

**BÀI BÁO QUỐC TẾ 2018-2023**

<b>Stt</b>	<b>Tên bài báo</b>	<b>Tên tác giả</b>	<b>Tên tạp chí</b>	<b>Năm xuất bản</b>	<b>Ghi chú 1</b>
311	A comparison of the JO-IMRT dose distribution calculated by the SOURCE 8 and 20 in the DOSXYZnrc for head-and-neck cancer	Duong Thanh Tai, Hoang Duc Tuan, Luong Thi Oanh, Hamza N, Loan T. T. H, Sitti Y	International Journal of Radiation Research (IJRR), Volume 19, Issue 4 (10-2021), Online ISSN 2345-4229, P-ISSN 2322-3243	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q4)
315	A Low-Cost Speech to Sign Language Converter	Minh Le, Thanh Minh Le, Vu Duc Bui, Son Ngoc Truong	International Journal of Computer Science and Network Security, VOL.21 No.3, pp. 37-40, ISSN 1738-7906, Mar 2021	2021	Bài báo đăng trên tạp chí xếp hạng ESCI
323	A Precise Neural-Disturbance Learning Controller of Constrained Robotic Manipulators	Dang Xuan Ba and Joonbum Bae	IEEE Access, vol. 9, pp 50381 - 50390, ISSN 2169-3536, March 2021	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q1)
325	A Robust Observer for Sensor Faults Estimation on n-DOF Manipulator in Constrained Framework Environment	Truong Hoai Vu Anh, Trinh Hoai An, Tran Duc Thien, Kyoung Kwan Ahn*	IEEE Access, Volume 9, Date of Publication: June 2021, ISSN 2169-3536	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q1)
330	A Switched-Capacitor-Based Six-Level Inverter	Tan-Tai Tran , Minh-Khai Nguyen, Truong-Duy Duong, Young-Cheol Lim	IEEE Transactions on Power Electronics, Volume: 37, Issue: 4, Page(s): 4804 - 4816, April 2022, Date of Publication: 11 November 2021, Print ISSN: 0885-8993, Electronic ISSN: 1941-0107	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q1)
331	Active Fault Tolerant Control System Design for Hydraulic Manipulator With Internal Leakage Faults Based on Disturbance Observer and Online Adaptive Identification	Vu Hoang Dao, Tran Duc Thien, Kyoung Kwan Ahn*	IEEE Access, Vol. 9, Date of Publication: 22 January 2021, ISSN 2169-3536	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q1)
332	Adaptive d-Hop Connected Dominating Set in Highly Dynamic Flying Ad-hoc Networks	Bowen Wang; Yanjing Sun*; Tan Do-Duy; Emiliano Garcia-Palacios; Trung Q. Duong	IEEE Transactions on Network Science and Engineering, vol. 8, no. 3, pp. 2651-2664, ISSN 2327-4697, 10 August 2021	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q2)
333	Adaptive Integral Second-Order Sliding Mode Control Design for Load Frequency Control of Large-Scale Power System with Communication Delays	Anh-Tuan Tran, Bui Le Ngoc Minh, Phong Thanh Tran, Van Van Huynh, Van-Duc Phan, Viet-Thanh Pham, and <b>Tam Minh Nguyen</b>	Complexity, Volume 2021, Article ID 5564184, pp. 1-19, Mar 2021, ISSN: 1099-0526	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q1)
334	Adaptive Neural Command Filtered Control for Pneumatic Active Suspension With Prescribed Performance and Input Saturation	Ho Cong Minh, Tran Duc Thien, Nguyen Cong Hung, Kyoung Kwan Ahn*	IEEE Access, Volume 9, Date of Publication: 06 April 2021 , ISSN 2169-3536	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q1)

335	Adaptive Nonsingular Fast Terminal Sliding mode Control of Robotic Manipulator Based Neural Network Approach	Tran Duc Thien, Truong Hoai Vu Anh, Kyoung Kwan Ahn*	International Journal of Precision Engineering and Manufacturing, Vol. 22, pages417–429, ISSN 2005-4602, March 2021	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q2)
336	Adaptive Sliding Mode Control for a Robotic Manipulator with Unknown Friction and Unknown Control Direction	Seung-Hun Han, Manh-Son Tran, Tran Duc Thien*	Applied Sciences -MDPI, Volume 11, Issue 9 (May-1 2021), ISSN 2076-3417	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q2)
338	Aerial Reconfigurable Intelligent Surface-enabled URLLC UAV Systems	Yijiu Li; Cheng Yin; Tan Do-Duy; Antonino Masaracchia; Trung Q. Duong*	IEEE Access, vol. 9, pp. 140248-140257, ISSN 2169-3536, 11 October 2021	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q1)
