# 1. Introduction:

**1.1** The extant CP<sup>5</sup> is 'Paper on **Definition of International Traffic**'<sup>6</sup> but in a convoluted way the issue of "**a need to define the term 'domestic traffic**"<sup>7</sup> has also been introduced in consultation process.

**1.1.1** RJIL<sup>8</sup> has observed **"that Defining International SMS and Domestic SMS, and the Authority deemed it suitable to expand the scope of consultation to International and Domestic Traffic."** 

# 2.Definition:

**2.1.** TRAI has put forth a definition of the international traffic **'the international long-distance traffic originating in one country and terminating in another country, where one of the countries is India'** and further proposed **'to define the term 'international traffic' in the telecommunication service license agreement'**.<sup>9</sup>

**2.2. '21'** stake holders have sent a total number of **'113'** pages as comments to TRAI.<sup>10</sup>

**2.3.** Some stake holders have proposed alternate to TRAI proposed definition/definitions either none or for both or gave reasons both as follows:

**2.3.1.** There is no need to define **'International Traffic'**<sup>11</sup> & **'Domestic Traffic'**<sup>12</sup> as per **Vodafone**<sup>13</sup>.

**2.3.2 RJIL**<sup>14</sup> have stated that "our submission that there is no need to prescribe the definitions of domestic and international SMS".

**2.3.2.1.** An alternate definition proposed is that "we submit that International SMS needs to be specifically defined as per TSP COPs or alternatively as below: International SMS is a short message service enabling text message to be transferred and/or originated by any data, application, system, servers, handset device or terminal device etc. which influences, generates, control, facilitate or enable the generation, dissemination, transmission or transition of messages through a communication network process, including partial process, from a location outside the territory of India or a text message originated by handset device or terminal device located in India to such application, system, servers etc located outside India prompted in response to a short message by such data, application, system, servers etc. Any mediation solution in India shall not impact and/or change the nature of such International SMS to national/domestic SMS."<sup>15</sup>

**2.3.3** "There is no need to introduce a definition for 'international SMS' or 'international traffic" as per Airtel.<sup>16</sup>

**2.3.3.1** "There is no need to define "domestic SMS" traffic" as per Airtel.<sup>17</sup>

**2.3.4.** "Now it is the time to define the term "International Traffic." as per<sup>18</sup>

2.3.4.1. Answer to definition of 'domestic traffic" is ''No" as per<sup>19</sup>

**2.3.5.**"International traffic shall mean international long-distance traffic originating from the telecommunication networks of a telecommunication service provider of one country and terminating in the telecommunication networks of a telecommunication service provider in another country, where one country is India." is the one proposed by<sup>20</sup>.

**2.3.5.1**.Further term international SMS has been proposed to be defined as: **The term international SMS shall mean international traffic delivered using SMS**.<sup>"21</sup>.

**2.3.5.2**.Moreover alternate definition for domestic traffic is proposed that domestic traffic should be defined as: "Domestic traffic shall mean 'inter-circle traffic' or 'intra-circle traffic' originating and terminating on the telecommunication networks of telecommunication service providers within the territorial boundary of India."<sup>22</sup>.

**2.3.6.**Definition proposed by TRAI for international traffic "may not be feasible"<sup>23</sup> as per BIF.

**2.3.6.1.** BIF has also suggested that "it is imperative to amend the telecommunication service license agreements to define "international traffic" and "domestic traffic", and provide a clear definition which is specific to telecom networks."<sup>24</sup>.

**2.3.6.2.** A definition for international SMS as "The term international SMS shall mean international traffic delivered using SMS which originates on the PSTN/PLMN network of a telecom service provider of one country and terminates in the PSTN/PLMN networks of a telecommunication service provider in another country, where one country is India."<sup>25</sup>

**2.3.6.3.** Alternative definition for domestic traffic is defined as: "Domestic traffic shall mean 'inter-circle traffic' or 'intra-circle traffic' originating and terminating on the telecommunication networks of telecommunication service providers within the territorial boundary of India."<sup>26</sup>.

