

(2 ½ Hours)

[Total Marks: 75]

- N.B. 1) All questions are compulsory.  
 2) Figures to the right indicate marks.  
 3) Illustrations, in-depth answers and diagrams will be appreciated.  
 4) Mixing of sub-questions is not allowed.

**Q. 1 Attempt the following****(a) Select the correct alternative****(5M)**

- (i) IT contributes about \_\_\_\_\_ % of GHG emission  
 a. 7-8%                      b. 2-3%                      c. 10--12%                      d. 15-16%
- (ii) A typical desktop uses about \_\_\_\_\_ amount of power?  
 a. 120 W                      b. 180 W                      c. 115 W                      d. 70 W
- (iii) P-State saves energy by satisfying \_\_\_\_\_ equation?  
 a.  $P=CVF$                       b.  $P=CVF^2$                       c.  $P=C^2VF$                       d.  $P=CV^2F$
- (iv) \_\_\_\_\_ is one of the main ingredient of PVC?  
 a. Arsenic                      b. Vinyl Chloride                      c. Mercury                      d. Cadmium
- (v) \_\_\_\_\_ restricts the usage of hazardous substance.  
 a. REACH                      b. WEEE                      c. RoHS                      d. EPEAT

**(b) Fill in the blanks with the help of the options given in the pool below: (Hibernator, C6, e-commerce, C2, e-waste, server farm, grid computing)****(5M)**

- (i) In \_\_\_\_\_ state CPU is in Power Down Mode.  
 (ii) \_\_\_\_\_ is discarded computer parts.  
 (iii) \_\_\_\_\_ is a disk array design for optimizing storage power consumption  
 (iv) \_\_\_\_\_ is the process of buying and selling goods and services through computer or mobile systems via internet etc.  
 (v) A server cluster is also known as \_\_\_\_\_

**(c) Answer the following in one or two lines:****(5M)**

- (i) What is Energy Star?  
 (ii) What is a Green IT Audit?  
 (iii) State the various states of a Hard Drive.  
 (iv) What is CUE?  
 (v) Define Green Washing?

**Q. 2 Attempt the following (Any THREE)****(15M)**

- (a) What is Green IT? What are the various IT-enabled approaches to improve environmental sustainability?  
 (b) Write a short note on Holistic Approach to Greening IT.  
 (c) Explain the drivers of environmental sustainability and green IT.  
 (d) Explain the Life Cycle of a Device or Hardware.  
 (e) Explain any two tools for tuning software for performance and energy efficiency.  
 (f) State the metrics of various Software sustainability attributes.

**Q. 3 Attempt the following (Any THREE) (15M)**

- (a) What are the steps involved in developing a green IT strategy.
- (b) Write a short note on Grid Computing.
- (c) What are the energy implications for data centre facility infrastructure?
- (d) State the objectives Green Networking.
- (e) Discuss in short the business drivers of green IT.
- (f) Write a short note on NAS.

**Q. 4 Attempt the following (Any THREE) (15M)**

- (a) What is LCA? State and explain its four stages.
- (b) Explain in brief Energy reuse effectiveness (ERE), Data centre energy productivity (DCeP) and Data centre computer efficiency (DCcE).
- (c) Explain the various SICT Capacity building blocks.
- (d) Write a short note on Corporate Sustainability, Social Responsibility and IT.
- (e) What is EPEAT? Explain its three-tiered, point-based system.
- (f) Write a short note on SITS value curve.

**Q. 5 Attempt the following (Any THREE) (15M)**

- (a) State and explain the Three R's of Green IT.
  - (b) Discuss the environmental Impacts of IT.
  - (c) How SSD's are better than Hard Disks?
  - (d) What are the factors that drive the development of sustainable IT?
  - (e) Discuss the various software sustainability attributes.
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