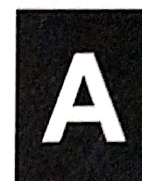


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Serial No. : 01401

Question Booklet Series :



**Entrance Examination - 2019**

Time allowed: Two Hours (10:30 a.m. to 12:30 p.m.)

Maximum Marks: 200

**INSTRUCTIONS TO THE CANDIDATE**

1. Immediately after the commencement of the examination, check this booklet for any unprinted or torn or missing pages or questions. If so, get it replaced with another booklet.
2. Encode clearly the Question booklet series A,B,C or D in the appropriate place in the OMR answer sheet with Blue or Black ball point pen only. (No gel pen should be used)
3. The Question booklet contains hundred questions. Each question comprises four answers (responses). Select the correct answer (response), and shade on the OMR answer sheet in the appropriate place.
4. The answer (response) must be shaded ONLY on the OMR answer sheet provided.
5. All questions carry equal marks.
6. After you have shaded all your answers (responses) on the OMR answer sheet submit the same to the Invigilator.
7. You are permitted to take only the question booklet with you.
8. Sheet for rough work is appended in the question booklet at the end.

SEAL

1. Which one of the following is the main recommendation of Jalan Committee Report?
  - a. privatization of banks
  - b. merger of nationalised banks
  - c. transferring surplus of 1.76 lakh crore from RBI to Government of India exchequer
  - d. Formation of Bad Bank to resolve NPA
2. Pradhan Mantri Awas Yojana is a
  - a. Banking scheme
  - b. Housing Scheme
  - c. LPG subsidy scheme
  - d. Rural Road Scheme
3. Recently "Ramanujan Machine" concept was developed by scientists from Israel Institute of Technology. with reference to Srinivas Ramanujan, consider the following statements.
  - I. He was a fellow of Royal society in England
  - II. He discovered Ramanujan Number 1729 which is smaller number expressed as sum of two cubes in two different ways.
 Which of the above statement (s) is / are correct
  - a. I only
  - b. II only
  - c. both I and II
  - d. Neither I nor II
4. Which of the following is not a feature of recently enacted National Medical Commission Act 2019?
  - a. NEET, entrance test for admission to practice medicine
  - b. NEXT, exit test to practice after MBBS
  - c. Regulation of private medical institutions fees
  - d. Regulation of appointment of village health nurses
5. "Ease of doing business Index" is released by
  - a. World bank
  - b. Reserve bank of India
  - c. Asian Development Bank
  - d. IMF
6. Which of the following is NOT an e-waste?
  - a. Lead
  - b. Mercury
  - c. Sodium
  - d. Cadmium
7. Capital Adequacy Ratio (CAR) is a measure of
  - a. Inflation in a nation's economy
  - b. Risk weighted assets of banks
  - c. Minimum balance requirements in banks
  - d. Foreign exchange reserves in a nation
8. Stand up India scheme is
  - a. to promote self help groups
  - b. to facilitate bank loans to promote entrepreneurship among SC, ST and women
  - c. to promote manufacturing in India
  - d. to provide jobs to differently abled persons
9. I. GST is an indirect tax  
 II. Corporate tax is a direct tax  
 Which of the above statement(s) is / are correct?
  - a. I only
  - b. II only
  - c. Both I and II
  - d. Neither I nor II



