

2-Amaliy mashg'ulot.

TEKIS MEXANIZMLARNI STRUKTURAVIY TAHLILI

Ishning maqsadi:



Tekis mexanizmlarning tuzilishini o'rganish va kinematic tahlil qilish. Chebishev P.L. formulasi yordamida mexanizmlarning qo'zg'aluvchanligini aniqlash malakasiga ega bo'lish.

Kerakli jihozlar:



Tekis mexanizmlar modullari, bo'g'inlari, burchak o'lchagich, sirkul, metal chizg'ich, qalamlar, A4 formatidagi qog'ozlar

Topshiriq



1. Mashinasozlikda qo'llaniladigan mexanizmlarning strukturali sxemalarini chizish va ularning harakati bilan tanishish.
2. Berilgan mexanizmlarning qo'zg'aluvchan va qo'zg'almas bog'inlari sonini aniqlash, mexanizmdagi IV va V sinf kinematik juftlarni sonini aniqlash.
3. Berilgan mexanizmlarni qo'zg'aluvchanlik darajasini aniqlash.
4. Bajarilgan amaliy ish bo'yicha hisobot tayyorlash.

Asosiy tushunchalar

Zveno



mezanizmni tarkibiga kiruvchi bir va bir necha jismlarni qo'zg'almas bog'lanishdan tashkil topgan jismlar turkumiga aytiladi.

Ular shakli va harakatining xarakteriga qarab quyidagilarga bo'linadi:

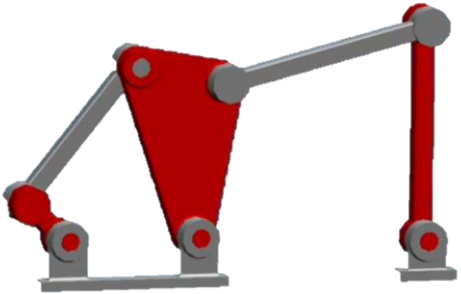
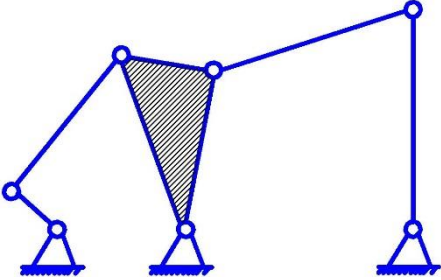
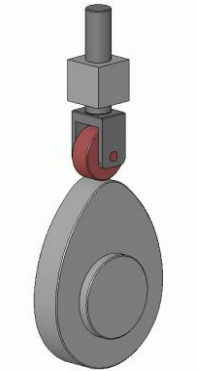
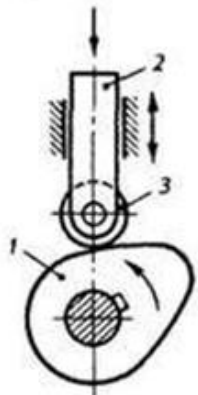
qo'zg'almas zveno (stoyka);	
krivoship – qo'zg'almas o'q atrofida to'liq aylanuvchi zveno;	
koromislo – qo'zg'almas o'q atrofida aylanma-tebranma harakat qiluvchi zveno;	
shatun – qo'zg'aluvchi zvenolar bilan birikib, tekis-parallel harakatlanuvchi zveno;	
polzun -boshqa zvenoga nisbatan ilgariylanma harakat qiluvchi zveno;	
kulisa -polzun qo'zg'aluvchan yo'naltiruvchi zvenosi;	

