BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-3/T-1   BURP Examinations 2015-2016

Sub : **CE 361** (Elements of Solid Mechanics)

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**.

Assume reasonable values for missing data.

1. (a) Derive an expression of strain energy stored in a deformed elastic material.   **(7)**

(b) Draw Axial Force Diagram of the following elastic steel beam (Figure 1).   **(10)**
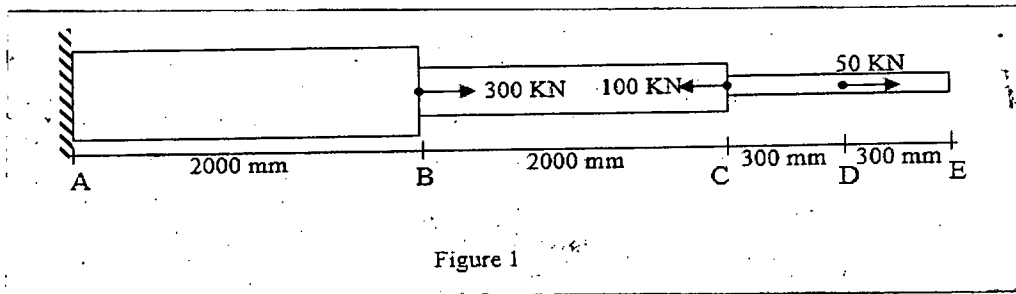

Figure 1

(c) Determine the relative displacement of point E from point A for the elastic steel bar of variable cross sections shown in Figure 1 caused by the application of concentrated forces. Areas A_{AB} = 2000 mm^2, A_{BC} = 1000 mm^2, A_{CE} = 500 mm^2. Modulus of Elasticity, E = 200 GPa.   **(18)**

2. (a) Draw a qualitative stress strain diagram of mild steel showing its various components.   **(7)**

(b) State the assumptions of truss analysis.   **(7)**

(c) Determine the axial forces in members BC, CG, FG, DE, AB and BH.   **(21)**
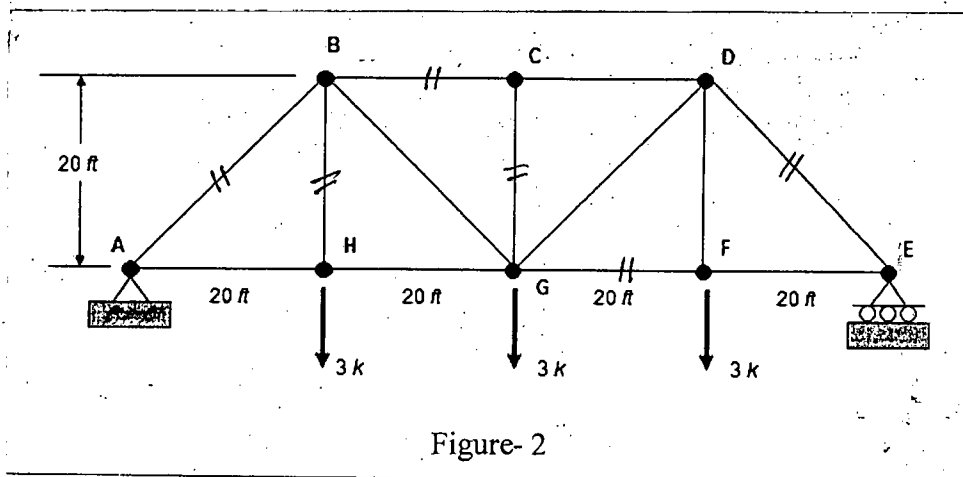

Figure- 2

CE 361/URP

3. (a) A 400 mm by 500 mm wooden cantilever beam weighing 0.80 KN/m carries an upward concentrated force of 30 KN at the end, as shown in Figure 3. Determine the maximum bending stress at a section A-A 3 m from the free end.   (21)
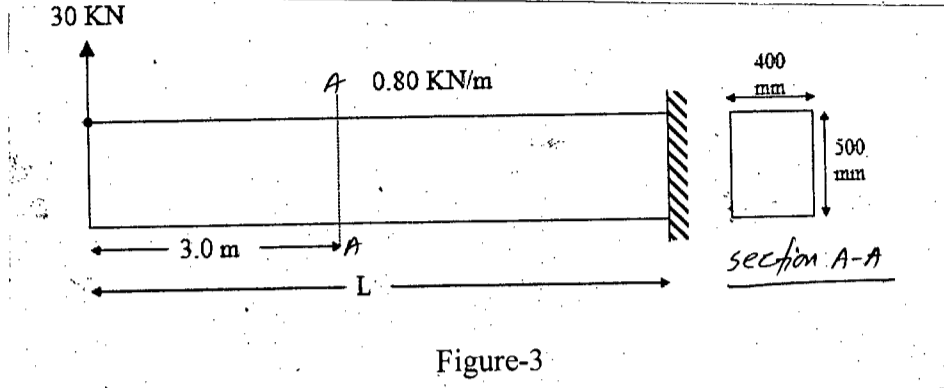