342	An effective method to solve the problem of electric distribution network reconfiguration considering distributed generations for energy loss reduction	Thuan Thanh Nguyen, Thang Trung Nguyen*, Long Thanh Duong & Viet Anh Truong	Neural Computing and Applications, Volume 33, issue 5, March 2021, pp1625–1641, Electronic ISSN 1433-3058; Print ISSN 0941-0643	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q2)
344	An Innovative Approach for Water Distribution Systems	Van-Phuong Ta*, Dinh-Nhon Truong, Nguyen-Thanh Nhan	Intelligent Automation & Soft Computing, Vol.32, No.3, pp. 1605-1615, 2022, ISSN 2326-005X, December 2021	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q3)
347	An SVM Scheme for Three-Level Quasi-Switched Boost T-Type Inverter With Enhanced Voltage Gain and Capacitor Voltage Balance	Vinh-Thanh Tran; Minh-Khai Nguyen; Duc-Tri Do; Dmitri Vinnikov	IEEE Transactions on Power Electronics (Volume: 36, Issue: 10, Oct. 2021), Print ISSN: 0885-8993	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q1)
349	Application of AHP Algorithm to Coordinate Multiple Load Shedding Factors in the Microgrid	An Thai Nguyen, Trong Nghia Le, Huy Anh Quyen, Minh Vu Nguyen Hoang & Phung Bao Long Nguyen	IETE Journal of Research, Published online: 31 Aug 2021, Print ISSN: 0377-2063 Online ISSN: 0974-780X	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q3)
350	Application of An Adaptive Network-based Fuzzy Inference System to Control a Hybrid Solar and Wind Grid-Tie Inverter	D. N. Truong, V. T. Ngo, M. S. N. Thi, and A. Q. Hoang	Engineering, Technology & Applied Science Research (ETASR), Vol. 11 No. 5 (2021): October, 2021, eISSN 1792-8036, pISSN 2241-4487	2021	Bài báo đăng trên tạp chí xếp hạng ESCI
356	Calculation of Jaws-only IMRT (JO-IMRT) dose distributions based on the AAPM TG-119 test cases using Monte Carlo simulation and Prowess Panther treatment planning system	Luong Thi Oanh, Duong Thanh Tai*, Truong Thi Hong Loan, James CL Chow	Nuclear Engineering and Technology, Volume 53, Issue 12, December 2021, Pages 4098-4105, ISSN 1738-5733	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q2)
357	Cancel-Decode-Encode Processing on Two-Way Cooperative NOMA Schemes in Realistic Conditions	Thu-Thuy Thi Dao, Pham Ngoc Son	Wireless Communications and Mobile Computing, vol. 2021, Article ID 8828443, 15 pages., ISSN 1530-8669, Apr 2021	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q2)
360	Common mode voltage reduction of cascaded multilevel inverters using carrier frequency modulation	Vinh-Quan Nguyen, QuangTho Chan	International Journal of Electronics, Published online: 02 Sep 2021, Print ISSN: 0020-7217 Online ISSN: 1362-3060	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q3)

363	Computationally efficient model predictive control for quasi-Z source inverter based on Lyapunov function	Minh-Khai Nguyen; Kim Anh Nguyen; Thi-Thanh-Van Phan; Van-Quang-Binh Ngo	International Journal of Modelling, Identification and Control, 2020 Vol.36 No.4, Published online: 06 Sep 2021, ISSN online 1746-6180, ISSN print 1746-6172	2021	Bài báo đăng trên tạp chí trong danh mục ESCI (Q3)
367	Cooperative decentralized peer-to-peer electricity trading of nanogrid clusters based on predictions of load demand and PV power generation using a gated recurrent unit model	Sangkeum Lee,Hojun Jin,Luiz Felipe Vecchietti,Junhee Hong,Ki-Bum Park,Pham Ngoc Son,Dongsoo Har*	IET Renewable Power Generation, Volume 15, Issue 15, Pages 3505-3523, November 2021, Online ISSN:1752-1424	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q2)
