

AR13

SET-02

Code: 13CS1001

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

IB.Tech. I Semester Supplementary Examinations, April - 2014

Computer Programming

(Common to CE, ME, CSE & IT Branches)

Time: 3 Hours

Max Marks: 70

PART-A

Answer all questions

[10X1=10M]

1.
 - a) Define an expression in a c language?
 - b) Define a variable?
 - c) Define a constant?
 - d) Write a c statement to swap two numbers without using third variable?
 - e) Define keyword?
 - f) Define an array?
 - g) What are the rules for naming an identifier?
 - h) Define a structure?
 - i) What is the output of the following C program?

```
main ()
{
int a=10,b=15,c=20,d;
d=++a + ++b + c++;
printf("%d",d);
}
```
 - j) Write C statement to find maximum of two numbers using ternary operator?

PART-B

Answer one question from each unit

[5X12=60M]

Unit-I

- 2)
 - a) Define an algorithm and a flowchart? Write an Algorithm and draw a flowchart for the given number is amstrong number or not?
 - b) Explain the different steps for developing and execution of c program. [6M+6M]

OR

- 3)
 - a) Explain in detail about the various binary operators available in as C language.
 - b) Explain about various escape sequences with an example program. [6M+6M]

Unit-II

- 4)
 - a) Explain about switch statement. Write a c program to perform simple arithmetic operations using switch statement.
 - b) Write a program to check the given number is palindrome or not. [6M+6M]

OR

- 5) a) Write a C Program to print the following output using nested loops.

```
A
B C
D E F
G H I J
K L M N O
```

- b) Write a c program to print prime numbers between the limits M to N. [6M+6M]

Unit-III

- 6) a) Define an array? Write a c program to convert decimal number into binary by using array concept?
b) Write a c program to compare two strings without using string handling functions. [6M+6M]

OR

- 7) a) Explain different storage classes with an example program ?
b) Explain in detail about different types of user defined functions? [6M+6M]

Unit-IV

- 8) a) Differentiate structure and union.
b) Write a program to illustrate declaration and initialization of a structure? [6M+6M]

OR

- 9) a) Write a 'C' program to illustrate the use of pointers in arithmetic operations.
b) Explain about dynamic memory allocation? Write a program that uses a table of integers whose size will be specified interactively at run time. [6M+6M]

Unit V

- 10) a) Explain the following functions
i) fgetc() ii) fputc() iii) fclose() iv) fscanf()
b) Write a c program to count number of vowels consonants in a given text file. [6M+6M]

OR

- 11) Explain different preprocessor directives available in a c language.
[12M]

AR13

SET-02

Code: 13ME1003

**ADITYA INSTITUTE OF TECHNOLOGY AND MANAGEMENT, TEKKALI
(AUTONOMOUS)**

1 B.Tech 1 Semester Supplementary Examinations, April- 2014

ENGINEERING MECHANICS

(Common to EEE & ECE)

Time: 3 hours

Max Marks: 70

Part – A

Answer all questions

[10 x 1 = 10M]

1

- a) State lami's theorem.
- b) State varignon theorem.
- c) What is the theorem of transmissibility?
- d) What is the moment of a force?
- e) Define centroid.
- f) What is the cone of friction?
- g) What is the difference between area moment of inertia and mass moment of inertia?
- h) State D' Alembert's principle.
- i) What are normal and tangential components of acceleration?
- j) What is the principle of conservation of energy?

Part-B

Answer one question from each unit

[5x 12 = 60M]

Unit-1

- 2. A system of four forces acting on a body is as shown in fig.1. Determine the resultant.**

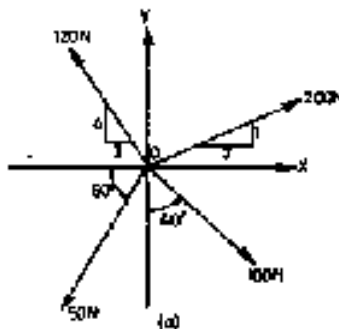


Fig.1

(OR)

3. A rigid bar is subjected to a system of parallel forces as shown in fig.2, reduce this system to (i) a single force
 (ii) a single force moment system at A
 (iii) a single force moment system at B

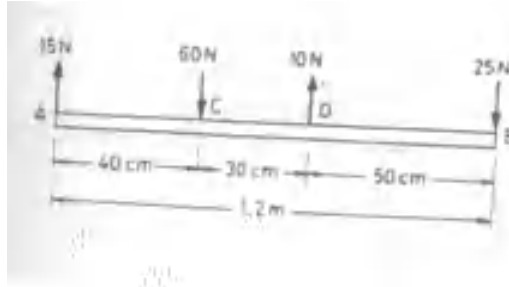


Fig.2

Unit-2

4. Two rollers of weights P and Q are connected by a flexible string AB. The rollers rest on two mutually perpendicular planes DE and EF as shown in fig.3. Find the tension in the string and the angle θ that it makes with the horizontal when the system is in the equilibrium.