**2.3.7.** As per COAI "there is no need to define international traffic."<sup>27</sup>

**2.3.7.1.** Further COAI has stated that "International SMS needs to be specified"<sup>28</sup> and has provided a definition' as:

"International SMS is a short message service enabling text message to be transferred and/or originated by any data, application, system, servers, handset device or terminal 5 device etc. which influences, generates, control, facilitate or enable the generation, dissemination, transmission or transition of messages through a communication network process, including partial process, from a location outside the territory of India or a text message originated by handset device or terminal device located in India to such application, system, servers etc. located outside India prompted in response to a short message by such data, application, system, servers etc. Any mediation server solution in India shall not impact and/or change the nature of such International SMS to national/domestic SMS".<sup>29</sup>

**2.3.7.2.** "there is no need to define 'domestic traffic'' as per COAI.<sup>30</sup>

**2.3.8.** TCL has stated that "we are of the view that it is required to define the term 'international traffic' in the telecommunication service license agreements"<sup>31</sup>

**2.3.8.1** In place of providing an alternate definition of international traffic, TCL have suggested change in clause of relevant agreement as:

"2.2 (a) The ILD Service is basically a network carriage service (also called bearer) providing international connectivity to the Network operated by foreign carriers. The ILD service provider is permitted full flexibility to offer all types of bearer services from an integrated platform. ILD service providers will provide bearer services so that endto-end tele-services such as voice, data, fax, video, SMS and multi-media etc. can be provided by Access Providers to the customers."<sup>32.</sup>

**2.3.8.2.** "TRAI should define "Domestic traffic". In the license agreement "The term domestic traffic should include domestic SMS traffic wherein Enterprises/Individuals who have infrastructure setup in India to originate the traffic (e.g., IP address, Phone number or combination of both etc., as origination source parameters) and with origination and termination of SMS both in India along with the data residing only in India (on cloud or otherwise). Such SMS traffic should be considered as a part of domestic traffic."<sup>33</sup>

**2.3.9.** According to Amazon "it is imperative that the relevant regulations provide a clear and unambiguous definition of the terms "International Traffic", "International SMS", and "Domestic Traffic".<sup>34</sup>

**2.3.9.1.** Amazon states that "We believe the current definition of "international traffic" as suggested by TRAI should be clarified further to prevent any ambiguity." <sup>35</sup>

**2.3.9.2.** As per Amazon "The term international SMS shall mean international traffic delivered using SMS."<sup>36</sup>.

**2.3.9.3.** "Domestic traffic shall mean 'inter-circle traffic' or 'intra-circle traffic' originating and terminating on the telecommunication networks of telecommunication service providers within the territorial boundary of India." as proposed by Amazon.<sup>37</sup>

**2.3.9.3.** After elaborating TRAI disposition in the CP CIVIS **has come to the conclusion** "Therefore, the current definition provided by the authority is incomplete in capturing these complexities."<sup>38</sup>.

**2.3.10.** Without providing an alternate definition ISPAI has stated that" The need for definition of international traffic becomes important for A2P SMS services which are being provided to Enterprises for their business purposes."<sup>39</sup>.

**2.3.10.1.** About 'domestic traffic' ISPAI has stated that **"**TRAI should define "Domestic traffic"<sup>40</sup> but no definition for same has been proposed.

