Code: 13CS1001
ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I B.Tech I Semester Supplementary Examinations, November-2016
COMPUTER PROGRAMMING
(Common to CE, ME, CSE & IT)

Time: 3 hours **Max Marks: 70**
PART-A
Answer all questions **(10X1=10M)**

1. a) What is an algorithm?
   b) How to declare constants in C?
   c) What is entry controlled loop?
   d) What do you mean by counter controlled loops?
   e) What is the default return type of a C function?
   f) What is array?
   g) Define pointer?
   h) Define enumerated data type.
   i) How to initialize structure variables?
   j) What is C pre-processor?

PART – B

Answer one question from each unit **(5x12=60)**
UNIT - I
2. a) Discuss about structure of C-Programme.
   b) Write a flow chart to find whether the given number is even or odd.
   (OR)
3. a) Explain about C mathematical library functions.
   b) Write a C program to find area and circumference of the circle.

UNIT - II
4. a) Discuss if and switch statements.
   b) Write a C program to find the maximum of given three numbers using ternary operator.
   (OR)
5. a) Discuss about iterative statements in C.
   b) Write a C program to find whether the given number is strong number of not.

UNIT - III
6. a) Explain about C functions with examples.
   b) Write a C program using functions to calculate ${}^nC_{r} = \left(\frac{n!}{r!(n-r)!}\right)$.
   (OR)
7. a) Discuss about strings in C with example.
   b) Write a program to count event numbers and odd numbers from the given set of integers.

UNIT - IV
8. a) Discuss in detail about pointers in C.
    b) Explain command line arguments with suitable example.
(OR)
9. a) Explain about structures and array of structures in C.
    b) Write a C program to maintain employee details in a structure.

UNIT - V
10. a) Explain file handling operations in C.
    b) Write a C program to copy the contents of one file to another file.
(OR)
11. Write a C program to maintain student details in a file and do the following
     operations using binary files.
          i)   Insert new record
          ii)   Delete existing record
          iii) Modify a record

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CODE: 13ME1003   SET-2

ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)
I B.Tech I Semester Supplementary Examinations, November-2016
ENGINEERING MECHANICS
(Common to EEE & ECE)

Time: 3 Hours   Max Marks: 70

PART-A

ANSWER ALL QUESTIONS   [1 x 10 = 10 M]

1. a) What is the difference between the collinear and concurrent forces?

    b) Explain the term Cone of friction.

    c) Two forces of magnitude 10 N and 8 N are acting at a point. If the angle between the two forces is 90 degrees, determine the magnitude of the resultant force.

    d) What are the different types of supports?

    e) Define the terms 'moment of inertia' and 'radius of gyration'

    f) What is the centroid of a lamina of a quadrant having radius 'R'

    g) A body is moving with a velocity of 2 m/sec. After 4 seconds the velocity of the body becomes 5 m/sec. find the acceleration of the body.

    h) State 'D' Alembert's principle

    i) Differentiate between rectilinear motion and curvilinear motion
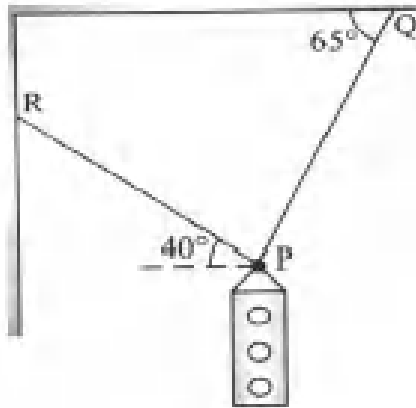
    j) What is coefficient of friction

2.   A traffic signal of mass 50 kg is hung with the help of   **12** two strings, as shown in figure below. Find the forces induced in both the strings .


(OR)

3.   Two forces of magnitude 20N and 40N are acting on a   **12** particle such that the angle between the two is 135^0. If both forces acting away from the particle. Calculate their resultant and find its direction

UNIT-II

4.   Two identical iron spheres each of radius 5cm and   **12** weight 150 N is connected with a string length 16cm, and rest on a horizontal smooth floor. Another sphere of radius 6cm and weight200N rest over them. Determine the tension in the string and reaction at all contact as shown In figure
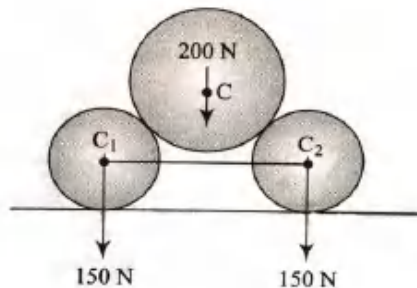
(OR)

5. Three forces of magnitude 40KN, 15Kn and 20KN are acting at a point O. the angles made by 40 KN,15KN and 20KN forces with x-axis are 60^0 , 120^0 and 240^0 respectively. Determine the magnitude and direction of the resultant force.   **12**

UNIT-III

6. a) Determine centroid for the rectangle lamina, having a width of "b" and height of "d".   **6**
   b) Determine the centroid for triangular lamina, having a base "b" and height "h".   **6**

(OR)

7. Outside diameter of a square threaded spindle of a screw jack is 40mm. The screw pitch is 10mm. If the coefficient of friction between the screw and the nut is 0.15, neglecting friction between the nut and collar, determine   **12**

       i. Force required to be applied at the screw to raise a load of 2000N,

       ii. The efficiency of screw jack,

UNIT-IV

8. Determine the mass moment of inertia of a Triangular plate of base 'b' , height 'h' and thickness 't'.   **12**

(OR)

9. a) Determine the M.I of a triangular lamina, having a base "b" and height "h" about its base   **6**
   b) Determine the M.I of a rectangle lamina, having a width of "b" and height of "d" about centroidal X- axis   **6**

UNIT-V

10. A wheel, rotating about a fixed axis at 20 rpm, is **12** uniformly accelerated for 70 seconds, during which time it makes 50 revolutions. Find
a. Angular velocity at the end of this interval
b. Time required for the speed to reach 100 revolutions per minute.

(OR)

11. A truck is weighing 6KN just moves freely (engine **12** not running) at 36kmph down a slope of 1 in 40, the road resistance at this speed just being sufficient to prevent any acceleration. Find the road resistance per KN weight of truck.
What power will the engine have to exert to run up the same slope at double the speed when the road resistance remains the same.

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