Exercise 1:

Let $0 < \alpha \leq 1$, $F = \{f : |f(s) - f(t)| \leq |s - t|^\alpha \quad \forall s, t \in [0, 1]\}$ and $\Lambda = \Lambda^{st}$, $G = \mathbb{R}$, $S = I$.

Show that

$$e_n^{MC}(I) \asymp n^{-\alpha - \frac{1}{2}}.$$

Exercise 2:

Let F and Λ be as in Exercise 1, but $G = L_\infty[0, 1]$ and $Sf = f$. Show that

$$e_n^{MC}(S) \asymp n^{-\alpha}.$$

Exercise 3:

Let $1 \leq p < \infty$, $F_1 = C([0, 1])$ and

$$F = \{f \in F_1 : ||f||_{L_p} \leq 1\}, G = \mathbb{R}, S = I, \Lambda = \Lambda^{st}.$$

Show that

a)

$$e_n(I) \asymp 1.$$

b)

$$e_n^{\mathrm{MC}}(I) \asymp n^{-\frac{1}{2}}, \qquad \text{if } 2 \leq p < \infty.$$