Universidad Autónoma de Coahuila

Facultad de Ingeniería Mecánica y Eléctrica

Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***14137625***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ /10
Student's name	***JESUS EMMANUEL MORALES MENUIOLA***		

Answers

1. (a) Figure 1
   i. $I = (0.027\,998 - \mathrm{j}0.126\,55)\,\mathrm{A}$
   ii. $V_R = (1.3999 - \mathrm{j}6.3275)\,\mathrm{V}$
   iii. $V_L = (33.3956 + \mathrm{j}7.388\,41)\,\mathrm{V}$
   iv. $V_C = (-4.7955 - \mathrm{j}1.0609)\,\mathrm{V}$
   v. $P_R = 0.839\,93\,\mathrm{W}$
   vi. $P_L = 4.433$ VAR
   vii. $P_C = -0.636\,57$ VAR

   (b) Figure 2
   i. $V_{R1} = (18.6297 + \mathrm{j}6.424\,22)\,\mathrm{V}$
   ii. $V_{R2} = V_L = V_C = (11.3703 - \mathrm{j}6.424\,22)\,\mathrm{V}$
   iii. $I_{R1} = (0.372\,59 + \mathrm{j}0.128\,48)\,\mathrm{A}$
   iv. $I_{R2} = (0.227\,41 - \mathrm{j}0.128\,48)\,\mathrm{A}$
   v. $I_L = (0.169\,53 + \mathrm{j}0.300\,06)\,\mathrm{A}$
   vi. $I_C = (-0.024\,344 - \mathrm{j}0.043\,087)\,\mathrm{A}$
   vii. $P_{R1} = 7.7667\,\mathrm{W}$
   viii. $P_{R2} = 3.4111\,\mathrm{W}$
   ix. $P_L = 0.6463$ VAR
   x. $P_C = -4.5008$ VAR

2. (a) $V_{R1} = (18.6297 + \mathrm{j}6.424\,22)\,\mathrm{V}$
   (b) $V_{R2} = V_L = V_C = (11.3703 - \mathrm{j}6.424\,22)\,\mathrm{V}$
   (c) $I_{R1} = (0.372\,59 + \mathrm{j}0.128\,48)\,\mathrm{A}$
   (d) $I_{R2} = (0.227\,41 - \mathrm{j}0.128\,48)\,\mathrm{A}$
   (e) $I_L = (0.169\,53 + \mathrm{j}0.300\,06)\,\mathrm{A}$
   (f) $I_C = (-0.024\,344 - \mathrm{j}0.043\,087)\,\mathrm{A}$
   (g) $P_{R1} = 7.7667\,\mathrm{W}$
   (h) $P_{R2} = 3.4111\,\mathrm{W}$
   (i) $P_L = 0.6463$ VAR
   (j) $P_C = -4.5008$ VAR

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Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***14121732***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ / 10
Student's name	***JOEL GERARDO AGUERO LLANAS***		

Answers

1. (a) Figure 1
   i. $I = (0.493\,64 - \mathrm{j}0.056\,05)\,\mathrm{A}$
   ii. $V_R = (39.4909 - \mathrm{j}4.484\,02)\,\mathrm{V}$
   iii. $V_L = (4.226\,09 + \mathrm{j}37.2193)\,\mathrm{V}$
   iv. $V_C = (-3.716\,95 - \mathrm{j}32.7352)\,\mathrm{V}$
   v. $P_R = 19.7454\,\mathrm{W}$
   vi. $P_L = 18.6096$ VAR
   vii. $P_C = -16.3676$ VAR

   (b) Figure 2
   i. $V_{R1} = (20.1051 + \mathrm{j}1.445\,75)\,\mathrm{V}$
   ii. $V_{R2} = V_L = V_C = (19.8949 - \mathrm{j}1.445\,75)\,\mathrm{V}$
   iii. $I_{R1} = (0.251\,31 + \mathrm{j}0.018\,072)\,\mathrm{A}$
   iv. $I_{R2} = (0.248\,69 - \mathrm{j}0.018\,072)\,\mathrm{A}$
   v. $I_L = (0.021\,801 + \mathrm{j}0.300\,01)\,\mathrm{A}$
   vi. $I_C = (-0.019\,175 - \mathrm{j}0.263\,86)\,\mathrm{A}$
   vii. $P_{R1} = 5.0788\,\mathrm{W}$
   viii. $P_{R2} = 4.9737\,\mathrm{W}$
   ix. $P_L = 5.2773$ VAR
   x. $P_C = -6.0002$ VAR

2. (a) $V_{R1} = (20.1051 + \mathrm{j}1.445\,75)\,\mathrm{V}$
   (b) $V_{R2} = V_L = V_C = (19.8949 - \mathrm{j}1.445\,75)\,\mathrm{V}$
   (c) $I_{R1} = (0.251\,31 + \mathrm{j}0.018\,072)\,\mathrm{A}$
   (d) $I_{R2} = (0.248\,69 - \mathrm{j}0.018\,072)\,\mathrm{A}$
   (e) $I_L = (0.021\,801 + \mathrm{j}0.300\,01)\,\mathrm{A}$
   (f) $I_C = (-0.019\,175 - \mathrm{j}0.263\,86)\,\mathrm{A}$
   (g) $P_{R1} = 5.0788\,\mathrm{W}$
   (h) $P_{R2} = 4.9737\,\mathrm{W}$
   (i) $P_L = 5.2773$ VAR
   (j) $P_C = -6.0002$ VAR

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Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***14124427***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ /10
Student's name	***JERSON CHAVEZ ORTIZ***		

