ALGO
QCM

1. **La méthode de recherche la plus naïve est la recherche ?**
   - (a) séquentielle
   - (b) dichotomique
   - (c) autoadaptative
   - (d) par interpolation

2. **Dans le cas d'un ajout d'un élément appartenant déjà à un multi-ensemble, la solution retenue ?**
   - (a) génèrera une erreur
   - (b) supprimera cet élément
   - (c) ajoutera un autre élément
   - (d) ajoutera l'élément une deuxième fois
   - (e) ne fera rien

3. **Lors d'une recherche si la clé recherchée n'est pas trouvée, on parle de recherche ?**
   - (a) négative
   - (b) positive
   - (c) affirmative
   - (d) logique
   - (e) cognitive

4. **L'important dans les ensembles c'est ?**
   - (a) la position d'un élément dans un ensemble
   - (b) la place d'un élément dans un ensemble
   - (c) l'appartenance d'un élément à un ensemble
   - (d) l'ordre d'un élément dans un ensemble

5. **la recherche autoadaptative n'est pas implémentable sur ?**
   - (a) liste triée croissante
   - (b) liste triée décroissante
   - (c) liste non triée

6. **La complexité au pire de la recherche négative séquentielle est d'ordre ?**
   - (a) linéaire
   - (b) logarithmique
   - (c) quadratique
   - (d) constant

7. **La recherche séquentielle peut se faire sur ?**
   - (a) liste triée croissante
   - (b) liste triée décroissante
   - (c) liste non triée

8. La recherche autoadaptative ramenant l'élément trouvé à la moitié de la distance le séparant de la première place, préfère ?

   (a) une structure dynamique

   (b) une structure statique

9. Quelle opération permet de récupérer le nombre d'éléments dans un ensemble ?

   (a) count

   (b) compte

   (c) occ

   (d) card

   (e) nboccurrences

10. Un élément peut être présent plusieurs fois dans un multi-ensemble !

   (a) faux

   (b) vrai

QCM 12

lundi 12 décembre 2022

Question 11

Considérons le nombre complexe $z = i(2 - i) + 6 - 3i$. On a

    a. $z = 5i + 7$

    b. $z = 5 - i$

    c. $z = 7 - i$

    d. Aucune des autres réponses

Question 12

Soit le nombre complexe $z = -1 - i$. Alors

    a. $z^2 = 2 - 2i$

    b. $z^2 = 2 + 2i$

    c. $z^2 = 2i$

    d. $z^2 = -2i$

    e. Aucune des autres réponses

Question 13

Soit z et z' deux nombres complexes. On suppose que $z = x + iy$ avec $(x, y) \in \mathbb{R}^2$. On a

    a. $|z| = \sqrt{x^2 + y^2}$

    b. $|z| = \sqrt{x^2 - y^2}$

    c. $|z + z'| = |z| + |z'|$

    d. $|z \times z'| = |z| \times |z'|$

    e. Aucune des autres réponses

Question 14

Soit $z = -3 + 4i$. On a

    a. $\bar{z} = 3 + 4i$

    b. $\bar{z} = -3 - 4i$

    c. $|z| = \sqrt{7}$

    d. $|z| = 5$

    e. Aucune des autres réponses

Question 15

Un argument du nombre complexe $-i$ est

    a. $\dfrac{\pi}{2}$

    b. $\dfrac{\pi}{4}$

    c. $-\dfrac{\pi}{2}$

    d. $\dfrac{3\pi}{2}$

    e. Aucune des autres réponses

Question 16

Un argument du nombre complexe $-1 - i$ est

    a. $\dfrac{\pi}{4}$

    b. $-\dfrac{\pi}{4}$

    c. $\dfrac{3\pi}{4}$

    d. $-\dfrac{3\pi}{2}$

    e. Aucune des autres réponses

Question 17

On considère la suite (u_n) définie par $u_0 \in \mathbb{R}$ et pour tout $n \in \mathbb{N}$, $u_{n+1} = u_n^2 - 5u_n$. Cochez la(les) affirmation(s) correcte(s)

    a. (u_n) converge

    b. Si (u_n) converge alors sa limite est $\ell = 0$.

