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G.R. No.

**SEPTEMBER 2017 / IN - SEM Exam (T2)**

**F. Y. B.TECH. (COMMON) (SEMESTER - I)**

**COURSE NAME: Basic Civil Engineering (Code U117-103)**  
**(2017 PATTERN)**

[Time: 1 Hour]

[Max. Marks: 30]

SCHEME OF MARKING / MODEL ANSWERS

**Q. 1) (a)**

Sr. No.	BS	IS	FS	Rise	Fall	RL	Remarks
1	0.500			-	-	100.000	BM
2		0.950			0.450	99.550	
3		1.250			0.300	99.250	
4	0.450		3.850		2.600	96.650	CP
5		1.650			1.200	95.450	
6		2.250			0.600	94.850	
7	0.750		3.650		1.400	93.450	CP
8		1.550			0.800	92.650	
9		2.750			1.200	91.450	
10			3.450		0.700	90.750	Last Stn.
SUM	1.700	---	10.950	0.000	9.250		

Arithmetical Check:

$\sum BS - \sum FS = \sum Rise - \sum Fall = Last\ RL - First\ RL$

$1.700 - 10.95 = 0.000 - 9.250 = 90.750 - 100.000$

$-9.250 = -9.250 = -9.250\ OK.$

[Table & RL 4 marks+ Sum & Check 2 marks = 6]

**(b)** Two uses: (i) Total Station: Finding distance, angles, elevations.

(ii) GPS: Obtaining positions, getting coordinates,

(iii) Ranging Rod: Indicating survey station. Ranging. [2 marks each = 6]

**(c)** Meaning of Scale & R.F., 2 differences between them. [1 mark each = 4]

OR

**Q. 2) (a)** Correctly stating principles of surveying: 1 mark each (2 marks); Expl. of principles: 1 mark each (2 marks)+ 2 sketches 2 marks each. [Total 6]

**(b)** Def. of contour line and contour interval: 1 mark each (2 marks); Expl. of 2 characteristics of contours 1 mark each (2 marks); 2 sketches 1 mark each (2 marks)  
[Total 6 marks]

**(c)** Brief explanation of temporary adjustments of level: 3 marks+ 1 mark for sketch/sketches.  
[Total 4 marks]

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03:00pm

**Q. 3) (a)** Differences 1 mark each (4 marks), Sketches: 2 marks. [Total 6 marks]

**Point to point differences are expected in two columns**

Carpet Area: It is the area that can actually be covered by a carpet, or the area of the apartment excluding the thickness of inner walls. Carpet area does not include the space covered by common areas such as lobby, lift, stairs, play area, etc. Carpet area is the actual area you get for use in a housing unit. Carpet area is that number that will give you an idea of the actual space at your disposal. Focusing on the carpet area will help you understand the usable area in the kitchen, bedroom, living room, etc. Carpet area is usually around 70% of the built-up area.

Built up Area: Built-up area is the area that comes after adding carpet area and wall area. Now, the wall area does not mean the surface area, but the thickness of the inner walls of a unit. The area constituting the walls is around 20% of the built-up area and totally changes the perspective. The built-up area also consists of other areas mandated by the authorities, such as a dry balcony, flower beds, etc., that add up to 10% of the built-up area. So when you think about it, the usable area is only 70% of the built-up area.

So, if the built-up area says 1200 sq ft, it means around 30% (360 sq ft) is not really usable, and the actual area you will get to use is only the remaining 840 sq. ft.

**(b)** Brief on following points of Sanitation: 1 mark each. [Total 4 marks]

(i)Light (ii)Ventilation (iii)Cleanliness (iii)Sanitary convenience

**(c)** Any four points out of the following: 1 mark each [Total 4 marks]

- 1) Min one opening to side of open space
- 2) Fixed part of window shall not be counted
- 3) Min aggregate area of such openings, excluding doors inclusive frame shall not be less than
  - i.  $1/10^{\text{th}}$  of floor area (dry- hot climate)
  - ii.  $1/6^{\text{th}}$  of floor area (wet- hot climate)
  - iii.  $1/12^{\text{th}}$  of floor area (cold climate)
- 4) Above areas of openings can be increased by 25% in case of kitchen

OR

**Q. 4) (a)** Any 6 relevant/ correct points about green building & its importance: 1 mark each [Total 6 marks]

- These are the structures that ensure efficient use of natural resources like building materials, water and other energy with minimum generation of non-degradable wastes.
- Technologies like efficient cooling system and sensor system that can sense the heat generated from human body and automatically adjust room temperature and reduce energy consumption.
- Increasing the efficiency with which buildings and their sites use and harvest energy, water, and materials; and Protecting and restoring human health and the environment, throughout the building life-cycle: siting, design, construction, operation, maintenance, renovation and deconstruction is green building in a nutshell.
- Recourses, water and energy are dwindling (getting reduced year by year) to give way to building.

- Resources-forest, ground cover etc. destroyed to provide structure/ building
- Energy getting utilised highly for lighting ,air conditioning and water heating
- Buildings account for 68% of total electricity consumption in the world
- Water is getting utilised continuously during building construction and operation
- Buildings use 80% of total drinking water consumption in the world.
- The buildings in the world consume more than twice the energy of all the cars in the world.
- Indoor levels of pollution are commonly 2 to 5 times higher than outdoor pollution levels
- Several building processes and functions of occupant function produces large amount of wastes
- Building also affect urban air quality and contribute to climate change

**(b)** Defining roominess and explaining its features: 2 marks; Diagrams with proper dimensions: 2 marks. [Total 4 marks]

**(c)** Definition of Bye-Laws: 1 mark + any 3 objectives

Objectives of bye-laws:

- Disciplined and systematic growth of buildings and towns
- Prevent haphazard development
- Protect safety of public against fire, noise, health hazards and structural failure
- Proper utilization of space
- Give guidelines to architect and engineers for effective planning
- To provide health, safety and comfort to people
- Uniformity in provision of approaches, light, air and ventilation

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