10. A Non-performing asset is a loan or advance for which principal or interest payment remained overdue of a period of  
a. 30 days                      b. 60 days                      c. 90 days                      d. 120 days
11. "Balance of Trade" refers to  
a. difference between exports and imports  
b. existing foreign exchange reserves  
c. difference between currency value of two nations  
d. difference between custom duties of two nations.
12. Fazl Ali Commission is related to  
a. Panchayat Raj institutions                      b. Administrative Reforms  
c. Centre – State relations                      d. Reorganization of states
13. Eco – sensitive Zones which are shock absorbers to protected areas have statutory backing through  
a. Forest Rights Act                      b. Wildlife Preservation Act  
c. Environment Protection Act                      d. Biodiversity Conservation Act
14. Which of the following is a "rabi" crop?  
a. Rice                      b. Bajra                      c. Mustard                      d. Jowar
15. Fugitive Economic Offender's Act 2018 is to  
a. Curb black money  
b. to deter offenders from evading Indian law by remaining outside jurisdiction of Indian courts  
c. Prevent false invoicing to evade GST tax  
d. Prevent foreign exchange frauds
16. Which of the following can be effects of fall in Indian Rupee?  
I. cost of imports will increase  
II. Depreciation of currency can potentially increase inflation  
a. I only                      b. II only                      c. Both I and II                      d. Neither I nor II
17. Which of the following about "Payment Banks" is NOT correct?  
a. It cannot advance loans                      b. It can accept demand deposits upto 1 lakh  
c. It can issue debit cards                      d. It can issue credit cards
18. E-2020 Initiative recently seen in the news is related to  
a. Electric vehicles promotion                      b. E-waste management  
c. Malaria elimination                      d. Employment promotion
19. RBI has mandated every bank to have specific reserve in the form of cash or gold called  
a. Cash Reserve Ratio                      b. Statutory Liquidity Ratio  
c. Repo Rate                      d. Reverse Repo Rate
20. Jarawa tribes reside at  
a. Kashmir                      b. Lakshadweep                      c. Andaman                      d. Jharkhand

21. I. Article 35A of Indian Constitution provided special rights and privileges to permanent residents of Jammu and Kashmir.  
 II. Article 35A was added to the Indian constitution by special majority of parliament and consent of half of state legislatures under Article 368 which provides for Amendment of the constitution  
 Which of the above statement (s) is / are true?  
 a. I only                      b. II only                      c. Both I and II                      d. Neither I nor II
22. A Money Bill can be introduced  
 a. Only in Lok Sabha                      b. Only in Rajya Sabha  
 c. On both Sabhas                      d. by any members of Lok Sabha
23. UN convention on Rights of the children defines child as any human being under the age of  
 a. 14                      b. 16                      c. 15                      d. 18
24. TRIFED is a central agency working for  
 a. marketing of agri produce                      b. small and medium scale enterprises  
 c. marketing of minor forest produce                      d. self help groups among women
25. Freedom of Residence and profession is guaranteed under  
 a. Article 19                      b. Article 20                      c. Article 21                      d. Article 22
26. CITES an international organization is meant for  
 a. e – waste management  
 b. hazardous waste management across borders  
 c. protection of endangered animals and plants  
 d. regulation of green house gases emissions.
27. RCEP, Regional Comprehensive Economic Partnership sometimes seen in the news is related to  
 a. post Brexit arrangement                      b. ASEAN + 6  
 c. TPP                      d. African Union
28. Gaganyaan, sometimes seen in the news is  
 a. Indian Mission on Remote sensing                      b. Orbiter mission to sun  
 c. Manned Mission to space                      d. Indian GPS project
29. Global Innovation Index has been developed by  
 a. WIPO                      b. WHO                      c. World Bank                      d. SIAM
30. "IOT" Technology sometimes seen in the news related to  
 a. antivirus software                      b. machines connected through internet  
 c. cloud computing                      d. social media fake news detector
31. "DNA finger printing" is a technique commonly used in  
 a. Biometric authentication in Aadhar                      b. crime detection  
 c. malicious software removal                      d. Genetically modified crops
32. "Superbugs" sometimes seen in the news is related to  
 a. Bot virus                      b. Antimicrobial Resistance  
 c. Dengue virus                      d. Trojan



