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(Ia,b,c, II a,b,c,d, III)

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Use of the time-temperature arrhenius index in evaluation the maturity of the organic matter in Siluric and upper Paleozoic rocks in the central and eastern parts of the Aleppo Plateau

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ABSTRACT

considering the importance of temperature and time factors in maturation and conversion the organic materials ,and the facts, that the sum of the effects of these factors is effected by the sedimentary burial history and changes with the changing of the kerogen types,and for consummation the aim of this study in isolating the Siluric and upper Paleozoic rock formations in which temperature and time had allowed to their included organic material to realise its potential in conversion to hydrocarbonic materials, paleotictonic and geotemperature diagrams for these formations were drawn depending on real data from 12 selected drilled wells in the study area, then the values of time-temperature Arrhenius index and the percent of the realised potential in conversion to hydrocarbonic materials were calculated for each main kerogen type (Ia,b,c, II,a,b,c,d, III) which may undergo to the same time-temperature history of the studied formations.

The results of this study reveal that Tanf formation (S) may be played important role in forming hydrocarbonic materials, while Marqada formation (C) might be played partial role in the places ,in which the density of clay and shale beds is increasing, and the potential of forming hydrocarbonic materials in general increases toward the south east direction.

Key Words: The geology of oil and gas, The geochemistry of oil and gas, Aleppo plateau.

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TTI

(7, 6, 3) 2001

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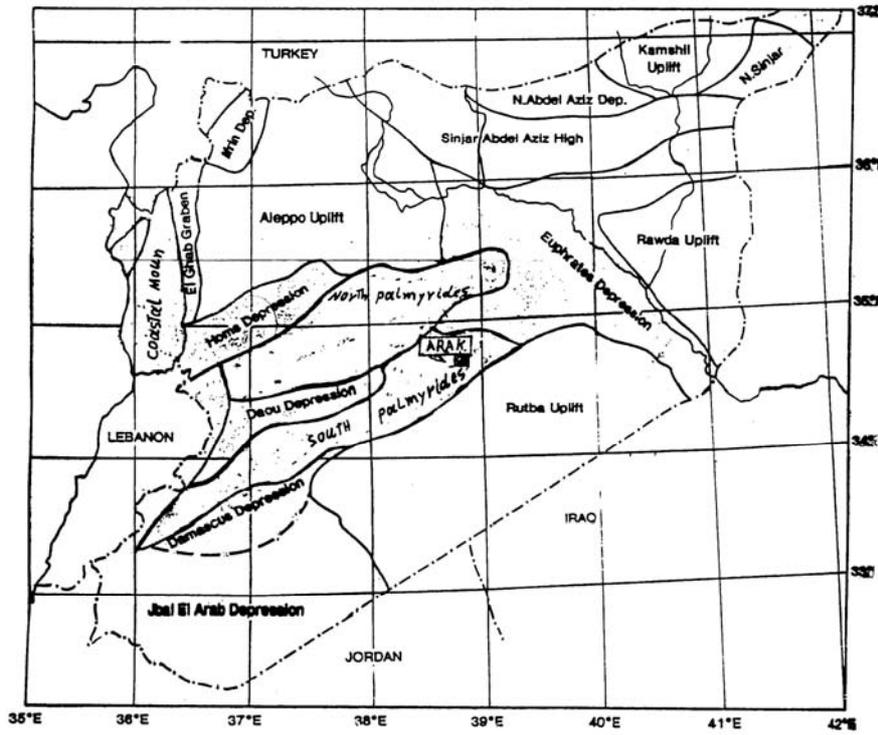
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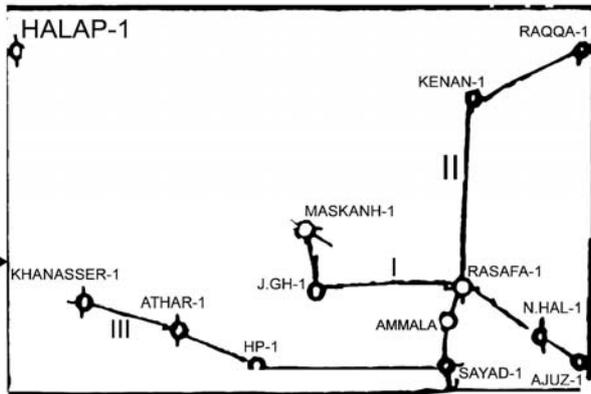
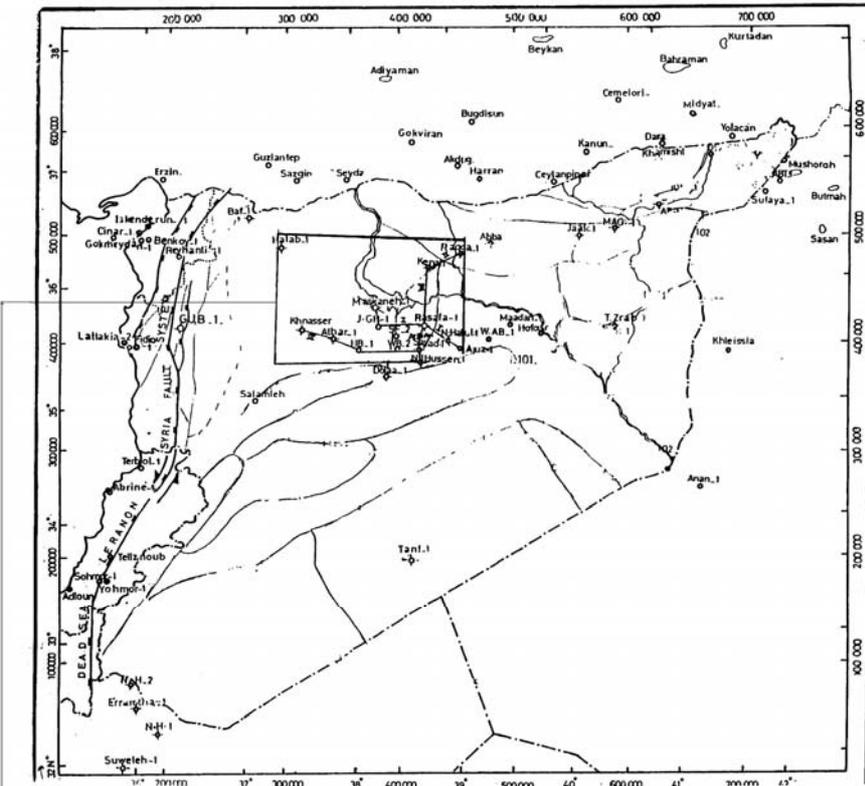
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. ... 70 60 50 40 :

