نموذج استرشادي تدريبي لشهادة إتمام الدراسة ث.
المادة: الكيمياء باللغة الإنجليزية
التاريخ: 201
زمن الإجابة: ثلاث ساعات

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رقم الراقبة:

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الإدارة: 
الملاحظات: 
الخطة: 
المستندات:

توقيع الملاحظات بصحة البيانات 
وتحديد عدد أوراق الدراسة الإجابة عند استلامها من الطالب.
تعليمات هامة:
عزيزي الطالب:

1. اقرأ التعليمات جيداً سواء في مقدمة كراسة الامتحان أو في مقدمة الأسئلة، وفي ضوءها أجب عن الأسئلة.
2. اقرأ السؤال بعناية، وفكر فيه جيداً قبل البدء في إجابته.
3. عند إجابةك للأسئلة للمقالية، أجب فيما لا يزيد عن المساحة المحددة لكل سؤال.

مثال:


4. عند إجابةك عن أسئلة الاختيار من متعدد إحدى وجدت:
 حاول دائرة ذات الرمز الدال على الإجابة الصحيحة نظراً للاختلاف في كل سؤال.

مثال: الإجابة الصحيحة (جـ) مثلاً


- في حالة ما إذا أجبت إجابة خاطئة، ثم قمت بالخطأ، وأجبت إجابة صحيحة، حسب الإجابة الصحيحة.
- وفي حالة ما إذا أجبت إجابة صحيحة، ثم قمت بالخطأ وأجبت إجابة خاطئة، حسب الإجابة خاطئة.
- في حالة التظليل على أكثر من رمز، تعتبر الإجابة خاطئة.

ملحوظة:
لا تكرر الإجابة عن الأسئلة الموضوعية (الاختبار من متعدد)، فلن تقترب الأجابه الأولى فقط.

5. إذا أجبت عن سؤال من الأسئلة المقالية بإجابتين، فسيتم تقدير الإجابة الأولي فقط، فاشتبه أنت الإجابة التي لا ترغب فيها.

6. عدد أسئلة كراسة الامتحان (45) سؤالاً.
7. عدد صفحات كراسة الامتحان (23) صفحة.
8. تأكد من ترتيب الأسئلة تصاعدياً، ومن عدد صفحات كراسة الامتحان، فهي مسؤولتك.
9. زمن الاختبار (3) ساعات.
10. الدرجة الكلية للاختبار (60) درجة.
Answer the following questions:

1. Write the scientific term for the following statement:
   Concentration of a saturated solution of a salt which is slightly soluble in water at a certain temperature.

2. Write the structural formula for:
   Alpha amino acid.

3. Choose one scientist of (a) or (b) and mention his contribution in the field of chemistry:
   a) Ostwald
   b) Wohler
4. Give reason for:
   Elements of the first transition series are considered as ideal catalysts.

5. Show by balanced chemical equations:
   Conversion of Salicylic acid into aspirin.

6. Choose the proper answer:
   On heating two molecules of methane gas over 1400 °C in the absence of air, the following can be formed:
   A. Black Carbon
   B. Carbon dioxide + water vapour
   C. Water gas
   D. Acetylene + Hydrogen
X and Y are two insoluble salts in water. The compound (X) is a yellowish white precipitate that dissolves slowly in ammonia solution. The compound (Y) is a yellow precipitate that doesn’t dissolve in ammonia solution. **Write the molecular formula for the two compounds.**

Our factories produce a lot of polymers such as:

a) Poly Propylene  
b) Poly styrene  
c) Poly ethylene  
d) Poly vinyl chloride

Choose **two of these polymers** and mention one use of each.
9. A monoprotic weak acid whose concentration is 0.1 M and its ionization degree is 0.02 mol / L calculate its pOH

\[ pOH = -\log(0.02) \]

10. Choose the proper answer:

To deposit g/atom (mole) of a metal (X) from one of its compounds, an amount of electricity = 3 Faraday is required. So, that compound will be

A) \( X_2O_3 \)
B) \( X_2O \)
C) \( XO_2 \)
D) \( XO \)

11. Give reason for:

Anode coating is better than cathode coating in order to protect iron from corrosion.
12. Choose one phrase of (a) or (b), and name the compound that it expresses:
   a) An isomer of methyl benzoate.
   b) An isomer of ethanal.

Questions (13 – 15):
The graph represents the relation between the atomic number of some elements and their common oxidation number. Answer the questions (13 – 15)

13. Determine the atomic number of the element that doesn’t represent a transition element.

14. From the graph, determine the atomic numbers of two metals used in making an alloy used in the manufacture of railways.
15. Determine the atomic numbers of two metals used in making alloys used in manufacturing of jet air fighters.

16. Choose one question of (a) or (b) to be answered:
   How could you distinguish practically between:
   a) Concentrated sulphoric acid and concentrated phosphoric acid.
   b) Sodium sulphite and sodium sulphide.
17. Unsaturated gas produced from thermal cracking of petroleum products. Show how you could prepare it in the laboratory, and draw the apparatus used with the balanced chemical equation.