Answers

1. (a) Figure 1
   i. $I = (0.171\,58 - \mathrm{j}0.5204)\,\mathrm{A}$
   ii. $V_R = (6.863\,02 - \mathrm{j}20.8161)\,\mathrm{V}$
   iii. $V_L = (78.4749 + \mathrm{j}25.873)\,\mathrm{V}$
   iv. $V_C = (-15.3379 - \mathrm{j}5.056\,87)\,\mathrm{V}$
   v. $P_R = 12.0103\,\mathrm{W}$
   vi. $P_L = 45.2777$ VAR
   vii. $P_C = -8.8495$ VAR

   (b) Figure 2
   i. $V_{R1} = (43.0368 + \mathrm{j}14.7207)\,\mathrm{V}$
   ii. $V_{R2} = V_L = V_C = (26.9632 - \mathrm{j}14.7207)\,\mathrm{V}$
   iii. $I_{R1} = (1.0759 + \mathrm{j}0.368\,02)\,\mathrm{A}$
   iv. $I_{R2} = (0.674\,08 - \mathrm{j}0.368\,02)\,\mathrm{A}$
   v. $I_L = (0.499\,46 + \mathrm{j}0.914\,84)\,\mathrm{A}$
   vi. $I_C = (-0.097\,62 - \mathrm{j}0.178\,81)\,\mathrm{A}$
   vii. $P_{R1} = 51.7217\,\mathrm{W}$
   viii. $P_{R2} = 23.5928\,\mathrm{W}$
   ix. $P_L = 6.2582$ VAR
   x. $P_C = -32.0194$ VAR

2. (a) $V_{R1} = (43.0368 + \mathrm{j}14.7207)\,\mathrm{V}$
   (b) $V_{R2} = V_L = V_C = (26.9632 - \mathrm{j}14.7207)\,\mathrm{V}$
   (c) $I_{R1} = (1.0759 + \mathrm{j}0.368\,02)\,\mathrm{A}$
   (d) $I_{R2} = (0.674\,08 - \mathrm{j}0.368\,02)\,\mathrm{A}$
   (e) $I_L = (0.499\,46 + \mathrm{j}0.914\,84)\,\mathrm{A}$
   (f) $I_C = (-0.097\,62 - \mathrm{j}0.178\,81)\,\mathrm{A}$
   (g) $P_{R1} = 51.7217\,\mathrm{W}$
   (h) $P_{R2} = 23.5928\,\mathrm{W}$
   (i) $P_L = 6.2582$ VAR
   (j) $P_C = -32.0194$ VAR

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Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***14156040***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ /10
Student's name	***LUIS ANTNONIO FERNENDEZ CARRASCO***		

Answers

1. (a) Figure 1
   i. $I = (0.083\,992 - \mathrm{j}0.298\,22)\,\mathrm{A}$
   ii. $V_R = (5.879\,46 - \mathrm{j}20.8756)\,\mathrm{V}$
   iii. $V_L = (89.9417 + \mathrm{j}25.3315)\,\mathrm{V}$
   iv. $V_C = (-15.8212 - \mathrm{j}4.455\,93)\,\mathrm{V}$
   v. $P_R = 6.7194\,\mathrm{W}$
   vi. $P_L = 28.9503$ VAR
   vii. $P_C = -5.0925$ VAR

   (b) Figure 2
   i. $V_{R1} = (49.1261 + \mathrm{j}16.7857)\,\mathrm{V}$
   ii. $V_{R2} = V_L = V_C = (30.8739 - \mathrm{j}16.7857)\,\mathrm{V}$
   iii. $I_{R1} = (0.7018 + \mathrm{j}0.2398)\,\mathrm{A}$
   iv. $I_{R2} = (0.441\,06 - \mathrm{j}0.2398)\,\mathrm{A}$
   v. $I_L = (0.3164 + \mathrm{j}0.581\,96)\,\mathrm{A}$
   vi. $I_C = (-0.055\,657 - \mathrm{j}0.102\,37)\,\mathrm{A}$
   vii. $P_{R1} = 38.5019\,\mathrm{W}$
   viii. $P_{R2} = 17.6422\,\mathrm{W}$
   ix. $P_L = 4.0948$ VAR
   x. $P_C = -23.2784$ VAR

2. (a) $V_{R1} = (49.1261 + \mathrm{j}16.7857)\,\mathrm{V}$
   (b) $V_{R2} = V_L = V_C = (30.8739 - \mathrm{j}16.7857)\,\mathrm{V}$
   (c) $I_{R1} = (0.7018 + \mathrm{j}0.2398)\,\mathrm{A}$
   (d) $I_{R2} = (0.441\,06 - \mathrm{j}0.2398)\,\mathrm{A}$
   (e) $I_L = (0.3164 + \mathrm{j}0.581\,96)\,\mathrm{A}$
   (f) $I_C = (-0.055\,657 - \mathrm{j}0.102\,37)\,\mathrm{A}$
   (g) $P_{R1} = 38.5019\,\mathrm{W}$
   (h) $P_{R2} = 17.6422\,\mathrm{W}$
   (i) $P_L = 4.0948$ VAR
   (j) $P_C = -23.2784$ VAR

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Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***14156037***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ /10
Student's name	***MICHAEL MURILLO MENDEZ***		

Answers

1. (a) Figure 1
   i. $I = (0.318\,34 + \mathrm{j}0.069\,086)\,\mathrm{A}$
   ii. $V_R = (28.6506 + \mathrm{j}6.217\,75)\,\mathrm{V}$
   iii. $V_L = (-7.813\,46 + \mathrm{j}36.0034)\,\mathrm{V}$
   iv. $V_C = (9.162\,83 - \mathrm{j}42.2212)\,\mathrm{V}$
   v. $P_R = 9.5502\,\mathrm{W}$
   vi. $P_L = 12.0011$ VAR
   vii. $P_C = -14.0737$ VAR