Asosiy tushunchalar

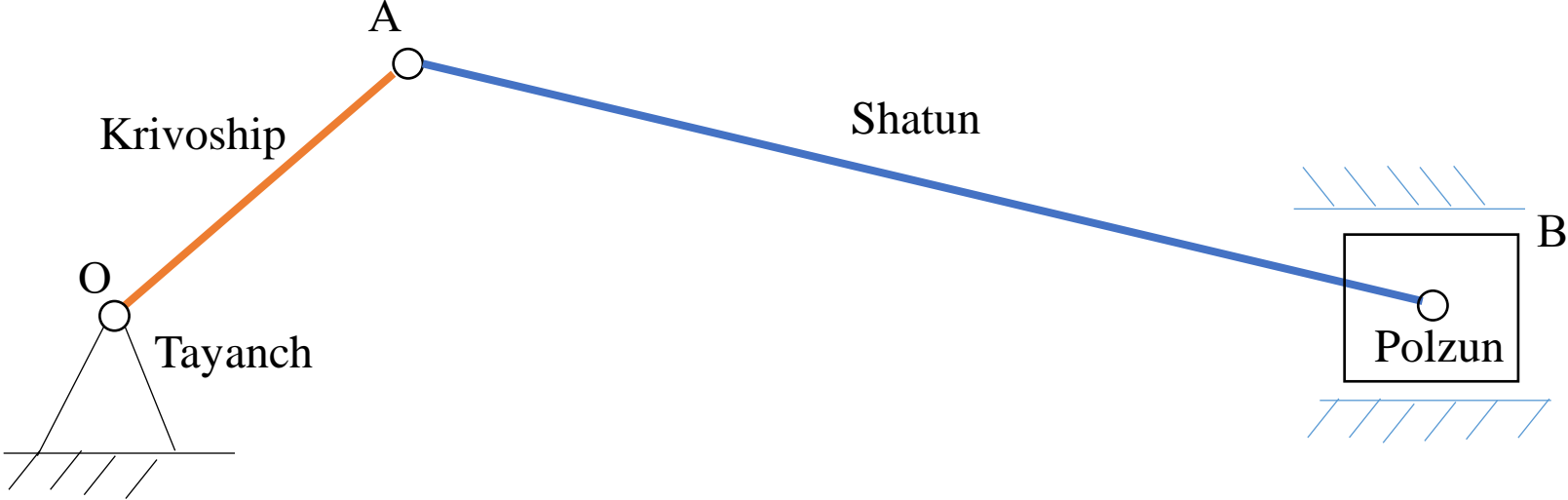
**Kinematik
juftlik**



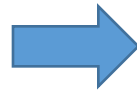
ikki zvenoning o'zaro qo'zg'aluvchi bog'langan joyiga aytiladi.

<p><i>Quyi kinematik juft</i> - bog'lanishlar yuza yoki sirt orqali</p>		
<p><i>Oliy kinematik juft</i> – chiziq yoki nuqta orqali</p>		

Krivoship-shatunli mexanizm



Tekis mexanizmlarning qo'zg'aluvchanlik darajasi **Chebishev P.L.** formulasi



$$W=3n-2P_5-P_4$$

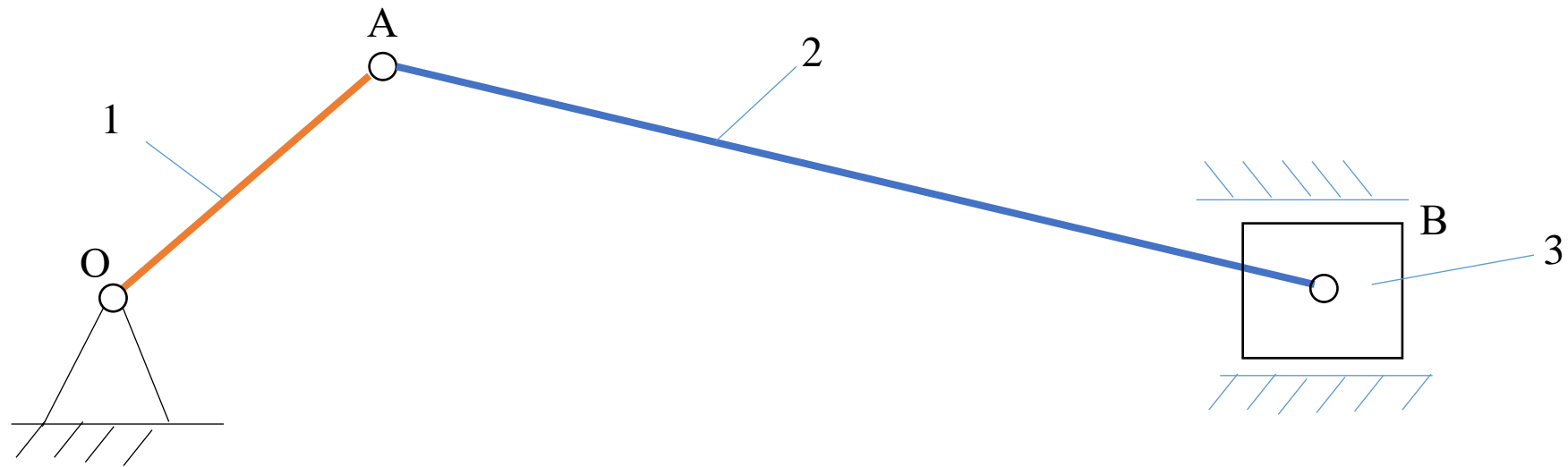
W-mexanizmning qo'zg'aluvchanlik darajasi

