

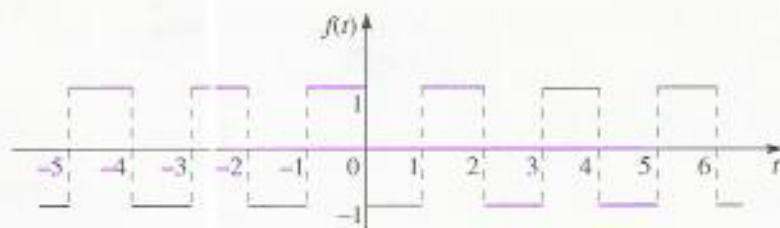
This assignment covers Units 31 and 32.

## Unit 31

## Questions 1 to 6

Consider the Fourier series

$$f(t) = M + \sum_{n=1}^{\infty} (A_n \sin n\omega t + B_n \cos n\omega t)$$

for the periodic function  $f(t)$  whose graph is shown in the figure below.

- 1 Select the option which is the fundamental angular frequency  $\omega$ .  
 2 Select the option which is the value of the Fourier coefficient  $M$ .

Options for Questions 1 and 2

- A 0      B 1      C 2      D  $\pi$   
 E  $2\pi$       F  $\frac{1}{2}\pi$       G  $1/\pi$       H  $1/(2\pi)$

- 3 Select the option which is the value of the Fourier coefficient  $A_n$  when  $n$  is a positive odd integer.  
 4 Select the option which is the value of the Fourier coefficient  $B_n$  when  $n$  is a positive odd integer.  
 5 Select the option which is the value of the Fourier coefficient  $A_n$  when  $n$  is a positive even integer.  
 6 Select the option which is the value of the Fourier coefficient  $B_n$  when  $n$  is a positive even integer.

Options for Questions 3 to 6

- A  $2/(n\pi)$       B  $4/(n\pi)$       C  $8/(n\pi)$       D  $-2/(n\pi)$   
 E  $-4/(n\pi)$       F  $-8/(n\pi)$       G 0

- 1) D 2) A 3) E 4) G 5) G 6) G 7) D 8) B 9) C 10) B  
 11) A H 12) C E 13) F 14) C 15) C E 16) D 17) H 18) G 19) F  
 20) E 21) C 22) F 23) A 24) G