   (b) Figure 2
   i. $V_{R1} = (15.0513 - \mathrm{j}0.875\,923)\,\mathrm{V}$
   ii. $V_{R2} = V_L = V_C = (14.9487 + \mathrm{j}0.875\,923)\,\mathrm{V}$
   iii. $I_{R1} = (0.167\,24 - \mathrm{j}0.009\,732\,5)\,\mathrm{A}$
   iv. $I_{R2} = (0.1661 + \mathrm{j}0.009\,732\,5)\,\mathrm{A}$
   v. $I_L = (-0.006\,604\,3 + \mathrm{j}0.112\,71)\,\mathrm{A}$
   vi. $I_C = (0.007\,744\,9 - \mathrm{j}0.132\,18)\,\mathrm{A}$
   vii. $P_{R1} = 2.5257\,\mathrm{W}$
   viii. $P_{R2} = 2.4914\,\mathrm{W}$
   ix. $P_L = 1.9826$ VAR
   x. $P_C = -1.6907$ VAR

2. (a) $V_{R1} = (15.0513 - \mathrm{j}0.875\,923)\,\mathrm{V}$
   (b) $V_{R2} = V_L = V_C = (14.9487 + \mathrm{j}0.875\,923)\,\mathrm{V}$
   (c) $I_{R1} = (0.167\,24 - \mathrm{j}0.009\,732\,5)\,\mathrm{A}$
   (d) $I_{R2} = (0.1661 + \mathrm{j}0.009\,732\,5)\,\mathrm{A}$
   (e) $I_L = (-0.006\,604\,3 + \mathrm{j}0.112\,71)\,\mathrm{A}$
   (f) $I_C = (0.007\,744\,9 - \mathrm{j}0.132\,18)\,\mathrm{A}$
   (g) $P_{R1} = 2.5257\,\mathrm{W}$
   (h) $P_{R2} = 2.4914\,\mathrm{W}$
   (i) $P_L = 1.9826$ VAR
   (j) $P_C = -1.6907$ VAR

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Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***11073892***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ /10
Student's name	***JOSUE AMADOR SIFUENTES***		

Answers

1. (a) Figure 1
   i. $I = (0.052\,217 - \mathrm{j}0.244\,81)\,\mathrm{A}$
   ii. $V_R = (2.610\,83 - \mathrm{j}12.2406)\,\mathrm{V}$
   iii. $V_L = (64.6046 + \mathrm{j}13.7796)\,\mathrm{V}$
   iv. $V_C = (-7.2154 - \mathrm{j}1.539)\,\mathrm{V}$
   v. $P_R = 3.133\,\mathrm{W}$
   vi. $P_L = 16.5356$ VAR
   vii. $P_C = -1.8468$ VAR

   (b) Figure 2
   i. $V_{R1} = (40.8644 + \mathrm{j}14.4186)\,\mathrm{V}$
   ii. $V_{R2} = V_L = V_C = (19.1356 - \mathrm{j}14.4186)\,\mathrm{V}$
   iii. $I_{R1} = (0.817\,29 + \mathrm{j}0.288\,37)\,\mathrm{A}$
   iv. $I_{R2} = (0.382\,71 - \mathrm{j}0.288\,37)\,\mathrm{A}$
   v. $I_L = (0.489\,21 + \mathrm{j}0.649\,26)\,\mathrm{A}$
   vi. $I_C = (-0.054\,638 - \mathrm{j}0.072\,513)\,\mathrm{A}$
   vii. $P_{R1} = 37.5558\,\mathrm{W}$
   viii. $P_{R2} = 11.4814\,\mathrm{W}$
   ix. $P_L = 2.1754$ VAR
   x. $P_C = -19.4777$ VAR

2. (a) $V_{R1} = (40.8644 + \mathrm{j}14.4186)\,\mathrm{V}$
   (b) $V_{R2} = V_L = V_C = (19.1356 - \mathrm{j}14.4186)\,\mathrm{V}$
   (c) $I_{R1} = (0.817\,29 + \mathrm{j}0.288\,37)\,\mathrm{A}$
   (d) $I_{R2} = (0.382\,71 - \mathrm{j}0.288\,37)\,\mathrm{A}$
   (e) $I_L = (0.489\,21 + \mathrm{j}0.649\,26)\,\mathrm{A}$
   (f) $I_C = (-0.054\,638 - \mathrm{j}0.072\,513)\,\mathrm{A}$
   (g) $P_{R1} = 37.5558\,\mathrm{W}$
   (h) $P_{R2} = 11.4814\,\mathrm{W}$
   (i) $P_L = 2.1754$ VAR
   (j) $P_C = -19.4777$ VAR

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Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***11268436***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ /10
Student's name	***EDUARDO ZALDIVAR MARTINEZ***		

Answers

1. (a) Figure 1
   i. $I = (0.117\,57 - \mathrm{j}0.212\,04)\,\mathrm{A}$
   ii. $V_R = (9.4054 - \mathrm{j}16.9633)\,\mathrm{V}$
   iii. $V_L = (39.9689 + \mathrm{j}22.161)\,\mathrm{V}$
   iv. $V_C = (-9.3743 - \mathrm{j}5.197\,62)\,\mathrm{V}$
   v. $P_R = 4.7027\,\mathrm{W}$
   vi. $P_L = 11.0805$ VAR
   vii. $P_C = -2.5988$ VAR

