Normal	110–130 (10–12)[a]
Prestige	150–250 (14–23)
Single tenancy	
Normal	90–110 (8–10)
Prestige	130–200 (12–19)
HOTELS	PERSONS PER SLEEPING ROOM
Normal use	1.3
Conventions	1.9
HOSPITALS	VISITORS AND STAFF PER BED[b]
General private	3
General public (large wards)	3–4
APARTMENT HOUSES	PERSONS PER BEDROOM
High-rental housing	1.5
Moderate-rental housing	2.0
Low-cost housing	2.5–3.0

T5: Office Building Occupancy

Building Height	Net Usable Area as Percentage of Gross Area
0–10 floors	Approximately 80%
0–20 floors	Floors 1–10 approximately 75%
	11–20 approximately 80%
0–30 floors	Floors 1–10 approximately 70%
	11–20 approximately 75%
	21–30 approximately 80%
0–40 floors	Floors 1–10 approximately 70%
	11–20 approximately 75%
	21–30 approximately 80%
	31–40 approximately 85%

o022

T6: Elevator Equipment Recommendations

Building Type	Car Capacity* lb	Car Capacity* kg	Rise ft	Rise m	Minimum* Car Speed fpm	Minimum* Car Speed m/s
Office building	2500	1250	0–125	0–40	350–400	2.0
	3000	1360	126–225	41–70	500–600	2.5
	3500	1600	226–275	71–85	700	3.6
			276–375	86–115	800	4.0
			Above 375	>115	1000	5.0
Hotel	2500	1250	As above		As above	
	3000	1360				
Hospital	3500	1600	0–60	0–20	150	0.63
	4000	2000	61–100	21–30	200–250	1.0
			101–125	31–40	250–300	1.6
			126–175	41–55	350–400	2.0
			176–250	56–75	500–600	2.5
			>250	>75	700	3.6
Apartments	2000	1000	0–75	0–25	100	0.63
	2500	1250	76–125	26–40	200	1.0
			126–200	41–60	250–300	1.6
			>200	>60	350–400	2.0
Stores	3500	1600	0–100	0–30	200	1.0
	4000	2000	101–150	31–45	250–300	1.6
	5000	2500	151–200	46–60	350–400	2.0
			>200	>60	500	2.5

BNBC 2006

Table 4.4.1
Fire Protection Flow Requirements

Building Type	Sprinkler System (l/min.)*	Standpipe and hose System (l/min.)*	Duration** (minute, min.)
Light hazard- I	1000	1000	30
Light hazard- II	1900	1900	50
Ordinary hazard- I	2650	1900	75
Ordinary hazard - II	3200	1900	75
Ordinary hazard - III	4800	1900	75

Notes:

* Values will be for one riser serving floor area of 1000 m^2.

** These durations shall be for a building up to the height of 51 m. For greater height of 51-102 m and above 102 m, the duration will be 1.25 times and 1.5 times of the specified values respectively.

Light hazard - I : Occupancy groups, A1, A2, A3, E1

Light hazard - II : Occupancy groups, A4, A5, B, C, D,E2, E3, I2, I4,

Ordinary hazard - I : Occupancy groups, I1, I3, I5, F2, F3, G1

Ordinary hazard- II : Occupancy groups, G2 , H1

Ordinary hazard- III : Occupancy groups, H2

Extra hazard :Occupancy group J - pressure and flow requirement for this group shall be determined by Fire Department but shall not be less than required value for Ordinary hazard-III

L-3/T-1/ARCH **Date : 24/01/2017**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-3/T-1 B. Arch. Examinations 2015-2016

Sub : **CE 365** (Structure III: Mechanics of Solids)

Full Marks : 140 Time : 3 Hours

The figures in the margin indicate full marks.

Assume reasonable values for missing data, if any.

USE SEPARATE SCRIPTS FOR EACH SECTION

SECTION – A

There are **SEVEN** questions in this section. Answer any **FIVE**.

1. (a) Illustrate and explain statically indeterminate elastic beam. **(4+4+3+3)**
   (b) Write a short note on effective length factor in column.
   (c) Explain the term 'shear flow'.
   (d) Elaborate on the basic deformation assumption in bending of beam.

