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| The International Teleocmmunication Union - Connecting the World. | **International telecommunication union****Telecommunication Standardization Bureau** |  |
|  | Geneva, 21 January 2021 |
| **Ref:** | TSB Circular 295TSAG/BJ | **To:**- Administrations of Member States of the Union- ITU-T Sector Members;- Associates of ITU-T Study Groups; - ITU Academia;**Copy to:**- The Chairmen and Vice-Chairmen of ITU-T Study Groups;- The Director of the Telecommunication Development Bureau;- The Director of the Radiocommunication Bureau- Radio Advisory Group (RAG)- Telecommunication Development Advisory Group (TDAG)- ITU Inter-Sector Coordination Group (ISCG) |
| **Tel:** | +41 22 730 6311 |
| **Fax:****E-mail:** | +41 22 730 5853tsbtsag@itu.int |
| **Subject:** | **Entrance in force of the updated set of Questions for all study groups following TSAG endorsement (18 January 2021)** |

Dear Sir/Madam,

At the TSAG meeting held online, 11-18 January 2021, TSAG followed the *ITU-T work continuity plan until WTSA in 2022* (see TSAG-R11 Annex C) and endorsed the set of Questions for all the ITU-T study groups, as found in [TSAG-R12 to TSAG-R22](https://www.itu.int/md/T17-TSAG-210111-R/en). The set of Questions had been agreed by each study group for submission to WTSA-20, before its postponement due to the COVID-19 pandemic. These Questions became effective on 18 January 2021, for the remainder of the study period.

The titles of the endorsed Questions are listed in Annex 1. The number and titles of the deleted Questions are listed in Annex 2.

Yours faithfully,

Chaesub Lee
Director of the Telecommunication
Standardization Bureau

 **Annexes:** 2

Annex 1
List of Questions in force for all ITU-T study groups following TSAG endorsement (18 January 2021)

Table 1 – List of Questions for ITU-T Study Group 2

| New number | Current Question title | Status | Previous number | Previous Question title |
| --- | --- | --- | --- | --- |
| 1/2 | Application of numbering, naming, addressing and identification plans for fixed and mobile telecommunications services | Continued | 1/2 | Application of numbering, naming, addressing and identification plans for fixed and mobile telecommunications services |
| 2/2 | Routing and interworking plan for current and future networks | Continued | 2/2 | Routing and interworking plan for fixed and mobile networks |
| 3/2 | Service and operational aspects of telecommunications, including service definition | Continued | 3/2 | Service and operational aspects of telecommunications, including service definition |
| 5/2 | Requirements, priorities and planning for telecommunication/ICT management and operation, administration and maintenance (OAM) Recommendations | Continued | 5/2 | Requirements, priorities and planning for telecommunication management and operation, administration and maintenance (OAM) Recommendations |
| 6/2 | Management architecture and security | Continued | 6/2 | Management architecture and security |
| 7/2 | Interface specifications and specification methodology | Continued | 7/2 | Interface specifications and specification methodology |