**2.3.11.** Definition for 'International Traffic 'and 'International SMS' has been proposed by<sup>41</sup> as follows.

"International Traffic' refers to the transmission of international long-distance traffic that satisfies either of the following conditions: a. Traffic that originates on the telecommunication network of a telecommunication service provider within the geographical boundaries of India, and terminates on the telecommunication network of a telecommunication service provider outside the geographical boundaries of India, or b. Traffic that originates on the telecommunication network of a telecommunication service provider outside the geographical boundaries of India, and terminates on the telecommunication network of a telecommunication service provider within the geographical boundaries of India. As the aforesaid definition will still include within its ambit all types of voice, SMS, and data packet carried by international long distance operators (ILDOs), we also suggest introducing the definition of 'international SMS', as set out in our response to Q.4. For easy reference, the said definition as proposed under our response to Q.4 is reproduced herein below: 'International SMS' refers to international traffic transmitted and received using SMS."

**2.3.11.2.** "'Domestic Traffic' refers to the transmission of telecommunication traffic that originates and terminates on the telecommunication network of a telecommunication service provider within the geographical boundaries of India."<sup>42</sup>

**2.3.12.** BTG<sup>43</sup> has referred to TRAI CP definition of International Traffic and proposed that "The introduction of a definition for international traffic under existing licensing agreements will be helpful and may curb evasion of fees and charges."<sup>44</sup>

**2.3.13.** USISPF<sup>45</sup> has proposed that "it is imperative to amend the telecommunication service license agreements to define "international traffic" and "domestic traffic", and provide a clear definition which is specific to telecom networks." <sup>46</sup>.

**2.3.13.1** An alternate definition has been provided as ""International traffic shall mean international long-distance traffic originating from the telecommunication networks of a telecommunication service provider of one country and terminating in the telecommunication networks of a telecommunication service provider in another country, where one country is India."<sup>47</sup>

**2.3.13.2** "we suggest that "domestic traffic" should be defined as: "inter-circle traffic' or 'intra-circle traffic' originating and terminating on the telecommunication networks of telecommunication service providers within the territorial boundary of India."<sup>48</sup>

**2.3.14** TTL<sup>49</sup> agrees TRAI CP definition of 'International Traffic' covering domestic traffic also but with riders that "we agree with the same that, international long traffic may be defined as telecommunication service which originates from one country and terminates into another country through ILD gateway through a Licensed ILDO, where one of the countries in the process is India. In all other scenarios the traffic may be treated as domestic traffic."<sup>50</sup>

**2.3.14.1** "there is no need to further define the domestic traffic in the telecommunications service license agreements."<sup>51</sup>

**2.3.15.** "Transmission of long-distance telecommunications traffic originating from the telecommunication networks of a telecommunication service provider located in one country and terminating in the telecommunication networks of a telecommunication service provider in another country, where one country is India."<sup>52</sup> is an alternate definition proposed by Quantum Hub.

**2.3.15.1** "Domestic traffic shall encompass 'inter-circle traffic' or 'intra-circle traffic' that originates and terminates exclusively within the territorial boundaries of India, taking place on the telecommunication networks of telecommunication service providers operating within the country."<sup>53</sup> is proposed definition for domestic traffic by Quantum Hub.

**2.3.16** BSNL response is "Yes"<sup>54</sup> to TRAI CP definition of International Traffic.

2.3.16.1 "There is no need to define the term 'domestic traffic" as per BSNL.<sup>55</sup>

**2.3.16.2** "BSNL Comments: Broadly, the Telecom traffic consists of voice call and SMS. Para 5 of Chapter-XI (International Long Distance Service) of Unified License provides for Network Interconnection Topology. As per existing licensing framework, the International Telecom Traffic should be routed in a way as prescribed in UL. This arrangement seems to be fine as far as voice traffic is concerned. However, with devise of new technologies, the Principal Entities/ Telemarketers are exploiting the other means (through the world of INTERNET) to fetch the Text Messages to Indian market bypassing the prescribed Network Interconnect in UL. In reality, such text messages are generated outside India but brought into India bypassing the Telecom Network Interconnection. Subsequently, these messages are delivered through domestic route in Indian. Similarly, for outgoing International SMSs, the Tele-Marketers (TMs) in India collect the SMS traffic from the PEs and carry the same outside country bypassing the ILD interconnect network of telecom operators in India. This issue need to be addressed through this consultation process. As also indicated in DoT communication to TRAI dated 30.08.2022."<sup>56</sup>

