



SF-7101

B. E. - III (Sem. VI) (Ele.) Examination

May / June - 2011

Pulse & Linear Circuit

Time : 3 Hours]

[Total Marks : 100

Instructions :

(1)

नीचे दृष्टावेक निशानीवाणी विगतो उत्तरवही पर अवश्य कभवी.  
 Fillup strictly the details of signs on your answer book.

Name of the Examination : **B. E. - 3 (SEM. 6) (ELE.)**

Name of the Subject : **PULSES & LINEAR CIRCUIT**

Subject Code No. : **7 1 0 1** Section No. (1, 2,.....) : **NIL**

Seat No. :

Student's Signature

- (2) Attempt all questions.
- (3) Assume suitable data wherever required.
- 1 (a) Draw and explain the block diagram of op-amp with its transferred characteristics. **6**
- (b) Define the following terms : **4**
- (i) O/P voltage swing (ii) Large single voltage gain (iii) O/P resit (iv) I/P Biase current
- (c) Explain current to voltage converter with grounded load also state its application. **6**
- 2 Attempt any two out of : **16**
- (a) Find O/P voltage  $V_o$  in terms of I/P Voltage  $V_1$  and  $V_2$  in the op-amp ckt. shown in diagram (Fig.1)

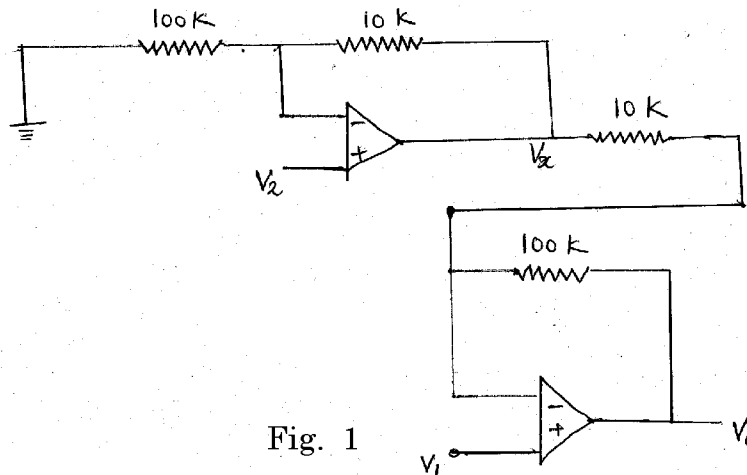
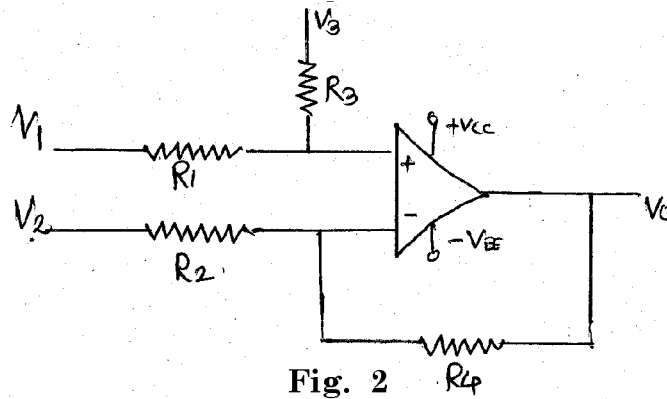


Fig. 1

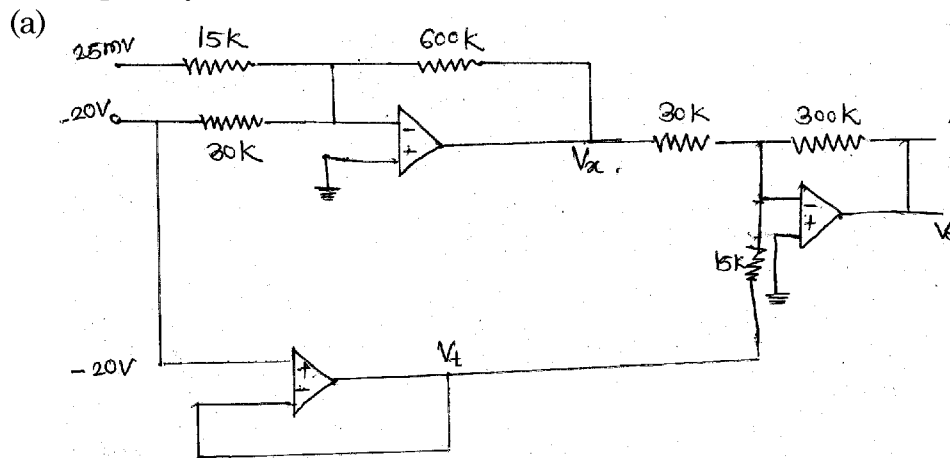
- (b) In the following ckt. Fig. 2 O/P can be  
 $V_0 = a_1v_1 + a_2v_2 + a_3v_3$   
 Determine the value of  $a_1$ ,  $v_2$  and  $a_3$  compute the value of  $V_0$  if  
 (i)  $R_4$  is short ckt.  
 (ii)  $R_4$  is removed  
 (iii)  $R_1$  is short ckted.



- (c) Sketch the diagram of square wave generator using op-amp and explain it in details.

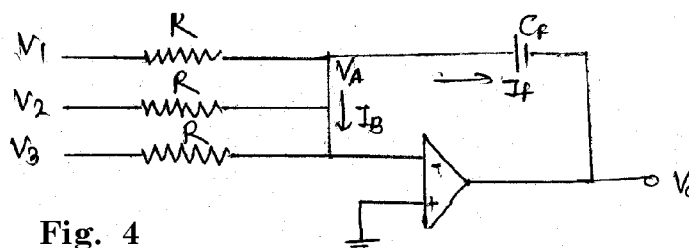
3 Attempt any three out of four :

18



Calculate the  $V_0$  for the Fig. 3

- (b) Find the O/P  $V_0$  for the given fig.4



- (c) Derive the expression for gain of an op-amp with voltage series feedback.
- (d) Derive the expression to show

$$F_{it} = \frac{1}{2\pi\sqrt{R_2 R_3 C_2 C_3}}$$

For second order low pass Butterworth Filter.

- 4 (a) Draw diagram of boost regulator and explain its operation. **9**
- (b) Draw the block diagram of PLL and explain it each block in details. **9**
- 5 (a) Draw the ckt diagram of triangular wave generator using square wave genertor and explain its operation with necessary the waveform. **10**
- (b) Classify filters. Draw the ckt diagram of all pass filter using op-amp and explain its working with necessary waveform. **8**

**OR**

- 5 (a) Derive the expression for the frequency of oscilation of Weinbrige oscillator  $f_0 = \frac{1}{2\pi f_0}$  **10**
- (b) Design a 555 astable M.V. to generate an O/P pulse with pulse repetition frequency = 4KHz and duty cycle of 60% given  $V_{CC} = 15$  V. **8**
- 6 Attempt any two : **14**
- (a) Find the frequency of oscilation for phase shift oscillator

to show  $f_0 = \frac{1}{2\pi\sqrt{6RC}}$

- (b) Draw buck type voltage regulator and explain its operation.
- (c) Explain following terms for logic family
- (i) Fan in
  - (ii) Fan out
  - (iii) Propagation delay
  - (iv) Logic swing
  - (v) Volt
  - (vi) Power dissipation
  - (vii) Noise Margin
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