Table 2 – List of Questions for ITU-T Study Group 3

| New number | Current Question title | Status | Previous number | Previous Question title |
| --- | --- | --- | --- | --- |
| 1/3 | Development of charging and accounting/settlement mechanisms for current and future international telecommunication/ICT services and networks | Continuation of Q1/3 and Q2/3 | 1/3 | Development of charging and accounting/settlement mechanisms for international telecommunications services using the next-generation networks (NGNs), future networks, and any possible future development, including adaptation of existing D-series Recommendations to the evolving user needs |
| 2/3 | Development of charging and accounting/settlement mechanisms for international telecommunications services, other than those studied in Question 1/3, including adaptation of existing D-series Recommendations to the evolving user needs |
| 3/3 | Study of economic and policy factors relevant to the efficient provision of international telecommunication services | Continued | 3/3 | Study of economic and policy factors relevant to the efficient provision of international telecommunication services |
| 4/3 | Regional studies for the development of cost models together with related economic and policy issues | Continued | 4/3 | Regional studies for the development of cost models together with related economic and policy issues |
| 6/3 | International Internet and fibre cables connectivity including relevant aspects of Internet protocol (IP) peering, regional traffic exchange points, fibre cables optimization, cost of provision of services and impact of transition from Internet protocol version 6 (IPv6) deployment | Continuation of Question 6/3 and Question 13/3 | 6/3 | International Internet connectivity including relevant aspects of Internet protocol (IP) peering, regional traffic exchange points, cost of provision of services and impact of transition from Internet protocol version 4 (IPv4) to Internet protocol version 6 (IPv6) |
| 13/3 | Study of Tariff, Charging Issues of Settlements Agreement of Trans-multi-country Terrestrial Telecommunication Cables  |
| 7/3 | International mobile roaming issues (including charging, accounting and settlement mechanisms and roaming at border areas) | Continued | 7/3 | International mobile roaming issues (including charging, accounting and settlement mechanisms and roaming at border areas) |
| 8/3 | Economic aspects of alternative calling procedures in the context of international telecommunications/ICT services and networks | Continued | 8/3 | Alternative calling procedures and misappropriation and misuse of facilities and services including calling line identification (CLI), calling party number delivery (CPND) and origin identification (OI) |
| 9/3 | Economic and policy aspects of the Internet, convergence (services or infrastructure) and OTTs in the context of international telecommunication/ICT services and networks | Continued | 9/3 | Economic and regulatory impact of the Internet, convergence (services or infrastructure) and new services, such as over the top (OTT), on international telecommunication services and networks |
| 10/3 | Competition policy and relevant market definitions related to the economic aspects of international telecommunication services and networks | Continued | 10/3 | Definition of relevant markets, competition policy and identification of operators with significant market power (SMP) as it relates to the economic aspects of the international telecommunication services and networks |
| 11/3 | Economic and policy aspects of big data and digital identity in international telecommunications services and networks | Continued | 11/3 | Economic and policy aspects of big data and digital identity in international telecommunications services and networks |
| 12/3 | Economic and policy issues pertaining to international telecommunication/ICT services and networks that enable Mobile Financial Services (MFS) | Continued | 12/3 | Tariffs, Economic and Policy Issues Pertaining to Mobile Financial Services (MFS) |

Table 3 – List of Questions for ITU-T Study Group 5

| New number | Current Question title | Status | Previous number | Previous Question title |
| --- | --- | --- | --- | --- |
| 1/5 | Electrical protection, reliability, safety and security of ICT systems | Continuation of Q1/5 and Q5/5 | 1/5 | Protection of information and communication technology (ICT) infrastructure from electromagnetic surges |
| 5/5 | Security and reliability of information and communication technology (ICT) systems from electromagnetic and particle radiations |
| 2/5 | Protecting equipment and devices against lightning and other electrical events | Continued | 2/5 | Equipment resistibility and protective components |
| 3/5 | Human exposure to electromagnetic fields (EMFs) due to digital technologies | Continued | 3/5 | Human exposure to electromagnetic fields (EMFs) from information and communication technologies (ICTs) |
| 4/5 | Electromagnetic compatibility (EMC) aspects in ICT environment | Continued | 4/5 | Electromagnetic compatibility (EMC) issues arising in the telecommunication environment |
| 6/5 | Environmental efficiency of digital technologies | Continuation of part of Q6/5 | 6/5 | Achieving energy efficiency and smart energy |
| 7/5 | E-waste, circular economy and sustainable supply chain management | Continued | 7/5 | Circular economy including e-waste |
| 8/5 | Guides and terminology on environment  | Continued | 8/5 | Guides and terminology on environment and climate change |
| 9/5 | Climate change and assessment of digital technologies in the framework of the Sustainable Development Goals (SDGs) and the Paris Agreement | Continuation of part of Q9/5 | 9/5 | Climate change and assessment of information and communication technology (ICT) in the framework of the Sustainable Development Goals (SDGs) |
| 11/5 | Climate change mitigation and smart energy solutions | Continuation of part of Q6/5 | 6/5 | Achieving energy efficiency and smart energy |
| 12/5 | Adaptation to climate change through sustainable and resilient digital technologies | Continuation of part of Q6/5 and part of Q9/5 | 6/5 | Achieving energy efficiency and smart energy |
| 9/5 | Climate change and assessment of information and communication technology (ICT) in the framework of the Sustainable Development Goals (SDGs) |
| 13/5 | Building circular and sustainable cities and communities | New | – | – |

