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1. The size of a cam depends upon

- a) base circle
- b) pitch circle
- c) prime circle
- d) pitch curve

View Answer

Answer: a

Explanation: Base circle is the smallest circle that can be drawn to the cam profile. Pitch circle is a circle drawn from the centre of the cam through the pitch points. Prime circle is the smallest circle that can be drawn from the centre of the cam and tangent to the pitch curve.

2. The angle between the direction of the follower motion and a normal to the pitch curve is called

- a) pitch angle
- b) prime angle
- c) base angle
- d) pressure angle

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Answer: d

Explanation: It is the angle between the direction of the follower motion and a normal to the pitch curve. This angle is very important in designing a cam profile. If the pressure angle is too large, a reciprocating follower will jam in its bearings.

3. A circle drawn with centre as the cam centre and radius equal to the distance between the cam centre and the point on the pitch curve at which the pressure angle is maximum, is called

- a) base circle
- b) pitch circle
- c) prime circle
- d) none of the mentioned

View Answer

Answer: b

Explanation: Base circle is the smallest circle that can be drawn to the cam profile. Pitch circle is a circle drawn from the centre of the cam through the pitch points. Prime circle is the smallest circle that can be drawn from the centre of the cam and tangent to the pitch curve.

4. The cam follower generally used in automobile engines is

- a) knife edge follower
- b) flat faced follower
- c) spherical faced follower
- d) roller follower

View Answer

Answer: c

Explanation: When the contacting end of the follower is of spherical shape, it is called a spherical faced follower. It may be noted that when a flat-faced follower is used in automobile engines, high surface

stresses are produced. In order to minimise these stresses, the flat end of the follower is machined to a spherical shape.

5. The cam follower extensively used in air-craft engines is

- a) knife edge follower
- b) flat faced follower
- c) spherical faced follower
- d) roller follower

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Answer: d

Explanation: When the contacting end of the follower is a roller, it is called a roller follower. Since the rolling motion takes place between the contacting surfaces (i.e. the roller and the cam), therefore the rate of wear is greatly reduced. In roller followers also the side thrust exists between the follower and the guide. The roller followers are extensively used where more space is available such as in stationary gas and oil engines and aircraft engines.

6. In a radial cam, the follower moves

- a) in a direction perpendicular to the cam axis
- b) in a direction parallel to the cam axis
- c) in any direction irrespective of the cam axis
- d) along the cam axis

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Answer: a

Explanation: In radial cams, the follower reciprocates or oscillates in a direction perpendicular to the cam axis.

7. A radial follower is one

- a) that reciprocates in the guides
- b) that oscillates
- c) in which the follower translates along an axis passing through the cam centre of rotation.
- d) none of the mentioned

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Answer: a

Explanation: When the motion of the follower is along an axis passing through the centre of the cam, it is known as radial follower.

8. Offset is provided to a cam follower mechanism to

- a) minimise the side thrust
- b) accelerate
- c) avoid jerk
- d) none of the mentioned

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Answer: a

Explanation: When the motion of the follower is along an axis away from the axis of the cam centre, it is called off-set follower.

9. For low and moderate speed engines, the cam follower should move with

- a) uniform velocity

- b) simple harmonic motion
- c) uniform acceleration and retardation
- d) cycloidal motion

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Answer: b

Explanation: None

10. For high speed engines, the cam follower should move with

- a) uniform velocity
- b) simple harmonic motion
- c) uniform acceleration and retardation
- d) cycloidal motion

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Answer: d

Explanation: Since with high speed engines, maximum acceleration is required and that is possible only through cycloidal motion.