Sub- Computer Application
Branch - Civil & Electrical Engg.

Answer any four. **[4x4=16]**

1. Discuss about the generation of computer ? Explain the key factors of computer of each generation ?
2. What is memory hierarchy ? explain the main features of the various types of memory present in different levels of this hierarchy ?
3. Difference between system software & application software ?
4. What are the various types of operating system used on PC ?
5. What do you mean by ‘‘DTM’’ (Data transmission mode).

Answer any two. **[2x2=4]**

1. Difference between windows & DOS ?
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3. Define computer network & what are the various types of networks ?

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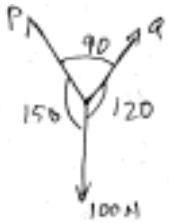
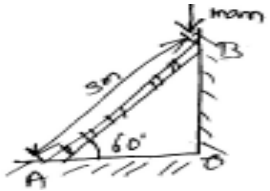
Long question. **[5X2]**

1. Short questions. [2x5]

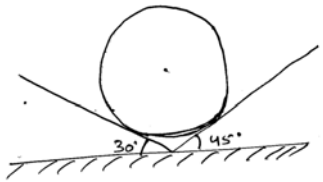
a) What do you mean by friction, classify it ?
b) What do you mean by co-efficient of friction ?
c) What is limiting friction. Explain with suitable diagram.
d) What is lami's theorem ?
e) Calculate the magnitude of P & Q.



2. A uniform ladder 3m long weighs 200N. It is placed against a wall making an angle of 30^0 with the floor as shown in figure. The co-efficient of friction between the wall and the ladder is 0.25 and that between the floor and ladder 0.35. The ladder, in addition to its own weight, has to support a man of 1000N at its top at B. calculate the horizontal force 'P' to be applied to ladder at the floor level to prevent slipping.



3. Find the reactions between ball & surface, if the weight of the ball is 100N.



Sub- Engg. Mechanics
Branch - Auto & Mech. Engg.

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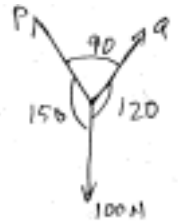

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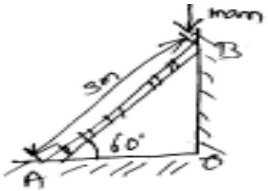

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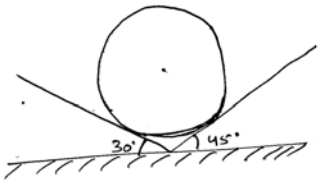

Sub- Engg. Math-II
Branch - All

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1. **Answer any two.** **[5x2=10]**

a) Evaluate $\lim_{x \to 4} \frac{x^2 - 16}{x - 4}$

b) Evaluate $\lim_{x \to 0} \frac{\tan x - \sin x}{x^3}$

c) Differentiate $\left(\frac{x-1}{x+1}\right)^{x+1}$ w.r.t. x

d) Find the derivative of $\sin^{-1} \frac{2x}{1+x^2}$ w.r.t. $\tan^{-1} x$

2. Answer any one. **[10x1=10]**

a) If $y = \tan(\sec x + \tan x)$ find $\frac{dy}{dx}$

b) Examine the continuity of the function.

$$f(x) = \begin{cases} x - 1, x < 2 \\ 2x - 3, x \geq 2 \end{cases} \quad \text{at} \quad x = 2$$

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Sub- Engg. Chemistry
Branch - Civil & Elect. Engg.

Group-A (Any One) **[7x1]**

1. Describe about Rutherford experiment.

2. Explain acid base theory ?

Group-B (Any One) **[5x1]**

1. What is chemical bonding ? Describe about Ionic bond with example ?
2. Describe faraday's law of electrolysis ?

Group-C (Compulsory) **[1x8]**

1. Write down the electronic configuration of cupper ?
2. What is variable valency ?
3. Calculate the equivalent mass of H_2SO_4 ?
4. What is Buffer solution ?
5. Define Normality ?
6. Write down the formula of di-sodium Hydrogen Phosphate ?
7. What is PH of solution ?
8. What is secondary cell ?

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Sub- Communicative English
Branch - All

Answer all the questions ?

1. Write down about the stages in communication ? [5]
2. Write a note on communication situation ? [5]
3. What is informal communication ? Explain its merits ? [5]
4. Explain the difference between upward and downward communication ? [5]

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Sub- Basic Electronics

Branch - Elect. & Civil Engg.

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1. **Answer all the questions.** **[2x5]**

(a) What is electron emission and named different types of electron emission ?

(b) Draw energy band diagram of semiconductor.

(c) What is zoner diode ? Draw its symbol.

(d) What is TUF ?

(e) Write difference between P-type and N-type semiconductor.

2. Answer any two questions. **[5x2]**

(a) What is rectifier ? Explain full wave bridge rectifier with proper circuit diagram.

(b) Find relation between $\alpha, \beta, \& \gamma$ for a transistor.

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Sub- Physics
Branch - Auto. & Mech. Engg.

1. **Answer all the questions.** **[2x10]**

(a) Write the dimensional formula of ‘G’.

(b) Check the correctness of relation $t = 2\pi\sqrt{g/l}$

(c) Find the other rectangular component of velocity 65 m/s if one of it component is 25 m/s.

(d) What is the range of projectile fired vertically upwards under gravity ?

(e) Give an example of perfectly smooth surface. What is the value of ‘μ’ in this surface.

(f) Define coefficient of friction and limiting fraction.

(g) What is the relation between ‘g’ and ‘G’ ? Write their units is S.I. system.

(h) Write the relation between frequency wave length and velocity of wave.

(i) $If\ \vec{A} = 5\hat{\imath} + 2\hat{j}, \vec{B} = 3\hat{\imath} + 7\hat{j}$ find $\vec{A}.\vec{B}$. Is it a vector or scalar ?

(j) Define longitudinal and trans versa wave.

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Sub- Basic Electrical Engg.
Branch - Mech. & Auto. Engg.

QUS 1 ANSWER ALL THE QUESTIONS (2X5)

A. Define Ohm's Law?
B. What is the function of commutator in DC generator?
C. Calculate the Equivalent Resistance when two, 2 Ω resisters are connected in parallel with three, 3 resisters in parallel and both parallel connections are connected in series.
D. What are the types of DC Motor?
E. Write the both EMF expression of DC shunt generator?

QUS 1 ANSWER ANY TWO (5X2)

A. A shunt generator delivers 450 A at 230V and the resistance of the shunt field and armature are 50 and 0.03 respectively. Calculate the Armature current and generated EMF.
B. Explain with Diagram different parts of DC Machines?
C. A house contains 4 tube lights of 40W running for 7 hours, 3 Fans of 80W running for 8 hours and 1HP pump running for 3 hours. Calculate the electricity bill for the month of March when per unit charges Rs. 3.20.

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