Figure-3

(b) Define shear force and bending moment with brief discussion on their sign convention.   (7)

(c) Describe classification of force systems with examples.   (7)

4. (a) Write the definition of shear flow.   (7)

(b) A simple beam on a 6-m span carries a load of 4 KN/m, including its own weight. The beam's cross section is to be made from several wooden planks as shown in Figure 4. Specify the spacing of nails between the planks to make the beam act as a unit. Assume that the allowable shear force per nail is 600 N.   (28)
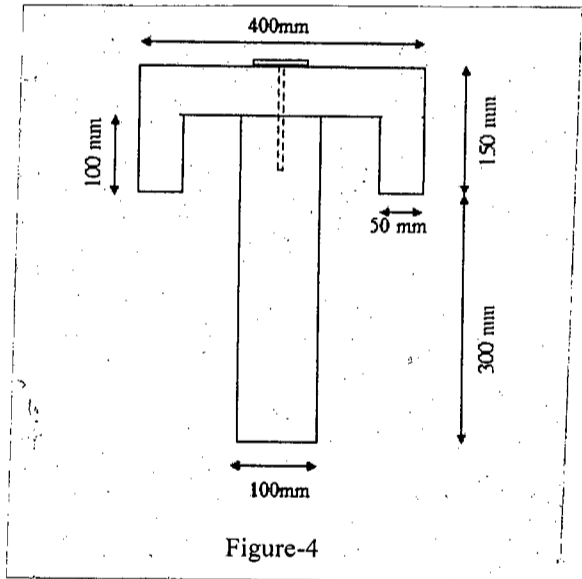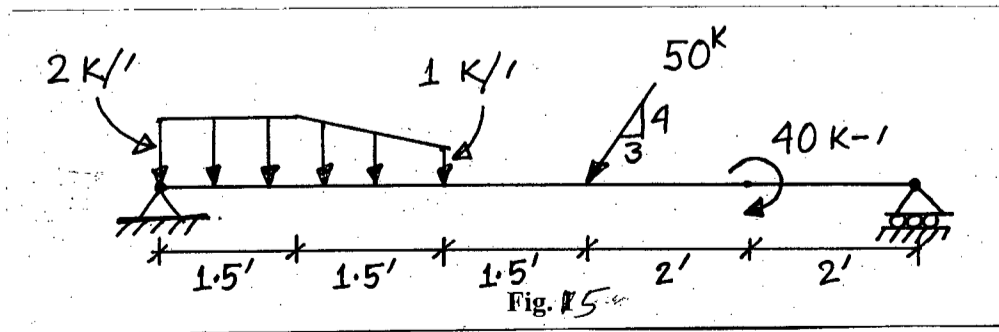

Figure-4

SECTION – B

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

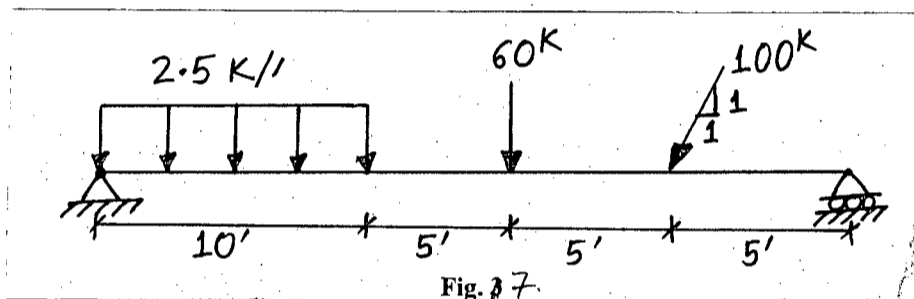5. (a) Determine the reactions on the beam shown in Fig. 5.   (20)


Fig. 5

CE 361/URP

Contd ... Q. No. 5

(b) A **5000 lb** wheel, having a diameter of **8 feet** is acted upon by a force 'F', which tends to pull the wheel over the obstruction at A (See Fig. 6). When the wheel is about to move over the obstruction, the reaction between the wheel and the ground is zero. Find out the magnitude of force, F and the reaction from the obstruction at that instant. **(15)**

