Faculty of Engineering (Shoubra)
Engineering Mathematics and
Physics Department

Benha University
Mechanical Department
2st year Production
Time allowed:20 Minutes

2nd Quiz

Student Name in Arabic: **Section:**   **B.N. :**

1) Find F(s) of the following functions:

a) $f(t) = \sin t \, H(t-\pi) + \dfrac{e^{2t} - e^{-3t}}{t}$, b) $f(t) = \begin{cases} 2 & 0 < t \leq 2 \\ 3t & 2 < t \leq 3 \\ t^2 & t > 3 \end{cases}$

2) Find inverse Laplace of the following functions

a) $F(s) = \dfrac{se^{-2s}}{s^2 + 4s + 9}$, b) $F(s) = \dfrac{1}{s^3(s+3)}$, c) $F(s) = \dfrac{1}{(s+9)^3}$,

3) Evaluate the following integrals

$$\int_0^3 \frac{dt}{\sqrt{3t - t^2}} \qquad\qquad \int_0^\infty \frac{e^{2t} - e^{-3t}}{t} dt$$

Dr. khaled Elnaggar