2. Find the approximate location of the shear center for a beam with the cross section shown in Figure 1. **(14)**

3. A cantilever beam is shown in Figure 2. If it carries an upward concentrated load of 3000 lb at the free end, determine the maximum bending stresses at a section 5 feet from the free end. Assume the weight of the beam is 60 lb/ft. **(14)**

4. Determine the shearing stresses at the levels indicated of the *I* beam given in Figure 3. Neglect the weight of the beam. **(14)**

5. The simply-supported beam cross-section shown in Figure 4 is a composite beam where the upper 5″ × 10″ is made up of wood and the bottom 0.5″ × 5″ strap is made of steel. If this beam is subjected to an uniformly distributed load of 600 lb/ft, what are the maximum stresses in the wood and steel? Neglect the weight of the beam and assume $E_s = 30 \times 10^6$ psi and $E_w = 1.6 \times 10^6$ psi. **(14)**

6. Determine the equation of the elastic curve for the beam shown in Figure 5. Also calculate the value of the deflection at mid-span. **(14)**

7. The beam shown in Figure 6 is comprised of two wooden planks. If it transmits a vertical shear of 720 lb and allowable shearing force per nail is 180 lb, what is the necessary spacing of the nails between the two planks to make the beam act as a unit? **(14)**

Contd P/2

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SECTION – B

There are **SEVEN** questions in this section. Answer any **FIVE**.

8. Using Mohr's circle of stresses, for the element shown in Figure 7. **(14)**
   (a) Find the principal stresses and show their direction on properly oriented element.
   (b) Find the maximum shear stress and associated normal stresses, if any and show their direction on properly oriented element.

9. A bending moment M is applied at the free end of the cantilever beam of length L as shown in Figure 8. Find the equation of the elastic curve. Given: the beam has a constant flexural rigidity of EI. **(14)**

10. Consider a cantilever beam of 18 inch long with a 1200 lb force applied 6 inch from the free end as shown in Figure 9. The moment of inertia, I, of the beam varies as shown in the figure. Find the deflection and angular rotation of the free end. Given: Neglect the weight of the beam and assume $E = 10^7$ psi. **(14)**

11. For the state of stress shown in the element presented in Figure 10, using the general equation for the transformation of stress **(14)**
    (a) Find the principal stresses and show their direction on properly oriented element.
    (b) Find the maximum shear stress and associated normal stresses, if any and shown their direction on properly oriented element.

12. Design a steel column to support a dead load of 80 kips and a live load of 100 kips. The column is pin-pin supported on both ends about either principal axes. Given, $F_y = 36$ ksi, $E = 29000$ ksi, unsupported length of column 12 feet. Use Annexure 1. **(14)**

13. Determine the capacity of a column that is 10 feet long and has a W12×14 section. The column is fixed-pin supported on both ends about either principal axes. Given, $F_y = 36$ ksi, $E = 29000$ ksi, $A = 4.36$ in^2, $I_x = 88.6$ in^4, $I_y = 2.36$ in^4. **(14)**

14. In a simply supported beam, find the maximum deflection and rotation of the elastic curve at the ends caused by the application of a uniformly distributed load of p lb/foot. The length of the beam is L and the flexural rigidity, EI is constant. **(14)**

