**HW2 MATLAB code**

2(b)

clc;

clear;

close;

for n = 1:3

T = [5 10 50];

t = -T(n):T(n)/100000:T(n);

A = 2;

f0 = 10^n/T(n);

h = A\*cos(2\*pi\*f0\*t);

figure(n);

subplot(2,1,1);

plot(t,h);

title(sprintf('f\_0T = %d (f\_0=%d, T=%d)', 10^n, f0, T(n)));

xlabel('t'); ylabel('h(t)');

xlim([-2 2]);

Q = @(f) sin(2\*pi\*f\*T(n))./(2\*pi\*f\*T(n));

f = -2\*f0:f0/100000:2\*f0;

H = A\*T(n)\*(Q(f+f0)+Q(f-f0));

subplot(2,1,2);

plot(f,H);

xlabel('f'); ylabel('H(f)');

end

Graphical user interface

Description automatically generated

Chart

Description automatically generated