Table 4 – List of Questions for ITU-T Study Group 9

| New number | Current Question title | Status | Previous number | Previous Question title |
| --- | --- | --- | --- | --- |
| 1/9 | Transmission and delivery control of television and sound programme signal for contribution, primary distribution and secondary distribution | Continuation of Q1/9 | 1/9 | Transmission and delivery control of television and sound programme signal for contribution, primary distribution and secondary distribution |
| 2/9 | Methods and practices for conditional access and content protection | Continuation of Q2/9 | 2/9 | Methods and practices for conditional access, protection against unauthorized copying and against unauthorized redistribution ("redistribution control" for digital cable television distribution to the home) |
| 4/9 | Guidelines for implementations and deployment of transmission of multichannel digital television signals over optical access networks and Hybrid Fibre-Coaxial (HFC) | Continuation of Q4/9 | 4/9 | Guidelines for implementations and deployment of transmission of multichannel digital television signals over optical access networks and Hybrid Fibre-Coaxial (HFC) |
| 5/9 | Software components application programming interfaces (APIs), frameworks and overall software architecture for advanced content distribution services within the scope of Study Group 9 | Continuation of Q5/9 | 5/9 | Software components application programming interfaces (APIs), frameworks and overall software architecture for advanced content distribution services within the scope of Study Group 9 |
| 6/9 | Functional requirements for terminal devices of the integrated broadband cable network | Continuation of Q6/9 | 6/9 | Functional requirements for residential gateway and set-top box for the reception of advanced content distribution services |
| 7/9 | Transmission control and interfaces (MAC layer) for IP and/or packet-based data over integrated broadband cable networks | Continuation of Q7/9 | 7/9 | Cable television delivery of digital services and applications that use Internet protocol (IP) and/or packet-based data over cable networks |
| 8/9 | The Internet protocol (IP) enabled multimedia applications and services for cable television networks enabled by converged platforms | Continuation of Q8/9 | 8/9 | The Internet protocol (IP) enabled multimedia applications and services for cable television networks enabled by converged platforms |
| 9/9 | Requirements, methods, and interfaces of the advanced service platforms to enhance the delivery of audiovisual content, and other multimedia interactive services over integrated broadband cable networks | Continuation of Q9/9 | 9/9 | Requirements, methods, and interfaces of the advanced service platforms to enhance the delivery of sound, television, and other multimedia interactive services over integrated broadband cable networks |
| 10/9 | Work programme, coordination and planning | Continuation of Q10/9 | 10/9 | Work programme, coordination and planning |
| 11/9 | Accessibility to cable systems and services | Continuation of Q11/9 | 11/9 | Accessibility to cable systems and services |
| 12/9 | AI-enabled enhanced functions over integrated broadband cable network | New | – | – |

Table 5 – List of Questions for ITU-T Study Group 11

| New number | Current Question title | Status | Previous number | Previous Question title |
| --- | --- | --- | --- | --- |
| 1/11 | Signalling and protocol architectures for telecommunication networks and guidelines for implementations | Continued | 1/11 | Signalling and protocol architectures in emerging telecommunication environments and guidelines for implementations |
| 2/11 | Signalling requirements and protocols for services and applications in telecommunication environments | Continued | 2/11 | Signalling requirements and protocols for services and applications in emerging telecommunication environments |
| 3/11 | Signalling requirements and protocols for emergency telecommunications | Continued | 3/11 | Signalling requirements and protocols for emergency telecommunications |
| 4/11 | Protocols for control, management and orchestration of network resources | Continued | 4/11 | Protocols for control, management and orchestration of network resources |
| 5/11 | Signalling requirements and protocols for border network gateway in the context of network virtualization and intelligentization | Continued | 5/11 | Protocols and procedures supporting services provided by broadband network gateways |
| 6/11 | Protocols supporting control and management technologies for IMT-2020 network and beyond | Continued | 6/11 | Protocols supporting control and management technologies for IMT-2020 |
| 7/11 | Signalling requirements and protocols for network attachment and edge computing for future networks, IMT-2020 network and beyond | Continued | 7/11 | Signalling requirements and protocols for network attachment including mobility and resource management for future networks and IMT-2020 |
| 8/11 | Protocols supporting distributed content networking, information centric network (ICN) technologies for future networks, IMT-2020 network and beyond | Continued | 8/11 | Protocols supporting distributed content networking and information centric network (ICN) for future networks and IMT-2020, including end-to-end multi-party communications |
| 12/11 | Testing of internet of things, its applications and identification systems | Continued | 12/11 | Testing of internet of things, its applications and identification systems |
| 13/11 | Monitoring parameters for protocols used in emerging networks, including cloud/edge computing and software-defined networking/network function virtualization (SDN/NFV) | Continued | 13/11 | Monitoring parameters for protocols used in emerging networks, including cloud computing and software-defined networking/network function virtualization (SDN/NFV) |
| 14/11 | Testing of cloud, SDN and NFV | Continued | 14/11 | Cloud interoperability testing |
| 15/11 | Combating counterfeit and stolen telecommunication/ICT devices | Continued | 15/11 | Combating counterfeit and stolen ICT equipment |
| 16/11 | Test specifications for protocols, networks and services for emerging technologies, including benchmark testing | Continuation of Q9/11, Q10/11 and Q11/11 | 9/11 | Service and networks benchmark testing, remote testing including Internet related performance measurements |
| 10/11 | Testing of emerging IMT-2020 technologies |
| 11/11 | Protocols and networks test specifications; frameworks and methodologies |
| 17/11 | Combating counterfeit or tampered telecommunication/ICT software | New | – | – |