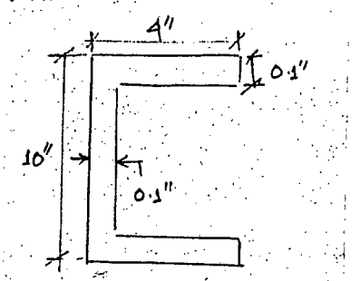


Figure 1

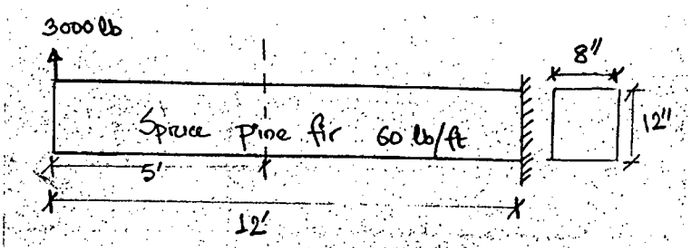
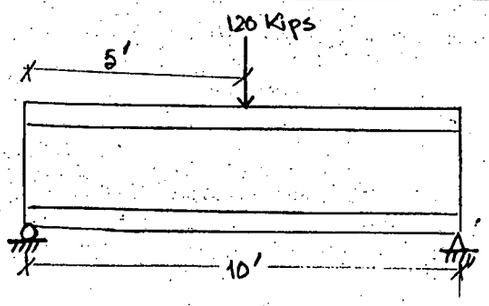