2.3.17 Response "yes" by Consumer Care Society.<sup>57</sup>

2.3.17.1 Response "No" by Consumer Care Society.<sup>58</sup>

2.3.18 "No comments" by VMIPL.<sup>59</sup>

**2.3.18.1** "the scope of "domestic traffic" is still vague".<sup>60</sup>

2.3.18.2 "there is a strong need to have clear guidelines for treatment of a traffic"<sup>61</sup>

2.3.19. An alternate definition for international has been provided by IAMAI.<sup>62</sup>

2.3.19.1An alternate definition for international has been provided by IAMAI.<sup>63</sup>

2.3.20. "Q2: define the term 'international traffic'

The definition has not taken into account network heterogeneity. It seems to only consider connection oriented networks. Also the raise of automated communication system does not seem to be taken into account. Machine generated international traffic and Human generated international traffic needs to be classified differently to try and protect Indian citizens, sooner or later. There also seems to be no talk about international transit data, which can only contain parts of a data stream. If routing of such data wisely is the telecom operators responsibility (they claim they hire only educated and talented people), India can treat such traffic as public property used to benefit Indian citizens.

Taking these issues to account, it would not be possible to define **'international traffic'** any more as it would need more sub definitions and this would be a mere meta definition."<sup>64</sup>

# **3.ITU relevant to extant TRAI CP:**

The following is extracted from<sup>65</sup>.

**"133sms** SMS sent Total number of mobile Short Message Service (SMS) sent, both to national and international destinations. This should exclude messages sent by computers to mobile or to computers.

**133smsi SMS international** Total number of mobile Short Message Service (SMS) sent to international destinations. This should exclude messages sent by computers to mobile or to computers.

**133mms MMS sent** Total number of mobile Multimedia Messaging Service (MMS) sent, both to national and international destinations. This should exclude messages sent by computers to mobile or to computers.

133i **Mobile Internet traffic** Total amount of data traffic (excluding SMS and MMS) for the past year from all mobile networks. (Under discussion)"

4. illegal operation of telecom networks:

4.1

"No. 1-50(17)/2017-Estt. No. 1-50(17)/2017-Estt.

**Government of India** 

**Ministry of Communications** 

**Department of Telecommunications** 

Sanchar Bhawan, 20-Ashoka Road, New Delhi

(Establishment wing)

Dated the 20th April, 2018

**OFFICE MEMORANDUM** 

**Subject: Charter of duties of DoT field units** 

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2. 2 Security: Security Audit, CMS, Grey Market detection, etc.

(i) Matters related to national security and Lawful Interception

(ii) Act as technical interface between Security Agencies and Telecom  $\cdot$  Service. Providers

(iii) Operation and Maintenance of CMS/ IMS

(iv) Curbing illegal activities/ Control over clandestine illegal operation of telecom networks

(v) To file FIR against culprits, pursue the cases and issue notices indicating violation of conditions of various Acts and statute in force

(vi) Analysis of call/subscription/traffic data of various licensees ·

(vii) Security related Inspection of Internet Lease Line, International/ National Private Leased Circuit

(viii) Detection and Analysis of Non-genuine IMEI cases

(ix) Security Audit of Telecom Network~ of Service Provider.

(x) Coordination with LEA in various projects like CTime and Criminal Tracking Network & systems (CCTNS), Anchoring of CERTs of state Government etc.