    c. Si (u_n) converge alors sa limite ℓ vérifie $\ell^2 - 5\ell = 0$

    d. Si (u_n) converge alors sa limite ℓ vérifie $\ell^2 - 5\ell = \ell$

    e. Aucune des autres réponses

Question 18

Soient (u_n) une suite et $\ell \in \mathbb{R}$. On a

    a. Si (u_{2n}) converge vers ℓ alors (u_n) converge vers ℓ.

    b. Si (u_n) converge vers ℓ alors (u_{2n}) converge vers ℓ.

    c. Si (u_{2n}) et (u_{2n+1}) convergent vers ℓ alors (u_n) converge vers ℓ.

    d. Si (u_{2n}) et (u_{3n}) convergent vers ℓ alors (u_n) converge vers ℓ.

    e. Aucune des autres réponses

Question 19

Considérons la suite (u_n) définie pour tout $n \in \mathbb{N}$ par $u_n = \dfrac{n-1}{2n+3}$. On a

    a. $u_{2n} = \dfrac{2n-1}{4n+3}$

    b. $u_{2n} = \dfrac{2n-1}{2n+3}$

    c. $u_{2n+1} = \dfrac{2n}{4n+3}$

    d. $u_{2n+1} = \dfrac{2n}{4n+5}$

    e. Aucune des autres réponses

Question 20

Dernière question de l'année 2022. Cela se fête !

Mon premier se trouve entre sol et si. Mon deuxième recouvre notre corps. Les oiseaux construisent mon troisième. Le Père Noël habite en mon tout. Qui suis-je ?

    a. Les Maldives

    b. La Laponie

JOYEUX NOËL À TOUS !!

Questions 21-30, choose the MOST APPROPRIATE answer in each case:

21. _____ painting the bedroom yet?' 'Not yet. I'll finish it tomorrow.'
a. Did you finish
b. Will you finish
c. Have you finished
d. Finish

22. My mother _____ in Scotland.
a. has grown up
b. did grow up
c. grew up
d. growed up

23. This is simply the most delicious dish I _____.
a. ever ate
b. eaten
c. ate
d. have ever eaten

24. Shakespeare _____ many world-famous theatre plays.
a. has written
b. wrote
c. writed
d. have written

25. Mary isn't here. She's on holiday leave; she _____ to Egypt.
a. 's gone
b. has been
c. went
d. is gone

26. _____ Covid recently?
a. Did you catch
b. Have you catched
c. Have you caught
d. Did you caughten

27. Since records _____ in 1880, the global temperature has risen 0.85 degrees Celsius.
a. begin
b. began
c. begun
d. have began

6

28. I _____ to the Mediterranean Sea.
a. did not went
b. have not gone
c. 've not gone
d. haven't been

29. I _____ him behave like this before.
a. never seen
b. don't see
c. don't seen
d. 've never seen

30. She often _____ at the Bull and Horns until the establishment closed.
a. drank
b. drunk
c. has drunk
d. drink

7

Web3 is just a fresh serving of the same old crypto nonsense

1. Probably, unless you've been unusually lucky, you've been schooled in the wonders of Web3. For the remaining lucky few, let me explain. Web3 is the inexorable destiny of the Internet: the magical fabric from which decentralized blockchain-based dreams are created and dystopian nightmares of big tech destroyed. The future is bright; the future is "add-only" databases.

2. Web3's central thesis is that because the Internet has become so centralized, with power concentrated in the hands of a few and users powerless over their own data, we need a more distributed, equal, and open system. So far, so reasonable.

3. But the moment you look below the surface, big holes appear in the Web3 vision. Their technoUtopian advocates say they want to harness the supposed power of blockchains, the immutable databases that underpin bitcoin and other tokens, to create a democratized internet where you control your own data and are no longer dependent on big tech giants. Web3, the argument goes, will let you "own a piece of the Internet." Naturally, the "decentralized" applications and organizations operating in this brave new world are powered by crypto tokens – all you need to do is buy them.