Figure 2



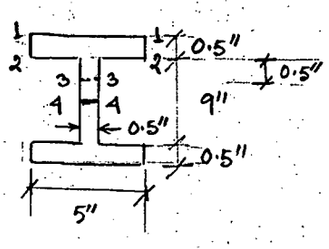


Figure 3

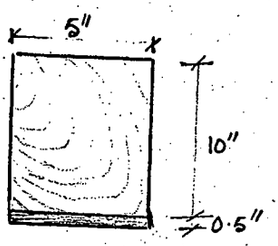


Figure 4

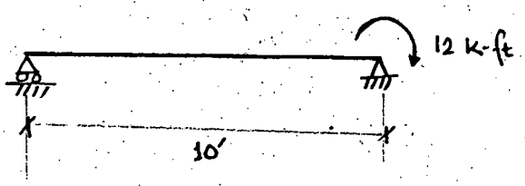


Figure 5

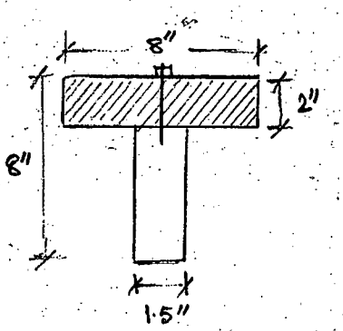


Figure 6

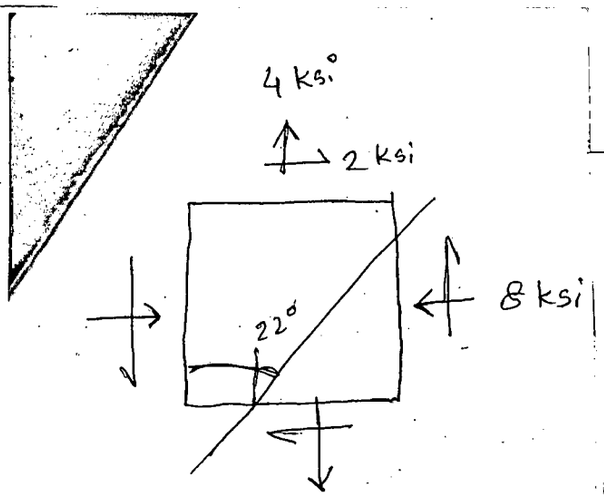


Fig: 7

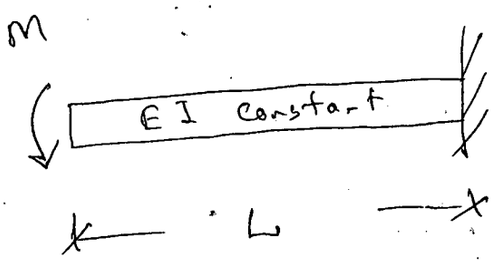


Fig: 8

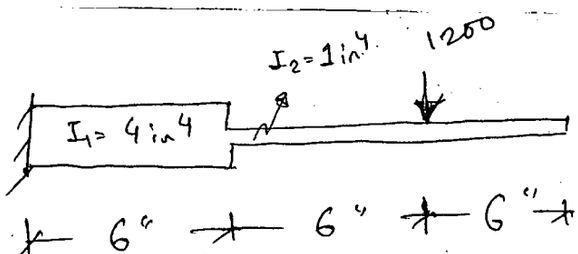


Fig: 9

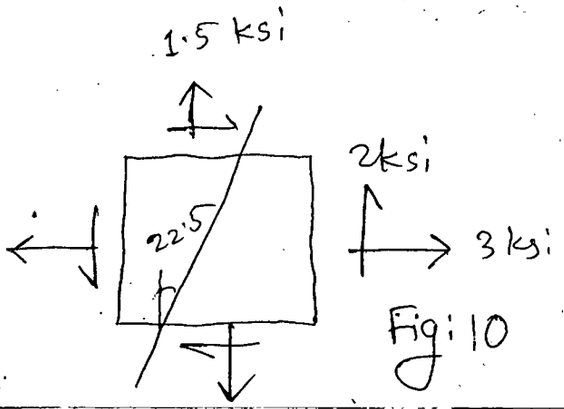
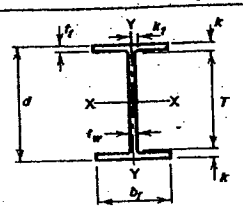


Fig: 10

Annexture - 1

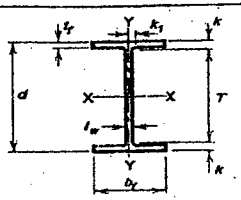
W SHAPES
Dimensions



Designation	Area A	Depth d		Web Thickness t_w		Web $\frac{t_w}{2}$	Flange Width b_f		Flange Thickness t_f		Distance T	Distance k	Distance k_1
	in.^{2}	in.		in.		in.	in.		in.		in.	in.	in.
W12×336*	98.8	16.82	16 7/8	1.775	1 3/4	7/8	13.385	13 3/8	2.955	2 15/16	9 1/2	3 11/16	1 1/2
×305*	89.6	16.32	16 3/8	1.625	1 5/8	13/16	13.235	13 1/4	2.705	2 11/16	9 1/2	3 7/16	1 7/16
×279*	81.9	15.85	15 7/8	1.530	1 1/2	3/4	13.140	13 1/8	2.470	2 1/2	9 1/2	3 5/16	1 3/8
×252*	74.1	15.41	15 3/8	1.395	1 3/8	11/16	13.005	13	2.250	2 1/4	9 1/2	2 15/16	1 5/16
×230*	67.7	15.05	15	1.285	1 5/16	11/16	12.895	12 7/8	2.070	2 1/16	9 1/2	2 3/4	1 1/4
×210*	61.8	14.71	14 3/4	1.180	1 3/16	5/8	12.790	12 3/4	1.900	1 7/8	9 1/2	2 5/8	1 1/4
×190	55.8	14.38	14 3/8	1.060	1 1/16	9/16	12.670	12 5/8	1.735	1 3/4	9 1/2	2 7/16	1 3/16
×170	50.0	14.03	14	0.960	15/16	1/2	12.570	12 5/8	1.560	1 9/16	9 1/2	2 1/4	1 1/8
×152	44.7	13.71	13 3/4	0.870	7/8	7/16	12.480	12 1/2	1.400	1 3/8	9 1/2	2 1/8	1 1/16
