Time:1hr30min. **Ethics & Self-Awareness** M.M : 30

Note: Attempt all the questions. All the questions carry equal marks.

Q1) Define Ethics. Explain different theories of ethics.

Q2) Describe Cognitive Moral Development theory propounded by Lawrence Kohlberg. Also write about its criticism.

Q3) What is meant by Business Ethics ? Explain the factors influencing business ethics.

INTRODUCTION TO COMPUTER SCIENCE AND ENGINEERING
B.E. (CSE) 1ST SEM, Section – I & II

[Time Allowed: 1.5 hrs] **[Max Marks: 30]**

Part-A (All Questions are compulsory)

Q1. What is a parity bit? How it is used for detecting errors?

Q2. Name the different components of a Turing Machine. How an expression for state change is represented in Turing machine?

Q3. Which was the first commercially produced computer? Where it was first installed?

Q4. Define data transfer rate of a magnetic tape drive. What is the data transfer rate of a magnetic tape system of 900 BPI tape density and 300 inches per second tape speed?

Q5. Write full form of FAT, DVD, SD card, MMC. (2X5=10)

Part-B (Attempt any four questions)

Q6. List key hardware technologies and key software technologies used in all the five computer generations. (5)

Q7. (a) Arrange the following in the increasing order of their speed and capacity: Super, micro, mainframe and mini.
(b) List the logical steps taken by a computer system along with the roles of its main units in each step while transforming input data to useful information.
(c) Draw the classification chart for commonly used secondary storage devices. (1+3+1=5)

Q8. (a) Differentiate between the ways data are organized on a magnetic disk and an optical disk. Which data organization leads to faster random access time and why?
(b) Elaborate any two social and two ethical issues related to computer in this era. (3+2=5)

Q9. Write short note on five different registers of ALU. (5)

Q10. (a) What are the limitations of an image scanner when it is used for inputting text documents? How an OCR device overcomes these limitations?
(b) Differentiate between impact and non impact printers. Name at least two printers of both types. (3+2=5)

University Institute of Engineering and Tech[illegible]gy
Minor I, Sept. 2016

Course: Calculus
Date of Examination: 28.09.2016
Time duration: 1 hr. 30 min.

Class: BE CSE
Semester: 1^{st}
Total Marks: 30

Q.1) By minimizing the function $f(x, y, u, v) = (x-u)^2 + (y-v)^2$ subject to the constraints $y = x+1$ and $u = v^2$, find the minimum distance in the $xy-plane$ from the line $y = x+1$ to the parabola $y^2 = x$. 5 marks

Q.2) Find a quadratic approximation to $f(x, y) = \cos x \cos y$ near the origin. How accurate is the approximation if $|x| \leq 0.1$ and $|y| \leq 0.1$? 5 marks

Q.3) At what points (x, y, z) in space is the function $f(x, y, z) = \ln xyz$ continuous ? 5 marks

Q.4) Let D be the region in $xyz-space$ defined by the inequalities $1 \leq x \leq 2$, $0 \leq xy \leq 2$, $0 \leq z \leq 1$. Evaluate $\int\int\int_D (x^2y + 3xyz)dxdydz$ by applying the transformation $u = x$, $v = xy$, $w = 3z$ and integrate over an appropriate region G in $uvw-space$. 5 marks

Q.5) Find the volume of the region that lies inside the sphere $x^2 + y^2 + z^2 = 2$ and outside the cylinder $x^2 + y^2 = 1$ 5 marks

Q.6) A closed rectangular box is to have volume $V cm^3$ The cost of the material used in the box is a $cents/cm^2$ for top and bottom, b $cents/cm^2$ for front and back, and c $cents/cm^2$ for the remaining sides. What dimensions minimize the total cost of materials? 6 marks

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UE 163095

University Institute of Engineering and Technology, Panjab University.
Sessional-1, First Semester, 2016-2017
Programming Fundamentals(CSE First year Section-1&2)
CS101/201