n-qo'zg'aluvchan bo'g'inlar (zvenolar) soni

P₅ - V-sinf, mexanizmdagi bir qo'zg'aluvchanlikka ega bo'lgan kinematik juftlar soni

P₄ - IV –sinf, mexanizmdagi ikki qo'zg'aluvchanlikka ega bo'lgan kinematik juftlar soni

Chebyshev P.L. Formulasi yordamida mexanizmlarning erkinlik darajasini aniqlash



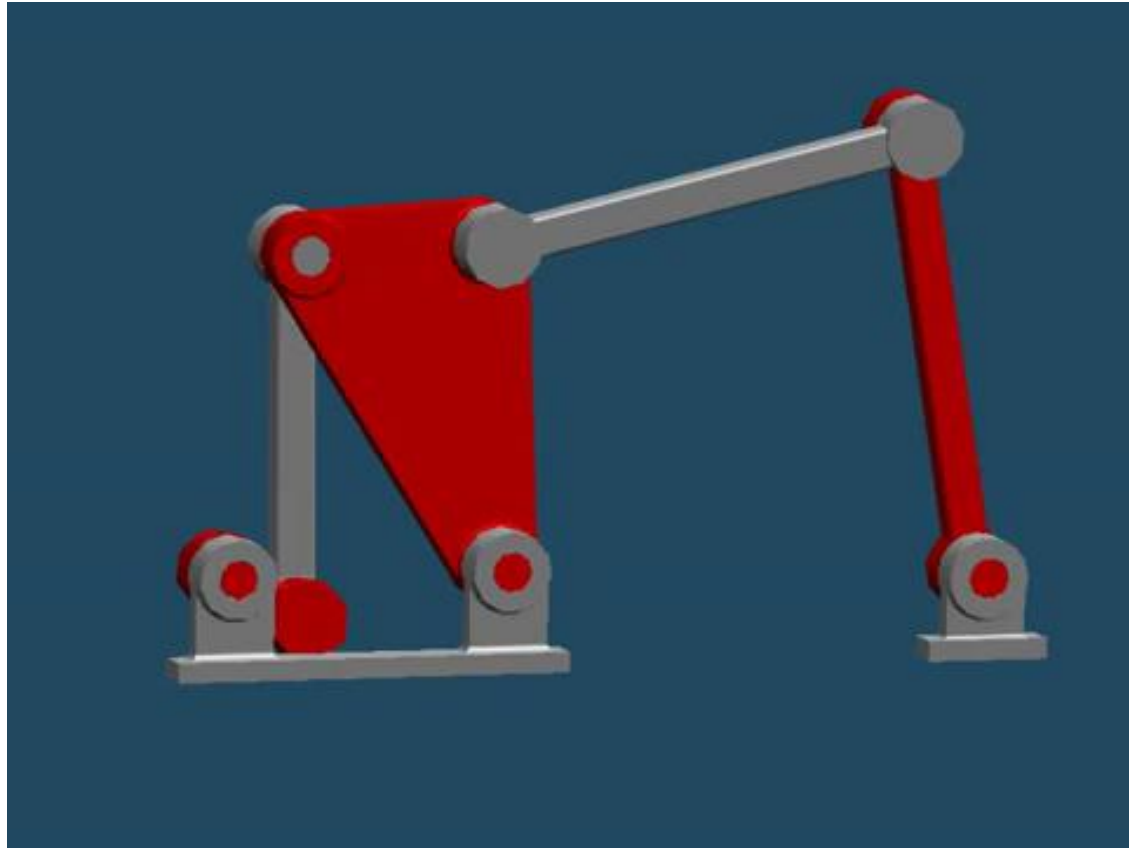
Bunda

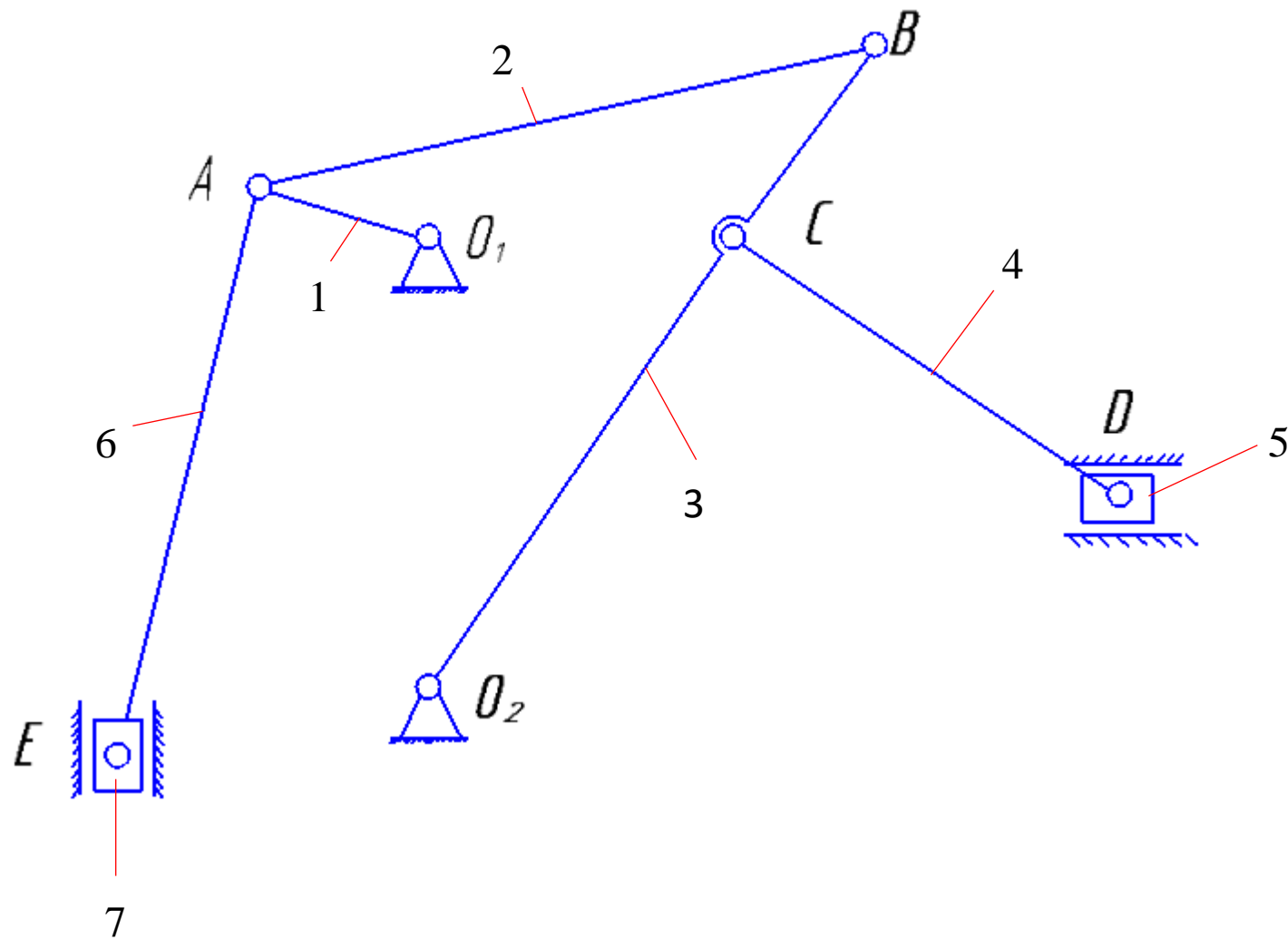
$$n = 3$$

$$P_5 = 4$$