8 feet diameter wheel

30°

F

B   A   ↕ 2.4 feet

Fig. 6.
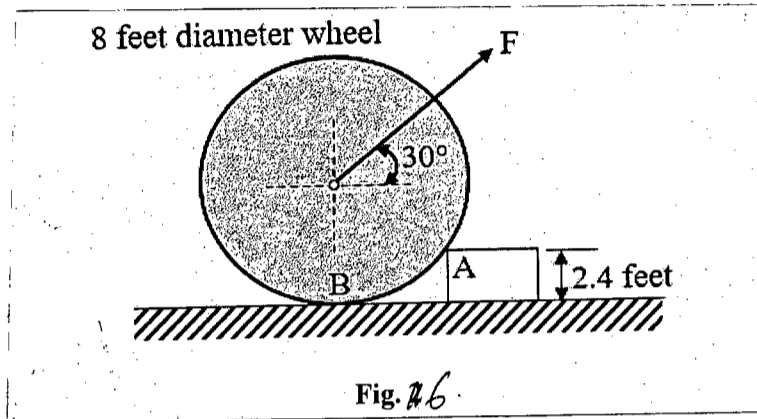
6. (a) For the timber beam and loading shown in Fig. 7, draw the shear and bending moment diagrams. **(20)**

2·5 K/′   60^K 100^K

10′   5′   5′   5′

Fig. 7.

(b) Determine the moment if inertia of the beam cross section shown in Fig. 8 about the centroidal axes. **(15)**

7″

2″

2″
4″
2″
4″
2″

Fig. 8
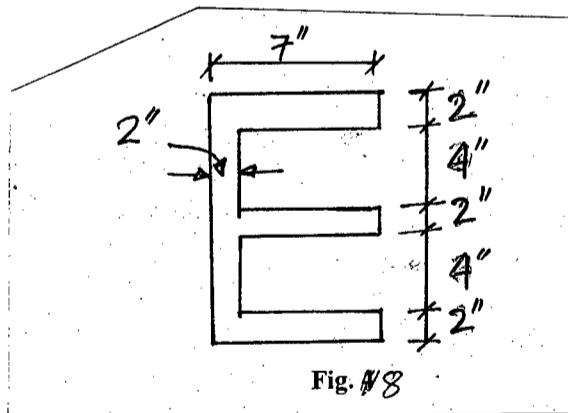
7. (a) Locate the centroid of the composite section shown in Fig. 9. **(15)**

5″   5″

5″

5″

x

Fig. 9.
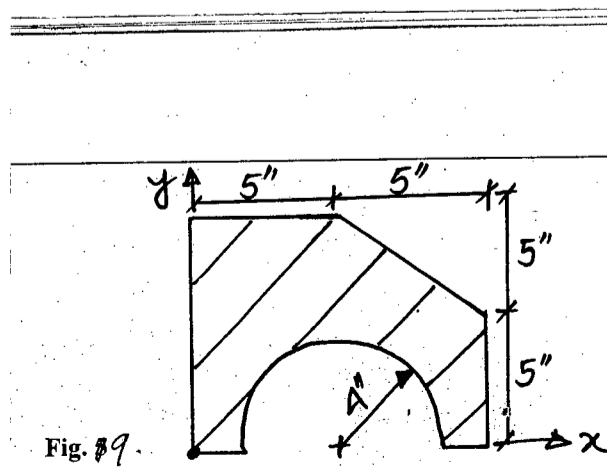
CE 361/URP

Contd ... Q. No. 7

(b) Determine the reactions on the beam shown in Fig. 10.　　　　　　　　**(20)**

Fig. ⊕ 10
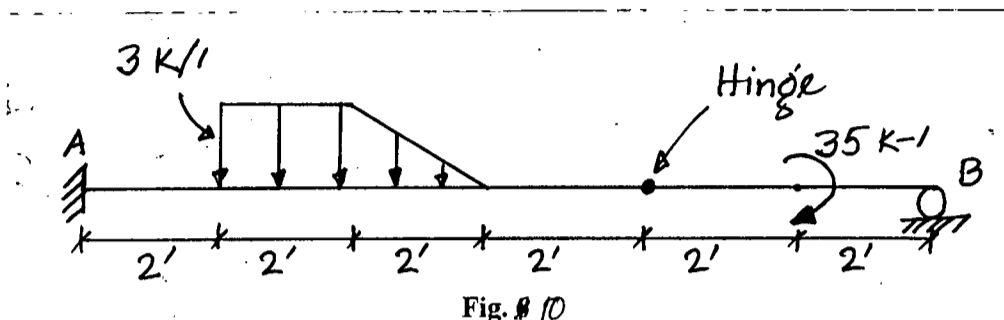
8. (a) Determine the magnitude of force 'P' required to hold the block 'A' (Fig. 11) stationary? Given, block weight is 150 lb.　　　　　　　　**(15)**