368	Cost reduction for energy loss and capacitor investment in radial distribution networks applying novel algorithms	Le Chi Kien, Thuan Thanh Nguyen, Thai Dinh Pham, Thang Trung Nguyen	Neural Computing and Applications, Issue 22/2021, November 2021, ISSN: 0941-0643 (SCIE-Q1)	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q1)
371	Deep Learning Framework with ECG Feature-Based Kernels for Heart Disease Classification	Thanh-Nghia Nguyen, Thanh-Hai Nguyen	Elektronika Ir Elektrotehnika, Vol. 27, No. 1, pp. 48-59, ISSN 1392-1215, Feb-2021	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q3)
375	Design and Simulation “Ha”-Slot Patch Array Microstrip Antenna for WLAN 2.4 GHz	Sotyohadi Sotyohadi*, I Komang Somawirata, Kartiko Ardi Widodo, <b>Son Thanh Phung</b> , and Ivar Zekker	Proceedings of the Pakistan Academy of Sciences: Part A (Physical and Computational Sciences), Vol. 58 No. S (2021): Special Issue: Innovation in Electrical Engineering, Information Technology and Renewable Energy for Welfare, pp 109–117, Dec 2021, Online ISSN: 2518-4253, Print ISSN: 2518-4245	2021	Bài báo đăng trên tạp chí xếp hạng Scopus (Q4)
378	Distributed Load Shedding considering the Multicriteria Decision-Making Based on the Application of the Analytic Hierarchy Process	Nghia T. Le, An T. Nguyen, Thi Trang Hoang, Hoang Minh Vu Nguyen, Anh H. Quyen and Binh T. T. Phan	Mathematical Problems in Engineering, Volume 2021  Article ID 6834501, Published 14 Oct 2021, ISSN: 1024-123X (Print) ISSN: 1563-5147 (Online)	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q3)
379	Disturbance Observer-Based Chattering-Attenuated Terminal Sliding Mode Control for Nonlinear Systems Subject to Matched and Mismatched Disturbances	Duc Giap Nguyen, <b>Tran Duc Thien</b> , Kyoung Kwan Ahn*	Applied Sciences, Volume 11, Issue 17 (September-1 2021) ISSN: 2076-3417	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q2)
380	Disturbance Observer-Based Controller for Inverted Pendulum with Uncertainties: LMI Approach	Van-Phong Vu, Minh-Tam Nguyen, Anh-Vu Nguyen, Vi-Do Tran, Tran Minh Nguyet Nguyen	International Journal of Electrical and Computer Engineering (IJECE), Vol 11, No 6, December 2021, ISSN 2088-8708	2021	Bài báo đăng trên tạp chí xếp hạng Scopus (Q3)
382	Elimination of Biological and Physical artifacts in Abdomen and Brain Computed Tomography Procedures using Filtering Techniques	Hiba Omer, Nissren Tamam*, SuhaibAlameen, SaharAlgadi, Duong Thanh Tai, Abdelmoneim Sulieman	Saudi Journal of Biological Sciences Available online 26 November 2021, ISSN 1319-562X	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q1)

383	Enhanced Boost Factor for Three-Level Quasi-Switched Boost T-Type Inverter	Duc-Tri Do, Vinh-Thanh Tran and Minh-Khai Nguyen *	Energies, Volume 14, Issue 13 (July-1 2021), EISSN 1996-1073	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q2)
390	Extended Permanent Magnet Synchronous Motors Speed Range Based on the Active and Reactive Power Control of Inverters	Pham Quoc Khanh*, Viet-Anh Truong and Ho Pham Huy Anh	Energies, Volume 14, Issue 12 (June-2 2021), ISSN 1996-1073	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q2)
391	Finite-Time Fault-Tolerant Control for a Robotic Manipulator With Output Constraint and Uncertainties	Tran Duc Thien, Kyoung Kwan Ahn	IEEE Access, vol. 9, pp. 146771-146782, Oct 2021, Electronic ISSN: 2169-3536	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q1)
397	Gait Optimization of a Quadruped Robot Using Evolutionary Computation	J. Kim, D. X. Ba, H. Yeom, and J. Bae*	Journal of Bionic Engineering, Volume 18, issue 2, March 2021, pp 306–318, ISSN 1672-6529	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q3)
402	Joint Optimisation of Real-time Deployment and Resource Allocation for UAV-Aided Mission-Critical Communications	Tan Do-Duy; Long D. Nguyen; Trung Q. Duong; Saeed R. Khosravirad; Holger Clausen	IEEE Journal on Selected Areas in Communications, vol. 39, no. 11, pp. 3411-3424, ISSN 0733-8716, 14 June 2021	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q2)
