

MARCH - 2015  
B.Sc. Sem-VI – PHYSICS (P -4616)

PAPER -604 ( Op-amp and programming in C)

Marks : 75

- Que.1 [a] What is linear application? Why open – loop configuration of op-amp is not used in linear application? Explain inverting close-loop configuration and obtain an equation for voltage gain. [7]  
[b] Explain current to voltage converter. [7]

OR

- Que.1 [a] Draw a circuit and derive formula for output voltage  $(V_A + V_B + V_C)/3$  [7]  
[b] Explain summing amplifier in non inverting mode configuration. [7]

- Que.2 [a] What is non inverting amplifier? Derive formula for input resistance for close loop configuration. [7]  
[b] What is feed back ? State and draw block diagram of feedback circuits . [7]

OR

- Que.2 [a] What is called ideal op-amp? [7]  
[b] Draw necessary circuit for subtraction of two inputs. Also derive the formula for output. [7]

- Que.3 [a] What is called op – Amp? Draw ideal voltage transfer curve. What is the slope of the curve? [7]  
[b] Explain integrator amplifier [7]

OR

- Que.3 [a] Explain the term (i) Common mode rejection ratio [14]  
(ii) Input offset voltage.  
(iii) slew rate

- Que.4 [a] Explain basic computer model with block diagram. [7]  
[b] Write a flow chart to find the average height of boys and girls and total boys and girls. [7]

OR

- Que.4 [a] Write a program to print the following pattern using nested loops :

1

1 2

1 2 3

1 2 3 4

[7]

[b] Write a program in C to convert Celsius scale to Fahrenheit and Fahrenheit to Celsius scale of temperature. [7]

Que.5 [a] What is loop in 'C' language? State different types of loops. Explain one of the loop with example. [7]

[b] Write a program in 'c' to find volume of a sphere of radius R [7]

OR

Que.5 [a] Write a program to print a five digit number in reverse order. [7]

[b] Draw a flow chart to find smallest number from a set of N numbers. [7]

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