Fig. ⊕ 11
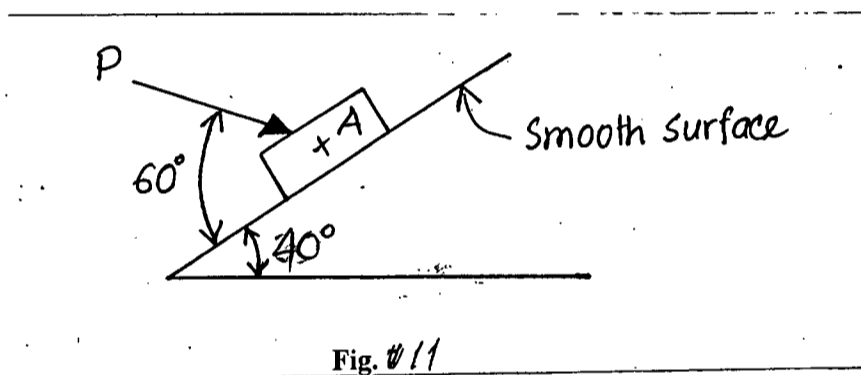
(b) Two smooth spheres, each of radius **100 mm** and weighing **100 N**, rest in a horizontal channel having vertical walls, as shown in Fig. 12. The distance between the vertical walls is **360 mm**. Find out the reactions at the four points of contact.　　　　　　　　**(20)**

Fig. 8/12

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-3/T-1   BURP Examinations 2015-2016

Sub : HUM 225 (Accounting)

Full Marks : 140   Time : 3 Hours

The figures in the margin indicate full marks.

USE SEPARATE SCRIPTS FOR EACH SECTION
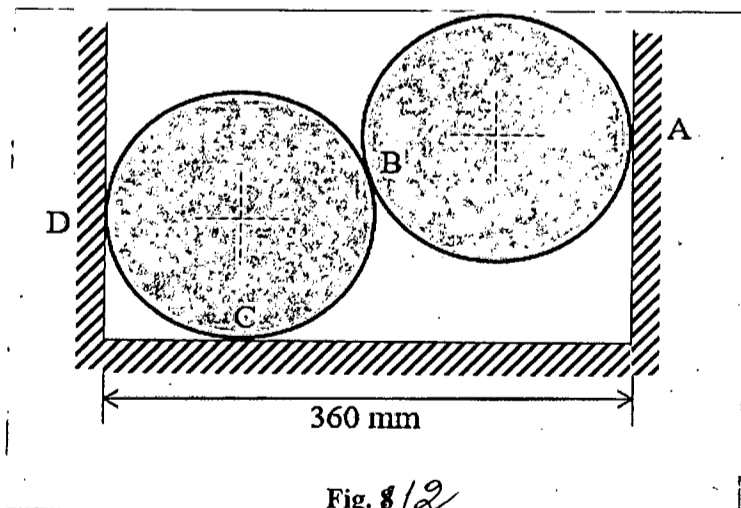
SECTION – A

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

1. (a) What is meant by product's CM ratio? How is this ratio useful in planning business operation?   **(4⅓)**

    (b) Volter Company manufactures and sells a specialized cordless telephone for high electromagnetic radiation environments. The company's contribution format income statement for the most recent year is given below: **(19)**

Sales (20,000 units @ Tk. 60)	Tk. 12,00,000
Less: Variable cost	900,000
Contribution margin	300,000
Less: Fixed cost	240,000
Net income	60,000

    Requirements:

    (i) Compute the company's CM ratio and variable cost to sales ratio.

    (ii) Compute the company's break-even point in both units and sales in Tk.

    (iii) Assume that sales increase by Tk. 400,000 next year. If cost behavior patterns remain unchanged, by how much will the company's net income increase?

    (iv) Refer to the original data, assume that next year management wants to earn a profit of Tk. 90,000. How many units will have to be sold to earn this target profit?

    (v) Refer to the original data, compute the company's margin of safety in Tk. and in percentage form.

    (vi) Compute the company's degree of operating leverage at the present level of sales.

    • Assume that company's sales increases by 8% next year. By what percentage would you expect net income to increase? Use degree of operating leverage to obtain your answer.

    • Verify your answer as calculate above by preparing a new contribution format income statement showing an 8% increase in sales.

2. (a) What is the basic difference between absorption costing and variable costing.   **(4⅓)**

    (b) Denton Company produces and sells a single product. Cost data for the product are given below: **(19)**

HUM 225

Contd ... Q. No. 2(b)

Selling price per unit	Tk. 60
Manufacturing costs:	
Direct materials per unit	Tk. 7
Direct labour per unit	10
Variable manufacturing overhead per unit	5
Fixed manufacturing overhead in total	315,000
Selling and administrative costs:	
Variable cost per unit	Tk. 3
Fixed cost for the period	245,000
Other Information:	
Units produced during the period	17,500
Units sold during the period	15,000

Requirements:

(i) Determine unit product cost under absorption costing and variable costing method.

(ii) Prepare income statements under the both methods.