Table 6 – List of Questions for ITU-T Study Group 12

| New number | Current Question title | Status | Previous number | Previous Question title |
| --- | --- | --- | --- | --- |
| 1/12 | SG12 work programme and quality of service/quality of experience (QoS/QoE) coordination in ITU-T | Continued | 1/12 | SG12 work programme and quality of service/quality of experience (QoS/QoE) coordination in ITU-T |
| 2/12 | Definitions, guides and frameworks related to quality of service/quality of experience (QoS/QoE) | Continued | 2/12 | Definitions, guides and frameworks related to quality of service/quality of experience (QoS/QoE) |
| 4/12 | Objective methods for speech and audio evaluation in vehicles | Continued | 4/12 | Objective methods for speech and audio evaluation in vehicles |
| 5/12 | Telephonometric methodologies for handset and headset terminals | Continuation of Questions 3/12 and 5/12 | 3/12 | Speech transmission and audio characteristics of communication terminals for fixed circuit-switched, mobile and packet-switched Internet protocol (IP) networks  |
| 5/12 | Telephonometric methodologies for handset and headset terminals |
| 6/12 | Analysis methods for speech and audio using complex measurement signals | Continuation of Questions 3/12 and 6/12 | 6/12 | Analysis methods using complex measurement signals including their application for speech and audio enhancement techniques |
| 3/12 | Speech transmission and audio characteristics of communication terminals for fixed circuit-switched, mobile and packet-switched Internet protocol (IP) networks |
| 7/12 | Methodologies, tools and test plans for the subjective assessment of speech, audio and audiovisual quality interactions | Continued | 7/12 | Methods, tools and test plans for the subjective assessment of speech, audio and audiovisual quality interactions |
| 8/12 | Virtualized deployment of recommended methods for network performance, quality of service (QoS) and quality of experience (QoE) assessment | Continued | 8/12 | Virtualized deployment of recommended methods for network performance, quality of service (QoS) and quality of experience (QoE) assessment |
| 9/12 | Perceptual-based objective methods and corresponding evaluation guidelines for voice and audio quality measurements in telecommunication services | Continued | 9/12 | Perceptual-based objective methods for voice, audio and visual quality measurements in telecommunication services |
| 10/12 | Conferencing and telemeeting assessment | Continued | 10/12 | Conferencing and telemeeting assessment |
| 11/12 | End-to-end performance considerations | Continued | 11/12 | Performance considerations for interconnected networks |
| 12/12 | Operational aspects of telecommunication network service quality | Continued | 12/12 | Operational aspects of telecommunication network service quality |
| 13/12 | Quality of experience (QoE), quality of service (QoS) and performance requirements and assessment methods for multimedia applications | Continued | 13/12 | Quality of experience (QoE), quality of service (QoS) and performance requirements and assessment methods for multimedia |
| 14/12 | Development of models and tools for multimedia quality assessment of packet-based video services | Continued | 14/12 | Development of models and tools for multimedia quality assessment of packet-based video services |
| 15/12 | Parametric and E-model-based planning, prediction and monitoring of conversational speech and audio-visual quality | Continued | 15/12 | Parametric and E-model-based planning, prediction and monitoring of conversational speech quality |
| 16/12 | Intelligent diagnostic functions framework for networks and services | Continued | 16/12 | Framework for diagnostic functions |
| 17/12 | Performance of packet-based networks and other networking technologies | Continued | 17/12 | Performance of packet-based networks and other networking technologies |
| 19/12 | Objective and subjective methods for evaluating perceptual audiovisual quality in multimedia and television services | Continued | 19/12 | Objective and subjective methods for evaluating perceptual audiovisual quality in multimedia and television services |
| 20/12 | Perceptual and field assessment principles for quality of service (QoS) and quality of experience (QoE) of digital financial services (DFS) | New | – | – |