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IIa,b,c,d Ia,b,c)

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| (E) | | | | III II I |
| - | | | | |

$\sum TTI Arr$ (Hunt et al.1991)
:(Wood 1988)

$$TTI Arr = [(t_n - t_{n-1}) A \cdot \exp(- E / RT)] \cdot 100$$

-A -T / / tn:
(22,17).Ideal gas constant -R / 1/ frequency factor
(Hunt 1996) $x = 1 - \exp(- \sum TTI Arr / 100) \cdot 100$: -4

460 1- -
(17) 100%

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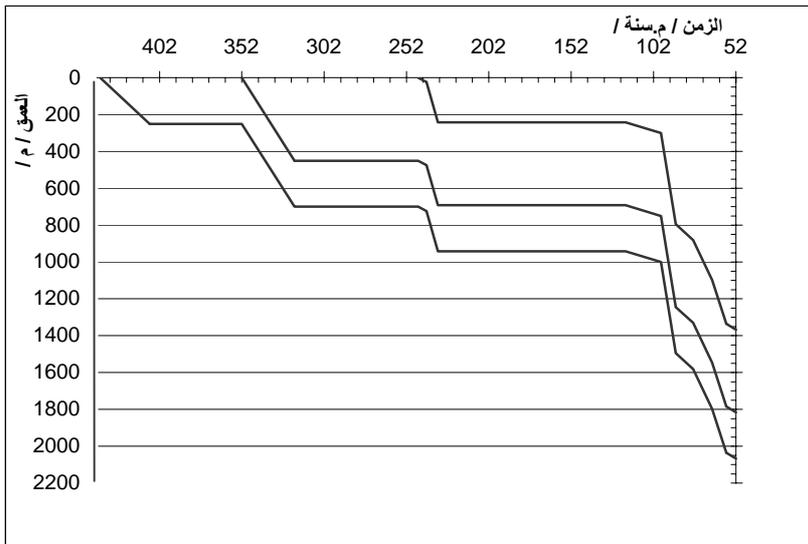
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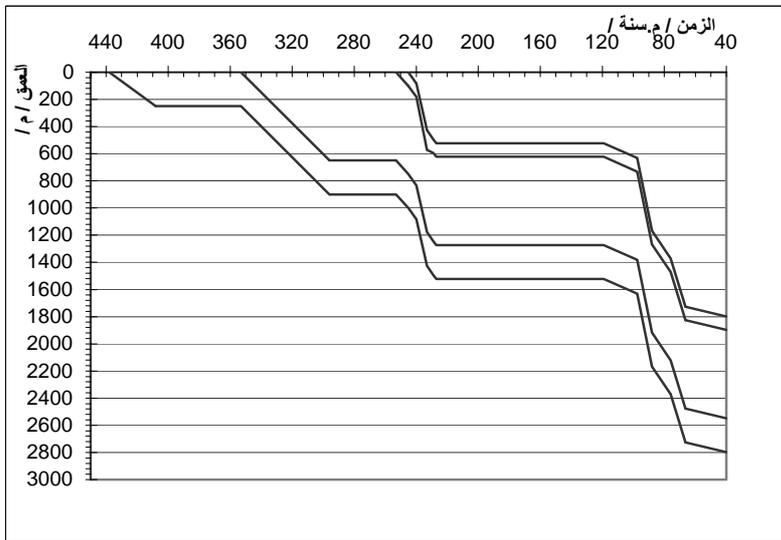
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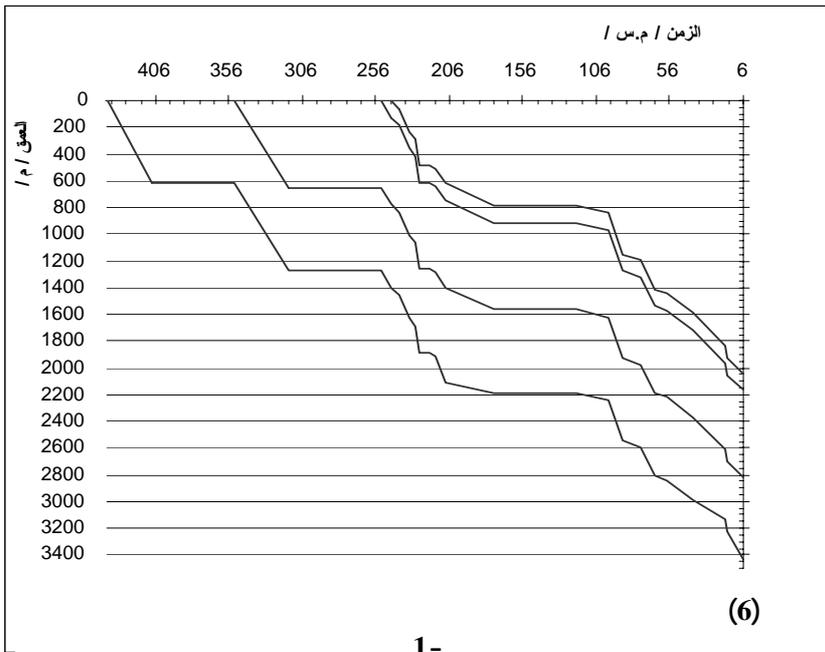
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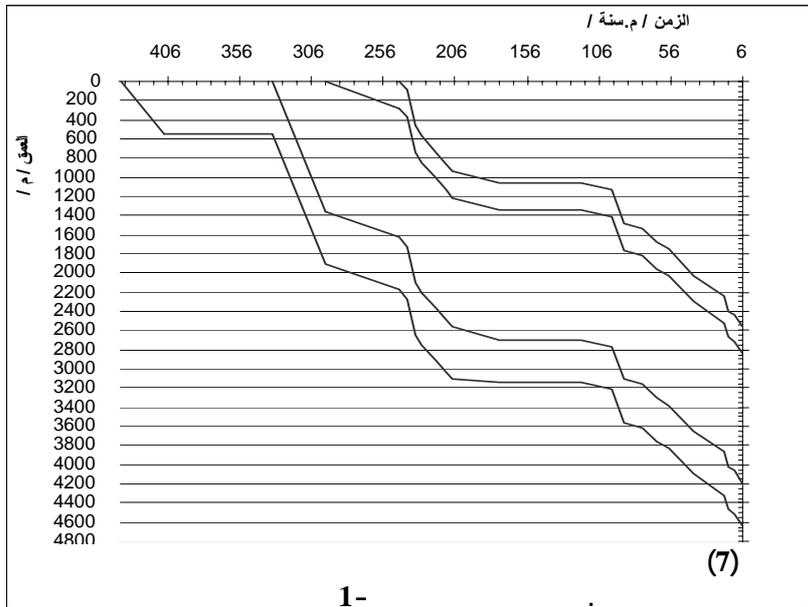


