**وزارة التعليم العالي و البحث العلمي**

**جامعة العربي بن مهيدي أم البواقي**

**كلية العلوم الدقيقة وعلوم الطبيعة والحياة السنة الجامعية 2023/2024**

**قسم علوم الطبيعة والحياة**

**المستوى**  :سنة أولى ليسانس **التخصص** : جدع مشترك ا**لفوج 1-18 المقياس**: الديناميكية الحرارية و كيمياء المحاليل

**محضر نقاط السداسي الثاني**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **الرقم** | **رقم التسجيل** | **الفوج** | **الاعمال الموجهة** | **الاعمال التطبيقية** | **الامتحان** | **ملاحضات** |
| **1** | 232334091711 | 1 | 12,75 | 9,3 | 7.25 |  |
| **2** | 232334029906 | 1 | 16 | 12,6 | 7.75 |  |
| **3** | 232334096812 | 1 | 12 | 9,7 | 12 |  |
| **4** | 232334098108 | 1 | 17,5 | 11,65 | 12 |  |
| **5** | 232334017902 | 1 | 15,5 | 9,65 | 4.5 |  |
| **6** | 232334040106 | 1 | 13,5 | 11,65 | 5 |  |
| **7** | 232334095915 | 1 | 13,75 | 11,65 | 7 |  |
| **8** | 232334029508 | 1 | 13 | 11,6 | 4.5 |  |
| **9** | 232334017408 | 1 | 4 | 6,4 | 4.25 |  |
| **10** | 222234063401 | 1 | 00 | 00 | 00 | غائب |
| **11** | 232334259107 | 1 | 3 | 10,4 | 3.25 |  |
| **12** | 232334092718 | 1 | 16 | 11,7 | 8.25 |  |
| **13** | 232334027417 | 1 | 10 | 12,3 | 4 |  |
| **14** | 232334098215 | 1 | 12,5 | 12,3 | 5 |  |
| **15** | 232334092611 | 1 | 00 | 00 | 00 | غائب |
| **16** | 232334028317 | 1 | 7 | 6.3 | 2.25 |  |
| **17** | 232334092705 | 1 | 16,25 | 12.3 | 6.5 |  |
| **18** | 232334095308 | 1 | 8,25 | 7.3 | 6 |  |
| **19** | 212134000874 | 1 | 3,75 | 00 | 5.75 |  |
| **20** | 232334096807 | 1 | 10,25 | 5.3 | 6 |  |
| **21** | 232334032716 | 1 | 11 | 10.4 | 7 |  |
| **22** | 212134001458 | 1 | 15 | 11.65 | 4 |  |
| **23** | 232334099301 | 1 | 14,5 | 10.3 | 7.5 |  |
| **24** | 232334032309 | 1 | 11,5 | 8.3 | 4.5 |  |
| **25** | 232334049404 | 1 | 12,75 | 12.3 | 6.75 |  |
| **26** | 232334006814 | 2 | 00 | 00 | 1.5 |  |
| **27** | 232334007804 | 2 | 12,5 | 12,9 | 5.5 |  |
| **28** | 232334075114 | 2 | 15 | 12,9 | 3.5 |  |
| **29** | 232334005303 | 2 | 7,25 | 8,9 | 4.75 |  |
| **30** | 232334031714 | 2 | 8,75 | 7,7 | 8 |  |
| **31** | 232334031909 | 2 | 10,13 | 12,8 | 3.25 |  |
| **32** | 232334029107 | 2 | 12 | 8,4 | 4.5 |  |
| **33** | 222234086105 | 2 | 15,75 | 12,95 | 5.25 |  |
| **34** | 232334005812 | 2 | 13,5 | 12,8 | 7.5 |  |
| **35** | 212134005856 | 2 | 00 | 00 | 00 | غائب |
| **36** | 232334049414 | 2 | 8,25 | 12,9 | 4.25 |  |
| **37** | 222234005502 | 2 | 14,75 | 12,9 | 7 |  |
| **38** | 232334029816 | 2 | 11,38 | 11,05 | 3.25 |  |
| **39** | 232334299411 | 2 | 10,25 | 10,9 | 6 |  |
| **40** | 232334030619 | 2 | 9,25 | 9,4 | 4.75 |  |
| **41** | 232334052815 | 2 | 12,38 | 12,9 | 5 |  |
| **42** | 232334028420 | 2 | 11,75 | 5,1 | 2.75 |  |
| **43** | 232334070416 | 2 | 12,13 | 12,7 | 5 |  |
| **44** | 232334028406 | 2 | 7,88 | 7,6 | 5.5 |  |
| **45** | 232334031903 | 2 | 9 | 7,55 | 1.25 |  |
| **46** | 232334007702 | 2 | 00 | 00 | 00 | غائب |
| **47** | 232334039420 | 2 | 12,25 | 12,9 | 3 |  |
| **48** | 232334029801 | 2 | 15,5 | 12,8 | 7 |  |
| **49** | 222234041217 | 2 | 12,38 | 9,85 | 4.75 |  |
| **50** | 232334070411 | 2 | 6,75 | 5,3 | 3.75 |  |
| **51** | 232334040501 | 3 | 14.5 | 14,5 | 4.75 |  |
