

KATHMANDU UNIVERSITY
End Semester Examination [C]

July, 2024

Marks Scored:

Level : B.E./B.Sc.
Year : I

14 JUL 2024

Course : CHEM 101
Semester : I

Exam. Roll No. :

Time : 30 mins.

F.M. : 20

Registration No. :

Date :

SECTION "A"
[20 Q. × 1 = 20 marks]

Choose the most appropriate answer and mark [X] in the box.

- Which of the following statements is (are) **TRUE** for **all** voltaic (or galvanic) cells?
(I) Reduction occurs at the cathode.
(II) The anode gains mass during discharge
(III) The voltage is less than or equal to zero.
 only III only II only I II and III
- Which statement is **INCORRECT**?
 At constant pressure, $\Delta H = \Delta E + P\Delta V$
 The thermodynamic symbol for entropy is S.
 Gibbs free energy is a state function.
 For an endothermic process, ΔH is negative.
- Consider the equilibrium system:
 $2\text{ICl}(s) \rightleftharpoons \text{I}_2(s) + \text{Cl}_2(g)$
Which of the following changes will increase the total amount of Cl_2 that can be produced?
 removing some of the $\text{I}_2(s)$ adding more $\text{ICl}(s)$
 removing the Cl_2 as it is formed can't be increased
- The pH of a 200 mL solution having 0.01 moles of CH_3COOH and 0.2 moles of CH_3COONa is _____ [$K_a(\text{CH}_3\text{COOH}) = 1.85 \times 10^{-5}$]
 6.03 3.43 7.97 10.56
- Which of the following relation is true for a reaction $\text{N}_2(g) + 3\text{H}_2(g) = 2\text{NH}_3(g)$
 $K_p = K_c$ $K_p = K_c(RT)^2$ $K_p = K_c(RT)$ $K_p = K_c(RT)^{-2}$
- A solution contains 0.1 M Cl^- and 0.01 M CrO_4^{2-} . Upon addition of Ag^+ ion to this solution, what is the silver ion concentration by the time Ag_2CrO_4 just begins to precipitate.
(K_{sp} for $\text{AgCl} = 8 \times 10^{-10}$ and K_{sp} for $\text{Ag}_2\text{CrO}_4 = 1.9 \times 10^{-12}$)
 1.4×10^{-4} M 1.5×10^{-5} M 1.4×10^{-5} M 1.4×10^{-6} M
- Reduction of Ag^+ ion is represented as: $\text{Ag}^+ + e^- = \text{Ag}$ $E^\circ = +0.8\text{V}$. What is the value of E° for the following reaction:
 $2\text{Ag} = 2\text{Ag}^+ + 2e^-$
 -0.8 V +0.8 V -1.6 V +1.6 V

KATHMANDU UNIVERSITY
End Semester Examination [C]
July 2024

Level : B.ARCH.
Year : I
Time : 2 hrs. 30 mins.

14-july-024

Course : ARCH 111
Semester : I
F. M. : 40

SECTION "B"
[20 marks]

Students are encouraged to support their answers with necessary figures, illustration and drawings.

1. Write short notes on ANY TEN.
- Terra Amata
 - Ancient Jericho Settlement
 - Catal Huyuk Settlement
 - Stepped Pyramid of Zoser
 - Old Kingdom Period of Egypt
 - Ionic Entablature
 - Propylaea
 - Roman Basilica
 - Colosseum
 - Pendentive dome
 - Durham Cathedral
 - Flying buttress

[10Q × 2 = 20 marks]

SECTION "C"
[4Q × 5 = 20 marks]

Attempt *ANY FOUR* questions.

- Describe the architectural characteristics of Skare brae
- How did religion influence architecture in ancient Egypt?
- What is the importance of Agora in Greek Architecture?
- Describe the architecture of Roman Thermae using the Bath of Caracalla as an example.
- How does the Renaissance in Italy differ from its origins?



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Level : B.ARCH
Year : I

Course : ARCH 111
Semester : I

Exam Roll No. :

Time: 30 mins.

