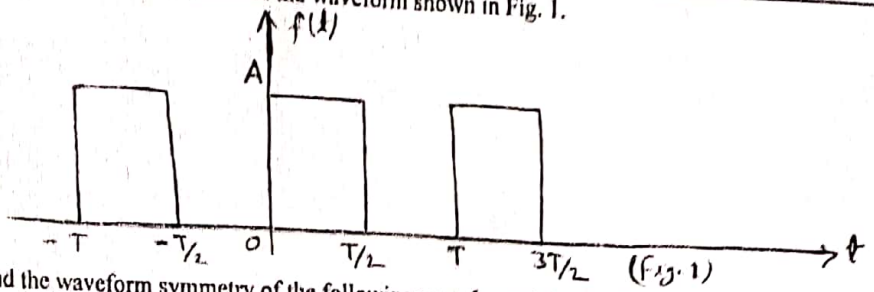
Ajay Kumar Garg Engineering College, Ghaziabad
Department of Electrical and Electronics Engineering
ASSIGNMENT-3

Course: B.Tech.
Session: 2019-20
Subject: Network Analysis and Synthesis

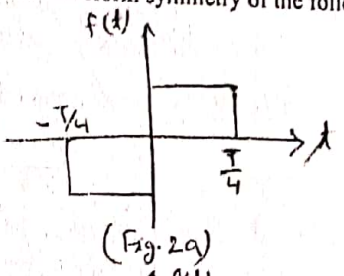
Section: EC-1, 2, 3 & EI
Sem: III
Sub. Code: KEC303

1. Determine the Fourier series of the waveform shown in Fig. 1.

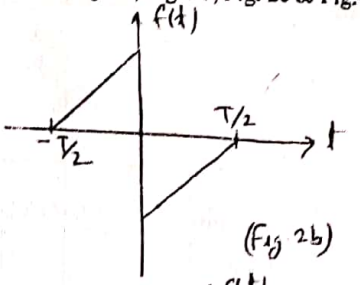


(Fig. 1)

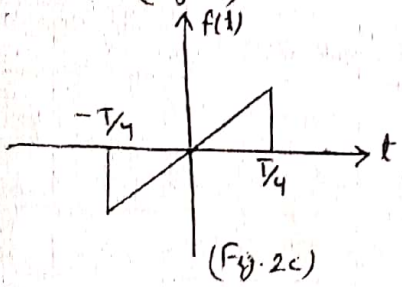
2. Find the waveform symmetry of the following waveforms (Fig. 2a, Fig. 2b, Fig. 2c & Fig. 2d).



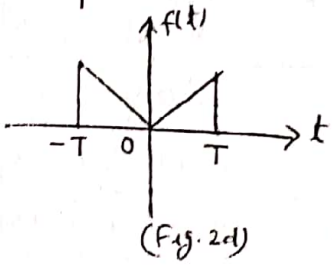
(Fig. 2a)



(Fig 2b)

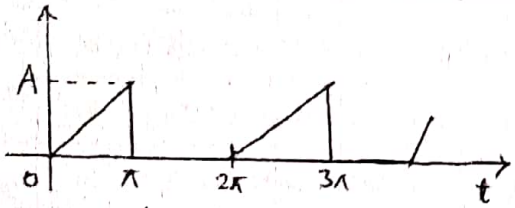


(Fig. 2c)

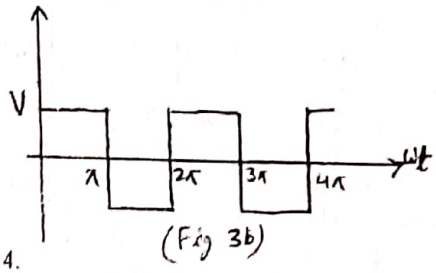


(Fig. 2d)

3. Find the line spectrum of the following waves using Fourier analysis (Fig. 3a & Fig. 3b).

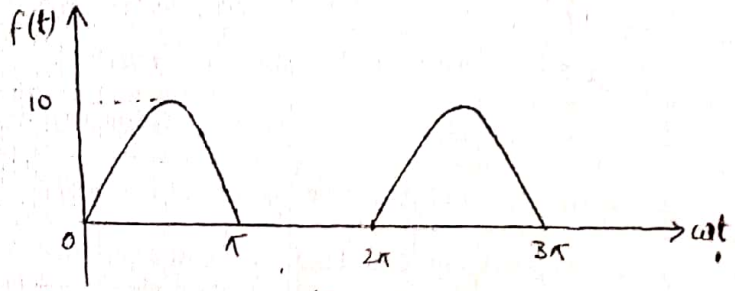


(Fig. 3a)



(Fig 3b)

4. Find the Fourier coefficients of the waveform shown in Fig. 4.



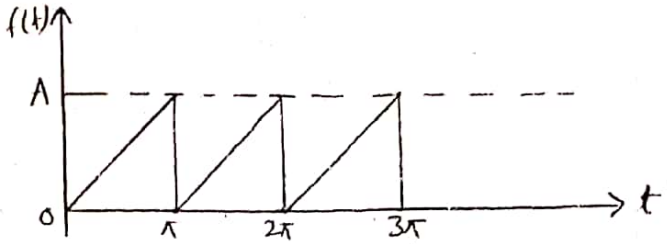
(Fig. 4)

5. Find the Fourier transform of Gate signal or pulse signal. Also, find corresponding continuous spectra.

6. Derive the Fourier transform of unit step function.

7. Discuss the properties of Fourier transform.

8. For the waveform shown below (Fig. 8), determine the effective value of f(t).



(Fig. 8)

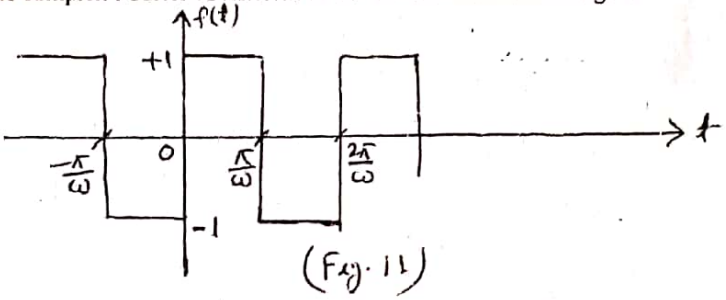
9. Derive the expression for average power, effective values and power factor in terms of the Fourier series of the voltage and current waveforms.

10. Consider the current waveform as:

$$i(t) = I_0 e^{-kt}, \qquad t \geq 0$$
$$= 0, \qquad t < 0$$

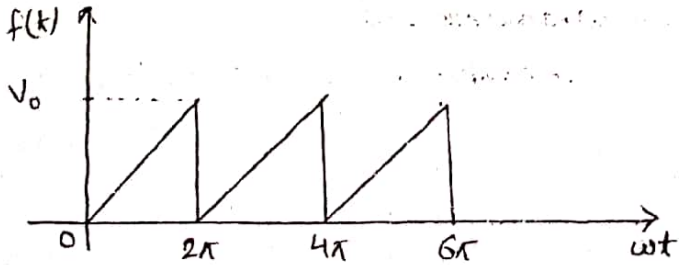
Sketch the continuous amplitude spectra and continuous phase spectra for this $i(t)$.

11. Find the complex Fourier coefficient of the waveform shown in Fig. 11.



(Fig. 11)

12. Find the exponential Fourier series of the given waveform (Fig.12).



(Fig. 12)