| **52** | 232334066015 | 3 | 12.6 | 12,5 | 2.75 |  |
| **53** | 232334066006 | 3 | 14 | 15 | 1.75 |  |
| **54** | 232334015905 | 3 | 3 | 11,5 | 3.75 |  |
| **55** | 232334015815 | 3 | 3 | 10,5 | 3 |  |
| **56** | 232334018801 | 3 | 00 | 00 | 00 | غائب |
| **57** | 232334030518 | 3 | 16 | 14,5 | 5.5 |  |
| **58** | 222236354401 | 3 | 16 | 14,5 | 00 |  |
| **59** | 232334045202 | 3 | 14.5 | 14,5 | 3.5 |  |
| **60** | 232334074720 | 3 | 14.5 | 11 | 7 |  |
| **61** | 232334045206 | 3 | 14.5 | 12,5 | 4.75 |  |
| **62** | 222234052311 | 3 | 00 | 00 | 00 | غائب |
| **63** | 232334008615 | 3 | 00 | 00 | 00 | غائب |
| **64** | 232334057219 | 3 | 14.5 | 14 | 6.5 |  |
| **65** | 232334031508 | 3 | 15.5 | 12 | 3.5 |  |
| **66** | 232334057806 | 3 | 15.5 | 14 | 7 |  |
| **67** | 222234045619 | 3 | 16.5 | 3 | 1 |  |
| **68** | 232334017301 | 3 | 00 | 00 | 00 | غائب |
| **69** | 232334065815 | 3 | 12 | 12 | 2.75 |  |
| **70** | 232334018705 | 3 | 3 | 00 | 2.25 |  |
| **71** | 232334007210 | 3 | 13 | 2 | 2.75 |  |
| **72** | 232334077213 | 3 | 13 | 14 | 6.5 |  |
| **73** | 232334020011 | 3 | 16 | 12 | 7 |  |
| **74** | 232334029502 | 3 | 13 | 00 | 2.5 |  |
| **75** | 232334079001 | 3 | 13 | 12 | 5 |  |
| **76** | 232334030502 | 4 | 12 | 13 | 3 |  |
| **77** | 232334045117 | 4 | 16.5 | 12 | 11.5 |  |
| **78** | 232334031505 | 4 | 16.5 | 13 | 3.75 |  |
| **79** | 232334031307 | 4 | 10 | 13,5 | 6 |  |
| **80** | 232334027703 | 4 | 15 | 13 | 5.75 |  |
| **81** | 231334005242 | 4 | 00 | 00 | 00 | غائب |
| **82** | 232334077216 | 4 | 13 | 13 | 2.25 |  |
| **83** | 232334030716 | 4 | 14 | 14 | 2.75 |  |
| **84** | 232334070219 | 4 | 13 | 10,5 | 6.5 |  |
| **85** | 232334044717 | 4 | 15 | 15,5 | 6.75 |  |
| **86** | 222234048116 | 4 | 16 | 10 | 9 |  |
| **87** | 232334075020 | 4 | 14 | 13 | 6.75 |  |
| **88** | 232334096813 | 4 | 14.5 | 13 | 6.25 |  |
| **89** | 232334057505 | 4 | 00 | 00 | 00 | غائب |
| **90** | 232334063805 | 4 | 14 | 12,5 | 5 |  |
| **91** | 232334029605 | 4 | 15 | 15 | 4.5 |  |
| **92** | 232334068212 | 4 | 00 | 00 | 00 | غائب |
| **93** | 232334028107 | 4 | 15 | 14,5 | 7.25 |  |
| **94** | 232334068115 | 4 | 15 | 13 | 5.75 |  |
| **95** | 232334017812 | 4 | 2 | 15 | 1.5 |  |
| **96** | 232334031606 | 5 | 16,5 | 11,5 | 4.5 |  |
| **97** | 232334068309 | 5 | 13,14 | 10,5 | 6 |  |
| **98** | 222234035804 | 5 | 6,53 | 7 | 3 |  |
| **99** | 232334070104 | 5 | 7,53 | 13,5 | 3 |  |
| **100** | 232334005319 | 5 | 16,44 | 11 | 6.75 |  |
| **101** | 232334070414 | 5 | 8,44 | 12 | 5 |  |
| **102** | 232334032004 | 5 | 7,33 | 13,5 | 5.5 |  |
| **103** | 222234030502 | 5 | 14,5 | 11,5 | 4.5 |  |
| **104** | 232334094603 | 5 | 00 | 00 | 00 | غائب |
| **105** | 232334018904 | 5 | 5,33 | 11,5 | 5.5 |  |
| **106** | 232334031719 | 5 | 12,69 | 10,5 | 6.5 |  |
| **107** | 232334052503 | 5 | 11,94 | 10 | 9.5 |  |
| **108** | 232334052312 | 5 | 14,83 | 13,5 | 3.25 |  |
| **109** | 232334027615 | 5 | 8,94 | 11,5 | 4.75 |  |
| **110** | 222234016317 | 5 | 9,39 | 11,5 | 6.5 |  |
| **111** | 232334032315 | 5 | 14,5 | 11,5 | 5.5 |  |
| **112** | 232334029805 | 5 | 00 | 00 | 00 | غائب |