Table 7 – List of Questions for ITU-T Study Group 13

| New number | Current Question title | Status | Previous number | Previous Question title |
| --- | --- | --- | --- | --- |
| 1/13 | Future Networks: Innovative service scenarios, including environmental and socio economical aspects | Continued | 1/13 | Innovative services scenarios, deployment models and migration issues based on Future Networks |
| 2/13 | Next-generation network (NGN) evolution with innovative technologies including software-defined networking (SDN) and network function virtualization (NFV) | Continued without change | 2/13 | Next-generation network (NGN) evolution with innovative technologies including software-defined networking (SDN) and network function virtualization (NFV) |
| 5/13 | Applying Future Networks and innovation in developing countries | Continued | 5/13 | Applying networks of future and innovation in developing countries |
| 6/13 | Networks beyond IMT2020: Quality of service (QoS) mechanisms | Continued | 6/13 | Quality of service (QoS) aspects including IMT-2020 networks |
| 7/13 | Future Networks: Deep packet inspection and network intelligence | Continued | 7/13 | Big data driven networking (bDDN) and Deep packet inspection (DPI) |
| 16/13 | Future Networks: Trustworthy and Quantum Enhanced Networking and Services | Continued | 16/13 | Knowledge-centric trustworthy networking and services |
| 17/13 | Future Networks: Requirements and capabilities for computing including cloud computing and data handling | Continued | 17/13 | Requirements, ecosystem, and general capabilities for cloud computing and big data |
| 18/13 | Future Networks: Functional architecture for computing including cloud computing and data handling | Continued | 18/13 | Functional architecture for cloud computing and big data |
| 19/13 | Future Networks: End-to-end management, governance, and security for computing including cloud computing and data handling | Continued | 19/13 | End-to-end cloud computing management, cloud security and big data governance |
| 20/13 | Networks beyond IMT-2020 and machine learning: Requirements and architecture | Continued | 20/13 | IMT-2020: Network requirements and functional architecture |
| 21/13 | Networks beyond IMT-2020: Network softwarization | Continued | 21/13 | Network softwarization including software-defined networking, network slicing and orchestration |
| 22/13 | Networks beyond IMT2020: Emerging network technologies | Continued | 22/13 | Upcoming network technologies for IMT-2020 and Future Networks |
| 23/13 | Networks beyond IMT2020: Fixed, mobile and satellite convergence | Continued | 23/13 | Fixed-Mobile Convergence including IMT-2020 |

Table 8 – List of Questions for ITU-T Study Group 15

| New number | Current Question title | Status | Previous number | Previous Question title |
| --- | --- | --- | --- | --- |
| 1/15 | Coordination of Access and Home Network Transport Standards | Continued | 1/15 | Coordination of access and home network transport standards |
| 2/15 | Optical systems for fibre access networks | Continued | 2/15 | Optical systems for fibre access networks |
| 4/15 | Broadband access over metallic conductors | Continued | 4/15 | Broadband access over metallic conductors |
| 5/15 | Characteristics and test methods of optical fibres and cables, and installation guidance | Continuation of Question 5/15 and part of Question 16/15 | 5/15 | Characteristics and test methods of optical fibres and cables |
| 16/15 | Optical physical infrastructures |
| 6/15 | Characteristics of optical components, subsystems and systems for optical transport networks | Continued | 6/15 | Characteristics of optical systems for terrestrial transport networks |
| 8/15 | Characteristics of optical fibre submarine cable systems | Continued | 8/15 | Characteristics of optical fibre submarine cable systems |
| 10/15 | Interfaces, interworking, OAM, protection and equipment specifications for packet-based transport networks | Continued | 10/15 | Interfaces, interworking, operation, administration and maintenance (OAM) and equipment specifications for packet-based transport networks |
| 11/15 | Signal structures, interfaces, equipment functions, protection and interworking for optical transport networks | Continued | 11/15 | Signal structures, interfaces, equipment functions, and interworking for optical transport networks |
| 12/15 | Transport network architectures | Continued | 12/15 | Transport network architectures |
| 13/15 | Network synchronization and time distribution performance | Continued | 13/15 | Network synchronization and time distribution performance |
| 14/15 | Management and control of transport systems and equipment | Continued | 14/15 | Management and control of transport systems and equipment |
| 16/15 | Connectivity, Operation and Maintenance of optical physical infrastructures | Continuation of part of Q16/15 and Q17/15 | 16/15 | Optical physical infrastructures |
| 17/15 | Maintenance and operation of optical fibre cable networks |
| 18/15 | Technologies for in-premises networking and related access applications | Continued | 18/15 | Broadband in-premises networking |

