

1-qism: Har bir topshiriq 0,9 balldan baholanadi

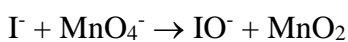
1. Qaysi elementning 1,00 gr na`munasi eng ko`p molekulani o`zida saqlaydi?

- A) Bakminsterfulleren, C₆₀ B) Ozon, O₃
C) Oq fosfor, P₄ D) Oltingugurt, S₈

2. 0,1 M li 1 ml ikki valentli metal saqlagan eritmaning rangi och pushti bo`lib, unga 1 ml konsentirlangan HCl kisloata eritmasi qo`shilsa, eritma rangi yorqin-ko`k rangga o`zgaradi. Metall ionini aniqlang.

- A) Ca²⁺ B) Mn²⁺
C) Co²⁺ D) Cu²⁺

3. Iodid ion asosli sharoitda permanganat bilan gipoyodit ionigacha quyidagi reaksiya bo`yicha oksidlanadi:



Tenglashtirilgan reaksiya tenglamasida gidroksid ionining iodid ioniga miqdoriy nisbati qanday?

- A) 3 : 1 B) 2 : 1
C) 1 : 1 D) 2 : 3

4. Na[V(CO)₆] kompleksida vanadiyning oksidlanish darajasi qanday?

- A) -1 B) +3
C) +5 D) +6

5. Qaysi kvant sonlar kombinatsiyasini real atomga qo`llash mumkin? Kvant sonlarning kelish ketma – ketligi – [bosh kvant son (n), orbital kvant son (l), magnit kvant son (m_l), spin kvant son (m_s)].

- A) [1, 0, +1/2, +1/2] B) [3, 0, 0, -1/2]
C) [2, 2, 1, +1/2] D) [3, 2, 1, 1]

6. I₃⁻ da markaziy atom I gibridlanishini aniqlang.

- A) sp² B) sp³
C) dsp³ D) d²sp³

7. Pastda keltirilgan atomlarni atom radiusi kamayib borishi taribida joylashtiring.

Pb, P, Cl, F, Si

- A) Cl > F > Pb > Si > P B) Pb > Si > P > F > Cl
C) Pb > Si > P > Cl > F D) Pb > Cl > P > Si > F

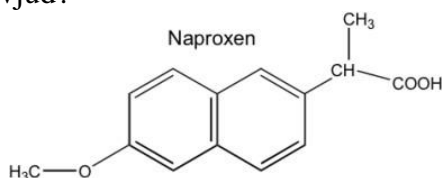
8. Quyidagi ikki atomli molekullardan qaysi biri eng yuqori bog` energiyasiga ega.

- A) CO B) N₂
C) O₂ D) H₂

9. Kumush saqlovchi 1,50 gr ruda eritildi va barcha Ag⁺ 0,124 gr Ag₂S ga aylandi. Rudadagi kumushning massa ulushini aniqlang.

- A) 6,41% B) 7,20%
C) 8,27% D) 10,8%

10. Naproksenda qancha uglerod atomi sp-, sp²- va sp³- gibridlanishda hamda molekulada qancha π-bog` mavjud?



- A) $sp = 0, sp^2 = 10, sp^3 = 4, \pi = 5$ B) $sp = 0, sp^2 = 11, sp^3 = 3, \pi = 6$
C) $sp = 0, sp^2 = 11, sp^3 = 3, \pi = 5$ D) $sp = 1, sp^2 = 9, sp^3 = 4, \pi = 5$

2-qism: Har bir topshiriq 1.5 ballidan baholanadi

11. 45°C da suvning ion ko'paytmasi $4,0 \times 10^{-14}$ ga teng. Shu temperaturada toza suvning pH qiymatini aniqlang.

- A) 6,7 B) 7,0
C) 7,3 D) 13,4

12. Reaksiyaning tog'ri reaksiya tezlik konstantasi $2,3 \times 10^6 \text{ s}^{-1}$ ga, muvozanat konstantasi $4,0 \times 10^8$ ga teng. Teskari reaksiya tezlik konstantasi nechaga teng?

- A) $1,1 \times 10^{-15} \text{ s}^{-1}$ B) $5,8 \times 10^{-3} \text{ s}^{-1}$
C) $1,7 \times 10^2 \text{ s}^{-1}$ D) $9,2 \times 10^{14} \text{ s}^{-1}$

13. Pastda keltirilgan reaksiyaning muvozanat konstantasidan foydalanib,
 $2\text{SO}_3(g) = 2\text{SO}_2(g) + \text{O}_2(g)$ $K = 1,8 \times 10^{-5}$

quyidagi reaksiyaning muvozanat konstantasini aniqlang
 $\text{SO}_2(g) + 1/2\text{O}_2(g) = \text{SO}_3(g)$ $K = ?$

- A) $2,1 \times 10^{-3}$ B) $4,2 \times 10^{-3}$
C) $2,4 \times 10^2$ D) $5,6 \times 10^4$

14. HCN 0,010 M li eritmasining dissotsiyalanish darajasi qancha? ($K = 6,2 \times 10^{-10}$ kislotalik konstantasi)

- A) 0,0025% B) 0,025%
C) 0,25% D) 2,5%

15. $\text{C}_3\text{H}_8\text{O}$ formulaga nechta izomer to'g'ri keladi?