| **113** | 232334068306 | 5 | 00 | 00 | 00 | غائب |
| **114** | 232334027414 | 5 | 10,69 | 10 | 6.75 |  |
| **115** | 232334008410 | 5 | 9,53 | 13,5 | 4.25 |  |
| **116** | 232334040804 | 5 | 3,11 | 11 | 2 |  |
| **117** | 222239417401 | 6 | 13,5 | 12,5 | 6 |  |
| **118** | 232334007414 | 6 | 00 | 00 | 00 | غائب |
| **119** | 232334068216 | 6 | 13,25 | 12,5 | 6 |  |
| **120** | 232334008305 | 6 | 16,5 | 15 | 6 |  |
| **121** | 222234036409 | 6 | 14,5 | 00 | 9 |  |
| **122** | 232334019119 | 6 | 14 | 14 | 12 |  |
| **123** | 222234029316 | 6 | 11 | 14 | 5 |  |
| **124** | 232334008403 | 6 | 00 | 00 | 6 |  |
| **125** | 232334044520 | 6 | 12 | 11.5 | 7 |  |
| **126** | 232334016511 | 6 | 11,25 | 14 | 8 |  |
| **127** | 232334029009 | 6 | 15 | 15 | 6 |  |
| **128** | 232334019811 | 6 | 00 | 00 | 00 | غائب |
| **129** | 222234059303 | 6 | 15,75 | 15 | 7.25 |  |
| **130** | 232334065907 | 6 | 15,5 | 13.5 | 3.5 |  |
| **131** | 232334016418 | 6 | 15,75 | 15 | 7 |  |
| **132** | 232334018812 | 6 | 10,25 | 14 | 8 |  |
| **133** | 232334044908 | 6 | 11,25 | 12.5 | 6 |  |
| **134** | 232334006910 | 6 | 15 | 14 | 9 |  |
| **135** | 232334076104 | 6 | 16,5 | 12 | 9 |  |
| **136** | 232334016206 | 6 | 11,75 | 14 | 3.5 |  |
| **137** | 232334064110 | 6 | 10,5 | 12.5 | 1.25 |  |
| **138** | 232334017016 | 6 | 01 | 00 | 4.5 |  |
| **139** | 222234008519 | 7 | 9,39 | 5,5 | 8 |  |
| **140** | 232334048317 | 7 | 00 | 00 | 1.5 |  |
| **141** | 232334091602 | 7 | 8,33 | 12,1 | 3 |  |
| **142** | 232334031317 | 7 | 11,08 | 12,1 | 6 |  |
| **143** | 232334019208 | 7 | 9,83 | 12,1 | 5 |  |
| **144** | 222234083703 | 7 | 00 | 00 | 00 | غائب |
| **145** | 232334044718 | 7 | 00 | 00 | 00 | غائب |
| **146** | 222234028506 | 7 | 8,03 | 10,4 | 1.75 |  |
| **147** | 232334048505 | 7 | 13,44 | 13,5 | 7 |  |
| **148** | 232334072601 | 7 | 7,61 | 6 | 6 |  |
| **149** | 232334077112 | 7 | 00 | 00 | 00 | غائب |
| **150** | 232334066107 | 7 | 10,44 | 12,1 | 5 |  |
| **151** | 232334070410 | 7 | 11,64 | 12,4 | 6 |  |
| **152** | 232334058101 | 7 | 13,44 | 13,4 | 10 |  |
| **153** | 232334044911 | 7 | 6,83 | 12,2 | 8 |  |
| **154** | 232334031114 | 7 | 9,53 | 8,4 | 8 |  |
| **155** | 232334031619 | 7 | 9,14 | 7,4 | 7 |  |
| **156** | 232334008220 | 7 | 10,19 | 12,1 | 5 |  |
| **157** | 232334077207 | 7 | 1,75 | 2 | 4 |  |
| **158** | 232334049317 | 7 | 7,67 | 9 | 4 |  |
| **159** | 231434010047 | 7 | 3,06 | 5,75 | 00 |  |
| **160** | 232334048205 | 7 | 11,64 | 13,5 | 7 |  |
| **161** | 232334005710 | 7 | 10,39 | 11,2 | 6 |  |
| **162** | 232334072404 | 8 | 14,5 | 12,5 | 6 |  |
| **163** | 232334064002 | 8 | 0,56 | 9,75 | 5.25 |  |
| **164** | 232334074913 | 8 | 16,5 | 12,7 | 6.75 |  |
| **165** | 232334007014 | 8 | 10,14 | 10,6 | 7 |  |
| **166** | 232334016510 | 8 | 9,53 | 9,75 | 4.75 |  |
| **167** | 232334007602 | 8 | 14,75 | 13,5 | 5.25 |  |
| **168** | 232334049302 | 8 | 13,64 | 12,5 | 4.75 |  |
| **169** | 232334072414 | 8 | 8,11 | 9,8 | 5.5 |  |
| **170** | 232334027306 | 8 | 00 | 00 | 00 |  |
| **171** | 232334040109 | 8 | 11,5 | 12,6 | 4.5 |  |
| **172** | 232334061615 | 8 | 7,83 | 7,6 | 6.75 |  |