×136	39.9	13.41	13 3/8	0.790	13/16	7/16	12.400	12 3/8	1.250	1 1/4	9 1/2	1 15/16	1
×120	35.3	13.12	13 1/8	0.710	1 1/16	3/8	12.320	12 3/8	1.105	1 1/8	9 1/2	1 11/16	15/16
×106	31.2	12.89	12 7/8	0.610	5/8	5/16	12.220	12 1/4	0.990	1	9 1/2	1 5/8	7/8
×96	28.2	12.71	12 3/4	0.550	9/16	5/16	12.160	12 1/8	0.900	7/8	9 1/2	1 1/2	7/8
×87	25.6	12.53	12 1/2	0.515	1/2	1/4	12.125	12 1/8	0.810	13/16	9 1/2	1 7/16	7/8
×79	23.2	12.38	12 3/8	0.470	1/2	1/4	12.080	12 1/8	0.735	3/4	9 1/2	1 3/8	7/8
×72	21.1	12.25	12 1/4	0.430	7/16	1/4	12.040	12	0.670	11/16	9 1/2	1 5/16	13/16
×65	19.1	12.12	12 1/8	0.390	3/8	3/16	12.000	12	0.605	5/8	9 1/2	1 1/4	13/16
W12×58	17.0	12.19	12 1/4	0.360	3/8	3/16	10.010	10	0.640	5/8	9 1/2	1 3/8	13/16
×53	15.6	12.06	12	0.345	3/8	3/16	9.995	10	0.575	9/16	9 1/2	1 1/4	13/16
W12×50	14.7	12.19	12 1/4	0.370	3/8	3/16	8.080	8 1/8	0.640	5/8	9 1/2	1 3/8	13/16
×45	13.2	12.06	12	0.335	5/16	3/16	8.045	8	0.575	9/16	9 1/2	1 1/4	13/16
×40	11.8	11.94	12	0.295	5/16	3/16	8.005	8	0.515	1/2	9 1/2	1 1/4	3/4
W12×35	10.3	12.50	12 1/2	0.300	5/16	3/16	6.560	6 1/2	0.520	1/2	10 1/2	1	9/16
×30	8.79	12.34	12 3/8	0.260	1/4	1/8	6.520	6 1/2	0.440	7/16	10 1/2	15/16	1/2
×26	7.65	12.22	12 1/4	0.230	1/4	1/8	6.490	6 1/2	0.380	3/8	10 1/2	7/8	1/2
W12×22	6.48	12.31	12 1/4	0.260	1/4	1/8	4.030	4	0.425	7/16	10 1/2	7/8	1/2
×19	5.57	12.16	12 1/8	0.235	1/4	1/8	4.005	4	0.350	3/8	10 1/2	13/16	1/2
×16	4.71	11.99	12	0.220	1/4	1/8	3.990	4	0.265	1/4	10 1/2	3/4	1/2
×14	4.16	11.91	11 7/8	0.200	3/16	1/8	3.970	4	0.225	1/4	10 1/2	11/16	1/2

