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Roll No.

SECOND SEMESTER

B.E. (ENE)

MID SEMESTER EXAMINATION **MARCH** 2005

ENE-111 COMPUTER PROGRAMMING & COMPUTER GRAPHICS

Time: 1 Hour 30 Minutes

Max. Marks : 20

Note : Attempt **ALL** questions.
Assume suitable missing data, if any.

- 1[a] Define the basic computer component and their function. 1 ½
[b] Define the different step of problem solving techniques. 1 ½
2. What is flowchart? Draw the flow chart of the following program.
[a] Find the largest No. of three distinct number (X, Y, & Z). 1 ½
[b] Find the sum of N number by using loop control structure. 1 ½
3. Define the following term with suitable example. 4
[a] Identifier
[b] Data types
[c] Variables
[d] Pointers
- 4[a] Define the different loop control structure with example. 1 ½
[b] Define the different operators with example. 1 ½
5. What is function? Write a program for finding the average of N number by using function. 2

6. What is array? Write a program for a calculator which perform following operation, which are given as 3
- addition
 - subtraction
 - multiplication
 - division
- for 2 input number through key board.
7. What is object oriented programming? Define the basic properties of oop's. 2

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SECOND SEMESTER

B.E. (ENE)

MID SEMESTER EXAMINATION **MARCH** 2005

ENE-112 MATHEMATICS-II (NUMERICAL TECHNIQUES & STATISTICS)

Time: 1 Hour 30 Minutes

Max. Marks : 20

Note : Attempt **ALL** questions.
Select any **TWO PARTS** of each question.
All question carry **EQUAL** marks
Assume suitable missing data, if any.

- 1[a] Use Newton's method to derive algorithm for finding the cube root of N. Hence find the cube root of 12 correct upto three decimal places.

- [b] Solve the equations

$$10x - 2y - z - w = 3$$

$$-2x + 10y - z - w = 15$$

$$-x - y + 10z - 2w = 27$$

$$-x - y - 2z + 10w = -9$$

by Gauss Seidal iteration method.

- [c] Find the Lagrange interpolation polynomial to fit the following data

i	0	1	2	3
x_i	0	1	2	3
$e^{x_i} - 1$	0	1.7183	6.3891	19.0855

Use it to estimate the value of $e^{1.5}$.

- 2[a] Explain that the numerical integration is similar in spirit to the graphical method for finding the area under the given curve.

Evaluate $\int_0^{\pi/2} \sqrt{\sin x} \, dx$ by applying Simpson's 3/8 rule using

$$n = 6.$$

- [b] Why do we need to use numerical techniques to solve differential equations.

Use the RK method of order 4 to estimate $y(0.4)$ when

$$\frac{dy}{dx} = x^2 + y^2 \quad \text{with } y(0) = 0$$

Assume $h = 0.2$.

- [c] Find $y(2.0)$ if $y(t)$ is the solution of $\frac{dy}{dt} = \frac{1}{2}(t + y)$ assuming $y(0) = 2$, $y(0.5) = 2.636$, $y(1.0) = 3.595$ and $y(1.5) = 4.968$ using Milne's predictor corrector method.

- 3[a] Define binomial variate. What is standard binomial variate? Under what conditions a binomial variate tends to a Poisson variate? If X is the r.v. denoting the number of cars per minute passing a certain crossing between 11 P.M. to 12 P.M. and X has a Poisson distribution with mean 5. What is the probability of observing less than 5 cars during any given minute?

- [b] What is normal probability curve? Find the variance of the normal distribution with parameter μ and σ .

Outline the chief characteristics of the normal probability curve.

- [c] A multiple-choice quiz has 200 questions each with 4 possible answers, of only 1 is the correct answer. What is the probability that sheer guess work yields from 25 to 30 correct answers for 80 of the 200 problems about which the student has no knowledge?

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SECOND SEMESTER

B.E. (ENE)

MID SEMESTER EXAMINATION **MARCH 2005**

ENE-113 FLUID MECHANICS

Time: 1 Hour 30 Minutes

Max. Marks : 20

Note : Answer **ALL** questions.
Assume suitable missing data, if any.