| **173** | 232334057604 | 8 | 12,19 | 6,2 | 8 |  |
| **174** | 232334057314 | 8 | 12,75 | 13,1 | 6.25 |  |
| **175** | 232334040102 | 8 | 5,97 | 4 | 4.75 |  |
| **176** | 232334039609 | 8 | 12,39 | 12,5 | 5.25 |  |
| **177** | 232334040405 | 8 | 12,33 | 9,75 | 5.5 |  |
| **178** | 232334048615 | 8 | 00 | 00 | 00 | غائب |
| **179** | 222234038108 | 8 | 11,94 | 10,3 | 6 |  |
| **180** | 232334005218 | 8 | 12,89 | 12,7 | 10 |  |
| **181** | 232334032319 | 9 | 13 | 12,25 | 9.5 |  |
| **182** | 232334041320 | 9 | 14,5 | 15 | 7 |  |
| **183** | 232334099308 | 9 | 10 | 15 | 3 |  |
| **184** | 232334091508 | 9 | 14,5 | 15,5 | 5.75 |  |
| **185** | 232334016416 | 9 | 12,5 | 15,75 | 2.75 |  |
| **186** | 222234008613 | 9 | 00 | 00 | 3.25 |  |
| **187** | 232334070216 | 9 | 11,5 | 14 | 5.75 |  |
| **188** | 232334006519 | 9 | 13 | 14,75 | 4 |  |
| **189** | 232334028810 | 9 | 10 | 14,75 | 2.5 |  |
| **190** | 232334007220 | 9 | 00 | 00 | 00 | غائب |
| **191** | 232334018807 | 9 | 4 | 14 | 1.75 |  |
| **192** | 232334039618 | 9 | 10 | 15,5 | 3.25 |  |
| **193** | 232334029603 | 9 | 12 | 16 | 7 |  |
| **194** | 232334030908 | 9 | 15 | 16 | 10.5 |  |
| **195** | 232334008510 | 9 | 13 | 15 | 4.5 |  |
| **196** | 232334027504 | 9 | 13,5 | 12,25 | 1.25 |  |
| **197** | 232334039703 | 9 | 2,5 | 9 | 4 |  |
| **198** | 232334006918 | 9 | 2,5 | 14 | 1 |  |
| **199** | 232334008917 | 9 | 00 | 00 | 00 | غائب |
| **200** | 232334044905 | 9 | 7,5 | 00 | 3.25 |  |
| **201** | 232334005408 | 9 | 8 | 15 | 1.25 |  |
| **202** | 232334057214 | 9 | 12,5 | 15 | 2.75 |  |
| **203** | 232334068203 | 9 | 13,75 | 15,75 | 3.25 |  |
| **204** | 232334029717 | 9 | 13,5 | 16 | 4 |  |
| **205** | 232334093206 | 10 | 14,5 | 15,25 | 6.5 |  |
| **206** | 232334067909 | 10 | 13 | 15,5 | 4.75 |  |
| **207** | 232334097310 | 10 | 14 | 12,5 | 4.5 |  |
| **208** | 222234057118 | 10 | 12 | 12,5 | 0.5 |  |
| **209** | 232334093504 | 10 | 13,25 | 13,25 | 6.5 |  |
| **210** | 232334030314 | 10 | 4 | 4,5 | 2.75 |  |
| **211** | 232334092609 | 10 | 14,5 | 16 | 10 |  |
| **212** | 232334093619 | 10 | 5,5 | 4,25 | 6 |  |
| **213** | 232334097111 | 10 | 15,5 | 13,5 | 7.75 |  |
| **214** | 232334097509 | 10 | 1 | 10,25 | 4.25 |  |
| **215** | 232334038901 | 10 | 6,75 | 12,25 | 6.75 |  |
| **216** | 232334044714 | 10 | 6,5 | 10 | 3.25 |  |
| **217** | 232334095210 | 10 | 7,5 | 13,75 | 6.5 |  |
| **218** | 232334009016 | 10 | 4,5 | 00 | 3 |  |
| **219** | 232334077111 | 10 | 15,5 | 14,25 | 6.75 |  |
| **220** | 232334093501 | 10 | 13 | 10,25 | 4.25 |  |
| **221** | 232334097813 | 10 | 13 | 14 | 7 |  |
| **222** | 222234045406 | 10 | 8,5 | 13,25 | 2.5 |  |
| **223** | 232334042210 | 10 | 12 | 13,75 | 4.5 |  |
| **224** | 222234027420 | 10 | 9,5 | 10 | 3.25 |  |
| **225** | 222234018701 | 10 | 7 | 10,25 | 2 |  |
| **226** | 232334020020 | 10 | 2 | 10,25 | 1.75 |  |
| **227** | 232334068209 | 10 | 9,5 | 00 | 00 |  |
| **228** | 232334095701 | 10 | 7 | 9 | 1.25 |  |
| **229** | 222234065213 | 10 | 2 | 00 | 00 |  |
| **230** | 232334007610 | 11 | 00 | 00 | 1.25 |  |
| **231** | 232334027312 | 11 | 15 | 13,5 | 8.5 |  |