Table 9 – List of Questions for ITU-T Study Group 16

| New number | Current Question title | Status | Previous number | Previous Question title |
| --- | --- | --- | --- | --- |
| 1/16 | Multimedia and digital services coordination | Continued | 1/16 | Multimedia coordination |
| 5/16 | Artificial intelligence-enabled multimedia applications | Continued | 5/16 | Artificial intelligence-enabled multimedia applications |
| 6/16 | Visual, audio and signal coding | Continuation of Q6/16 and Q7/16 | 6/16 | Visual coding |
| 7/16 | Speech/audio coding, voiceband modems, facsimile terminals and network-based signal processing |
| 8/16 | Immersive live experience systems and services | Continued | 8/16 | Immersive live experience systems and services |
| 11/16 | Multimedia systems, terminals, gateways and data conferencing | Continued | 11/16 | Multimedia systems, terminals, gateways and data conferencing |
| 12/16 | Intelligent visual systems and services | Continued | 12/16 | Visual surveillance systems and services |
| 13/16 | Content delivery, multimedia application platforms and end systems for IP-based TV services including digital signage | Cont. of Q13/16 and Q14/16 and the CDN part of Q21/16 | 13/16 | Multimedia application platforms and end systems for IPTV |
| 14/16 | Digital signage systems and services |
| 21/16 | Multimedia framework, applications and services | Continued | 21/16 | Multimedia framework, applications and services |
| 22/16 | Multimedia aspects of distributed ledger technologies and e-services | Continued | 22/16 | Distributed ledger technologies and e-services |
| 23/16 | Digital culture-related systems and services | Continued | 23/16 | Digital culture-related systems and services |
| 24/16 | Human factors for intelligent user interfaces and services | Continued | 24/16 | Human factors related issues for improvement of the quality of life through international telecommunications |
| 26/16 | Accessibility to multimedia systems and services | Continued | 26/16 | Accessibility to multimedia systems and services |
| 27/16 | Vehicular multimedia communications, systems, networks, and applications | Continued | 27/16 | Vehicle gateway platform for telecommunication/ITS services and applications |
| 28/16 | Multimedia framework for digital health applications | Continued | 28/16 | Multimedia framework for e-health applications |

Table 10 – List of Questions for ITU-T Study Group 17

| New number | Current Question title | Status | Previous number | Previous Question title |
| --- | --- | --- | --- | --- |
| 1/17 | Security standardization strategy and coordination | Continued | 1/17 | Telecommunication/ICT security coordination |
| 2/17 | Security architecture and network security | Continued | 2/17 | Security architecture and framework |
| 3/17 | Telecommunication information security management and security services | Continued | 3/17 | Telecommunication information security management |
| 4/17 | Cybersecurity and countering spam | Continuation of Q4/17 and Q5/17 | 4/17 | Cybersecurity |
| 5/17 | Countering spam by technical means |
| 6/17 | Security for telecommunication services and Internet of Things | Continued | 6/17 | Security aspects of telecommu­nication services, networks and Internet of Things |
| 7/17 | Secure application services | Continued | 7/17 | Secure application services |
| 8/17 | Cloud computing and big data infrastructure security | Continued | 8/17 | Cloud computing and big data infrastructure security |
| 10/17 | Identity management and telebiometrics architecture and mechanisms | Continued | 9/17 | Telebiometrics |
| 10/17 | Identity management architecture and mechanisms |
| 11/17 | Generic technologies (such as Directory, PKI, Formal languages, Object Identifiers) to support secure applications | Continuation of Q11/17 and Q12/17 | 11/17 | Generic technologies (Directory, public key infrastructure (PKI), privilege management infrastructure (PMI), Abstract Syntax Notation One (ASN.1), object identifiers (OIDs)) to support secure applications |
| 12/17 | Formal languages for telecommunication software and testing |
| 13/17 | Intelligent transport system security | Continued | 13/17 | Security aspects for Intelligent Transport System |
| 14/17 | Distributed ledger technology (DLT) security | Continued | 14/17 | Security aspects for distributed ledger technologies |
| 15/17 | Security for/by emerging technologies including quantum-based security | New | – | – |