18. A sample of hydrous barium chloride \( \text{(BaCl}_2 \cdot \text{XH}_2\text{O)} \) of mass 2.9603 g is strongly heated until its mass becomes constant at 2.3923 g. Write the molecular formula of the hydrated salt. \([ \text{Ba} = 137, \ \text{Cl} = 35.5, \ \text{O} = 16, \ \text{H} = 1 \)
19. Choose the proper answer:

By heating Iron II sulphate in the absence of air, two gases are produced and ........ is formed.

(A) Iron II oxide
(B) Iron III oxide
(C) Magnetic iron oxide
(D) Iron III sulphate

20. Choose one scientist of (a) or (b) and mention his contribution in the field of chemistry:

(a) Daniel
(b) Markownikoff

21. Write a scientific term for the following statement:

A chemical reaction occurs by transferring an electron or more from one of the reactants to another reactant.
22. Choose the proper answer:
The color of bromothymol in a solution whose pH = 5.5 is ………

A. Red
B. Yellow
C. Colorless
D. Blue

23. Give reason for:
Sodium chloride solution is neutral to litmus solution.

24. Write a scientific term for the following statement:
A compound produced from phenol nitration and used in explosive industry.
Choose one of the following conversions (a) or (b) and show by balanced chemical equations how it can be carried out:

a) Benzoic acid into benzamid.

b) Iron III chloride into Iron III oxide.

Explain – without drawing – how copper can be purified, showing how from impurities are removed.
27. Show by chemical equation how can you get: Meta chloro- nitro benzene from benzene.

28. Give reason for:
Water isn’t suitable to remove fat spots from textiles.

29. Write a scientific term for the following statement:
A branch of science that is concerned with the study of the methods and devices used to know the composition of matter.
30. How would you explain:
Corrosion of anode in galvanic cell?

31. Choose one of the properties (a) or (b) and give reason for it:
   a) The electronic configuration of chromium and copper differs than other elements in the first transition series.
   b) The relative constancy of the atomic radii of elements in the first transition series.
32. Write a scientific term for the following statement:

Increasing the percentage of iron in its ores by removes impurities and strange substances by means of surface tension and magnetism.

33. Choose the proper answer:

In the following reaction:

\[ \text{CH}_3\text{COOH} \rightleftharpoons \text{CH}_3\text{COO}^- + \text{H}^+ \]

When adding a little amount of HCl, the concentration of ……

A. The acetate increases  
B. The acetate decreases  
C. The acetic acid increases  
D. The acetic acid decreases
Question (34 – 35):

A monohydric aliphatic alcohol has molar mass 74 g / mol [ C = 12, O = 16, H = 1 ]

34. Write the molecular formula for that alcohol.

35. What is the effect of adding acidified potassium permanganate to two of different isomeric forms of that alcohol?
Choose one of the two questions (a) or (b) to be answered:

(a) An aliphatic organic compound (A) doesn’t dissolve in concentrated H₂SO₄, but reacts with Cl₂ gas in direct sunlight forming a compound (B) that reacts with caustic soda forming compound (C) which in turn can be converted to acetaldehyde by adding acidified K₂Cr₂O₇.

What are the chemical formulae for the compounds (A&B)?

(b) An aliphatic organic compound (A) having pH slightly less than 7 can be reduced by hydrogen in the presence of copper chromate at 200°C forming a compound (B) that is converted into acetaldehyde by adding acidified K₂Cr₂O₇.

What are the chemical formulae for the compounds (A&B)?
37. Explain the following:
Nitro compounds are extremely explosive substances.

38. What is meant by:
Chemical inactivity

39. Write the structural formula for:
Ester contains two carbon atoms
40. Choose one property of (a) or (b) and give reason for it:
   a) Ammonium chloride solution is acidic to litmus solution.
   b) Sodium carbonate solution is alkaline to litmus solution.

41. What is meant by:
   Contact process in preparation of sulphoric acid.

42. Choose the proper answer:
   On adding 2 mol of hydro-bromic acid to propyne ……… is formed.
   
   A  1,2 dibromo-propane
   B  1,2 dibromo-propene
   C  2,2 dibromo-propane
   D  2,2 dibromo-propene
43. **Explain the following:**

Discoloring of brown iodine when it reacts with sodium thiosulphate solution.

44. Choose to answer one of the two questions (a) and (b):

An amount of electricity of 10000 C is passed in AuCl₂ solution. [ Au = 196.89 u, Cl = 35.5 u ]

a) The mass of the deposited gold.

b) The volume of evolving chlorine gas.
Write the mathematical expression of the equilibrium constant $K_P$ for the following balanced chemical reaction:

$$N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$$

Then show the effect of lowering the pressure exerted on the reactants on the produced amount of ammonia.