   (b) Figure 2
   i. $V_{R1} = (26.4833 + \mathrm{j}9.361\,26)\,\mathrm{V}$
   ii. $V_{R2} = V_L = V_C = (13.5167 - \mathrm{j}9.361\,26)\,\mathrm{V}$
   iii. $I_{R1} = (0.331\,04 + \mathrm{j}0.117\,02)\,\mathrm{A}$
   iv. $I_{R2} = (0.168\,96 - \mathrm{j}0.117\,02)\,\mathrm{A}$
   v. $I_L = (0.211\,75 + \mathrm{j}0.305\,74)\,\mathrm{A}$
   vi. $I_C = (-0.049\,663 - \mathrm{j}0.071\,708)\,\mathrm{A}$
   vii. $P_{R1} = 9.8625\,\mathrm{W}$
   viii. $P_{R2} = 3.3792\,\mathrm{W}$
   ix. $P_L = 1.4342$ VAR
   x. $P_C = -6.1148$ VAR

2. (a) $V_{R1} = (26.4833 + \mathrm{j}9.361\,26)\,\mathrm{V}$
   (b) $V_{R2} = V_L = V_C = (13.5167 - \mathrm{j}9.361\,26)\,\mathrm{V}$
   (c) $I_{R1} = (0.331\,04 + \mathrm{j}0.117\,02)\,\mathrm{A}$
   (d) $I_{R2} = (0.168\,96 - \mathrm{j}0.117\,02)\,\mathrm{A}$
   (e) $I_L = (0.211\,75 + \mathrm{j}0.305\,74)\,\mathrm{A}$
   (f) $I_C = (-0.049\,663 - \mathrm{j}0.071\,708)\,\mathrm{A}$
   (g) $P_{R1} = 9.8625\,\mathrm{W}$
   (h) $P_{R2} = 3.3792\,\mathrm{W}$
   (i) $P_L = 1.4342$ VAR
   (j) $P_C = -6.1148$ VAR

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Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***14140390***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ /10
Student's name	***LUIS DAVID MARENTES REYES***		

Answers

1. (a) Figure 1
   i. $I = (0.027\,053 - \mathrm{j}0.113\,11)\,\mathrm{A}$
   ii. $V_R = (1.6232 - \mathrm{j}6.7868)\,\mathrm{V}$
   iii. $V_L = (38.3782 + \mathrm{j}9.178\,73)\,\mathrm{V}$
   iv. $V_C = (-10.0013 - \mathrm{j}2.391\,97)\,\mathrm{V}$
   v. $P_R = 0.811\,58\,\mathrm{W}$
   vi. $P_L = 4.5894$ VAR
   vii. $P_C = -1.196$ VAR

   (b) Figure 2
   i. $V_{R1} = (15.8882 + \mathrm{j}3.540\,27)\,\mathrm{V}$
   ii. $V_{R2} = V_L = V_C = (14.1118 - \mathrm{j}3.540\,27)\,\mathrm{V}$
   iii. $I_{R1} = (0.2648 + \mathrm{j}0.059\,005)\,\mathrm{A}$
   iv. $I_{R2} = (0.2352 - \mathrm{j}0.059\,005)\,\mathrm{A}$
   v. $I_L = (0.040\,04 + \mathrm{j}0.1596)\,\mathrm{A}$
   vi. $I_C = (-0.010\,434 - \mathrm{j}0.041\,592)\,\mathrm{A}$
   vii. $P_{R1} = 4.4161\,\mathrm{W}$
   viii. $P_{R2} = 3.528\,\mathrm{W}$
   ix. $P_L = 0.623\,88$ VAR
   x. $P_C = -2.394$ VAR

2. (a) $V_{R1} = (15.8882 + \mathrm{j}3.540\,27)\,\mathrm{V}$
   (b) $V_{R2} = V_L = V_C = (14.1118 - \mathrm{j}3.540\,27)\,\mathrm{V}$
   (c) $I_{R1} = (0.2648 + \mathrm{j}0.059\,005)\,\mathrm{A}$
   (d) $I_{R2} = (0.2352 - \mathrm{j}0.059\,005)\,\mathrm{A}$
   (e) $I_L = (0.040\,04 + \mathrm{j}0.1596)\,\mathrm{A}$
   (f) $I_C = (-0.010\,434 - \mathrm{j}0.041\,592)\,\mathrm{A}$
   (g) $P_{R1} = 4.4161\,\mathrm{W}$
   (h) $P_{R2} = 3.528\,\mathrm{W}$
   (i) $P_L = 0.623\,88$ VAR
   (j) $P_C = -2.394$ VAR

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Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***12068799***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ /10
Student's name	***JESUS ANTONIO ROBLESREYES***		

Answers

1. (a) Figure 1
   i. $I = (0.028\,419 - \mathrm{j}0.356\,48)\ \mathrm{A}$
   ii. $V_R = (0.568\,39 - \mathrm{j}7.1296)\ \mathrm{V}$
   iii. $V_L = (120.9516 + \mathrm{j}9.642\,469)\ \mathrm{V}$
   iv. $V_C = (-31.5199 - \mathrm{j}2.512\,82)\ \mathrm{V}$
   v. $P_R = 2.5577\ \mathrm{W}$
   vi. $P_L = 43.3911\ \mathrm{VAR}$
   vii. $P_C = -11.3077\ \mathrm{VAR}$

   (b) Figure 2
   i. $V_{R1} = (45.3125 + \mathrm{j}3.736\,96)\ \mathrm{V}$
   ii. $V_{R2} = V_L = V_C = (44.6875 - \mathrm{j}3.736\,96)\ \mathrm{V}$
   iii. $I_{R1} = (2.2656 + \mathrm{j}0.186\,85)\ \mathrm{A}$
   iv. $I_{R2} = (2.2344 - \mathrm{j}0.186\,85)\ \mathrm{A}$
   v. $I_L = (0.042\,264 + \mathrm{j}0.5054)\ \mathrm{A}$
   vi. $I_C = (-0.011\,014 - \mathrm{j}0.131\,71)\ \mathrm{A}$
   vii. $P_{R1} = 103.3594\ \mathrm{W}$
   viii. $P_{R2} = 100.5469\ \mathrm{W}$
   ix. $P_L = 5.9269\ \mathrm{VAR}$
   x. $P_C = -22.7432\ \mathrm{VAR}$