Table 11 – List of Questions for ITU-T Study Group 20

| New number | Current Question title | Status | Previous number | Previous Question title |
| --- | --- | --- | --- | --- |
| 1/20 | Interoperability and interworking of IoT and SC&C applications and services | Continuation of Question 1/20 and part of Q2/20, Q3/20 and Q4/20 | 1/20 | End to end connectivity, networks, interoperability, infrastructures and Big Data aspects related to IoT and SC&C |
| 2/20 | Requirements, capabilities and architectural frameworks across verticals enhanced by emerging digital technologies  | Continuation of Question 2/20, part of Q4/20 | 2/20 | Requirements, capabilities, and use cases across verticals |
| 3/20 | IoT and SC&C architectures, protocols and QoS/QoE | Continuation of part of Q3/20 | 3/20 | Architectures, management, protocols and Quality of Service |
| 4/20 | Data analytics, sharing, processing and management, including big data aspects, of IoT and SC&C  | New study items and continuation of part of Q1/20, part of Q4/20 | 4/20 | e/Smart services, applications and supporting platforms |
| 5/20 | Study of emerging digital technologies, terminology and definitions  | Continuation of Question 5/20 | 5/20 | Research and emerging technologies, terminology and definitions |
| 6/20 | Security, privacy, trust and identification for IoT and SC&C | Continuation of Question 6/20, part of Q1/20 and Q4/20 | 6/20 | Security, privacy, trust and identification for IoT and SC&C |
| 7/20 | Evaluation and assessment of Smart Sustainable Cities and Communities | Continuation of Question 7/20 | 7/20 | Evaluation and assessment of Smart Sustainable Cities and Communities |

Annex 2
Questions deleted following TSAG endorsement (18 January 2021)

The following Questions are discontinued. The comment column indicates where remaining study areas, if any, would be addressed for the remaining of this study period.

| Question | Title | Comment |
| --- | --- | --- |
| 2/3 | Development of charging and accounting/settlement mechanisms for international telecommunications services, other than those studied in Question 1/3, including adaptation of existing D-series Recommendations to the evolving user needs | Question 2/3 was merged into Question 1/3. |
| 5/3 | Terms and definitions for Recommendations dealing with tariff and accounting principles together with related economic and policy issues | SG3 agreed that Question 5/3 would be discontinued. |
| 13/3 | Study of Tariff, Charging Issues of Settlements Agreement of Trans-multi-country Terrestrial Telecommunication Cables | Question 13/3 was merged into Question 6/3. |
| 5/5 | Security and reliability of information and communication technology (ICT) systems from electromagnetic and particle radiations | Question 5/5 was merged into Question 1/5. |
| 9/11 | Service and networks benchmark testing, remote testing including Internet related performance measurements | Q9/11, 10/11 and 11/11 were merged into Q16/11. |
| 10/11 | Testing of emerging IMT-2020 technologies | Q9/11, 10/11 and 11/11 were merged into Q16/11. |
| 11/11 | Protocols and networks test specifications; frameworks and methodologies | Q9/11, 10/11 and 11/11 were merged into Q16/11. |
| 3/12 | Speech transmission and audio characteristics of communication terminals for fixed circuit-switched, mobile and packet-switched Internet protocol (IP) networks | Study areas transferred to Q5/12 and Q6/12. |
| 17/15 | Maintenance and operation of optical fibre cable networks | Question 17/15 was merged into Question 16/15. |
| 7/16 | Speech/audio coding, voiceband modems, facsimile terminals and network-based signal processing | Remaining study areas transferred to Q6/16. |
| 14/16 | Digital signage systems and services | Remaining study areas transferred to Q13/16. |
| 5/17 | Countering spam by technical means | Question 5/17 was merged into Question 4/17. |
| 9/17 | Telebiometrics | Question 9/17 was merged into Question 10/17. |
| 12/17 | Formal languages for telecommunication software and testing | Question 12/17 was merged into Question 11/17. |

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