(xi) Implementation of IMEI Registry Project and its maintenance" extracted from

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(Mukta Goel)

Director (Establishment)

Tel: 2303 6500

To 1. PS to Hon'ble Mos (IC), MoC

- 2. PPS to Secretary (T)
- 3. Member (S)/ Member (T)/ Member (F)
- 4. Special Secretary (T)/ Director General Telecom/ CGCA
- 5. Advisor (0)/ Advisor (T)/ Advisor (F)
- 6. Administrator, USOF
- 7. Sr DDG (TEC)/ Sr DDG (NTIPRIT)
- 8. Chief Vigilance Officer/ Joint Secretary(T)/ Joint Secretary(A)/, DoT
- 9. Heads of LSAs in DoT field units/ Pr CCAs/ CCAs
- 10. CMD BSNL/ MTNL/ BBNL/ TCIL
- 11. All Sr DDGs/ DDGs, DoT Hqs
- 12. Director (IT), DoT for posting this OM on the website of DoT"<sup>66</sup>.

**4.2.** A write up given in a technical paper<sup>67</sup> is relevant to item 2.2(highlighted) of paragraph 4.2.22(iv) above.<sup>68</sup>

# 5. International SMS Domestic SMS:

**5.1** As per Airtel CoP Version 1.0 "xii. International SMS: Any data/application/system/servers etc. which influences, generates, control, facilitate or enable the generation, dissemination/ transmission of messages from a location outside the territory of India will constitute as International messages. Any mirroring solution in India shall not impact and/or change the nature of such International SMS to national SMS."<sup>69</sup>

**5.1.1.** Airtel CoP Version 1.0 inter-alia also uses word "National SMS".<sup>70</sup>

**5.1.2.** Airtel CoP Version 1.0 does not use the word "domestic SMS" in its document.<sup>71</sup>

**6.** Some key words, like **route/grey/illegal or their variants,** with frequency either all or two or one, are appearing in the extant CP<sup>72</sup> (**'Route' '9' times**) and in submissions by only a few<sup>73</sup> to TRAI.

# 7. Level Playing Field:

**7.1.** Some stake holders have mentioned the phrase of "level playing field" in their submission to TRAI.<sup>74</sup>

# **ISSUES FOR CONSULTATION**

Stakeholders are requested to provide responses to the following questions with detailed justifications:

**Q1.** Whether it would be appropriate to define the term 'international traffic' in the telecommunication service license agreements as 'the international long-distance traffic originating in one country and terminating in another country, where one of the countries is India'? Kindly provide your response with a detailed justification.

**Q2.** In case your response to the **Q1** is in the negative, kindly provide an alternative definition along with a detailed justification.

**Q3.** Since the terms 'Inter circle traffic' and 'Intra circle traffic' are already defined in the telecommunication service license agreements, whether there is still a need to define the term 'domestic traffic' in the telecommunication service license agreements? If yes, what should be the definition of the term 'domestic traffic'? Kindly provide your response with a detailed justification.

**Ans. Q1. to Q3** No specific Ans. Kindly refer to **Ans4**.

**Q4.** Whether there are any other issues/ suggestions relevant to the subject? If yes, the same may kindly be furnished with proper justification.

#### Ans4.

**Conclusions:** 

**7.** The following may be concluded, from paras **1.,1.1** & **1.1.1** above, that:

**7.1.** The scope of extant CP has been expanded from consideration of definitions of 'International SMS', Domestic SMS' to the consideration of 'International Traffic', 'Domestic Traffic' (presumably TRAI has been prudent enough to invoke the inherent power available as per TRAI Act to do this) for inclusion in UL.

**8.** The following may be concluded, from paras **2. to 2.3.20** above, that:

**8.1.**There is no universal definition possible for **International Traffic.** 

**8.2.** There is no need to define **Domestic Traffic** in addition to existing **Intra-Circle Traffic** & **Inter-Circle Traffic**.

**8.3.** Consideration may be confined to International SMS & Domestic SMS only.

**9.**The following may please be noted from para **3.** above:

**9.1** ITU has provided *inter-alia* a definition of International SMS in<sup>75</sup> as:

"Total number of mobile Short Message Service (SMS) sent to international destinations. This should exclude messages sent by computers to mobile or to computers."