- 1 Define the following fluid properties.
(i) Density (ii) Weight Density
(iii) Specific volume (iv) Specific gravity. (4)
- 2 Explain the phenomenon of capillarity. Obtain an expression for capillary rise and fall of a liquid. (4)
- 3[a] State and prove the Pascal's law. (2)
[b] A hydraulic press has a ram of 150 mm and a plunger of 20 mm diameter. Find the force on the plunger to lift a weight of 40 KN. If the plunger has a stroke of 0.40 m and makes 30 strokes per minute, determine the rate at which the weight is lifted per minute and the power required by plunger. (2)
- 4 A manometer containing mercury is connected to a pipe in which an oil of specific gravity 0.8 is flowing. The pressure in the pipe is vacuum. The other end of the manometer is open to the atmosphere. Find the vacuum pressure in pipe, if the difference of mercury level in the two limbs is 22 cm and height of oil in the left limb from the centre of the pipe is 13 cm below. (4)

- 5[a] Derive an expression for the depth of centre of pressure from free surface of liquid of an inclined plane surface sub-merged in the liquid. (2)
- [b] Determine the total pressure and depth of pressure on a plane rectangular surface of 1 m wide and 3 m deep when its upper edge is horizontal and (i) coincides with water surface (ii) 2 m below the free water surface. (2)

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SECOND SEMESTER

B.E. (ENE)

MID SEMESTER EXAMINATION **MARCH 2005**

ENE-114 ENGINEERING MECHANICS

Time: 1 Hour 30 Minutes ^{Four}

Max. Marks : 20

Note : Answer any ~~four~~ questions.
Assume suitable missing data, if any.

- 1 Determine the resultant R of the three forces acting on the simple truss, shown in Fig.1. Specify the points on the x and y axis through which R must pass.

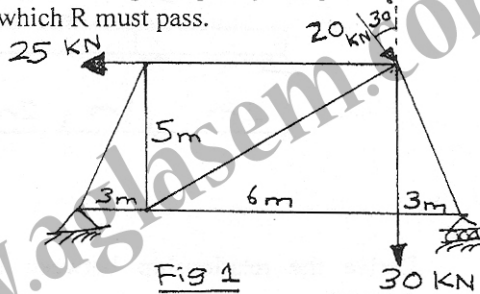


Fig 1

- 2 Derive the expression for the moment of Inertia of the trapezoidal area about its base shown in Fig.2.

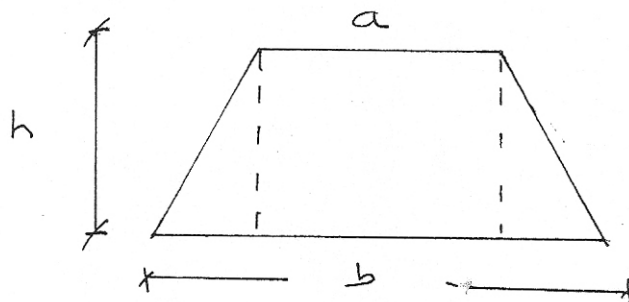
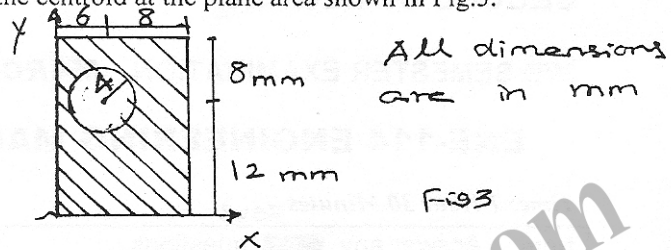
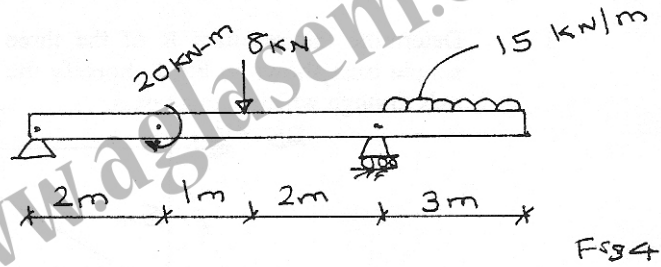


Fig 2

- 3 Locate the centroid at the plane area shown in Fig.3.



- 4 Draw the shear and moment diagrams for the beam. Shown in Fig.4.



- 5 Derive the relationship between load, shear and bending moment.

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SECOND SEMESTER

B.E. (ENE)

MID SEMESTER EXAMINATION **MARCH 2005**

ENE-115 ENVIRONMENTAL SCIENCES

Time: 1 Hour 30 Minutes

Max. Marks : 20

Note : Answer **ALL** questions.

- 1 Briefly trace the evolution of life ? (2)
- 2 Distinguish between animal and plant cells? Give examples with neat sketches? (4)
- 3 Write notes on (i) Protein (ii) Enzymes (iii) Lipids (3)
- 4 Explain citric acid cycle OR Electron transport? (2)
- 5 Briefly discuss the photosynthesis? (3)
- 6 Briefly explain structure and function of Ecosystem? (3)
7. Is Land use responsible for water pollution? Give examples? (3)