4. In truth, Web3 has become the latest marketing term used to try to shore up and repackage the overlapping ideas of cryptocurrencies, non-fungible tokens, and "decentralized finance," which seemed like brilliant innovations until the whole market started crashing. Never mind that blockchain, once touted as the solution to everything from corrupt elections to supply chain fraud, has failed to live up to the hype and has only proven its usefulness as an enabler of the crypto casino. This time it will be different.

5. It is even difficult to talk about Web3 because it is, like many other overrated concepts, a very nebulous term. I had a somewhat heated exchange last weekend with someone who claimed that Web3 was about banks processing data to predict your divorce and lower your credit rating before you even realize your spouse is having an affair. That, I argued, was about Big Data and artificial intelligence, which has nothing to do with blockchains or distributed ledgers. But like the metaverse and the "Fourth Industrial Revolution" before it, Web3 often seems to be used to mean something like "tech stuff that could do things in the future".

6. The term itself comes from the idea that we've had two iterations of the web: The first, launched in the early 1990s, lasted just over a decade and consisted mostly of static web pages that weren't interactive. The second, which arrived in the early 2000s and continues to this day, allowed users to upload their own content to the web, but by doing so, the user inadvertently became the product.

7. Perhaps the most false and pernicious aspect of Web3 is the lie that it is really about decentralization. Its biggest backers are Andreessen Horowitz, or a16z, a venture capital firm with billionaire co-founders and assets under management of more than $28 billion, which launched a $4.5 billion Web3 fund earlier this year. Leaving aside the fact that launching a multi-million dollar fund seems like a huge concentration of wealth, this company is also a major investor in Web2: it has, for example, a stake in Meta, formerly known as Facebook, on whose board the co-founder of the a16z, Marc Andreessen, still sits..

8. "Power . . . is becoming centralized again in the hands of a few investors, in some cases the exact same people who have so much power in today's web," according to Molly White, software engineer and author of "Web3 Is Going Just Great." ", who is one of the main critics of Web3. "I think there are ways to achieve decentralization on the Internet," he tells me. "But I see that those solutions are necessarily based on social and policy changes rather than pure technological changes " .

9. Meanwhile, firms like Coinbase, the a16z-backed cryptocurrency exchange, which, until recently, was making hundreds of millions of dollars in profit every quarter, are positioning themselves to be "the default gateway to the Web3 ecosystem." It is quite strange that an Internet that is all about openness and decentralization needs a corporate giant to provide input.

10. Web3 is not about making the Internet fairer or less likely to be exploited by greedy bigwigs, it is actually quite the opposite: it is about introducing another layer of financialization to the web. The reality, therefore, is actually much simpler than the jargon that you will have to listen to when someone explains it to you. Web3 is just the newest way to serve the same old crypto shit, and smells as bad as ever.

31. Toward the beginning of the article, what is Web3 a solution to?
    a. Cyber attacks
    b. Online marketing
    c. User data security
    d. Screen addiction

32. The main issue with the Web3 system is?
    a. It creates competition for the tech giants.
    b. It is a paying system.
    c. Users need to understand crypto tokens and block chain technology.
    d. The system is vulnerable to market crashes.

33. In paragraph 5, what are Big Data and artificial intelligence said to be able to predict?
    a. One's current state of health
    b. Wealth
    c. Debauchery
    d. Aspect of one's personal life

34. In paragraph 5, what does the word 'spouse' mean?
    a. Partner
    b. Sibling
    c. Bank manager
    d. Mistress

35. In paragraph 6, how did the internet users become the product?
    a. Web data collection
    b. Inadvertent long-term internet usage
    c. By allowing the creation of web pages
    d. By allowing users to upload web content

36. In paragraph 7, the author argues that:
    a. Web3 is backed by numerous trade associations.
    b. Web3 is not really decentralised.
    c. cofounders should be independent of Web3.
    d. Web3 does not use block chain technology.

37. In the article, the journalist suggests that Web3:
    a. has little chance of happening.
    b. has happened.
    c. might never have happened if it had not decentralised.
    d. will happen next year.