2. (a) $V_{R1} = (45.3125 + \mathrm{j}3.736\,96)\ \mathrm{V}$
   (b) $V_{R2} = V_L = V_C = (44.6875 - \mathrm{j}3.736\,96)\ \mathrm{V}$
   (c) $I_{R1} = (2.2656 + \mathrm{j}0.186\,85)\ \mathrm{A}$
   (d) $I_{R2} = (2.2344 - \mathrm{j}0.186\,85)\ \mathrm{A}$
   (e) $I_L = (0.042\,264 + \mathrm{j}0.5054)\ \mathrm{A}$
   (f) $I_C = (-0.011\,014 - \mathrm{j}0.131\,71)\ \mathrm{A}$
   (g) $P_{R1} = 103.3594\ \mathrm{W}$
   (h) $P_{R2} = 100.5469\ \mathrm{W}$
   (i) $P_L = 5.9269\ \mathrm{VAR}$
   (j) $P_C = -22.7432\ \mathrm{VAR}$

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Facultad de Ingeniería Mecánica y Eléctrica

Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***14150725***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ /10
Student's name	***LILIANA VERA GLZ***		

Answers

1. (a) Figure 1
   i. $I = (0.076\,828 - \mathrm{j}0.3107)\,\mathrm{A}$
   ii. $V_R = (2.3048 - \mathrm{j}9.321)\,\mathrm{V}$
   iii. $V_L = (46.8525 + \mathrm{j}11.5854)\,\mathrm{V}$
   iv. $V_C = (-9.1573 - \mathrm{j}2.2644)\,\mathrm{V}$
   v. $P_R = 3.0731\,\mathrm{W}$
   vi. $P_L = 15.4471$ VAR
   vii. $P_C = -3.0191$ VAR

   (b) Figure 2
   i. $V_{R1} = (22.8718 + \mathrm{j}7.013\,43)\,\mathrm{V}$
   ii. $V_{R2} = V_L = V_C = (17.1282 - \mathrm{j}7.013\,43)\,\mathrm{V}$
   iii. $I_{R1} = (0.762\,39 + \mathrm{j}0.233\,78)\,\mathrm{A}$
   iv. $I_{R2} = (0.570\,94 - \mathrm{j}0.233\,78)\,\mathrm{A}$
   v. $I_L = (0.237\,96 + \mathrm{j}0.581\,15)\,\mathrm{A}$
   vi. $I_C = (-0.046\,509 - \mathrm{j}0.113\,59)\,\mathrm{A}$
   vii. $P_{R1} = 19.0769\,\mathrm{W}$
   viii. $P_{R2} = 11.4188\,\mathrm{W}$
   ix. $P_L = 2.2717$ VAR
   x. $P_C = -11.6229$ VAR

2. (a) $V_{R1} = (22.8718 + \mathrm{j}7.013\,43)\,\mathrm{V}$
   (b) $V_{R2} = V_L = V_C = (17.1282 - \mathrm{j}7.013\,43)\,\mathrm{V}$
   (c) $I_{R1} = (0.762\,39 + \mathrm{j}0.233\,78)\,\mathrm{A}$
   (d) $I_{R2} = (0.570\,94 - \mathrm{j}0.233\,78)\,\mathrm{A}$
   (e) $I_L = (0.237\,96 + \mathrm{j}0.581\,15)\,\mathrm{A}$
   (f) $I_C = (-0.046\,509 - \mathrm{j}0.113\,59)\,\mathrm{A}$
   (g) $P_{R1} = 19.0769\,\mathrm{W}$
   (h) $P_{R2} = 11.4188\,\mathrm{W}$
   (i) $P_L = 2.2717$ VAR
   (j) $P_C = -11.6229$ VAR

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Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***14125016***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ /10
Student's name	***DAVID OTHONIEL SALDIVAR PEREZ***		

Answers

1. (a) Figure 1
   i. $I = (0.2073 - \text{j}0.161\,64)\,\text{A}$
   ii. $V_R = (12.4382 - \text{j}9.698\,21)\,\text{V}$
   iii. $V_L = (18.2807 + \text{j}23.4454)\,\text{V}$
   iv. $V_C = (-10.7189 - \text{j}13.7472)\,\text{V}$
   v. $P_R = 4.1461\,\text{W}$
   vi. $P_L = 7.8151\ \text{VAR}$
   vii. $P_C = -4.5824\ \text{VAR}$

   (b) Figure 2
   i. $V_{R1} = (10.3383 + \text{j}1.808)\,\text{V}$
   ii. $V_{R2} = V_L = V_C = (9.6617 - \text{j}1.808)\,\text{V}$
   iii. $I_{R1} = (0.172\,31 + \text{j}0.030\,133)\,\text{A}$
   iv. $I_{R2} = (0.161\,03 - \text{j}0.030\,133)\,\text{A}$
   v. $I_L = (0.027\,264 + \text{j}0.145\,69)\,\text{A}$
   vi. $I_C = (-0.015\,986 - \text{j}0.085\,428)\,\text{A}$
   vii. $P_{R1} = 1.8358\,\text{W}$
   viii. $P_{R2} = 1.6103\,\text{W}$
   ix. $P_L = 0.854\,28\ \text{VAR}$
   x. $P_C = -1.4569\ \text{VAR}$