3. (a) Explain the difference between   **(4⅓)**

    (i) Direct cost and indirect cost.

    (ii) Variable cost and fixed cost.

(b) The following information has been taken from the records of Bluebird Company: **(19)**

Raw materials purchased	Tk. 100,000
Direct labour	200,000
Indirect labour	3,000
Salesman's salaries	25,000
Miscellaneous factory expenses	4,000
Fuel for the factory equipment	2,000
Factory insurance	8,000
Depreciation, office equipment	12,000
Depreciation, factory plant	40,000
Power and electricity	5,000
Sales	420,000
Advertisement	17,000
Office salaries	30,000
Office rent	20,000
Utilities (40% for factory, 60% for office)	15,000

HUM 225

Contd ... Q. No. 3(b)

Inventories:

	January 1	December 31
Raw materials	Tk. 10,000	Tk. 12,000
Work-in-process	15,000	9,000
Finished goods	5,000	7,000

Requirements:

(i) Prepare a cost of goods sold statement and

(ii) An income statement for the year.

4. (a) Electricity costs is explained by machine hours in Timber Assembly Plant. Related information for a representative period is provided below: **(13)**

Month	Machine Hours	Electricity Cost (Tk.)
January	34,000	640
February	30,000	620
March	33,000	630
April	39,000	590
May	42,000	700
June	32,000	530

Requirements:

(i) Using high-low point method, determine the variable costs per machine hour and total fixed costs;

(ii) Determine the cost formula for electricity cost in the form of $Y = mx + c$;

(iii) Using the cost formula, calculate the total electricity cost it 40,000 machine hours have been worked for.

(b) What is meant by Tax? Give a short description about the tax system in Bangladesh. **(10 $\frac{1}{3}$)**

SECTION – B

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

5. (a) Thompson Kerry's transaction related to his grocery shop are as follows: **(19)**

• Invested Tk. 1,00,000 cash to the business.

• Sell goods in cash Tk. 20,000.

• Paid shop rent Tk. 8,000.

• Paid employee salary Tk. 5,000.

• Purchase furniture on account Tk. 10,000.

• Sell goods on account Tk. 5,000.

• Owner take Tk. 1,000 cash from the business.

• Receive cash for sale on account.

HUM 225

Contd ... Q. No. 5(a)

Required:

(i) Prepare a tabular analysis from the transactions.

(ii) Figure out the net income from the analysis.

(b) Are the following events recorded in the accounting records? Explain your answer. **(4 ⅓)**

(i) Purchase furniture on account.

(ii) Hired an employee but no advance is paid.

(iii) Withdraw money for personal use by the owner.

(iv) Chief Executive Officer (CEO) of the company dies.

6. (a) What is the recording process of financial transactions? Describe. **(5)**

(b) Stephen Ken's transaction for the month August 31, 2015 are presented below: **(18 ⅓)**

- Invested Tk. 25,000 cash.

- Purchase supplies on account of Tk. 2,500.

- Paid office rent Tk. 10,000.

- Service provided to customer and billed Tk. 5,000.

- Purchase office equipment on account Tk. 10,000.

- Withdraw cash Tk. 1,000 from the business.

- Get cash from dues on service provided.

Required:

(i) Record Journal entries in appropriate format.

(ii) Prepare Cash ledger and Account Payable ledger.

7. (a) Describe the terms "Asset" and "Liability" with criteria and examples. **(7)**

(b) The following are the balance figures from the ledger of Zan Company. Prepare appropriate trial balance from the accounts. **(10 ⅓)**

Cash Tk. 8,700; Accounts Receivable Tk. 11,500; Supplies Tk. 650; Prepaid Insurance Tk. 1,200; Equipment Tk. 18,000; Accumulated Depreciation Equipment Tk. 700; Notes payable Tk. 10,000; Accounts payable Tk. 2,500; Salaries payable Tk. 725; Interest payable Tk. 100; Unearned Rent Revenue Tk. 1,050; Owner's Capital Tk. 22,000; Owner's drawings Tk. 1,600; Service Revenue Tk. 17,100; Rent Revenue Tk. 2,260; Salaries expense Tk. 8,725; Rent Expense Tk. 2,900; Depreciation expense Tk. 700; Supplies Expense Tk. 850; Utilities expense Tk. 1,510; Interest expense Tk. 100.

(c) Prepare adjusting journal entries for the transaction below: **(6)**

(i) Travel expense accrued Tk. 2,000.

(ii) Tk. 1,000 of unearned revenue is earned.

(iii) Prepaid Insurance expires Tk. 500 per month.