38. Which is the truest statement, according to the article?
    a. The book called "Web3 Is Going Just Great" provides solutions to the crypto currency market crash.
    b. Governments and world leaders are searching for social and policy changes to combat the tech and corporate giants.
    c. Web2 and Web3 investors are the same entities.
    d. All those, found on Forbes real-time billionaires list, are internet investors.

39. Choose the most suitable insert for this statement: "Overall, the journalist is ___X___ Web3."
    a. keen on
    b. cynical about
    c. in favour of
    d. cautious about

40. According to the article, which statement is true?
    a. Meta is the old Facebook.
    b. Mark Andreessen is the wealthiest person in the world.
    c. Web3 is about decentralising the internet.
    d. Web3 is about destroying the big tech companies.

QCM Physique/Electronique – InfoS1

Pensez à bien lire les questions ET les réponses proposées

Q41. En coordonnés cartésiennes le produit vectoriel $\vec{u_x} \wedge \vec{u_y}$ = ?

    a. $-\vec{u_z}$ b. $-\vec{u_x}$ c. $\vec{u_z}$ d. $\vec{u_\theta}$

Q42. Un solide est considéré à l'équilibre si :

    a. $\sum \vec{F_{ext}} = \vec{0}$ et $\sum \overrightarrow{M(\vec{F_{ext}})} = \vec{0}$ c. $\sum \vec{F_{ext}} \neq \vec{0}$

    b. $\sum \vec{F_{ext}} = m\vec{a}$ et $\sum \overrightarrow{M(\vec{F_{ext}})} = \vec{0}$ d. $\sum \overrightarrow{M(\vec{F_{ext}})} \neq \vec{0}$

Q43. Le moment de $\vec{F}$ par rapport au point O est

    a. Dans le plan xOy

    b. Sur l'axe Ox

    c. Normal au plan xOy

    d. Sur l'axe Oy
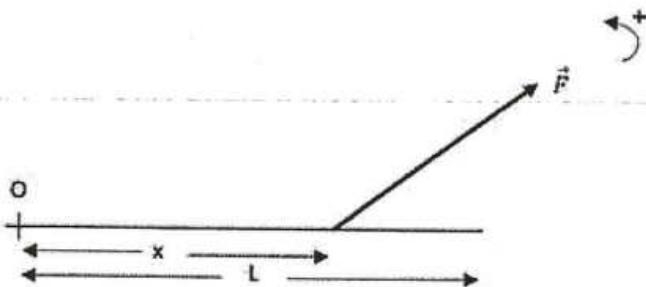
Q44. Les moments de $\vec{F}$ et $\vec{F'}$ par rapport au point O sont égaux :

    a. Oui

    b. Non
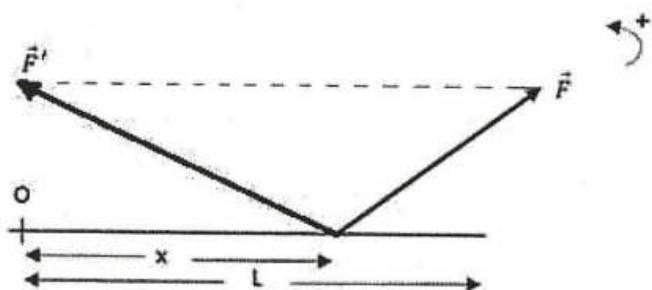
Q45. La norme $\left\| \overrightarrow{M_O(\vec{F})} \right\|$ du moment de $\vec{F}$ par rapport au point O vaut :

