ASSIGNMENT #06.

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Note Some Questions are already answered in detail. which need not be re-attempted in this submission. However study them in detail and clarify the doubts if any.
Attempt the following Questions for submission.

Q.4 Refer to page 226 of Lecture #20 for guidance. Use following data: (a) BW required = 10KHz, $f_{s_1} \geq 600$ KHz. Find Q_1. (b) BW required = 10KHz $f_{s_2} = 1000$ KHz. Find Q_2. Comment on the answers and hence justify parts no. 4, 5, 6 as given on pgs 225-226.

Q.8 For Answer refer to pg 228 onwards of LECTURE #21

Q.9. With reference to Q.9 on page 237 of Lecture #21 use any example to define upconversion and down conversion. Why latter is preferred?

Q.10 With reference to Q.10 on page 237 of lecture #21 use any example to explain why in down conversion arrangement of $f_{LO} > f_s$ is preferred.

Q.11 With reference to Q.11 on page 237 of lecture #21 using the data provided answer the question.

Q.12 Answer this question with reference to Q.12 on page 238 of lecture #21 for the tuning range of $f_{s_{min}} = 500$KHz. $f_{max} = 1640$KHz and IF = 445 KHz. (Refer pg 238-239)

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Q.13 Refer to Q.13 on page (243 onwards) of Lecture # 22 and use the data where $f_s = 500$ kHz. and IF = 455 kHz. Find f_{id} (the image frequency is also designated as f_{IM}).

Q.14 Refer to Q.14 on page (245 onwards) of lecture # 23 and explain the answer when IF is increased to a new value of IF = 480 kHz. Is the image rejection improved?

Q.15 Recalculate Q.15 on pages (248 onwards) for $f_s = 600$ kHz, IF = 455 kHz.

Q.16 With reference to Q.16 on page (250) of Lecture # 23, give answer when for $f_s = 600$ kHz, IF_1 is changed from 455 kHz to IF_2 at 500 kHz.