**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)