2. (a) $V_{R1} = (10.3383 + \text{j}1.808)\,\text{V}$
   (b) $V_{R2} = V_L = V_C = (9.6617 - \text{j}1.808)\,\text{V}$
   (c) $I_{R1} = (0.172\,31 + \text{j}0.030\,133)\,\text{A}$
   (d) $I_{R2} = (0.161\,03 - \text{j}0.030\,133)\,\text{A}$
   (e) $I_L = (0.027\,264 + \text{j}0.145\,69)\,\text{A}$
   (f) $I_C = (-0.015\,986 - \text{j}0.085\,428)\,\text{A}$
   (g) $P_{R1} = 1.8358\,\text{W}$
   (h) $P_{R2} = 1.6103\,\text{W}$
   (i) $P_L = 0.854\,28\ \text{VAR}$
   (j) $P_C = -1.4569\ \text{VAR}$

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Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***1205596***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ /10
Student's name	***ALBERTO VAZQUEZ MEDINA***		

Answers

1. (a) Figure 1
   i. $I = (0.250\,69 - \mathrm{j}0.3538)\,\mathrm{A}$
   ii. $V_R = (20.0554 - \mathrm{j}28.3038)\,\mathrm{V}$
   iii. $V_L = (53.3514 + \mathrm{j}37.8036)\,\mathrm{V}$
   iv. $V_C = (-13.4068 - \mathrm{j}9.499\,75)\,\mathrm{V}$
   v. $P_R = 15.0416\,\mathrm{W}$
   vi. $P_L = 28.3527$ VAR
   vii. $P_C = -7.1248$ VAR

   (b) Figure 2
   i. $V_{R1} = (41.5339 + \mathrm{j}14.5941)\,\mathrm{V}$
   ii. $V_{R2} = V_L = V_C = (18.4661 - \mathrm{j}14.5941)\,\mathrm{V}$
   iii. $I_{R1} = (0.519\,17 + \mathrm{j}0.182\,43)\,\mathrm{A}$
   iv. $I_{R2} = (0.230\,83 - \mathrm{j}0.182\,43)\,\mathrm{A}$
   v. $I_L = (0.385\,13 + \mathrm{j}0.487\,31)\,\mathrm{A}$
   vi. $I_C = (-0.096\,78 - \mathrm{j}0.122\,46)\,\mathrm{A}$
   vii. $P_{R1} = 24.2257\,\mathrm{W}$
   viii. $P_{R2} = 6.9248\,\mathrm{W}$
   ix. $P_L = 3.6737$ VAR
   x. $P_C = -14.6192$ VAR

2. (a) $V_{R1} = (41.5339 + \mathrm{j}14.5941)\,\mathrm{V}$
   (b) $V_{R2} = V_L = V_C = (18.4661 - \mathrm{j}14.5941)\,\mathrm{V}$
   (c) $I_{R1} = (0.519\,17 + \mathrm{j}0.182\,43)\,\mathrm{A}$
   (d) $I_{R2} = (0.230\,83 - \mathrm{j}0.182\,43)\,\mathrm{A}$
   (e) $I_L = (0.385\,13 + \mathrm{j}0.487\,31)\,\mathrm{A}$
   (f) $I_C = (-0.096\,78 - \mathrm{j}0.122\,46)\,\mathrm{A}$
   (g) $P_{R1} = 24.2257\,\mathrm{W}$
   (h) $P_{R2} = 6.9248\,\mathrm{W}$
   (i) $P_L = 3.6737$ VAR
   (j) $P_C = -14.6192$ VAR

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Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***12666518***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ /10
Student's name	***SAMUEL ROSAS GONZALEZ***		

Answers

1. (a) Figure 1
   i. $I = (1.3113 - \text{j}2.0448)\,\text{A}$
   ii. $V_R = (26.2252 - \text{j}40.8963)\,\text{V}$
   iii. $V_L = (154.1755 + \text{j}98.866\,81)\,\text{V}$
   iv. $V_C = (-90.400\,69 - \text{j}57.9705)\,\text{V}$
   v. $P_R = 118.0136\,\text{W}$
   vi. $P_L = 444.9006$ VAR
   vii. $P_C = -260.8672$ VAR

   (b) Figure 2
   i. $V_{R1} = (45.3905 + \text{j}4.173\,91)\,\text{V}$
   ii. $V_{R2} = V_L = V_C = (44.6095 - \text{j}4.173\,91)\,\text{V}$
   iii. $I_{R1} = (2.2695 + \text{j}0.2087)\,\text{A}$
   iv. $I_{R2} = (2.2305 - \text{j}0.2087)\,\text{A}$
   v. $I_L = (0.094\,412 + \text{j}1.009)\,\text{A}$
   vi. $I_C = (-0.055\,358 - \text{j}0.591\,65)\,\text{A}$
   vii. $P_{R1} = 103.8861\,\text{W}$
   viii. $P_{R2} = 100.3713\,\text{W}$
   ix. $P_L = 26.6243$ VAR
   x. $P_C = -45.4069$ VAR

2. (a) $V_{R1} = (45.3905 + \text{j}4.173\,91)\,\text{V}$
   (b) $V_{R2} = V_L = V_C = (44.6095 - \text{j}4.173\,91)\,\text{V}$
   (c) $I_{R1} = (2.2695 + \text{j}0.2087)\,\text{A}$
   (d) $I_{R2} = (2.2305 - \text{j}0.2087)\,\text{A}$
   (e) $I_L = (0.094\,412 + \text{j}1.009)\,\text{A}$
   (f) $I_C = (-0.055\,358 - \text{j}0.591\,65)\,\text{A}$
   (g) $P_{R1} = 103.8861\,\text{W}$
   (h) $P_{R2} = 100.3713\,\text{W}$
   (i) $P_L = 26.6243$ VAR
   (j) $P_C = -45.4069$ VAR