HUM 225

8. The adjusted trial balance of Frinzi Company is presented below: **(23 ⅓)**

<div align="center">

Frinzi Company
Trial balance
December 31, 2014

</div>

Accounts Title	Debit (Tk.)	Credit (Tk.)
Cash	5,400	
Account Receivable	2,400	
Supplies	2,800	
Prepaid Insurance	1,300	
Equipment	60,000	
Notes Payable		40,000
Accounts Payable		2,400
Owner's Capital		30,000
Owner's Drawings	1,000	
Service Revenue		4,900
Utility expense	800	
Salary expense	3,200	
Advertising expense	400	
Total	77,300	77,300

Required:

(i) Prepare a non-classified Income Statement and Owner's Equity Statement.

(ii) Prepare a Balance Sheet as on December 31, 2014.

(iii) Identify Debt-to-Equity ratio and Asset turnover ratio.

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-3/T-1 BURP Examinations 2015-2016

Sub : **WRE 309** (Introduction to Water Resources 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**.

1. (a) Differentiate the followings: **(2×4=8)**

    (i) Subsurface flow and base flow (ii) Infiltration rate and cumulative infiltration
    (iii) Sleet and Hail (iv) Specific humidity and relative humidity.

    (b) Explain how the "**soil characteristics**" and "**surface of entry**" affect the infiltration rate.   **(5)**

    (c) A storm with 8.00 cm precipitation produced a direct runoff of 5 cm. Given the time
    distribution of the storm as below, estimate the φ-index of the storm.   **(15)**

Time from start of rainfall (min)	0	20	40	60	80	100
Incremental rainfall (cm)	0	0.50	0.90	2.6	3.3	0.59

    (d) In a variable head permeability test, the followings are given: length of specimen is
    15 inch, area of specimen is 3 in^2 and coefficient of permeability is 0.0688 inch/minute. What
    should be the area of the standpipe for the head to drop from 25 inch to 12 inch in 8 minutes?   **(7)**

2. (a) Rainfall of 3 cm and 2 cm occurring on 2 consecutive 3-h durations on a catchment of
    area 20 km^2 produced the following hydrograph. Estimate the Volume of direct runoff,
    rainfall excess and φ-index.   **(15)**

Time from start of rainfall (hr)	0	6	12	18	24	30	36	42	48	54
Observed flow (m^3/s)	4	11	23	15	11	8	6	5	4	4

    (b) The ordinates of a 6-h unit hydrograph are given.   **(14)**

Time (hr)	0	3	6	9	12	18	24	30
Ordinate (m^3/s)	0	150	250	450	600	800	700	400

    The storm had three successive 6-h intervals of rainfall magnitude of 3.0, 5.0 and 4.0 cm
    respectively. Determine the Direct runoff hydrograph.

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

    (i) Specific yield and specific retention (ii) Transmissivity and hydraulic conductivity

WRE 309/URP

3. (a) Differentiate the following with sketch **(4+4=8)**

   (i) Detention storage and bank storage (ii) Influent stream and Effluent stream

   (b) Discuss the types of streams based on runoff characteristics. List down the factors affecting runoff. **(6+7=13)**

   (c) A 100 ha watershed has the following characteristics – **(14)**

   (i) Maximum length of travel of water in the catchment is 3500 m and the difference in elevation between the most remote point on the catchment and the outlet is 65 m.

   (ii) The maximum I-D-F relationship for the watershed is given by $i = 3.97T^{0.165}/(D+0.15)^{0.733}$, where i = rainfall intensity in cm/hr, T = return period in year and D = duration of rainfall in hours.

   (iii) Land cover and corresponding runoff coefficient as given below

Land cover	Area (ha)	Runoff coefficient
Forest	30	0.25
Pasture	10	0.16
Cultivated land	60	0.40

   Estimate the 25-year peak runoff from the watershed that can be expected at the outlet of the watershed.

4. (a) Discuss the mechanisms of air mass lifting. Actual vapor pressure is the saturation vapor pressure at dew point temperature – Explain. **(4+4=8)**

   (b) Write down one case of applicability and one specific limitation of (i) Arithmatic mean method (00 Theissen polygon method and (iii) Isohyetal method. **(2+2+2=6)**

   (c) Calculate the precipitable water in a saturated water column of 8 km high above 1 m^2 of ground surface. The surface pressure is 100 kPa, the surface air temperature is 28 °C and the lapse rate is 6.5 °C/km. Take the increment of elevation as 4 km. **(14)**

   (d) For a data of maximum recorded annual floods of a river the mean and the standard deviation are 4200 m^3/s and 1705 m^3/s respectively. Using Gumbel's extreme value distribution estimate the return period of a design flood of 9500 m^3/s. Assume an infinite sample size. **(7)**

SECTION – B

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

5. (a) Write short note on Cropping patterns. What are the governing factors while planning irrigation projects? **(3+5)**

   (b) Write short note on (i) Perennial River, (ii) Ephemeral River, (iii) Intermittent River, (iv) Alluvial River, (v) Sub-surface Irrigation. **(15)**