**10.** The following may be concluded, from paras **4.**, **5.**,**6.** and their respective subparagraphs above that:

10.1 There is existence of 'Grey@Gray Market' for both 'Voice Calls' & 'SMSs)<sup>76</sup>.

**10.1.1** Some stake-holders have given diagrams to illustrate **10.1.** above as below:

**10.1.1.1** Fig1, Fig2.<sup>77</sup>, page '7' of<sup>78</sup>, diagram/architecture shown on<sup>79</sup>.

**10.2** Stake Holder RJIL(TSP) has stated that "we believe that defining International Traffic as the traffic originating in another country and terminating in India (depicted in Figure 2.4 of the Consultation Paper)<sup>80</sup> will not address the principal issue of grey SMS route (described in the preface) unless it recognizes the distinction between the PSTN services (voice/SMS) and Internet services".

**10.3** DoT has taken cognizance of 'Grey Market'<sup>81</sup> and has issued instruction <u>inter-alia</u> for "(iv) Curbing illegal activities/ Control over clandestine I illegal operation of telecom networks"<sup>82</sup>.

**11.**There is a novel entry in the CoP (**most probably approved by TRAI**) about "the nature of SMS i.e. National or International SMS."<sup>83</sup>

**12.** The following may please be noted from para **7.** above:

**12.1** A number of stake holders have included the phrase "level playing field" in their submissions to **TRAI.**<sup>84</sup>

# Suggestions:

# **13.The following is submitted for kind consideration please:**

Please refer paras **'8'**, **'9'** and their sub paras & para**'11**' above.

**13.1** The consultation/consideration of a Universal definitions for 'International Traffic' & 'Domestic Traffic' may be held in abeyance.

**13.2** Noting that **ITU** has already defined 'International SMS':

**13.2.1** TRAI may consider this for its consideration and recommend to DoT accordingly.

**13.2.2** TRAI may define 'National Traffic ' **in addition** & **distinct** from 'intra circle' & 'inter circle' traffic'

**13.2.3** There after Stake Holders may have a fresh look at their perception about consequences of **routing of International SMS** & changes, **if any**, required in Legislative/legal/Regulatory framework.

**14.** Please refer para **'10'**above:

Noting that DoT has already taken action regrading *inter-alia* about "(iv) Curbing illegal activities/ Control over clandestine I illegal operation of telecom networks".<sup>85</sup>

**14.1** TRAI to emulate DoT **'suo motu**" to supplement effort of *inter-alia* by spreading the awareness among consumers about the issue through their current **'Consumer Outreach Programme'**.

**15.** Please refer para **'12'**above:

**15.1 TRAI** need to settle issue of a definition of **'Level Playing Ground'** early.

**Post Script-** Proposed definition for a **'National SMS'** is suggested below for kind consideration:

An incoming/outgoing SMS to India/going to other country is 'National SMS' for the segment it traverse land/air/marine territory of India.

\*\*\*\*\*

# References

1. <u>https://trai.gov.in/sites/default/files/CP\_02052023.pdf</u>

2. <u>https://trai.gov.in/sites/default/files/PR\_No.38of2023.pdf</u>

3. <u>https://trai.gov.in/sites/default/files/PR\_No.48of2023\_0.pdf</u>

4. <u>https://trai.gov.in/sites/default/files/PR\_No.55of2023\_0.pdf</u>

**6**. page(i) of supra **'1'**.

**7.** question '4' page '14' supra **'1'**.

**8.** page 2/11 of 10.(xvii) below.

**9.** question '1' page '14' supra **'1'**.

10.

