**Upload until : 09:25**

A baseband signal $x(t)$ is first frequency up-converted to $f\_{2}$ using a carrier obtained by doubling $f\_{1}$ where $f\_{2}$=2$f\_{1}$ and these two carriers are synchronous. $f\_{1}$ carrier is added onto this up-converted signal. The resulting $y(t)$ signal is then used to DSB-AM modulate another carrier with frequency $f\_{c}$ to obtain $z(t)$ as shown in the figure (one sided spectrums are shown). **Note :** $f\_{1}$= 10+d where d is the last digit in your student-id and $f\_{c}\gg f\_{2}$.

$$|X(f)|$$

$$|Y(f)|$$

9k

 *f*

 *f*

$$f\_{1}$$

$$|Z(f)|$$

 *f*

$$f\_{2}$$

$$f\_{c}$$

Draw the block diagram for conceptual **demodulation** of the final signal. Use only the blocks given below.

 *φ*

 *f*1, *f*2

adder

multiplier

phase-shift

filter

Put your block diagram **in the** drawing canvas below. **Do not** change anything else except putting your name/id on top of the page.

Upload your answer (word or pdf) before 09:25. **No e-mails** will be accepted.