| **232** | 232334027619 | 11 | 14 | 13 | 8.25 |  |
| **233** | 232334031303 | 11 | 14 | 13,75 | 6.5 |  |
| **234** | 222234061514 | 11 | 15 | 13,75 | 3.75 |  |
| **235** | 232334032314 | 11 | 15 | 13,25 | 3 |  |
| **236** | 232334006506 | 11 | 00 | 00 | 00 | غائب |
| **237** | 232334029808 | 11 | 15 | 13,75 | 8 |  |
| **238** | 232334006204 | 11 | 00 | 00 | 00 | غائب |
| **239** | 232334057916 | 11 | 13 | 10,25 | 3.25 |  |
| **240** | 232334032610 | 11 | 16 | 14,75 | 8.5 |  |
| **241** | 232334008402 | 11 | 00 | 1 | 3.25 |  |
| **242** | 222234052806 | 11 | 00 | 00 | 00 | غائب |
| **243** | 232334032614 | 11 | 16 | 14,75 | 5.75 |  |
| **244** | 232334065818 | 11 | 13 | 11,25 | 2.75 |  |
| **245** | 232334008616 | 11 | 13 | 13,75 | 3.25 |  |
| **246** | 232334006716 | 11 | 15 | 00 | 00 |  |
| **247** | 232334008508 | 11 | 00 | 14,25 | 7.5 |  |
| **248** | 222234044816 | 11 | 13 | 1 | 00 |  |
| **249** | 232334044720 | 11 | 15 | 13,75 | 8.25 |  |
| **250** | 222234006208 | 11 | 00 | 13,75 | 4.25 |  |
| **251** | 232334058120 | 12 | 14 | 13,3 | 6.75 |  |
| **252** | 232334093208 | 12 | 14 | 13 | 5.75 |  |
| **253** | 232334015902 | 12 | 13 | 6,5 | 4.25 |  |
| **254** | 232334019608 | 12 | 13 | 16 | 6 |  |
| **255** | 232334018004 | 12 | 14 | 13,8 | 5 |  |
| **256** | 232334017912 | 12 | 14 | 13,3 | 2.75 |  |
| **257** | 232334038815 | 12 | 14 | 12,5 | 3.75 |  |
| **258** | 232334005209 | 12 | 14 | 14 | 3.25 |  |
| **259** | 232334039702 | 12 | 13 | 12,8 | 7 |  |
| **260** | 232334098117 | 12 | 13.5 | 10 | 3 |  |
| **261** | 232334061404 | 12 | 12.5 | 14,5 | 4 |  |
| **262** | 232334016814 | 12 | 12.5 | 10,8 | 3.5 |  |
| **263** | 232334015812 | 12 | 14 | 13,5 | 5.5 |  |
| **264** | 232334063901 | 12 | 16.5 | 15 | 6.5 |  |
| **265** | 232334005410 | 12 | 13 | 13,5 | 3.5 |  |
| **266** | 232334020318 | 12 | 00 | 01 | 00 |  |
| **267** | 191934004325 | 12 | 00 | 00 | 00 | غائب |
| **268** | 232334019512 | 12 | 15 | 13 | 02 |  |
| **269** | 232334065916 | 12 | 14 | 12 | 01 |  |
| **270** | 222234018317 | 12 | 14 | 10 | 4.75 |  |
| **271** | 232334065901 | 12 | 12.5 | 10,8 | 4.25 |  |
| **272** | 232334068112 | 12 | 15.5 | 16 | 5.75 |  |
| **273** | 222234059114 | 12 | 14.5 | 14 | 4.75 |  |
| **274** | 232334031404 | 12 | 13.5 | 14,8 | 3.75 |  |
| **275** | 232334044514 | 12 | 12.5 | 10,3 | 6.75 |  |
| **276** | 222234069614 | 13 | 00 | 00 | 00 | غائب |
| **277** | 232334019309 | 13 | 4,75 | 13,43 | 02.25 |  |
| **278** | 232334019311 | 13 | 12,5 | 15,43 | 04.75 |  |
| **279** | 232334027318 | 13 | 3 | 06 | 04.25 |  |
| **280** | 232334027402 | 13 | 00 | 02 | 03.75 |  |
| **281** | 232334006304 | 13 | 12,5 | 13,43 | 07.75 |  |
| **282** | 232334038804 | 13 | 12,5 | 13,43 | 05.75 |  |
| **283** | 232334029909 | 13 | 9 | 13,62 | 01.5 |  |
| **284** | 232334072608 | 13 | 7,75 | 15,18 | 02.75 |  |
| **285** | 232334005506 | 13 | 17 | 15,43 | 6.25 |  |
| **286** | 232334057205 | 13 | 13 | 13,56 | 04.5 |  |
| **287** | 232334052801 | 13 | 11,75 | 10,37 | 05.75 |  |
| **288** | 232334016410 | 13 | 00 | 00 | 00 | غائب |
| **289** | 232334018706 | 13 | 00 | 00 | 00 | غائب |
