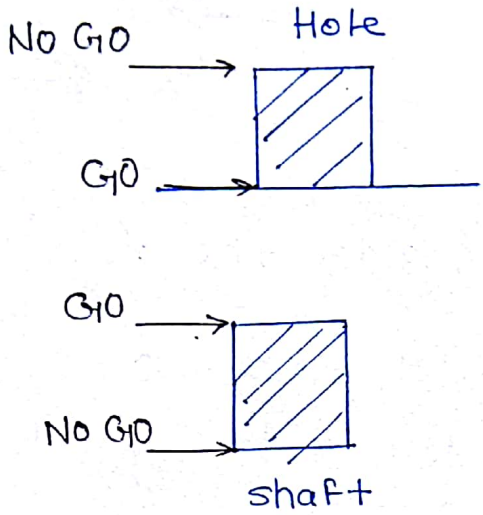
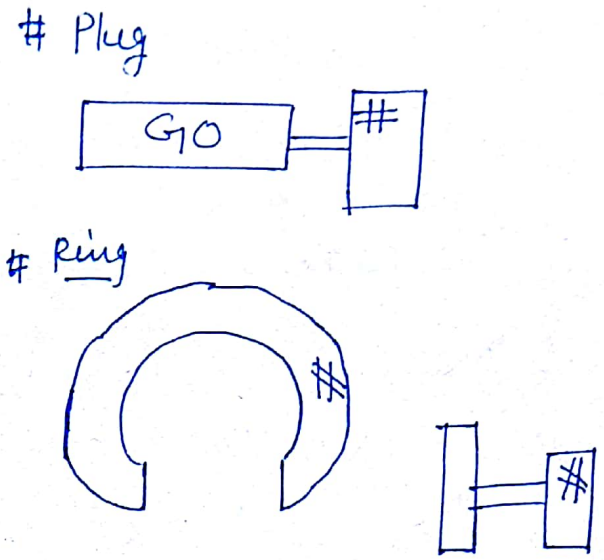
Limit Gauges :-

limit gauge's are design on Taylor's principle





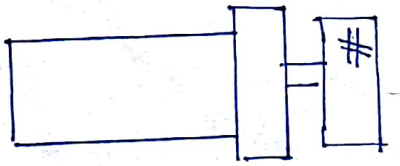
* limit gauge's are use to check whether hole & shaft are coming within the specified Tolerance or not.
* Plug Gauge's are use for hole and Ring Gauge's are use for shaft.
* These gauge's are design according to Taylor's Principle which has two statement
  ① Go Gauge's are design at max. material limit Cond^n
  ② No Go Gauge's are design at min. material limit Cond^n

① When Go plug Gauge's Goes inside Hole It means mean size of Hole is more then size of Go gauge.

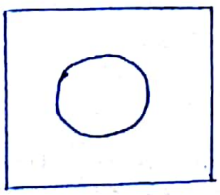
* When No Go gauge doesnt Go inside the hole, it mean the size of hole is less than the size of No go gauge's.
* when Go Gauge's goes and No Go gauge does not go. it mean the hole in correct tolerance.

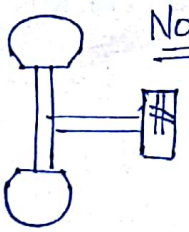
* If Go gauge's doesn't Go inside the hole it mean the hole is under size and when No Go gause entey into the hole it mean hole is over size

Snap Gauge's :- Go and No Go gauge's both on the single piece.