Time Alloted :1.5 hrs
M.M.:30

Ques1.What will be the output of following programs

a)
```
#include <stdio.h>
void main( )
 {
  int i=2, j=3, k, l;
  float a,b;
  k = i/j*j;
  l=j/i*i;
  a=i/j*j;
  b=j/i*i;
 printf("%d%d%f%f ",k ,l , a ,b);
 }
```

b)
```
#include <stdio.h>
void main( )
 {
  int k , num=30;
  k = (num>5 ?(num<=10 ? 100:200)
: 500);
  printf(" %d \n" , num);
 }
```

c)
```
#include <stdio.h>
void main( )
 {
  int i=1;
  switch(i-2)
  {
   case -1:
        printf("feeding fish\n");
   case 0:
        printf("weeding grass\n");
   case 1:
        printf("mending roof\n");
   default:
        printf("just to survive\n");
  }
 }
```

d)
```
#include <stdio.h>
void main( )
{
  int i = -1, j=1, k , l;
  k = i && j;
  l = i || j;
printf("%d%d\n",l,k);
}
```

e)
```
#include<stdio.h>
void main( )
{
 int i = 1;
 while(i<=10);
{
printf("%d\n",i);
i++;
}
}
```

(5*2)

Ques2a)Explain different storage classes in C.

b)Explain recursion with the help of program. (2*5)

Ques3 Write a menu driven program which has following options:

1.Factorial of a number
2.Prime or not
3.Odd or even
4.Exit

Once a menu item is selected the appropriate action should be taken & once this action is finished ,the menu should reappear.Unless the user selects the 'exit' option the program should continue to work.

(1*10)

University Institute of Engineering and Technology

Minor I, Sem I, Sep 2016, Environmental Studies (For CSE- Sec- II)

M.M.:30

Time:90 min

(Attempt any three)

Q1.(a) Explain how is environmental studies an interdisplinary study? (5)

(b) What is an ecological footprint? Humanity's ecological foot print is 50 percent more than the earth. Explain the consequences.(5)

Q2.(a) Explain the structure of ecosystem. (5)

(b) Differentiate between food chains and food webs. (3)

(c) What is a carbon cycle? (2)

Q3.(a) Differentiate between primary and secondary air pollutants. (4)

(b) What is Smog? How it affects the human beings. (3)

(c) How is ozone a pollutant in troposphere? How is it created? (3)

Q4.(a) Explain the kyoto protocol. (5)

(b) Explain green house effect. (5)

University Institute of Engineering and Technology

Minor I, Semester I, Sept. 2016

APH103 / APH203: Quantum and Statistical Physics (CSE I and II)

Time allowed: 90 min. M.M. 30

Q1. (a) What were the conclusions of Michelson-Morley experiment? Explain with suitable schematic diagram. (3)

(b) Ar. airplane is flying at 300m/s. How much time must elapse before a clock in the airplane and one on the ground differ by 1 second? (2)

(c) A space-craft is traveling at 0.99c with respect to earth and a man is running in the space craft at velocity 0.02c. Find the speed of the man with respect to earth. (2)

Q2. (a) Explain the concept of simultaneity in relativistic mechanics. (2)

(b) Evaluate the frequency of light as seen by an observer moving perpendicular to the source. (2)

(c) Show that Rayleigh-Jean radiation law is inconsistent with the Wein displacement law $\lambda_{max} T = \text{const.}$ (3)

Q3. (a) Prove that the results obtained by Davisson Germer experiment were in agreement with De Broglie hypothesis. (d = 0.091nm, V = 54 eV, $\theta = 65$) (3)

(b) At what scattering angle will incident 100 keV x-rays leave a target with an energy of 90 keV? (2)

(c) Show that pair production cannot occur in empty space. (2)

Attempt any six (Each question carry 1.5 marks each):

Q4. (a) What is paradoxical about twin paradox?

(b) Compare uncertainties in the velocities of an electron and a proton confined in a 1.00 nm box.

(c) Evaluate the expression for relativistic kinetic energy of a particle of mass m.

(d) If the speed of light were smaller than it is, would relativistic phenomenon be more or less evident than they are now?

(e) Explain the reason for characteristic peaks in case of x-ray spectra of molybdenum.

(f) How much energy must a photon have if it is to have the momentum of 10 MeV proton?

(g) In Davisson-Germer experiment, what effect will increase in the electron energy have on the scattering angle of electrons.

(h) Show that a zero rest mass particle can have finite mass only when it is traveling with the speed of light.

(i) A 1.00 kW radio transmitter operates at a frequency of 880 Hz. How many photons does it emit?