406	Load Frequency Regulator in Interconnected Power System Using Second-Order Sliding Mode Control Combined with State Estimator	Anh-Tuan Tran, Bui Le Ngoc Minh, Van Van Huynh, Phong Thanh Tran, Emmanuel Nduka Amaefule, Van-Duc Phan and <b>Tam Minh Nguyen</b>	MDPI, Energies 2021, Volume 14, Issue 4 (February-2 2021), pp. 1-17, ISSN 1996-1073	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q2)
407	Load shedding in Energy Management of Micro grid	Binh Phan, Nghia Le, Dung Nguyen, Tan Le, Dung Phan	Journal of Electrical Systems, Volume 17, Issue 1, pp.21-27, ISSN 1112-5209, March 2021	2021	Bài báo đăng trên tạp chí xếp hạng ESCI (Q4)
408	Load Shedding in Microgrids with Consideration of Voltage Quality Improvement	Trong Nghia Le, Bao Long Nguyen Phung	Engineering, Technology & Applied Science Research (ETASR), Vol. 11, No. 1, 2021, pp.6680-6686, ISSN 2241-4487, February, 2021	2021	Bài báo đăng trên tạp chí xếp hạng ESCI
410	Measurement of Neutron Dose Equivalent within and Outside of a LINAC Treatment Vault Using a Neutron Survey Meter	Duong Thanh Tai, Truong Thi Hong Loan, Abdelmoneim Suleiman, Nissren Tamam, Hiba Omer, David A. Bradley	Quantum Beam Science -MDPI, Volume 5, Issue 4 (December 2021), ISSN: 2412-382X	2021	Bài báo đăng trên tạp chí xếp hạng ESCI (Q3)
415	Modulation Technique for Modified Active Quasi-Z-Source Inverter with Common-Mode Voltage Reduction	Minh-Khai Nguyen and Youn-Ok Choi*	Electronics, Volume 10, Issue 23 (December-1 2021), ISSN: 2079-9292	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q2)
417	Noise and Memristance Variation Tolerance of Single Crossbar Architectures for Neuromorphic Image Recognition	Minh Le, Thi Kim Hang Pham and Son Ngoc Truong*	Micromachines -MDPI, Volume 12, Issue 6 (June 2021), ISSN 2072-666X	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q2)
420	Optimal location and operation of battery energy storage system in the distribution system for reducing energy cost in 24-hour period	Trieu Ngoc Ton, Thuan Thanh Nguyen*, Viet Anh Truong, Phan-Tu Vu	International Transactions on Electrical Energy Systems, Volume31, Issue5, May 2021, ISSN 2050-7038	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q2)

422	Optimal Reactive Power Generation for Radial Distribution Systems Using a Highly Effective Proposed Algorithm	Le Chi Kien, Thuan Thanh Nguyen, Bach Hoang Dinh, and Thang Trung Nguyen	Complexity, Volume 2021, Article ID 2486531, ISSN: 1076-2787 (SCIE-Q1)	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q1)
423	Optimal Reactive Power Generation for Transmission Power Systems Considering Discrete Values of Capacitors and Tap Changers	Le Chi Kien, Chiem Trong Hien, and Thang Trung Nguyen	Applied Sciences, 2021, Volume 11, Issue 12, 5378, ISSN: 2076-3417 (SCIE-Q2)	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q2)
424	Optimizing Energy Efficiency for Supporting Near-Cloud Access Region of UAV-Based NOMA Networks in IoT Systems	Huu Q. Tran*, Ca V. Phan, and Quoc-Tuan Vien	Wireless Communications and Mobile Computing, Volume 2021, Article ID 4345622, Oct 2021, ISSN: 1530-8669 (Print) ISSN: 1530-8677 (Online)	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q2)
428	Performance analysis of power-splitting relaying protocol in SWIPT based cooperative NOMA systems	Huu Q. Tran, Ca V. Phan & Quoc-Tuan Vien	EURASIP Journal on Wireless Communications and Networking volume 2021, Article number: 110 (2021), Published 29 April 2021, ISSN 1687-1499	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q2)
431	Practical 3D human skeleton tracking based on multi-view and multi-Kinect fusion	Manh-Hung Nguyen, Ching-Chun Hsiao, Wen-Huang Cheng & Ching-Chun Huang*	Multimedia Systems Vol 28, issue 2, pages529–552 (2022), April 2022, Published 23 October 2021, Electronic ISSN 1432-1882, Print ISSN 0942-4962	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q3)