F. M. : 10

Registration No.:

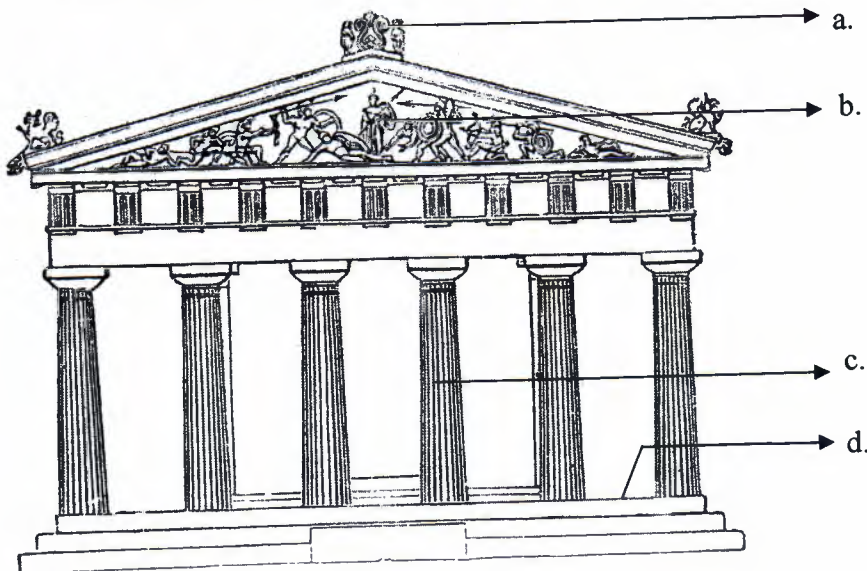
Date : 14 JUL 2024

SECTION "A"

[20Q. × 0.5 = 10 marks]

Choose and encircle the most appropriate answer.

- Late Bronze Age is an era between
a. 3000 – 2200 BC b. 2200 – 750 BC c. 750 – 50 BC d. 500 – 50 BC
- In Paleolithic period, humans were basically
a. lonely b. nomadic c. hunter d. adventurous
- Dolmens of early Neolithic period in Britain are dated to
a. 5000 – 4000 BC b. 4000 – 3000 BC c. 3000 – 2000 BC d. 2000 – 1000 BC
- Which country does not belong to the near east region?
a. Israel b. Cyprus c. Guatemala d. Turkey
- Script developed in ancient Egypt is called
a. cuneiform b. alef-beit c. alphabet d. hieroglyphs
- First King to unify Egypt was
a. Menes b. Minos c. Amasis d. Ramses IV
- How many islands in the longest coastline on the Mediterranean are inhabited?
a. 215 b. 2115 c. 2227 d. 227
- Ionic columns have _____ flutes.
a. 18 b. 20 c. 22 d. 24
- What is a stylobate in Greek architecture?



10. When did Rome become the most powerful city in the Italian peninsula?
a. 1050 – 250 BC b. 800 – 300 BC c. 334 – 246 BC d. 750 – 146 BC
11. Under which emperor did Roman Empire reach its largest size?
a. Nero b. Caesar c. Trajan d. Marc Antony
12. When was concrete introduced in the Roman history?
a. 300 – 400 AD b. 400 – 500 AD c. 500 – 600 AD d. 600 – 700 AD
13. Jesus began preaching to people of Galilee in _____.
a. 20 AD b. 27 AD c. 30 AD d. 47 AD
14. Which structure was demolished to erect St. Peter's Basilica?
a. Circus of Nero b. Church of Nero c. Santo Stefano d. Bath of Nero
15. Emperor Charlemagne was crowned by _____.
a. Saint Peter b. Pope Siplicius c. Pope Gregory III d. Pope Leo III
16. Romanesque architecture was inspired by _____ architecture.
a. Early Christian b. Greek
c. Roman d. Greek and Roman
17. Gothic architecture is also known as _____ architecture.
a. Medieval b. Carolingian c. Romanesque d. Germanic
18. In the Cathedral of Chartres, the stained glass used _____ colors.
a. green and yellow b. deep blue and red c. blue and green d. red and green
19. Pilasters were first used in _____.
a. Old Sacristy b. Palazzo Rucellai c. St. Andrea d. Palazzo Medici
20. Lantern pinnacle for a dome was used in _____.
a. Byzantine churches b. Romanesque monasteries
c. Gothic churches d. Renaissance churches