- A) 1 B) 2
C) 4 D) 3

16. Tarkibida 10% qo'shimchalari bo'lgan 50 g ohaktoshdan necha g karbonat anhidrid olish mumkin?

- A) 5 B) 5.6
C) 10 D) 19.8

17. Tarkibida 75% sof malaxit bo'lgan 200 g mineraldan qancha g mis (II) oksid ajratib olish ($\text{Cu}(\text{OH})_2 \cdot \text{CuCO}_3 = 2\text{CuO} + \text{CO}_2 + \text{H}_2\text{O}$) mumkin? Reaksiya unumi – 0.9.

- A) 144.15 B) 108.11
C) 97.3 D) 87.57

18. $\text{Na}_x\text{SO}_{x+2}$ tarkibli tuzning 1 g ida $4.24 \cdot 10^{21}$ ta oltingugurt atomi bo'lsa, x ni aniqlang.

- A) 1 B) 2
C) 3 D) 4

19. Cl⁻ elektron konfiguratsiyasi keltirilgan qatorni toping.

- A) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^8 4s^0$ B) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^2 4s^0$
C) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^0 4s^0$ D) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^0$

20. $\text{CaCO}_3 + \text{Q}$ (issiqlik) $\rightleftharpoons \text{CO}_2 + \text{CaO}$ reaksiyada sistema muvozanatini o'ng tomonga siljitish uchun quyidagilardan qaysilarini amalga oshirish kerak?

- 1) haroratni ko'tarish; 2) bosimni oshirish; 3) haroratni pasaytirish; 4) CO_2 konsentratsiyasini kamaytirish;



- A) 2, 3 B) 1, 4
C) 2, 4 D) 1, 3

3-qism: Har bir topshiriq 2,6 balldan baholanadi

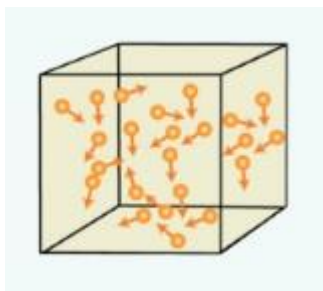
21. Tartib raqami 19 bo'lgan element atomlarida nechta elektron pog'ona bor?
22. ^{32}S izotopi va ^{16}O , ^{17}O va ^{18}O izotoplaridan foydalanib necha xil oltingugurt (IV) oksidi molekularini olish mumkin?
23. Agar reaksiya unumi 70% bo'lsa, 2.45 g bertolle tuzidan necha l (n.sh.da) kislorod olish mumkin?
24. Tabiiy mis 63 va 65 izotoplardan iborat bo'lib, uning atom massasi 63.54 ga teng. Har bir izotopning tabiatdagi molyar ulushini mos ravishda aniqlang.
25. Qaysi agregat holatda har qanday modda elektr tokini o'tkazadi?
26. O'zgarmas harorat va hajmli germetik konteyner ichiga 3:1 mol nisbatda mos ravishda vodorod va azot joylandi, tegishli katalizator ishtirokida ammiak gazi hosil bo'ldi. Muvozanat qaror topganidan so'ng vodorod parsial bosimi kvadratining ammiak parsial bosimiga nisbati 0.2 ga teng bo'lsa, $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightarrow 2\text{NH}_3(\text{g})$ reaksiyasining muvozanat konstantasi K_p ni hisoblang.

27. Gazifikatsiya jarayonida ko'mir — uglerod monoooksid va vodorod aralashmasiga aylanadi, aralashma suv gazi deb ataladi: $\text{H}_2\text{O}(\text{g}) + \text{C}(\text{q}) \rightarrow \text{CO}(\text{g}) + \text{H}_2(\text{g})$

Quyida berilgan reaksiya tenglamalari va entalpiya o'zgarishlaridan foydalanib, yuqoridagi reaksiyaning entalpiya o'zgarishini hisoblang.



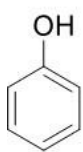
28. Chap tomondagi rasmda idish ichida dumaloq shakldagi molekular tasvirlangan. Ko'satkichlar molekularning harakat yo'nalishi va tezligini ifodalaydi.



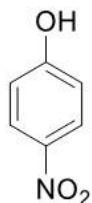
Rasmni tahlil qilib, unda moddaning qaysi agregat holati ifodalanganini yozing.

29. 500 ml suvda 0,050 mol HSCN eritilishidan eritma tayyorlandi. Eritmada vodorod ionlari konsentratsiyasi $8.88 \cdot 10^{-6}$ mol/l ekanligi aqinlandi. HSCN uchun kislotalik konstantasini (K_a) aniqlang.

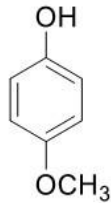
30. Pastda keltirilgan moddalarni kislotalik kuchi kamayishi tartibida joylashtiring.



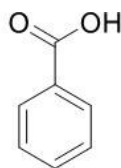
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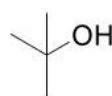
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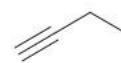
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5



6



O'quvchilar tayyorgarlik ko'rishlari uchun o'tgan yilgi savollar keltirilmoqda.

Maktabgacha va maktab ta'limi vazirligi Fan olimpiadalari bo'yicha iqtidorli o'quvchilar bilan ishlash departamenti tomonidan tuman bosqichi uchun nazorat materiallari shakllantirildi.

Telegram kanalimiga obuna bo'ling! 

<https://t.me/ustoz>