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Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***12064655***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ /10
Student's name	***EDSON ORLANDONAVARRO RAMIREZ***		

Answers

1. (a) Figure 1
   i. $I = (0.187\,55 - \mathrm{j}0.286\,43)\,\mathrm{A}$
   ii. $V_R = (15.0036 - \mathrm{j}22.9145)\,\mathrm{V}$
   iii. $V_L = (53.9909 + \mathrm{j}35.3514)\,\mathrm{V}$
   iv. $V_C = (-18.9945 - \mathrm{j}12.437)\,\mathrm{V}$
   v. $P_R = 9.3773\,\mathrm{W}$
   vi. $P_L = 22.0946$ VAR
   vii. $P_C = -7.7731$ VAR

   (b) Figure 2
   i. $V_{R1} = (28.3149 + \mathrm{j}8.478\,43)\,\mathrm{V}$
   ii. $V_{R2} = V_L = V_C = (21.6851 - \mathrm{j}8.478\,43)\,\mathrm{V}$
   iii. $I_{R1} = (0.353\,94 + \mathrm{j}0.105\,98)\,\mathrm{A}$
   iv. $I_{R2} = (0.271\,06 - \mathrm{j}0.105\,98)\,\mathrm{A}$
   v. $I_L = (0.127\,85 + \mathrm{j}0.327)\,\mathrm{A}$
   vi. $I_C = (-0.044\,979 - \mathrm{j}0.115\,04)\,\mathrm{A}$
   vii. $P_{R1} = 10.9202\,\mathrm{W}$
   viii. $P_{R2} = 6.7766\,\mathrm{W}$
   ix. $P_L = 2.8761$ VAR
   x. $P_C = -8.1751$ VAR

2. (a) $V_{R1} = (28.3149 + \mathrm{j}8.478\,43)\,\mathrm{V}$
   (b) $V_{R2} = V_L = V_C = (21.6851 - \mathrm{j}8.478\,43)\,\mathrm{V}$
   (c) $I_{R1} = (0.353\,94 + \mathrm{j}0.105\,98)\,\mathrm{A}$
   (d) $I_{R2} = (0.271\,06 - \mathrm{j}0.105\,98)\,\mathrm{A}$
   (e) $I_L = (0.127\,85 + \mathrm{j}0.327)\,\mathrm{A}$
   (f) $I_C = (-0.044\,979 - \mathrm{j}0.115\,04)\,\mathrm{A}$
   (g) $P_{R1} = 10.9202\,\mathrm{W}$
   (h) $P_{R2} = 6.7766\,\mathrm{W}$
   (i) $P_L = 2.8761$ VAR
   (j) $P_C = -8.1751$ VAR

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Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***11126870***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ /10
Student's name	***JUAN GAEL GONZALEZ RODRIGUEZ***		

Answers

1. (a) Figure 1
   i. $I = (0.008\,299\,8 - \mathrm{j}0.128\,57)\ \mathrm{A}$
   ii. $V_R = (0.166 - \mathrm{j}2.5714)\ \mathrm{V}$
   iii. $V_L = (43.6234 + \mathrm{j}2.816\,06)\ \mathrm{V}$
   iv. $V_C = (-3.7894 - \mathrm{j}0.244\,62)\ \mathrm{V}$
   v. $P_R = 0.331\,99\ \mathrm{W}$
   vi. $P_L = 5.6321\ \mathrm{VAR}$
   vii. $P_C = -0.489\,24\ \mathrm{VAR}$

   (b) Figure 2
   i. $V_{R1} = (21.7516 + \mathrm{j}5.653\,69)\ \mathrm{V}$
   ii. $V_{R2} = V_L = V_C = (18.2484 - \mathrm{j}5.653\,69)\ \mathrm{V}$
   iii. $I_{R1} = (1.0876 + \mathrm{j}0.282\,68)\ \mathrm{A}$
   iv. $I_{R2} = (0.912\,42 - \mathrm{j}0.282\,68)\ \mathrm{A}$
   v. $I_L = (0.191\,83 + \mathrm{j}0.619\,15)\ \mathrm{A}$
   vi. $I_C = (-0.016\,663 - \mathrm{j}0.053\,784)\ \mathrm{A}$
   vii. $P_{R1} = 25.2549\ \mathrm{W}$
   viii. $P_{R2} = 18.2484\ \mathrm{W}$
   ix. $P_L = 1.0757\ \mathrm{VAR}$
   x. $P_C = -12.3831\ \mathrm{VAR}$

2. (a) $V_{R1} = (21.7516 + \mathrm{j}5.653\,69)\ \mathrm{V}$
   (b) $V_{R2} = V_L = V_C = (18.2484 - \mathrm{j}5.653\,69)\ \mathrm{V}$
   (c) $I_{R1} = (1.0876 + \mathrm{j}0.282\,68)\ \mathrm{A}$
   (d) $I_{R2} = (0.912\,42 - \mathrm{j}0.282\,68)\ \mathrm{A}$
   (e) $I_L = (0.191\,83 + \mathrm{j}0.619\,15)\ \mathrm{A}$
   (f) $I_C = (-0.016\,663 - \mathrm{j}0.053\,784)\ \mathrm{A}$
   (g) $P_{R1} = 25.2549\ \mathrm{W}$
   (h) $P_{R2} = 18.2484\ \mathrm{W}$
   (i) $P_L = 1.0757\ \mathrm{VAR}$
   (j) $P_C = -12.3831\ \mathrm{VAR}$

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Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***14155580***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ / 10
Student's name	***LUIS ALEJANDRO URBINA GONZALEZ***		

