

16-04-22

# FINAL EXAM

190020014

2.) Since, it is a current output sensor, ~~and~~ ~~and~~ sensitivity is  $100 \pm 40 \text{ nA/ppm}$ , we assume it is worst case of  $60 \text{ nA/ppm}$ .

$$\therefore \text{change in current at } 100 \text{ ppm} \\ = \frac{6 \mu\text{A}}{100 \text{ ppm}}$$

Here, this current output is favourable as we need to transmit this signal 100m away.

this might cause voltage drops along the transmission wires but the current remains unchanged.

Also, current signals are insensitive to electrical noise unlike voltage signals. We will ~~to~~ ~~to~~ process these output current signal 100 m away near the operator. There will be a hub where the current is converted to voltage and is compared to the voltage reference and is put through an "OR" gate with all the other

inputs. If one of the 20 sensors detects more than 100ppm / current of more than 0.206 mA, the alarm will be set off.

Because, clean air baseline  
current = 0.2 mA

4 change in current of sensor at 100 ppm = 0.006 mA

Total = 0.206 mA