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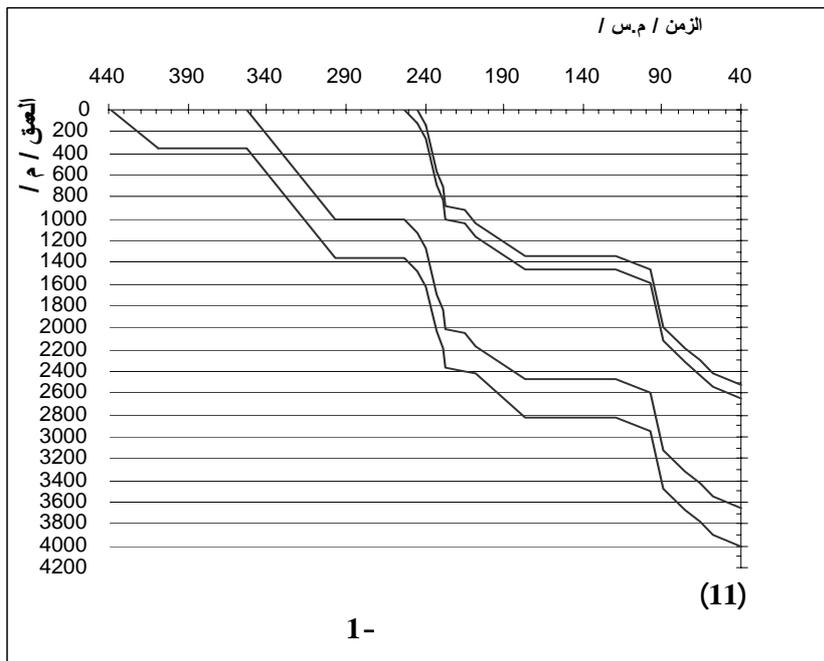
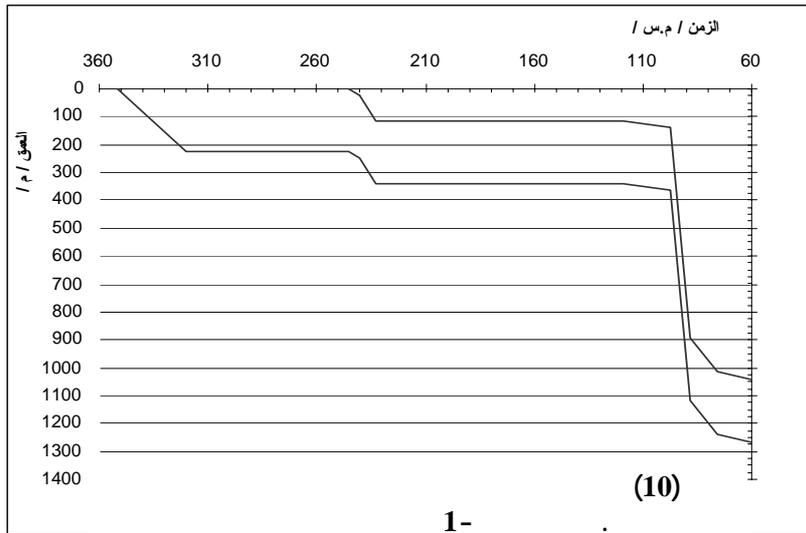
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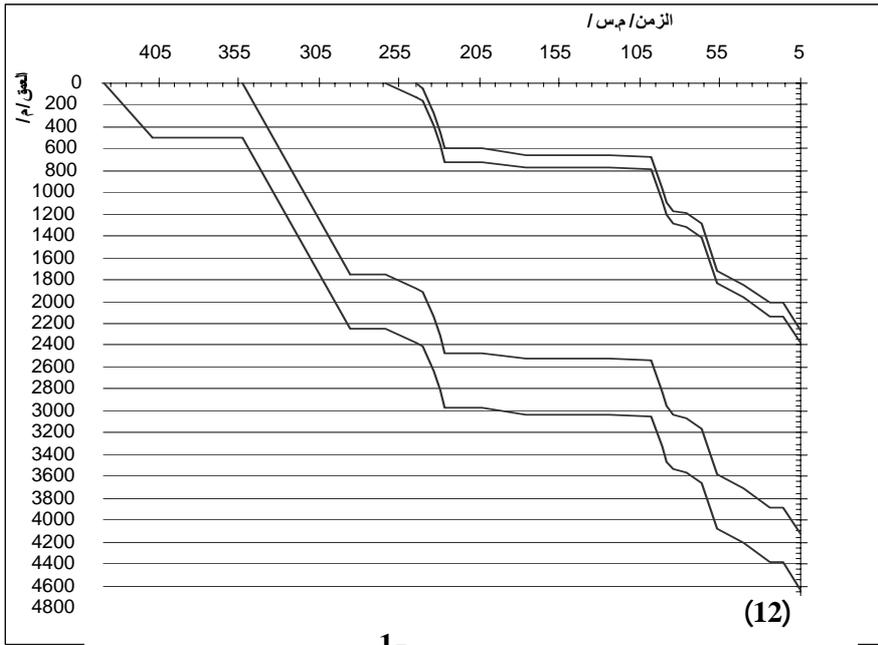


