

Roll No. ....

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**312304**

**December, 2019**

**B.Tech. (Fashion & Apparel Engg./Civil Engg.)**

**III SEMESTER**

**Energy Science & Engineering (ESC212)**

**Time : 3 Hours]**

**[Max. Marks : 75**

**Instructions :**

1. *It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.*
2. *Answer any four questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

**PART - A**

1. (a) What is the SI unit of energy? How this unit is specified? (1.5)  
(b) What is climate and how it is different from weather? (1.5)  
(c) What is the difference between wave energy and tidal energy? (1.5)

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- (d) Why hydrogen is considered as clean fuel? (1.5)
- (e) What is the difference between clean energy technology and unclean energy technology? (1.5)
- (f) How future energy use is influenced by research policy? (1.5)
- (g) What is penstock? (1.5)
- (h) What are the most suitable site conditions for installing wind mill towers? (1.5)
- (i) How green building is better than normal building? (1.5)
- (j) Which LEED rating system needs to be followed for the projects registered after 31 October, 2016? (1.5)

### PART - B

- 2. What is sustainability? How it is related with the energy and its resources? What are measures to be taken to make our society sustainable in near future? Discuss in detail with suitable examples and data. (15)
- 3. What is the need to store energy? What are common methods or devices used to store energy? Compare different energy storage devices based upon their characteristics. Also discuss their advantages and disadvantages. (15)

- 4. How unit generation cost of electricity is estimated? What are the factors influencing the cost of electricity generation? Discuss in detail with suitable data. (15)
- 5. What are the main design features of Nuclear reactor containment buildings? Why nuclear fuel disposal is a problem? How it can be done in a safe manner? Discuss in detail while considering the flora and fauna present at the site of nuclear fuel disposal. (15)
- 6. What is green building? What are their certification levels? What are benefits and disadvantages of green buildings? Discuss in detail. (15)
- 7. What are the different forms of energy which can be converted into electricity? Discuss in detail while considering their advantages and disadvantages in context of sustainability. (15)