    a. $\left\| \overrightarrow{M_O(\vec{F})} \right\| = 0$

    b. $\left\| \overrightarrow{M_O(\vec{F})} \right\| = Fx$

    c. $\left\| \overrightarrow{M_O(\vec{F})} \right\| = Fx.\cos\alpha$

   d. $\left\| \overrightarrow{M_O(\vec{F})} \right\| = Fx.\sin\alpha$

10
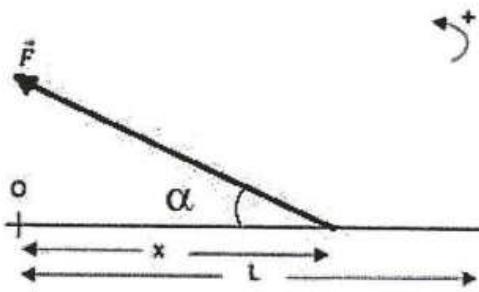
Q46.   On considère les 2 circuits suivants :
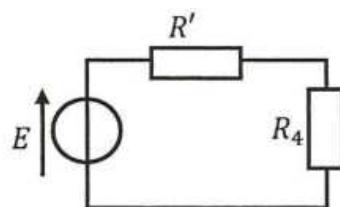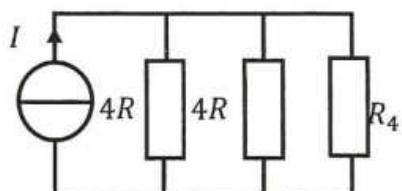
Ces 2 circuits sont équivalents si et seulement si :

a- $E = 4R.I$ et $R' = 2R$

b- $E = 2R.I$ et $R' = 2R$

c- $E = 4R.I$ et $R' = 8R$

d- $E = \frac{I}{2R}$ et $R' = 2R$

Q47.   On considère les 2 circuits suivants :
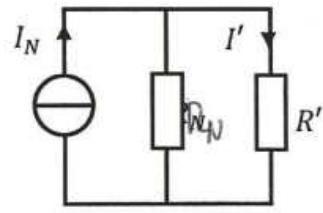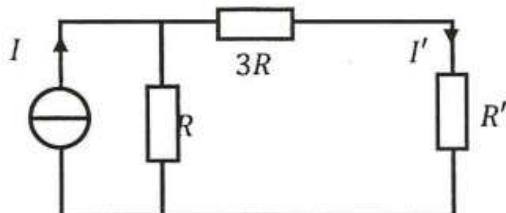
Ces 2 circuits sont équivalents si et seulement si :

a- $I_N = I$ et $R_N = 4R$

b- $I_N = \frac{I}{4}$ et $R_N = 4R$

c- $I_N = 4I$ et $R_N = 4R$

d- $I_N = \frac{I}{4}$ et $R_N = \frac{3}{4}R$

Q48. On considère les 2 circuits suivants :
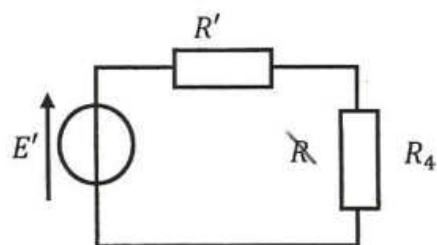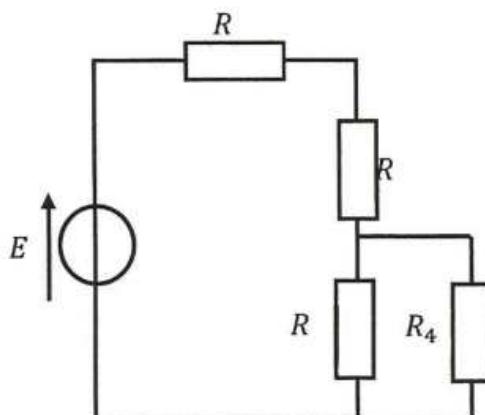
Ces 2 circuits sont équivalents si et seulement si :