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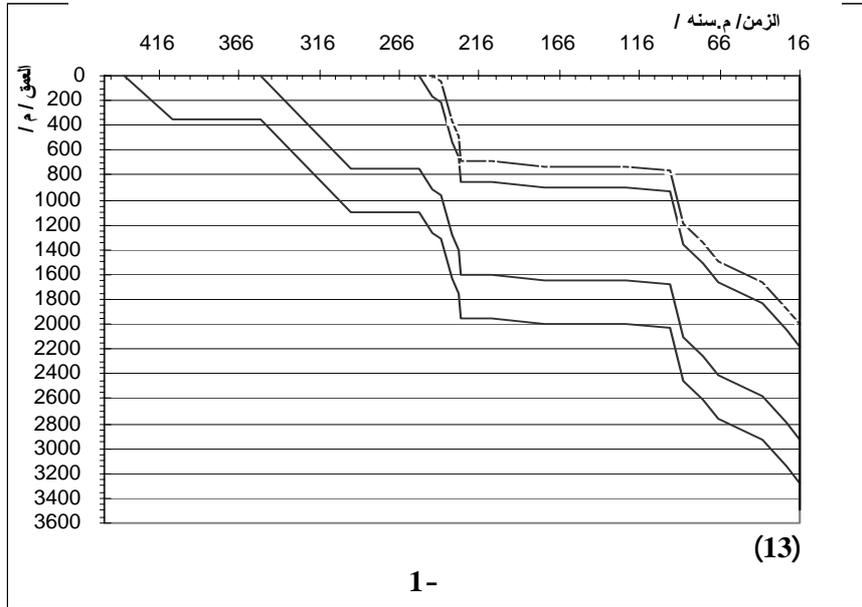