| **290** | 232334027720 | 13 | 00 | 00 | 00 | غائب |
| **291** | 232334058505 | 13 | 00 | 00 | 00 | غائب |
| **292** | 232334031720 | 13 | 5,5 | 10,37 | 3.5 |  |
| **293** | 232334008708 | 13 | 16,25 | 15,18 | 7.25 |  |
| **294** | 232334031403 | 13 | 7,75 | 11,62 | 3.75 |  |
| **295** | 232334019416 | 13 | 13 | 15,68 | 8.25 |  |
| **296** | 232334077214 | 13 | 11 | 14 | 4.25 |  |
| **297** | 232334017612 | 13 | 12,25 | 14,56 | 5.25 |  |
| **298** | 222234046101 | 13 | 11 | 15,68 | 3.75 |  |
| **299** | 232334130404 | 13 | 10 | 13,43 | 2.75 |  |
| **300** | 232334006801 | 14 | 11,75 | 13,37 | 7.5 |  |
| **301** | 232334016110 | 14 | 5 | 14 | 3 |  |
| **302** | 232334064103 | 14 | 7 | 14,25 | 4.5 |  |
| **303** | 232334038711 | 14 | 13 | 13,62 | 6 |  |
| **304** | 222234038407 | 14 | 11 | 8,81 | 1.75 |  |
| **305** | 232334016108 | 14 | 10 | 14,25 | 3.75 |  |
| **306** | 222234037810 | 14 | 9 | 13,18 | 1.25 |  |
| **307** | 222234037314 | 14 | 8,25 | 11,37 | 2.75 |  |
| **308** | 232334016409 | 14 | 00 | 00 | 00 | غائب |
| **309** | 222234037308 | 14 | 6 | 13,25 | 3.75 |  |
| **310** | 232334008609 | 14 | 12 | 13,37 | 6 |  |
| **311** | 232334096905 | 14 | 11 | 10,68 | 2.25 |  |
| **312** | 232334005503 | 14 | 10,25 | 14,37 | 4 |  |
| **313** | 232334016017 | 14 | 8,25 | 8,87 | 5.25 |  |
| **314** | 232334006815 | 14 | 10,75 | 13,37 | 5 |  |
| **315** | 222234289201 | 14 | 10 | 6,06 | 2.5 |  |
| **316** | 232334019710 | 14 | 6,25 | 9,25 | 2.75 |  |
| **317** | 232334017109 | 14 | 7,75 | 14,25 | 2.75 |  |
| **318** | 232334019307 | 14 | 10 | 14,13 | 6.25 |  |
| **319** | 232334018101 | 14 | 5 | 13,31 | 3.25 |  |
| **320** | 232334098811 | 14 | 6,25 | 13,31 | 6.75 |  |
| **321** | 232334019303 | 14 | 7,5 | 13,43 | 6.5 |  |
| **322** | 232334017004 | 14 | 7,75 | 14 | 7.75 |  |
| **323** | 232334058118 | 15 | 17 | 12,18 | 4 |  |
| **324** | 202034003031 | 15 | 17 | 13,31 | 4.5 |  |
| **325** | 232334017610 | 15 | 12 | 10,81 | 2.25 |  |
| **326** | 232335272820 | 15 | 17 | 12,43 | 5.25 |  |
| **327** | 232334044510 | 15 | 15 | 13,37 | 8.25 |  |
| **328** | 232334045015 | 15 | 12 | 9,18 | 6.5 |  |
| **329** | 232334028008 | 15 | 16 | 13,93 | 3 |  |
| **330** | 222234018702 | 15 | 15 | 14 | 5.25 |  |
| **331** | 232334029101 | 15 | 14 | 13,62 | 4.25 |  |
| **332** | 232334031516 | 15 | 13 | 09 | 3.5 |  |
| **333** | 232334077220 | 15 | 17 | 02 | 5.25 |  |
| **334** | 232334044710 | 15 | 00 | 00 | 00 |  |
| **335** | 232334008919 | 15 | 13 | 12,18 | 1.5 |  |
| **336** | 232334077113 | 15 | 13 | 02 | 4.5 |  |
| **337** | 232334044920 | 15 | 00 | 00 | 00 | غائب |
| **338** | 232334031902 | 15 | 17 | 13,62 | 5.75 |  |
| **339** | 232334005205 | 15 | 1 | 7,25 | 6.5 |  |
| **340** | 232334017319 | 15 | 13 | 13,68 | 07 |  |
| **341** | 232334007601 | 15 | 13 | 10,68 | 5.5 |  |
| **342** | 212134007234 | 15 | 14 | 13,93 | 06 |  |
| **343** | 232334020004 | 15 | 00 | 10,56 | 8.25 |  |
| **344** | 232334041012 | 15 | 12 | 13,68 | 4.75 |  |
| **345** | 232334029501 | 15 | 00 | 06 | 1.75 |  |
| **346** | 222234029206 | 15 | 17 | 00 | 00 | غائب |
| **347** | 232334040710 | 16 | 14 | 14,68 | 7 |  |