a- $E' = E$ et $R' = \frac{2R}{3}$

b- $E' = \frac{E}{3}$ et $R' = \frac{2R}{3}$

c- $E' = \frac{E}{2}$ et $R' = \frac{2R}{3}$

d- $E' = \frac{E}{3}$ et $R' = \frac{R}{3}$

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Q49. On considère les 2 circuits suivants :
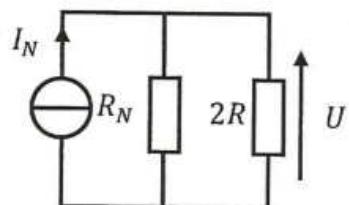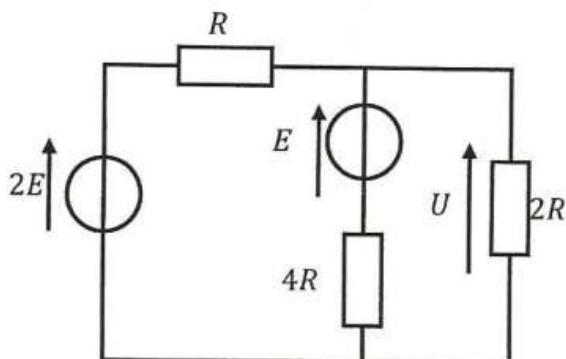

Ces 2 circuits sont équivalents si et seulement si :

a- $I_N = \frac{7}{4R}E$ et $R_N = 5R$

b- $I_N = \frac{7}{4R}E$ et $R_N = \frac{4}{5}R$

\c- $I_N = \frac{9}{4R}E$ et $R_N = \frac{4}{5}R$

d- $I_N = \frac{15}{4R}E$ et $R_N = \frac{4}{5}R$

Q50. Soit le circuit ci-dessous.
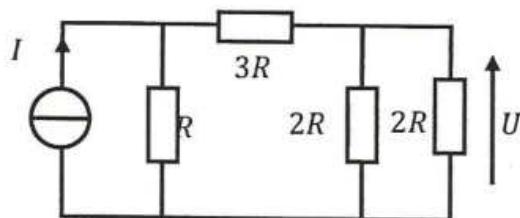
Quelle est l'expression de la tension U ?

a- $U = 2R.I$

\b- $U = \frac{R}{5}.I$

c- $U = R.I$

d- $U = \frac{R}{2}.I$

QCM 7
Architecture des ordinateurs

Lundi 12 décembre 2022

Pour toutes les questions, une ou plusieurs réponses sont possibles.

51. $A \oplus B =$
    A. $\overline{A} \oplus B$
    B. $\overline{A} \oplus \overline{B}$
    C. $\overline{A}.B + A.\overline{B}$
    D. $\overline{A.\overline{B}} + A.B$

52. $A + \overline{A}.B + \overline{A}.B.C + \overline{A}.B.C.D =$
    A. $A + B$
    B. 1
    C. 0
    D. Aucune de ces réponses.

53. $X.(\overline{Y} + Z) + Y.\overline{X}.\overline{Z} =$
    A. $X \oplus (\overline{Y}.Z)$
    B. $X \oplus (\overline{Y}.\overline{Z})$
    C. $X \oplus (Y.\overline{Z})$
    D. $X \oplus (Y.Z)$

54. Quel est le résultat de la soustraction suivante : $1000_{20} - 1_{20}$?
    A. FFF_{20}
    B. $1FFF_{20}$
    C. JJJ_{20}
    D. Aucune de ces réponses.

55. $145_{10} =$
    A. 1_{145}
    B. 219_8
    C. 357_6
    D. Aucune de ces réponses.

56. Quel est le complément à 2 du mot sur 8 bits suivant : 00000000_2
    A. 00000001_2
    B. 11111111_2
    C. 00000000_2
    D. 11111110_2

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57. Quel est le complément à 2 du mot sur 8 bits suivant : 36_{16}
    A. CA_{16}
    B. CB_{16}
    C. $C9_{16}$
    D. Aucune de ces réponses

58. Combien d'entiers signés peut-on coder sur n bits ?
    A. $2^n - 1$
    B. 2^{n-1}
    C. 2^n
    D. Aucune de ces réponses.

59. Soit l'addition sur 8 bits signés suivante : 250 + 4
    Le résultat sur 8 bits signés est :
    A. 254
    B. –2
    C. 0
    D. Cette addition n'est pas possible.

60. Codez le nombre –255 sur 9 bits signés :
    A. 111111111_2
    B. 011111111_2
    C. 100000001_2
    D. Impossible

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