WRE 309/URP

(c) Draw qualitative sketch of Straight, Meandering and braided river. Give one example of each type of river in Bangladesh. **(6)**

(d) Differentiate between field irrigation requirement and gross irrigation requirement. Classify irrigation projects based on the coverage of land. **(3+3)**

6. (a) What is river training? Write down the objectives of River Training Works. **(2+6)**

(b) What is Groyne? Write down its objectives. **(2+5)**

(c) Differentiate between (i) permeable and impermeable groyne, (ii) Submerged and emerged groyne, (iii) Repelling and Attracting groyne. **(9)**

(d) What is revetment? Write down the characteristics of good revetment. What are the components of revetment? **(2+6+3)**

7. (a) What is dredging? What are the objectives of dredging? **(2+6)**

(b) What are the causes of Flood? What are the common types of flood? What are the factors that the flood damage depends on? **(4+4+4)**

(c) Why navigation is important? Write down the physical factors affecting Navigation. **(5+3)**

(d) Draw a simple cross-section of a typical navigation lock. Write short note on canalization. **(4+3)**

8. (a) What is Integrated Water Resources Management (IWRM)? What are the key functions of Water Resources Management? **(3+8)**

(b) Write down the principles of IWRM. Compare traditional and integrated approach in IWRM. **(6+5)**

(c) Write down the roles and responsibilities of water organizations. **(8)**

(d) What are the levels of Water Resources Planning? Briefly differentiate between them. **(5)**

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

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

Sub : **PLAN 343** (Traffic and Transportation Study)

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) Briefly explain the expected impacts of land use on travel behavior. **(15)**

    (b) "Transit-oriented planning and Smart Growth can provide solutions to automobile dependence" – do you agree with this statement? Justify your answer. **(10)**

    (c) Define 'Urban Form' and 'Urban Spatial Structure'. Graphically show the relationship between urban density and per capita car use in urban area. **(10)**

2. (a) "Ring roads can confer further time improvements to cross a metropolitan area", - elaborate the statement with necessary illustrations. **(10)**

    (b) Briefly explain the advantages of one-way streets to improve the traffic condition in a busy area. **(10)**

    (c) Write a short note on – 'Tidal Flow Operation' **(10)**

    (d) Differentiate between Local Area Movement and Intra-Urban Movement. **(5)**

3. (a) Which factors determine the efficiency of different transport modes? Explain any three of those factors with relevant examples. **(15)**

    (b) Differentiate between Basic Capacity, Possible Capacity and Practical Capacity. **(9)**

    (c) State the factors that determine the Level of Service of a roadway section. **(6)**

    (d) A car is moving at a speed of 60 km/hr. Calculate the braking distance for that car. (Assume a suitable friction factor for calculation and ignore the effect of grade). **(5)**

4. (a) Briefly explain the concept of "Space-Time Convergence" with necessary illustrations. **(10)**

    (b) Discuss the typology of Urban Roads. **(8)**

    (c) Write short note on- **(5×2=10)**
        (i) Passenger Car Unit
        (ii) Para-transit

    (d) Differentiate between "Balanced Transportation System" and "Integrated Transportation System". **(7)**

PLAN 343

SECTION – B

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

5. (a) How is the data on 'spot-speed' and 'journey speed' used in traffic and transportation planning? **(15)**

(b) Which criteria you would consider while selecting a site for spot speed survey. **(5)**

(c) You have to design an interchange for the crossing of two major roads, where right turning traffic is substantially large. Which interchange you will propose for left hand side driving direction and why? Draw a neat sketch of your proposed interchange. **(5+10=15)**

6. (a) "Among the methods available for traffic counts, 'Manual Method' is the most preferred method"-why? **(12)**

(b) Illustrate with a sketch how the accuracy of O-D survey data, using road side interview, is checked. **(8)**

(c) Parking survey by patrol, undertaken inside the BUET campus, revealed the following data of parking accumulation (Table 1). **(15)**

Table 1: Parking accumulation data

	Time in a day					
	9:00 to 9:30 AM	9:30 to 10:00 AM	10:00 to 10:30 AM	10:30 to 11:00 AM	11:00 to 11:30 AM	11:30 to 12:00 AM
No of Parked Car	54	86	120	81	95	85

During this survey, parking volume was found to be 350. The number of bays in the whole BUET campus was 125. Calculate the following

    (i) Parking load (vehicle hour)

    (ii) Average parking duration (minutes)

    (iii) Parking turnover (veh/hr/bay)

    (iv) Parking index (%)

7. (a) Zoning is a prerequisite to conduct O-D survey. What issues should be taken into consideration during Zoning. **(10)**

(b) It is desirable to prohibit parking at certain locations - what are those locations? **(10)**

(c) During a speed survey, following forty (40) spot speed observations were observed.

