Mechanical Engineering Quiz 001 (Mixed)

Quiz Instructions

- Before attempting, carefully read the question text.
- Then choose the correct answer.
- Click on **"Submit"** to confirm your answer.
- Use the **Question List** in the upper left corner to jump to a certain question.

1. What kind of contact can be established for a lower pair?

A) Point contact

B) Surface contact

C) No contact

D) None of these

2. Kinematic chain is known as mechanism when _____.

A) none of the link is fixed

B) one link is fixed

C) two links are fixed

D) all of the links are fixed

3. Which of the following can said to be equivalent with the frictional torque transmitted by a cone clutch?

A) Flat pivot bearing

B) Flat collar bearing

C) Conical pivot bearing

D) Trapezoidal pivot bearing

4. How the normal pitch P_N and axial pitch P_C related to a helical gear with helix angle α ?

A) $P_C = P_N \cdot \cos \alpha$

B) $P_C = \frac{P_N}{\cos \alpha}$

C) $P_N = P_C \cdot \cos \alpha$

D) $P_N = \frac{P_C}{\cos \alpha}$

5. What is the velocity ratio for creep in the belt drive system for σ_1 being the stress in tight side, σ_2 being the stress on slack side and E is the young's modulus of elasticity of the belt material?

A) $\frac{N_1}{N_2} = \frac{d_1}{d_2} \times \frac{E - \sqrt{\sigma_2}}{E - \sqrt{\sigma_1}}$

B) $\frac{N_1}{N_2} = \frac{d_1}{d_2} \times \frac{E + \sqrt{\sigma_2}}{E - \sqrt{\sigma_1}}$

C) $\frac{N_1}{N_2} = \frac{d_1}{d_2} \times \frac{E + \sqrt{\sigma_2}}{E + \sqrt{\sigma_1}}$

D) $\frac{N_1}{N_2} = \frac{d_1}{d_2} \times \frac{E - \sqrt{\sigma_2}}{E + \sqrt{\sigma_1}}$

6. Which term defines the fluctuation of speed of a flywheel in terms of linear speeds?

A) $\frac{2(V_1 - V_2)}{V_1 + V_2}$

B) $\frac{2(V_1 + V_2)}{V_1 - V_2}$

C) $\frac{V_1 + V_2}{2(V_1 - V_2)}$

D) $\frac{V_1 - V_2}{2(V_1 + V_2)}$

7. Which following equation represents the frictional torque transmitted in a conical pivot bearing with radius R of shaft and α as the semi-angle of the cone? (Consider uniform pressure theory).

A) $\frac{1}{2} \times \mu \cdot W \cdot R \operatorname{cosec} \alpha$

B) $\frac{2}{3} \times \mu \cdot W \cdot R \operatorname{cosec} \alpha$

C) $\frac{3}{4} \times \mu \cdot W \cdot R \operatorname{cosec} \alpha$

D) $\mu \cdot W \cdot R \operatorname{cosec} \alpha$

8. Which kind of pair can attachment of a car mirror be classified into?

A) Rolling pair

B) Sliding pair

C) Spherical pair

D) Screw pair

9. Which of the following is TRUE for a flywheel which is retarding, if T is the torque on the crankshaft at any instant and Tmean is the mean resisting torque?

A) Tmean-T>0

B) T -Tmean >0

C) Tmean-T<0

D) T -Tmean <0

10. How Many degrees of freedom for a particle moving in free space.

A) 3

B) 4

C) 5

D) 6

Answer Keys

Question	Answer
1	B
2	B
3	D
4	B
5	C

Question	Answer
6	A
7	B
8	B
9	D
10	D