Reg. No. :

Question Paper Code: 99218

B.E./B.Tech. DEGREE EXAMINATION, NOV 2023

Professional Elective

Computer Science Engineering

19UCS928 - GREEN COMPUTING

(Regulations 2019)

Duration: Three hours   Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1. Briefly explain the ways you can rely less on fossil fuel–based sources of electricity. CO1 - U

2. What do you mean by Environmentally Intelligent System (EIS)? CO1 - U

3. What do you mean by renewable energies? CO1 - U

4. How the issues CAPEX (Capital Expenditure) and OPEX (Operational Expenditure) are rectified in Green IT? CO1 - U

5. What are SMART goals? CO1 - U

6. How Power Usage Effectiveness and Datacenter Efficiency are calculated? CO1 - U

7. What do you mean by EPEAT? CO1 - U

8. What are the uses of ICT-based business applications? CO1 - U

9. How do we measure and track the data using business intelligence (BI) tools? CO1 - U

10. What are the benefits of Customer Relationship Management (CRM). CO1 - U

PART – B (5 x 16= 80 Marks)

11. (a) Explain the Four major steps used to measure your carbon footprint. CO1 - U (16)

   (b) Explain how cooling costs can be optimized in an IT company. CO1 - U (16)

12. (a) Explain the aim for using Green Enterprise Architecture for Green IT. CO1 - U (16)

(b) How Green enterprise architecture helps in handling the impact of Green IT transformation on the rest of the organizational systems. CO1 - U (16)

13. (a) Explain how a 1U dual-socket, dual-core server in the datacenter that can be turned into ten virtual servers running ten virtual operating systems. CO1 - U (16)

(b) Explain how virtualization can be implemented in IT systems. CO1 - U (16)

14. (a) Explain the three phases of equipment life cycle. CO1 - U (16)

Or

(b) Describe the ISO 14000:2004 Family of STANDARDS used for Green IT CO1 - U (16)

15. (a) Apply the concept of Green Enterprise Transformation (GET) to the following scenario. CO2 -App (16)

Good Mead is a hypothetical large hospital in a metro city, providing public sector medical services. These services cover various areas of health including the standard outpatient department providing regular consultation to patients, as also various specialties such as pediatric, gynecology and obstetrics, orthopedics, radiology, sports medicine, and so on. As a result of the recent preliminary Green IT audit of the hospital, it has been revealed that the hospital had a significant carbon footprint. Significant reviews of patient management processes, management of electronic patient records (EPR), laboratory equipment management, medical drugs and material management, and management of equipment's and buildings were undertaken. Initial opinion of the auditors and that of the tentatively appointed chief green officer (CGO) was that significant optimization was possible in all these areas of the hospital that will reduce its carbon footprint.

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(b) Explain how GET is applied to the following scenario. CO2 -App   (16)
Vanderbilt University's IT services organization has turned to virtualization with great success.

Realizing that physical servers cost money for power and cooling, as well as their environmental effects, the university decided to host fewer servers and virtualize. IT services officials utilized server virtualization for 35 percent of the servers they manage. They estimate they have been saving 20,575 watts per hour. Officials hope to eventually virtualize 80 percent of their servers. The state of Oregon is taking on a much larger consolidation project. It is combining 11 state agency datacenters by June 2009. The plan is for the centers to be combined at a new datacenter in Salem and involves virtualizing both storage and servers.

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