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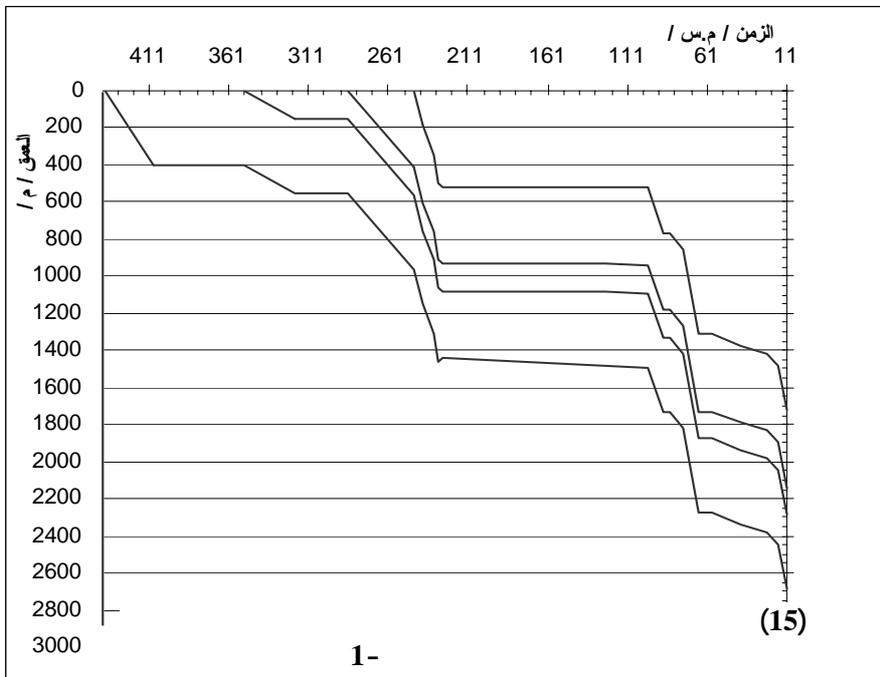
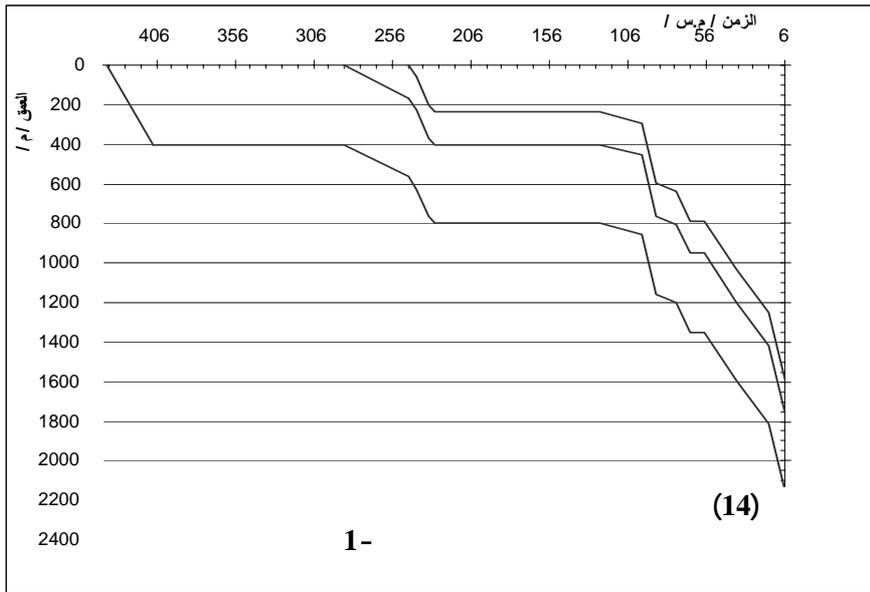




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TTIArr - II

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TTIArr

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.(3b 2b 1b :)
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IIa