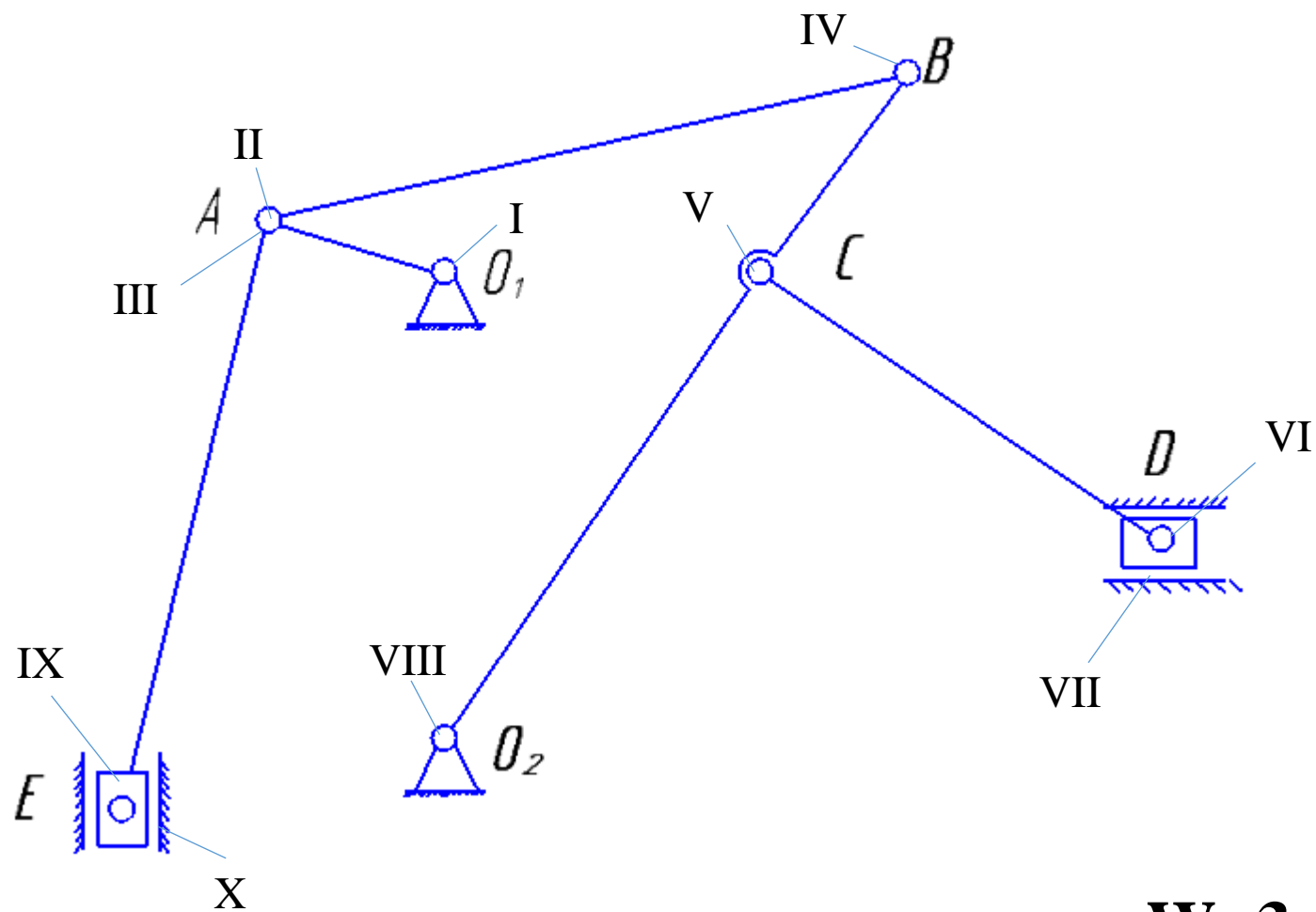
$$W = 3n - 2P_5 - P_4 = 3 \cdot 3 - 2 \cdot 4 = 1$$

Demak: $W = 1$ ga teng ekan





7 ta zveno (bo'g'in) bor



10 ta kinematik juftlik bor

$$W = 3n - 2P_5 - P_4 = 3 \cdot 7 - 2 \cdot 10 = 1$$