(i) <u>https://trai.gov.in/sites/default/files/ISPAI\_12072023.pdf</u> (j)('4' pages)

(ii) <u>https://trai.gov.in/sites/default/files/COAI\_12072023.pdf</u> (m)('7' pages)

(iii) <u>https://trai.gov.in/sites/default/files/BIF\_12072023.pdf</u> (n)('7'pages)

(iv) <u>https://trai.gov.in/sites/default/files/IAMAI\_12072023.pdf</u> (b)('2'pages)

(v) <u>https://trai.gov.in/sites/default/files/USIBC\_12072023.pdf</u> (o)('7'pages)

(vi) <u>https://trai.gov.in/sites/default/files/USISPF\_12072023.pdf</u> (h)('4'pages)

(vii) <u>https://trai.gov.in/sites/default/files/BTG\_12072023.pdf</u> (p)('3'pages)

(viii) <u>https://trai.gov.in/sites/default/files/Civis\_12072023.pdf</u> (q)('4'pages)

(ix) <u>https://trai.gov.in/sites/default/files/Amazon\_12072023.pdf</u> (k)('6'pages)

(x) <u>https://trai.gov.in/sites/default/files/The\_Quantum\_Hub\_12072023.pdf</u> (f)('3'pages)

(xi) <u>https://trai.gov.in/sites/default/files/Truecaller\_12072023.pdf</u> (i)('4'pages)

(xii) <u>https://trai.gov.in/sites/default/files/Harinath\_12072023.pdf</u> (a)('1" page)

(xiii) <u>https://trai.gov.in/sites/default/files/BSNL\_12072023.pdf</u> (e)('2'pages)

(xiv) <u>https://trai.gov.in/sites/default/files/TCL\_12072023.pdf</u> (L)('6'pages)

(xv) <u>https://trai.gov.in/sites/default/files/TTL\_12072023.pdf</u> (g)('3'pages)

(xvi) <u>https://trai.gov.in/sites/default/files/Airtel\_12072023.pdf</u> (s)('11'pages)

(xvii) <u>https://trai.gov.in/sites/default/files/RJIL\_12072023.pdf</u> (t)(--do--)

(xviii) <u>https://trai.gov.in/sites/default/files/Vodafone\_Idea\_12072023.pdf</u> (u)(---do--)

(xix) <u>https://trai.gov.in/sites/default/files/VMIPL\_12072023.pdf</u> (c)('2'pages) (xx) <u>https://trai.gov.in/sites/default/files/Consumer Care 12072023.pdf</u> (d)('2'pages) (xxi) https://trai.gov.in/sites/default/files/Consumer Protection Association 12072023.pdf (r)('9') pages) **11.** page 3/11 of supra **10.(**xviii). **12.** page 11/11 of supra **10.**(xviii). **13.** page 1/11 of supra **10.**(xviii) **14.** para '6' page '8' of supra **10.**(xvii). **15.** para '13' page '9' of supra **10.**(xvii). **16.** item 'i' page 5/11 of supra **10.**(xvi). **17.** item 'iii' page 5/11 of supra **10.**(xvi). **18.** page 3/9 of supra **10.(**xx). **19.** Ans. **Q3** page 8/9 of supra **10.**(xx). **20.** Ans. **Q2** page '6' of supra **10.**(v). **21.** page '6' of supra **10.**(v). **22.** page '7' of supra **10.**(v). **23.** page '1' of supra **10.**(iii). **24.** para (iii) page 4/7 of **supra 10.**(iii). 25. page 5/7 of supra 10.(iii). 26. ibid. **27.** para '1' of page '1' of supra **10.**(ii). **28.** para 'j' of page '4'- '5' of supra **10.**(ii). **29.** ibid. **30.** para 'a' of page '6' of supra **10**(ii). **31.** First bullet point of page '2' of supra **10**.(xiv). **32.** Fourth bullet on pages '2'-'3' of supra **10**.(xiv). **33.** Ans. Q3. Page '4' of supra **10**.(xiv). **34.** page '1' of supra **10**.(ix). **35.** Ans. Q1. Page '2' of supra **10**.(ix). **36.** page '4' of supra **10**.(ix). **37.** page '5' of supra **10**.(ix). **38.** page '2' of supra **10**.(ix). **39.** page '2' of supra **10**.(i). **40.** page '3' of supra **10**.(i). **41.** page '2' of supra **10**.(xi). **42.** Ans. Q3. page '3' of supra **10**.(xi). **43.** page '1' supra **10.**(vii) **44.** Ans. Q '1' supra **10.**(vii). **45.** page '1' supra **10.**(vi).