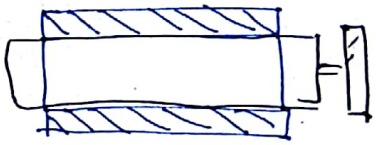
Snap





No. Go

dumble



wear allowance

* Statement of Taylor

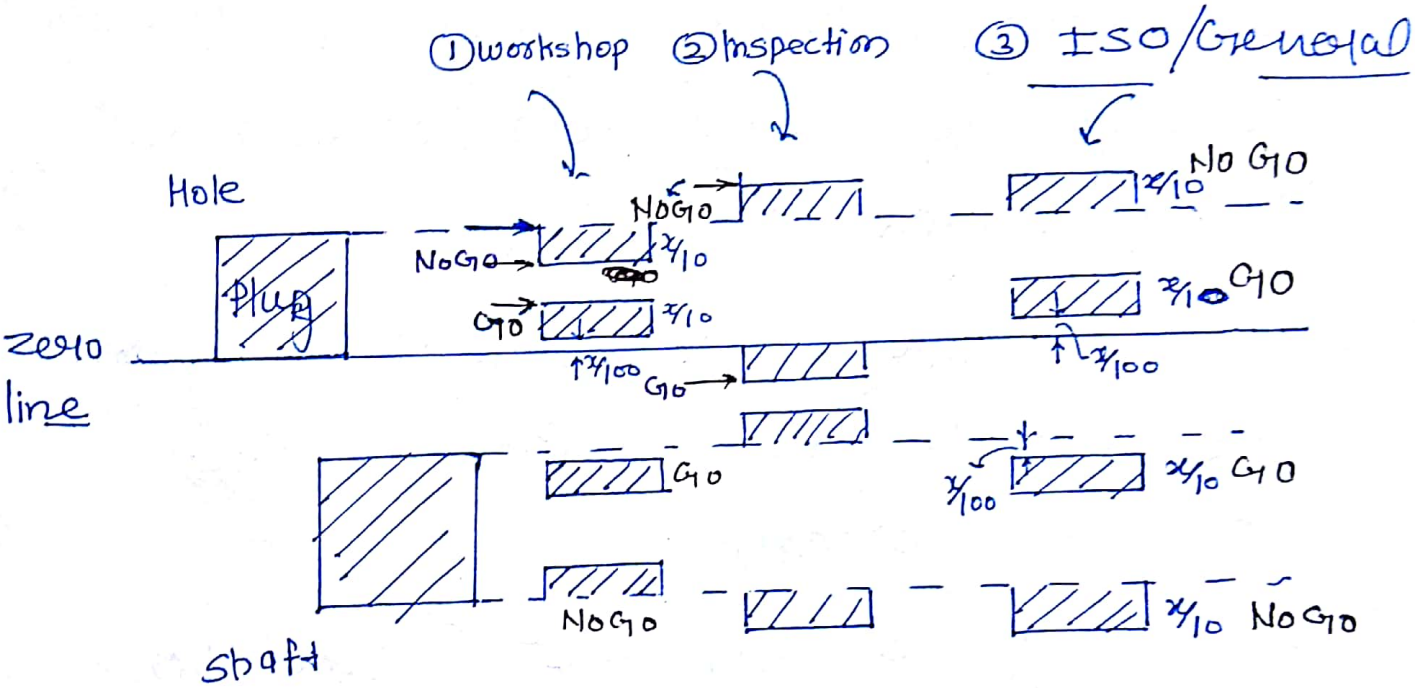
Go gauges are use to check size as well as shape and has to be in full form and

No Go gauges are used to check one element at a time.

since go gauge's are covering the entire working length of Hole and Shaft. So there will be some wear on gauges so wear allowances are provided over the GO Gauge

$$\text{Gauge tolerance (G.T.)} = \frac{1}{10}(\text{work tolerance})$$

$$\text{wear allowance} = \frac{1}{10}(GT) = \frac{1}{100}(WT)$$



① Philosophy of workshop department is that we will no produce any thing defective so tolerance on the gauge's will be towards the work tolerance But it can be seen in the diagram by adopting these type of gauges some of Good parts will be treated as bad part.

② Philoshopy of inspection ~~dep~~ department is that already a tol of effort ~~taken~~ to produce the Component so no good part must be rejected So Tolerance will be away from work Tolerance.

But by adopting these gauges it Can be seen that some of the bed parts will be treated as good parts.

Since the inspection gauge are already accurate no wear allowance is provided on Go gauge's

③ In iso type Gauge Go is taken from the workshop and No Go is taken from the inspection

In exam following Point must be remembey

① when the work tolerance is less than 0.1 do not provide wear allowance

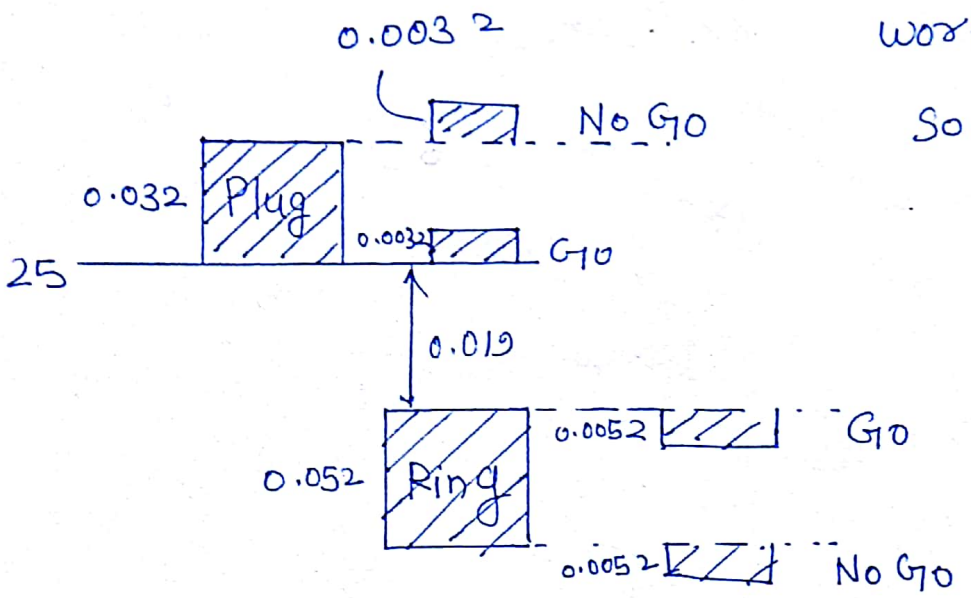
② when the type of gauge not Given to you design Iso Gauge

③ Answer should be Correct ~~Should~~ up to 4 decimal place

④ in objective question when the size of gauge is being askeed Give that size which include Gauge tolerance.