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IIb

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(1- 1-)
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TTI (a 1)

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| 1.8 | > | 44 | 460< | 460< | 1.5 | - - | 460< | 460< | 59 | 10 | > | Ia |
| > | > | > | 460< | 146 | > | - - | 460< | 460< | 1.6 | 1.6 | > | Ib |
| > | > | > | 5 | > | > | - - | 460< | 1.3 | > | > | > | Ic |
| 460< | 215 | 460< | 460< | 460< | 460< | - - | 460< | 460< | 460< | 460< | 358 | IIa |
| 13 | > | 227 | 460< | 460< | 9.8 | - - | 460< | 460< | 269 | 269 | > | IIb |
| > | > | 6.6 | 460< | 460< | > | - - | 460< | 460< | 8.6 | 8.6 | > | IIc |
| > | > | > | 460< | 113 | > | - - | 460< | 460< | > | > | > | IId |
| > | > | > | 234 | 41 | > | - - | 460< | 110 | > | > | > | III |

(b 1)

| | | | | | | | | | | | |
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| 1.8 | 35.6 | 100 | 100 | 1.48 | - - | 100 | 100 | 44.6 | 9.5 | > | Ia |
| > | > | 100 | 76.7 | > | - - | 100 | 100 | 1.6 | > | > | Ib |
| > | > | 4.9 | > | > | - - | 100 | 1.3 | > | > | > | Ic |
| 100 | 100 | 100 | 100 | 100 | - - | 100 | 100 | 100 | 100 | 97.2 | IIa |
| 12 | 89.6 | 100 | 100 | 9.3 | - - | 100 | 100 | 93.2 | 42 | > | IIb |
| > | 6.4 | 100 | 100 | > | - - | 100 | 100 | 8.2 | 1.5 | > | IIc |
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1700

(III IId)

TTI (a 2)

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| > | -- | 7.9 | 460< | 460< | > | > | 460< | 460< | 3.8 | > | > | > | Ia |
| > | -- | > | 133.4 | 43 | > | > | 460< | 41 | > | > | > | > | Ib |
| > | -- | > | > | > | > | > | 188 | > | > | > | > | > | Ic |
| 337 | -- | 460< | 460< | 460< | 460< | 6 | 460< | 460< | 460< | 460< | 460< | 15.2 | IIa |
| > | -- | 44.3 | 460< | 460< | 1.8 | > | 460< | 460< | 28.4 | 12 | > | > | IIb |
| > | -- | > | 433.5 | 152 | > | > | 460< | 151.8 | > | > | > | > | IIc |
| > | -- | > | 92.8 | 33 | > | > | 460< | 30 | > | > | > | > | IId |
| > | -- | > | 19 | 6.6 | > | > | 460< | 6.6 | > | > | > | > | III |

(b 2)

| 1- | 1- | 1- | 1- | 2- | 1- | 1- | 1- | 1- | 1- | 1- | 1- | 1- | |
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| > | -- | 7.6 | 100 | 100 | > | > | 100 | 100 | 3.7 | > | > | > | Ia |
| > | -- | > | 73.6 | 34.9 | > | > | 100 | 34 | > | > | > | > | Ib |
| > | -- | > | > | > | > | > | 85 | > | > | > | > | > | Ic |
| 96 | -- | 100 | 100 | 100 | 100 | 5.8 | 100 | 100 | 100 | 100 | 100 | 14 | IIa |
| > | -- | 35.8 | 100 | 100 | 1.8 | > | 100 | 100 | 24.7 | 11.2 | > | > | IIb |
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TTI (a 3)

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| > | > | > | > | > | > | - - | 5.2 | > | > | > | - - | Ib |
| 253.3 | 31 | 396.7 | 460< | 460< | 36 | - - | 460< | 460< | 391 | 165 | - - | IIa |
| > | > | > | > | 38 | > | - - | 460< | 10.9 | 1.3 | > | - - | IIb |
| > | > | > | > | > | > | - - | 23 | > | > | > | - - | IIc |
| > | > | > | > | > | > | - - | 4.3 | > | > | > | - - | II d |

(b 3)

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