**46.** Ans. Q '1' page '2' supra **10.**(vi). **47.** Ans. Q '2' page '2' supra **10.**(vi). **48.** Ans. Q '3' page '3' supra **10.**(vi). **49.** page '1' supra **10.(xv**) **50.** Ans. Q '1' page '2' supra **10.**(xv). **51.** Ans. Q '3' page '2', '3' supra **10.**(xv). **52.** Ans. Q '2' page '2' supra **10.**(x). **53.** Ans. Q '3' page '3' supra **10.**(x). **54.** Ans. Q '1' page '1' supra **10.**(x). **55.** Ans. Q '3' page '1' supra **10.**(x). **56.** Ans. Q '4' page '2' supra **10.**(x). **57.** Ans. Q '1' page '2' supra **10.**(xx). **58.** Ans. Q '3' page '2' supra **10.**(xx). **59.** Ans. Q '1', page '1' supra **10.**(xix). **60.** Ans. Q '3' page '1' supra **10.**(xix). **61.** Ans. Q '4' page '2' supra **10.**(xix). **62.** Ans. Q '2' page '2' supra **10.**(xix). **63.** Ans. Q '3' page '2' supra **10.**(iv). **64.** page '2' supra **10.**(xii). **65**. https://www.itu.int/ITU-D/ict/material/TelecomICT Indicators Definition March2010 for web.pd f 66. https://dot.gov.in/sites/default/files/CharterOfDuties.pdf 67. https://www.researchgate.net/publication/ 294927963 TECHNICAL NOTE ON ILLEGAL INTERNATIONAL LONG DISTANC E TELEPHONE EXCHANGE IN INDIA 68. supra '**66'**. 69. https://www.airtel.in/business/commercial-communication/assets/documents/ Help Modules/Cop docs/CoP Entities 08 11 2018.pdf (source: (reference '1' of supra 10.(v).)) 70 page '9' of '29' of supra '68'. 71. page '17' of '29' of supra '68' **72.** supra '**1**'.(Route '9' times) 73. (i) supra '10'(ii).(route '24' times, grey '11' times', illegal '1' time, legally '2' times) (ii) supra '**10'**(xii).(**routing** '1' time) (iii) supra '**10**'(xiii).(route '1' time, routed '1') (iv) supra '10'(xv).(route '2' times), (grey '1' time). (v) supra '10'(xvi).

(vi) supra '**10'**(xvii).(route '18' times, routed '13' times), grey '18' times, illegal '6' times. (vii) supra '**10'**(xviii).(route '32' times, routed '2' times),(grey '13', grey market '1'), (legal '1', illegal '6').

# 74.

- (i) page '10' of '10' of supra **'10'.**(xxi).
- (ii) pages '3', '4', '5' of supra '**10'**(xiv).
- (iii) page '1' of supra '**10'**(i).
- (iv) page '1'of supra '10'(xi).
- **75.** ITU Code '133smsi' page no. '9' of supra '**65**'.
- 76. supra '73.'.
- **77.**Page '3/11' supra **10.((**xvi**).**
- **78.** Page '7' supra **10**.(xvii).
- **79.** Page '6/10' supra **10**.(xviii).
- **80.** Page '6' supra '**1**'.
- 81. supra '66'.
- 82. para '2'(iv) ibid.
- **83.** page '10' of '29', para **B(**b)viii. of supra '69'.
- 84. supra '74'.
- 85. supra '66'.

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