Question

$25\ H_8 f_8$ ISO gauge



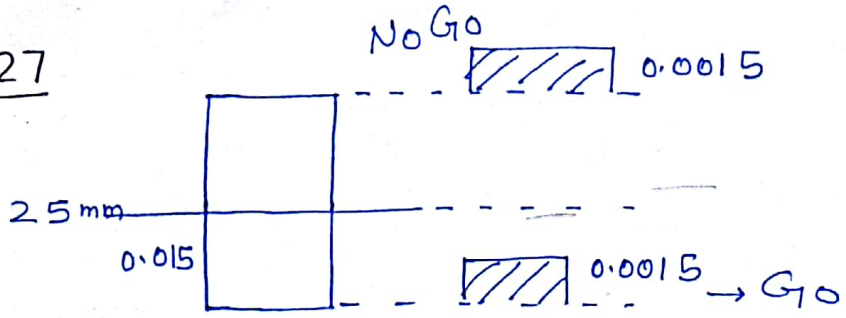
work tolerance < 0.1

So No wear allowance

Plug
- Go
  - Max = 25.0352
  - min = 25
- No Go
  - Max = 25.0352
  - Min = 25.0320

Ring
- Go
  - Max = 24.9810
  - Min = 24.9758
- No Go
  - Max = 24.929
  - Min = 24.9238

Q.27

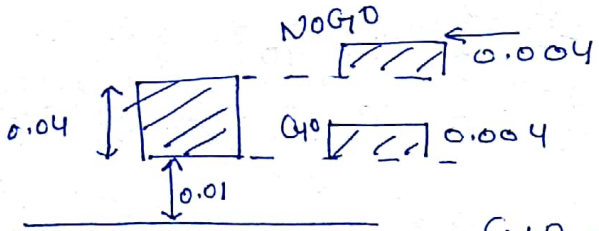


Plus Go — Max = 24.9965
Min = 24.9850

+

24.985
−0.000

(28)



(d)

Go = 20.014

No Go = 20.054

(29) b wrong.

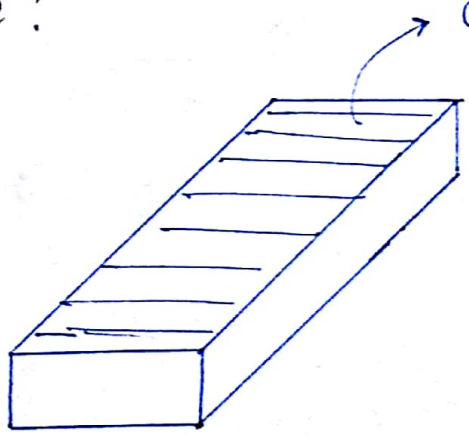
Gauge Material

Properties of Material

1. High hardness & high wear resistance.
2. Low coeff. of thermal expansion. ($\alpha \downarrow$)
3. When you push No Go gauge it will also go inside the hole. So it is the feel by which operator is trying to check component by Go & No Go inspection. if the gauge's are bulky, this feel will not come.
4. Good machineability
5. Good corroson resistance

material :- (i) En-24 (High C steel)
- (ii) invar
- (iii) Elinvar
- (iv) Glass

Slip Gauge':



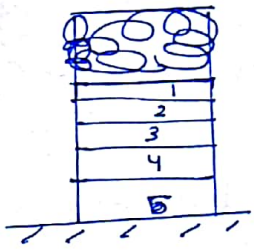
High carbon
High Cr

Normal Set (M45)

1.001 – 1.009 → 9
1.01 – 1.09 → 9
1.1 – 1.9 → 9
1 – 9 → 9
10 – 90 – 9
45

eg 27.836 mm

27.836
-1.006 ①
26.830
-1.03 ②
25.8
-1.8 ③
20
-4 ④
20 ⑤



Surface plate

5 Gauge's

Special Set (M87)

1.001 – 1.009 → 9
1.01 – 1.49 → 49
0.5 – 9.5 → 19
10 – 90 → 9
⇒ 1.005 → 1
87

eg 27.836
-1.006 ①
26.83
-1.33 ②
25.5
-5.5 ③
20 ④

4 Gauge!

* Slip gauges also cannot be made accurately So there will be some tolerance. Overall dimension build up is sink i.e. least accurate section. So lassey is the number of slip Gauge's use accurate will be the dimension.
* There are webs and ribs one surface plate so plate remain in single plane over the time.