| **348** | 232334017108 | 16 | 12,75 | 12,62 | 4.25 |  |
| **349** | 232334018020 | 16 | 12,75 | 12,62 | 4 |  |
| **350** | 222234052703 | 16 | 12,5 | 11,43 | 4 |  |
| **351** | 232334039717 | 16 | 15,5 | 11,06 | 5 |  |
| **352** | 232334045104 | 16 | 12 | 13,18 | 3.5 |  |
| **353** | 232334048801 | 16 | 00 | 00 | 00 | غائب |
| **354** | 222234029108 | 16 | 10 | 9,62 | 00 |  |
| **355** | 232334018704 | 16 | 17 | 14,37 | 7 |  |
| **356** | 232334072306 | 16 | 14,5 | 13,68 | 7.25 |  |
| **357** | 232334075209 | 16 | 00 | 00 | 00 | غائب |
| **358** | 232334068102 | 16 | 12 | 8,68 | 5.5 |  |
| **359** | 232334039414 | 16 | 16 | 12,81 | 7.5 |  |
| **360** | 232334016509 | 16 | 17 | 13,37 | 4.25 |  |
| **361** | 232334007113 | 16 | 00 | 00 | 4.75 |  |
| **362** | 232334048514 | 16 | 16 | 10,62 | 4 |  |
| **363** | 232334019905 | 17 | 00 | 00 | 00 | غائب |
| **364** | 212234086402 | 17 | 7 | 12 | 4.5 |  |
| **365** | 222234029113 | 17 | 10 | 14 | 3.5 |  |
| **366** | 222234018711 | 17 | 00 | 00 | 0.25 |  |
| **367** | 222234029408 | 17 | 9,5 | 14 | 00 |  |
| **368** | 232334029601 | 17 | 00 | 00 | 00 | غائب |
| **369** | 232334032016 | 17 | 14 | 16 | 4.5 |  |
| **370** | 232334075111 | 17 | 00 | 00 | 00 | غائب |
| **371** | 222234048508 | 17 | 00 | 00 | 00 | غائب |
| **372** | 232334017213 | 17 | 00 | 00 | 00 | غائب |
| **373** | 232334007913 | 17 | 14,5 | 14 | 4.25 |  |
| **374** | 232334039904 | 17 | 17,5 | 16 | 6.75 |  |
| **375** | 232334040518 | 17 | 2 | 0 | 1.75 |  |
| **376** | 232334040409 | 17 | 13,5 | 13 | 7.5 |  |
| **377** | 232334017104 | 17 | 00 | 00 | 00 | غائب |
| **378** | 222234029907 | 17 | 1,25 | 01 | 00 |  |
| **379** | 232334065805 | 17 | 10,25 | 13 | 1.5 |  |
| **380** | 232334017618 | 17 | 1 | 00 | 00 |  |
| **381** | 232334006501 | 17 | 10 | 16 | 4 |  |
| **382** | 232334017708 | 17 | 1 | 00 | 3.25 |  |
| **383** | 212134007656 | 17 | 00 | 00 | 2.5 |  |
| **384** | 222234036819 | 18 | 11 | 13 | 3.75 |  |
| **385** | 232334009215 | 18 | 14,5 | 15 | 6.75 |  |
| **386** | 222234008405 | 18 | 00 | 00 | 00 | غائب |
| **387** | 222234008111 | 18 | 00 | 00 | 1.5 |  |
| **388** | 222234018715 | 18 | 6,5 | 13 | 4 |  |
| **389** | 222234055303 | 18 | 00 | 00 | 00 | غائب |
| **390** | 222234021413 | 18 | 5,75 | 12 | 3.75 |  |
| **391** | 222234065502 | 18 | 11 | 13 | 4.5 |  |
| **392** | 212134008110 | 18 | 00 | 00 | 00 | غائب |
| **393** | 222234008303 | 18 | 00 | 00 | 3 |  |
| **394** | 181834001075 | 18 | 00 | 00 | 0.5 |  |
| **395** | 222234037705 | 18 | 10 | 14 | 6 |  |
| **396** | 222234005511 | 18 | 11 | 12 | 5 |  |
| **397** | 222234021005 | 18 | 2 | 13 | 10.75 |  |
| **398** | 222234018601 | 18 | 00 | 00 | 00 | غائب |
| **399** | 222234007420 | 18 | 16 | 15 | 4.25 |  |
| **400** | 222234017004 | 18 | 10,5 | 13 | 5.75 |  |
| **401** | 222234006904 | 18 | 10 | 10 | 5.25 |  |
| **402** | 222234069706 | 18 | 7 | 5 | 4.75 |  |
| **403** | 222234008208 | 18 | 2 | 8 | 00 |  |
| **404** | 222234005305 | 18 | 14,5 | 12 | 1.5 |  |
| **405** | 222234028519 | 18 | 10 | 13 | 4.5 |  |
| **406** | 172234061415 | 18 | 00 | 00 | 00 | غائب |

