Tolerances in Engineering Design

Short cycle assessment questions

1. Why are tolerances needed on a drawing?
2. To make drawings more complex.
3. Because manufacturing processes do not result in perfect sizes or locations of part features.
4. To show the theoretically perfect size or location of a part feature.
5. To show the surface finish characteristics of a part feature.

ANSWER: B

1. What happens to a part that measures slightly larger or smaller than the specified tolerance?
2. The part is sent to the scrap pile
3. If possible, the part is reworked.
4. The part is shipped with the hope that nobody will notice
5. Answers A or B

ANSWER: D

1. What are the limits of size for a 3.00 ±.05 dimension?
2. 3.00 – 3.05
3. 2.95 – 3.00
4. 2.95 – 3.05
5. None of the above

ANSWER: C

1. What is the total tolerance of a 5.255 ±.005 dimension?
2. .010
3. .005
4. 5.260
5. 5.255

ANSWER: A

1. What are the limits of size for a 5.000 dimension if the tolerance note is shown as follows:

NOTES: UNLESS OTHERWISE SPECIFIED

1. TOLERANCES: X.XX ±.03

 X.XXX ±.010

A. 5.000 – 5.003

B. 4.990 – 5.030

C. 4.970 – 5.010

D. 4.990 – 5.010

ANSWER: D

1. Which type of tolerance is shown in the following dimension?



1. Bilateral
2. Limit
3. Unilateral
4. Diameter

ANSWER: C

1. What is the total tolerance of the following dimension?



1. .254
2. .006
3. .002
4. .248

ANSWER: B

1. What is the total tolerance for the following dimension?



1. .502
2. .250
3. .006
4. .004

ANSWER: C

1. Which type of tolerance is shown in the following dimension?



1. Bilateral
2. Limit
3. Unilateral
4. Diameter

ANSWER: B

1. If using a general note to specify tolerances, which dimension would typically have the smallest tolerance?
2. 4.0
3. 4.12
4. 4.005
5. 4.1245

ANSWER: D