1. The Coriolis component of acceleration exists when:

a) There is only linear motion

b) There is only rotational motion

c) A point moves along a path that has rotational motion

d) There is only uniform motion

Answer: c

2. The direction of Coriolis component of acceleration is:

a) Along the centripetal acceleration

b) Along tangential acceleration

c) The direction of relative velocity vector rotated by 90° in the direction of angular velocity

d) Opposite to angular velocity

Answer: c

3. In a simple harmonic motion cam follower, the acceleration is proportional to:

a) Velocity

b) Displacement

c) Rate of change of velocity

d) All of the above

Answer: b

4. For simple harmonic motion of the follower, what does a cosine curve represent?

a) Displacement diagram

b) Velocity diagram

c) Acceleration diagram

d) None of the above

Answer: c

5. The absolute acceleration of any point P in a link about center of rotation O is:

a) Along PO

b) Perpendicular to PO

c) At 45° to PO

d) Along OP

Answer: d

6. Angular acceleration of a link can be determined by dividing the:

a) Centripetal component of acceleration with length of link

b) Tangential component of acceleration with length of link

c) Resultant acceleration with length of link

d) None of the above

Answer: b

7. Klein's construction can be used to determine acceleration of various parts when the crank is at:

a) Inner dead centre only

b) Outer dead centre only

c) Right angles to the line of stroke only

d) All positions including inner dead centre, outer dead centre, and right angles

Answer: d

8. The pressure angle of a cam depends upon:

a) Offset between centre lines of cam and follower

b) Lift of follower

c) Angle of ascent

d) All of the above

Answer: d

9. For the same lift and same angle of ascent, a smaller base circle in a cam will give:

a) A smaller value of pressure angle

b) A larger value of pressure angle

c) No change in pressure angle

d) None of the above

Answer: b

10. The sense of Coriolis component is such that it:

a) Leads the sliding velocity vector by 90°

b) Lags the sliding velocity vector by 90°

c) Is along the sliding velocity vector

d) Leads the sliding velocity vector by 180°

Answer: a