**نمودج تصحيح الامتحان العادي للسداسي الثاني في مادة كيمياء المحاليل والديناميكية الحرارية**

**التمرين 1 (8.5 نقاط)**

باستعمال قانون الغازات المثالية PV = nRT حيث R = 0.082

|  |  |  |  |
| --- | --- | --- | --- |
| **المرحلة** | **الظغط (جو)** | **الحجم (لتر)** | **درجة الحرارة (كالفن)** |
| **1** | 1 (0.5) | 24.4 | 298 |
| **2** | 2 (0.5) | 24.4 (0.5) | 596 |
| **3** | 2 (0.5) | 12.2 | 298 (0.5) |

**التحول 1 – 2 Cp – Cv = R γ = Cp/ Cv = 5/3 Cp =(5/2)R**

**V=Cte**, → **W** = 0 (0.5), **ΔU** = **Q** = nCVΔT = n × (Cp-R) ΔT = n × ((5/2)R-R) ΔT = n × 3/2 × RΔT = 3/2 × 1 × 2 ×(596 – 298) = 894 (0.5),

**ΔH** = nCpΔT = n × 5/2 × RΔT = 5/2 × 1 × 2 × (596 – 298) = 1490 (0.5)

**التحول 2 - 3**

**P=Cte**, → **ΔH** = **Q** = nCpΔT = n × 5/2 × RΔT = 5/2 × 1 × 2 × (298 – 596) = -1490 (0.5),

**ΔU** = nCvΔT = n × 3/2 × RΔT = 3/2 × 1 × 2 × (298 – 596) = -894 (0.5)

W = **ΔU – Q =** -894 – (-1490) = 596 (0.5)

**التحول 3 - 1**

**T=Cte**, → **ΔU** =**ΔH** = 0 (0.5), **Q** = −W = nRTlnV1/V3 = 1×2×298ln24.4/12.2 = 411.24 (0.5)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **الخطوة** | **Q (cal)** | **W (cal)** | **ΔU (cal)** | **ΔH (cal)** |
| **2-1** | 894 (0.5) | 0 | 894 | 1490 |
| **3-2** | -1490 | 596 | -894 | -1490 (0.5) |
| **1-3** | 411 | 411 (0.5) | 0 | 0 (0.5) |

**التمرين 2 (7.5نقاط)**

MnO4– + 8 H+ + 5 e– → Mn2+ + 4 H2O (0.5)

S4O62– + 2 e– → 2 S2O32– (0.5)

Fe3+ + e– → Fe2+ (0.25)

I2 + 2 e– → 2 I–  (0.5)

Cu2+ + 2 e– → Cu (0.5)

Cr2O72– + 14 H+ + 6 e– = 2 Cr3+ + 7 H2O (0.5)

Fe2+ + 2 e– → Fe (0.25)

Cr2O72– + 14 H+ + 6 e– → 2 Cr3+ + 7 H2O (× 2) (0.5)

2 H2O → O2 + 4 H+ + 4 e– (× 3) (0.5)

**2 Cr2O72– + 16 H+ → 4 Cr3+ + 8 H2O + 3 O2** (0.5)

Fe → Fe2+ + 2 e– (0.5)

2 H2O + 2 e– → H2 + 2 HO– (0.5)

Fe(s) + 2 H2O → Fe2+ + H2 + 2 HO– (0.5)

MnO4– + 8 H+ + 5 e– → Mn2+ + 4 H2O (× 2) (0.5)

H2O2 → O2 + 2 H+ + 2 e– (× 5) (0.5)

2 MnO4– + 6 H+ + 5 H2O2 → 2 Mn2+ + 8 H2O + 5 O2(g) (0.5)

**التمرين 3(02 نقاط)**

Acides selon Brønsted : NH4+ (0.25); HSO4 – (0.25); CH3NH3+ (0.25) الاحماض

Bases selon Brønsted : F– (0.25); O2− (0.25); H– (0.25) القواعد

Amphotères : H2PO4– (0.25); (0.25) HS– حمض و قاعدة

**التمرين 4 (02 نقاط)**

1. pH = -log [H30+] (0.5) = -log0.3 = 0.52 (0.5)

2. pH = ½(pKa – log Ca) (0.5) = ½(4.76 – log0.35) = 2.61 (0.5)