    32, 25, 11, 17, 19, 14, 24, 29, 38, 45, 28, 37, 33, 15, 13, 12, 4, 18, 18, 11,

    29, 23, 20, 35, 30, 7, 23, 17, 43, 27, 35, 20, 22, 16, 8, 17, 33, 21, 27, 30

Generate a frequency table taking a suitable class interval of spot speed and calculate the space-mean speed. **(15)**

PLAN 343

8. (a) What are the principles of Longitudinal Pavement Marking? **(5)**

(b) What is the main difference between stop sign and Yield Sign? **(5)**

(c) What do you understand by shoulder in cross-sectional elements of a road way, why is it necessary? **(5)**

(d) To assess the performance of certain intersections, Moving Observer Method was used to collect data. Following particulars were obtained for three sections, as given by Table 2 and Table 3. Calculate **(20)**

    (i) Traffic flow (veh/hour)

    (ii) Journey Speed (kPH)

    (iii) Running speed (kPH)

Table 2: Moving observer travelling north

Sections	Journey time (minutes)	Stopped time (minutes)	Vehicles met with in opposing direction	Vehicles in the same direction	
				Vehicles overtaking	Vehicles overtaken
Dhaka City College to Panthapath	6.43	1.58	500	18	8
Panthapath to Manik Mia Avenue	7.00	1.38	550	33	37
Manik Mia Avenue to College Gate	5.31	0.00	450	13	10

Table 3: Moving observer travelling south

Sections	Journey time (minutes)	Stopped time (minutes)	Vehicles met with in opposing direction	Vehicles in the same direction	
				Vehicles overtaking	Vehicles overtaken
College Gate to Manik Mia Avenue	5.54	1.46	250	42	28
Manik Mia Avenue to Panthapath	6.85	1.69	310	25	20
Panthapath to Dhaka City College	5.58	0.00	280	17	37

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY, DHAKA

L-3/T-1   BURP Examinations 2015-2016

Sub : **PLAN 321** (Housing and Real Estate Development)

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) Why housing is different from other commodities? How does the heterogeneity of dwelling affect the choice of housing? Explain with examples.   **(6+6=12)**

   (b) "Choice of housing location is not always determined by the trade-off between housing consumption and commuting cost, but it depends on other factors" – Explain the statement in light of income segregation theory of housing.   **(12)**

   (c) Define real estate. Illustrate the classification of estate with a neat diagram.   **(11)**

2. (a) "Durability of housing has come important economic implications" – what are those?   **(3)**

   (b) Dwellings of different quality levels are related to the supply side because of filtering process" – Explain this statement in light of filtering model of housing. State some limitations of this model.   **(14)**

   (c) What do you mean by implicit price of housing attributes? How the price of housing can be estimated by Hedonic Approach?   **(2+16=18)**

3. (a) What are the factors affecting the demand of housing? How can you measure the changes in real estate demand?   **(4+5=9)**

   (b) Derive the equation of rent gradient for housing in a stylized monocentric city according to "Recardian Rent Theory". Show the major components of housing rent with proper graphical representation.   **(8)**

   (c) Explain the supply, demand and price adjustment mechanism of real estate market with Simple Stock-Flow Model? Also explain the dynamics of rent-vacancy adjustment mechanism using a simplified graphic representation of the rent-vacancy cycle.   **(18)**

4. (a) Write short notes on the following (Any three):   **(3×4=12)**

   (i) Performance Zoning

   (ii) Building permit

   (iii) Relationship between Urban Service Area Boundary and housing price

   (iv) Rent control

   (b) Compare different types of supply side and demand side housing policies. Which policy do you think will be more effective considering the affordability of low income people in Dhaka? Give proper reasons in support of your statement.   **(23)**

PLAN 321

SECTION – B

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

Draw diagrams as required.

5. Show with diagrams (a) of compatibility of some essential non-residential uses with housing and the accessibility criteria to various destinations from the dwelling unit.

    (b) Why are these criteria important for a functional city? **(20+15)**

6. (a) Narrate the housing situations of Bangladesh and Singapore after independence. **(15)**

    (b) What problems did each country face in their post-liberation phases and how they tackled them? **(20)**

7. (a) What are the 10 strategies to make land and housing accessible to all levels of citizens? **(20)**

    (b) Provide examples of countries where such strategies have been successfully implemented to improve quality of life without causing damages to the environment. **(15)**

8. (a) What are the criteria that the low income people look for in housing provision? **(10)**

    (b) Describe how a home-owner's association in the Phillipines and the Hyderabad Development Authority was inspired by informal housing development process to progressively house the poor. **(15)**

    (c) In this regards, discuss the importance of a functional and implementable Housing Policy. **(10)**