432	PWM Strategy to Alleviate Common-Mode Voltage with Minimized Output Harmonic Distortion for Five-Level Cascaded H-Bridge Converters	Khoa Dang Pham, Quan Vinh Nguyen and Nho-Van Nguyen*	Energies, Vol. 14, issue 15, ISSN 1996-1073, July 2021	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q2)
433	Reconfigure the Distribution Network With Photovoltaic Connection to Minimize Energy Loss Based on Average Branch Power and an Advanced Branch Exchange Algorithm	Anh Viet Truong; Trieu Ngoc Ton; Thanh Long Duong; Phan-Tu Vu	IEEE Access ( Volume: 9), Page(s): 104572 - 104581, Date of Publication: 20 July 2021 Electronic ISSN: 2169-3536	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q1)
434	Reduction of common mode voltage for cascaded multilevel inverters using phase shift keying technique	Vinh-Quan Nguyen, QuangTho Chan	Indonesian Journal of Electrical Engineering and Computer Science, vol. 21, no. 2, Feb 2021, pp. 691-706, ISSN 2502-4752	2021	Bài báo đăng trên tạp chí xếp hạng Scopus (Q3)
437	Robust MPPT Observer-Based Control System for Wind Energy Conversion System With Uncertainties and Disturbance	Van-Phong Vu*; Van-Thuyen Ngo; Van-Dung Do*; Dinh-Nhon Truong; Tuan-Tu Huynh; Ton Duc Do*	IEEE Access (Volume: 9), Page(s): 96466 - 96477, Date of Publication: 05 July 2021, ISSN 2169-3536	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q1)

439	ROI-based Features for Classification of Skin Diseases Using a Multi-Layer Neural Network	Thanh-Hai Nguyen, Ba-Viet Ngo	Indonesian Journal of Electrical Engineering and Computer Science, Vol. 23, No. 1, July 2021, ISSN: 2502-4752	2021	Bài báo đăng trên tạp chí xếp hạng Scopus (Q3)
442	Security-Reliability Trade-Off Analysis for Rateless Codes-Based Relaying Protocols Using NOMA, Cooperative Jamming and Partial Relay Selection	Duy-Hung Ha, Tran Trung Duy*, Pham Ngoc Son, Thuong Le-Tien, Miroslav Voznak	IEEE Access, vol. 9, pp. 131087-131108, 2021, Date of Publication: 20 September 2021, ISSN: 2169-3536	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q1)
444	Simulation is essential for embedded control systems with task jitter	Long Tran, P J Radcliffe & Liuping Wang	Design Automation for Embedded Systems (2021), Print ISSN 0929-5585, Published 22 March 2021	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q3)
445	Spectrum-Sharing UAV-assisted Mission-Critical Communication: Learning-aided Real-time Optimisation	Minh-Hien T. Nguyen, Emi Garcia-Palacios, Tan D.D., Long D. Nguyen, Son T. Mai, Trung Q. Duong	IEEE Access, vol. 9, pp. 11622-11632, ISSN 2169-3536, January 2021	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q1)
457	The Three-Carrier Quasi Switched Boost Inverter Control Technique	Thanh-Hai Quach, Xuan-Vinh Le and Viet-Anh Truong*	Electronics, Volume 10, Issue 16 (August-2 2021), ISSN 2079-9292	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q2)
458	Three-Phase Impedance-Source Inverter With Common-Mode Voltage Reduction	Truong-Duy Duong; Minh-Khai Nguyen; Tan-Tai Tran; Dai-Van Vo; Young-Cheol Lim*; Joon-Ho Choi*	IEEE Access ( Volume: 9), Page(s): 164510 - 164519, Date of Publication: 13 December 2021, Electronic ISSN: 2169-3536	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q1)
459	Time-based resource allocation for downlink in heterogeneous wireless cellular networks	David O. Denedo, Quoc-Tuan Vien & Ca V. Phan*	Telecommunication Systems, Volume 78, issue 3, November 2021, Pages: 463 - 475, Electronic ISSN 1572-9451; Print ISSN 1018-4864	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q2)
460	Transformer-Less Switched-Capacitor Quasi-Switched Boost DC-DC Converter	Truong-Duy Duong, Minh-Khai Nguyen, Tan-Tai Tran, Young-Cheol Lim* and Joon-Ho Choi*	Energies, Volume 14, Issue 20 (October-2 2021), EISSN 1996-1073	2021	Bài báo đăng trên tạp chí xếp hạng SCIE (Q2)