Answers

1. (a) Figure 1
   i. $I = (0.033\,086 - \mathrm{j}0.162\,72)\,\mathrm{A}$
   ii. $V_R = (1.9851 - \mathrm{j}9.763)\,\mathrm{V}$
   iii. $V_L = (55.2085 + \mathrm{j}11.2257)\,\mathrm{V}$
   iv. $V_C = (-7.1937 - \mathrm{j}1.4627)\,\mathrm{V}$
   v. $P_R = 1.6543\,\mathrm{W}$
   vi. $P_L = 9.3548\ \mathrm{VAR}$
   vii. $P_C = -1.2189\ \mathrm{VAR}$

   (b) Figure 2
   i. $V_{R1} = (31.4581 + \mathrm{j}10.9428)\,\mathrm{V}$
   ii. $V_{R2} = V_L = V_C = (18.5419 - \mathrm{j}10.9428)\,\mathrm{V}$
   iii. $I_{R1} = (0.5243 + \mathrm{j}0.182\,38)\,\mathrm{A}$
   iv. $I_{R2} = (0.309\,03 - \mathrm{j}0.182\,38)\,\mathrm{A}$
   v. $I_L = (0.247\,52 + \mathrm{j}0.419\,41)\,\mathrm{A}$
   vi. $I_C = (-0.032\,252 - \mathrm{j}0.054\,649)\,\mathrm{A}$
   vii. $P_{R1} = 18.4892\,\mathrm{W}$
   viii. $P_{R2} = 7.7258\,\mathrm{W}$
   ix. $P_L = 1.3662\ \mathrm{VAR}$
   x. $P_C = -10.4852\ \mathrm{VAR}$

2. (a) $V_{R1} = (31.4581 + \mathrm{j}10.9428)\,\mathrm{V}$
   (b) $V_{R2} = V_L = V_C = (18.5419 - \mathrm{j}10.9428)\,\mathrm{V}$
   (c) $I_{R1} = (0.5243 + \mathrm{j}0.182\,38)\,\mathrm{A}$
   (d) $I_{R2} = (0.309\,03 - \mathrm{j}0.182\,38)\,\mathrm{A}$
   (e) $I_L = (0.247\,52 + \mathrm{j}0.419\,41)\,\mathrm{A}$
   (f) $I_C = (-0.032\,252 - \mathrm{j}0.054\,649)\,\mathrm{A}$
   (g) $P_{R1} = 18.4892\,\mathrm{W}$
   (h) $P_{R2} = 7.7258\,\mathrm{W}$
   (i) $P_L = 1.3662\ \mathrm{VAR}$
   (j) $P_C = -10.4852\ \mathrm{VAR}$

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Unidad Torreón

Subject	Circuit analysis II	Group	5A
Degree	Electrical engineering	Due for	15/09/2016
Exam / Homework	Homework 2: A.C. Fundementals	Registration #	***14629184***
Professor's name	Dr. Suresh Kumar Gadi	Marks Obtained	_____ /10
Student's name	***JOSE WALDO QUINTANA ARANDA***		

Answers

1. (a) Figure 1
   i. $I = (0.007\,174\,1 - \mathrm{j}0.084\,396)\,\mathrm{A}$
   ii. $V_R = (0.143\,48 - \mathrm{j}1.6879)\,\mathrm{V}$
   iii. $V_L = (25.4532 + \mathrm{j}2.163\,67)\,\mathrm{V}$
   iv. $V_C = (-5.5967 - \mathrm{j}0.475\,75)\,\mathrm{V}$
   v. $P_R = 0.143\,48\,\mathrm{W}$
   vi. $P_L = 2.1637\ \mathrm{VAR}$
   vii. $P_C = -0.475\,75\ \mathrm{VAR}$

   (b) Figure 2
   i. $V_{R1} = (10.1365 + \mathrm{j}1.160\,33)\,\mathrm{V}$
   ii. $V_{R2} = V_L = V_C = (9.8635 - \mathrm{j}1.1603)\,\mathrm{V}$
   iii. $I_{R1} = (0.506\,83 + \mathrm{j}0.058\,017)\,\mathrm{A}$
   iv. $I_{R2} = (0.493\,17 - \mathrm{j}0.058\,017)\,\mathrm{A}$
   v. $I_L = (0.017\,497 + \mathrm{j}0.148\,74)\,\mathrm{A}$
   vi. $I_C = (-0.003\,847\,4 - \mathrm{j}0.032\,705)\,\mathrm{A}$
   vii. $P_{R1} = 5.2048\,\mathrm{W}$
   viii. $P_{R2} = 4.9317\,\mathrm{W}$
   ix. $P_L = 0.327\,05\ \mathrm{VAR}$
   x. $P_C = -1.4874\ \mathrm{VAR}$

2. (a) $V_{R1} = (10.1365 + \mathrm{j}1.160\,33)\,\mathrm{V}$
   (b) $V_{R2} = V_L = V_C = (9.8635 - \mathrm{j}1.1603)\,\mathrm{V}$
   (c) $I_{R1} = (0.506\,83 + \mathrm{j}0.058\,017)\,\mathrm{A}$
   (d) $I_{R2} = (0.493\,17 - \mathrm{j}0.058\,017)\,\mathrm{A}$
   (e) $I_L = (0.017\,497 + \mathrm{j}0.148\,74)\,\mathrm{A}$
   (f) $I_C = (-0.003\,847\,4 - \mathrm{j}0.032\,705)\,\mathrm{A}$
   (g) $P_{R1} = 5.2048\,\mathrm{W}$
   (h) $P_{R2} = 4.9317\,\mathrm{W}$
   (i) $P_L = 0.327\,05\ \mathrm{VAR}$
   (j) $P_C = -1.4874\ \mathrm{VAR}$