e. See Notes in Table 1-2.

W SHAPES
Properties



Nominal Wt. per ft	Compact Section Criteria $\frac{b_f}{2t_f}$	Compact Section Criteria $\frac{h}{t_w}$	Compact Section Criteria F_y'''	X_1	$X_2 \times 10^6$	Elastic Properties Axis X-X I	Axis X-X S	Axis X-X r	Axis Y-Y I	Axis Y-Y S	Axis Y-Y r	Plastic Modulus Z_x	Plastic Modulus Z_y
lb			ksi	ksi	(1/ksi)^2	in.^{4}	in.^{3}	in.	in.^{4}	in.^{3}	in.	in.^{3}	in.^{3}
336	2.3	5.5	—	12800	6.05	4060	483	6.41	1190	177	3.47	603	274
305	2.4	6.0	—	11800	8.17	3550	435	6.29	1050	159	3.42	537	244
279	2.7	6.3	—	11000	10.8	3110	393	6.16	937	143	3.38	481	220
252	2.9	7.0	—	10100	14.7	2720	353	6.06	828	127	3.34	428	198
230	3.1	7.6	—	9390	19.7	2420	321	5.97	742	115	3.31	386	177
210	3.4	8.2	—	8670	26.6	2140	292	5.89	664	104	3.28	348	159
190	3.7	9.2	—	7940	37.0	1890	263	5.82	589	93.0	3.25	311	143
170	4.0	10.1	—	7190	54.0	1650	235	5.74	517	82.3	3.22	275	126
152	4.5	11.2	—	6510	79.3	1430	209	5.68	454	72.8	3.19	243	111
136	5.0	12.3	—	5850	119	1240	186	5.58	398	64.2	3.16	214	98.0
120	5.8	13.7	—	5240	184	1070	163	5.51	345	56.0	3.13	186	85.4
106	6.2	15.9	—	4680	285	933	145	5.47	301	49.3	3.11	164	75.1
96	6.8	17.7	—	4250	405	833	131	5.44	270	44.4	3.09	147	67.5
87	7.5	18.9	—	3880	586	740	118	5.38	241	39.7	3.07	132	60.4
79	8.2	20.7	—	3530	839	662	107	5.34	216	35.8	3.05	119	54.3
72	9.0	22.6	—	3230	1160	597	97.4	5.31	195	32.4	3.04	108	49.2
65	9.9	24.9	—	2940	1720	533	87.9	5.28	174	29.1	3.02	96.8	44.1
58	7.8	27.0	—	3070	1470	475	78.0	5.28	107	21.4	2.51	88.4	32.5
53	8.7	28.1	—	2820	2100	425	70.6	5.23	95.8	19.2	2.48	77.9	29.1
50	6.3	26.2	—	3170	1410	394	64.7	5.18	56.3	13.9	1.96	72.4	21.4
45	7.0	29.0	—	2870	2070	350	58.1	5.15	50.0	12.4	1.94	64.7	19.0
40	7.8	32.9	59	2580	3110	310	51.9	5.13	44.1	11.0	1.93	57.5	16.8
35	6.3	36.2	49	2420	4340	285	45.6	5.25	24.5	7.47	1.54	51.2	11.5
30	7.4	41.8	37	2090	7950	238	38.6	5.21	20.3	6.24	1.52	43.1	9.56
26	8.5	47.2	29	1820	13900	204	33.4	5.17	17.3	5.34	1.51	37.2	8.17
22	4.7	41.8	37	2160	8640	156	25.4	4.91	4.66	2.31	0.847	29.3	3.66
19	5.7	46.2	30	1880	15600	130	21.3	4.82	3.76	1.88	0.822	24.7	2.98
16	7.5	49.4	26	1610	32000	103	17.1	4.67	2.82	1.41	0.773	20.1	2.26
14	8.8	54.3	22	1450	49300	88.6	14.9	4.62	2.36	1.19	0.753	17.4	1.90

L-3/T-1/ARCH **Date : 29/01/2017**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-3/T-1 B. Arch. Examinations 2015-2016

Sub : **PLAN 319** (Theory and Practice of Planning)

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**.

1. (a) Analysis of environment is an important part of planning process. Briefly explain the factors of external environment those are likely to affect the outcome of a project. Use a relevant example. **(15 1/3)**

   (b) Define stakeholders. State the steps that should be followed for stakeholder analysis. **(8)**

2. (a) Describe the characteristics of good objectives with relevant examples. **(15)**

   (b) Briefly explain the process of evaluating different alternative solutions to an identified problem. **(8 1/3)**

3. (a) Describe the fundamental ethical approaches in planning **(6)**

   (b) There are many techniques to ensure public participation in planning. Describe any three of those techniques. **(7 1/3)**

   (c) Differentiate between – **(5×2=10)**

   (i) Blue Print Planning and Process Planning.

   (ii) Normative Planning and Functional Planning.

4. (a) There are different levels and types of participation in planning process. Briefly explain those levels with reference to the ladder of citizen participation. **(11 1/3)**

   (b) Write short note on – **(12)**

   (i) Advocacy Planning

   (ii) Traditional Planning.

SECTION – B

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

5. (a) Give a brief description about the development plans of Dhaka, prepared by planning agencies at different time frames. **(16 1/3)**

   (b) What functions does the Structure Plan Perform? **(7)**

Contd P/2

PLAN 319

6. (a) Which features need to be reviewed by the planning authority during the preparation of development plan? **(6)**

   (b) What were the major assumptions of Dhaka Master Plan, 1959? Briefly describe the industrial land use proposals of this plan. **(6+11 1/3)**

7. (a) Describe different characteristics of an urban area. **(14 1/3)**

   (b) What do you understand by Action area plan and Subject plan? Explain with examples. **(9)**

8. (a) Which methods or techniques can be applied in land development? Discuss about two land development techniques those are suitable for the fringe area and vacant land. **(8+12)**

   (b) In the application of land use zoning in an existing town, what aspects should be taken into account? **(3 1/3)**