Given $P = 50 \text{ N}$ $Q = 100 \text{ N}$ $\alpha = 30^\circ$

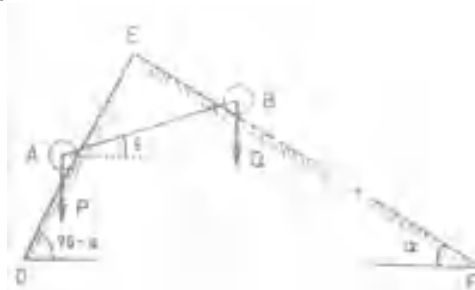


Fig.3

(OR)

5. A man weighing 100N stands on the middle rung of a ladder whose weight can be neglected. The end A rests on the ground against a step & end B rests against a wall. Find the reactions at A & B. Neglect friction between ladder & the ground and ladder & wall.(fig.4)

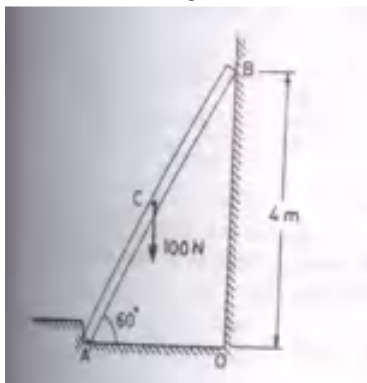
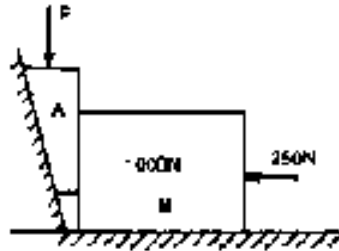


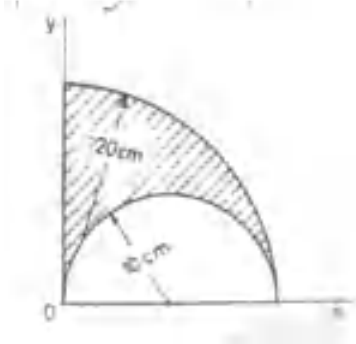
Fig.4

AR13**SET-02****Unit-3**

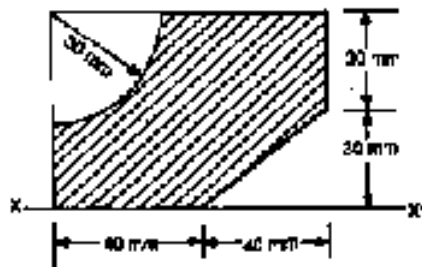
6. Determine the force P required to start the wedge shown in fig.5. The angle of limiting friction for all surfaces of contact = 15° (i.e., $\mu = \tan 15^\circ$)

**Fig.5****(OR)**

7. Determine the coordinates of the centroid of the area obtained after removing a semicircle of radius 10cm from a quadrant of a circle of radius 20cm. (fig.6)

**Fig.6****Unit-4**

8. Compute the moment of inertia of the shaded area shown in fig.7 about x- axis.

**Fig.7****(OR)**

9. Find I_{xx} and I_{yy} for the unequal angle section $12.5 \times 9.5 \times 1$ cm shown in fig.8,

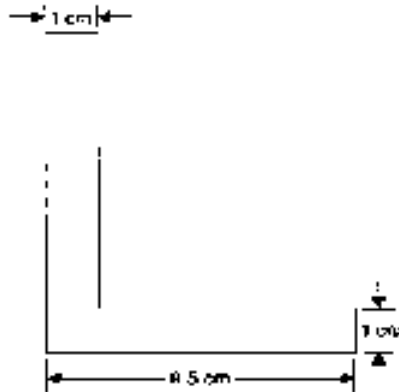


Fig.8

Unit-5

10. The frame shown in the fig.9 rotates about a vertical axis. The coefficient of friction under block A is 0.4. Determine the coefficient of friction at block B, if B starts to rise when frame rotates at 40rpm.

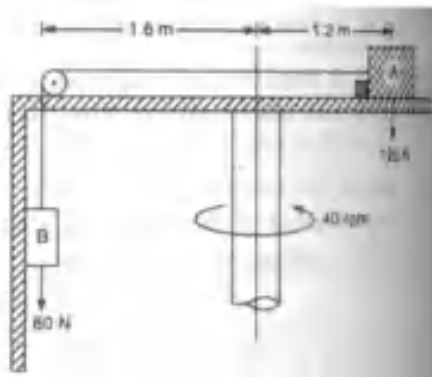


Fig.9

(OR)

11. Motion of a particle along a straight line is given by the equation $a = t^2 - 2t + 2$, where a = acceleration in m/s^2 & t = time in seconds. After 1 second the distance traveled by the particle & velocity of the particle were found to be 14.75 m & 6.33 m/s. Find the
- Distance traveled
 - Velocity
 - Acceleration of the particle after 2 seconds