33. Lichens is a symbiotic partnership of  
 a. Bacteria and fungus  
 b. Algae and fungus  
 c. Bacteria and Algae  
 d. Virus and fungus
34. Mansabdari system during medieval India was introduced by  
 a. Rajput rulers  
 b. Shershah  
 c. Akbar  
 d. Jahangir
35. World Economic outlook is published by  
 a. World Bank  
 b. IMF  
 c. OECD  
 d. UN
36. Which of the following are found in Keezhadi Excavations in Tamilnadu  
 I. Chess games made of Ivory  
 II. Gold Ornaments  
 III. Pots with Roman Symbols  
 IV. Graffiti similar to Indus valley civilization  
 a. I,II and IV  
 b. I,III and IV  
 c. II and IV  
 d. I,II,III and IV
37. "Sushruta Samhita" is an ancient Sanskrit text on  
 a. Astronomy  
 b. Mathematics  
 c. Medicine and surgery  
 d. Philosophy
38. Which of following is NOT a critically endangered species in India  
 a. Great Indian Bustard  
 b. Indian vulture  
 c. Ganges shark  
 d. One horned rhinoceros
39. River Origin  
 I. Brahmaputra - Tibet  
 II. Godavari - Maharashtra  
 III. Ravi - Punjab  
 Which of the above is/ are correct matches?  
 a. I only  
 b. I and II only  
 c. II and III only  
 d. I,II,III
40. BPL list is prepared by  
 a. Ministry of statistics  
 b. Niti Aayog  
 c. Static Planning Commission  
 d. Village Panchayat
41. Which of the following is "NOT" a UNESCO world heritage site in India?  
 a. Hampi  
 b. Khajuraho  
 c. Manas  
 d. Mudumalai
42. Chilika lake where critically endangered Irrawaddy dolphin can be found in the state of  
 a. West Bengal  
 b. Odisha  
 c. Andhra Pradesh  
 d. Kerala
43. "Gopuram" a monumental entrance tower at the entrance in Temple Architecture is a prominent feature of  
 a. Indo – Saracenic style  
 b. Vesara style  
 c. Dravidian style  
 d. Nagara style
44. Pattachitra is a traditional painting of  
 a. Westbengal  
 b. Odisha  
 c. Chattisgarh  
 d. Gashwal Himalayas

45. During the colonial period of India, Asiatic society of Bengal was founded
- for developing English education in India
  - for carrying out social reforms
  - to examine the policy of colonial discrimination
  - for carrying researches on past history and antiquation of India
46. "Winter Rain" is an interesting characteristics of
- Taiga climate
  - Equatorial climate
  - Savannah climate
  - Mediterranean Climate
47. I. 52nd constitutional Amendment act provided for disqualification of members of parliament  
II. 61st constitutional amendment act lowered voting age from 21 to 18.  
which of the statement (s) is / are correct?
- I only
  - II only
  - Both I and II
  - Neither I nor II
48. Provisions in 5th and 6th schedule in constitution are made to
- protect the interest of scheduled tribes
  - determine boundaries between states
  - protect interests of border states
  - revamp panchayat system
49. Among the following which one is the largest exporter of rice in the world in last 5 years?
- China
  - India
  - Myanmar
  - Vietnam
50. Who is not a member of G-7 Nations
- Canada
  - Italy
  - Russia
  - Japan
51. INDSPACEEX recently seen in the news is
- India's private space expedition mission
  - Armed force's simulated space warfare exercise
  - Project to control space debris
  - Nuclear power project
52. WHO's "AWARE" campaign is related to
- Non-communicate diseases
  - Antimicrobial resistance
  - Zika viral spread
  - New virulent polio strains awareness
53. Which of the following is a WRONG match?
- Bishnoitribe – Rajasthan
  - Chechu tribe – Andhrapradesh
  - Maldhari tribe – Junagadh
  - Nyishi tribe – Meghalaya
54. "KUSUM" scheme aims to
- promote Biomass based cogeneration project
  - promote solar power projects
  - promote wind power generation
  - promote hydrogen power



55. Unnat Bharat Abhiyaan's objective is to
- promote research in higher educational institutions
  - enable higher educational institutions to work with people of rural India
  - train higher education youth in apprenticeship and skills
  - create 20 Institutions of eminence
56. "Quorum" in parliamentary proceeding is minimum presence of
- half of total membership of house
  - half of total members present at a session
  - one-tenth of total members of house excluding presiding officer
  - one-tenth of total member of house including presiding officer
57. "SAFAR" system being developed by Government of India is
- to provide easily Tsunami warning
  - to monitor Air quality
  - to monitor water quality in zero liquid discharge system
  - to be fitted in BS VI compliant vehicles
58. Project MAUSAM's objective is to
- promote classical dances of India
  - explore Indian Ocean
  - Promote science cities in rural India
  - improve rainwater harvesting
59. Consider the following statements
- The lord Bahubali, who is one of the tirthankars of Jain Dharma, is worshipped at Shravanabelagola
  - The place is famous for the festival Mahamastabhiksheka which occurs every 12 years.
  - All Five minor epics in Tamil language are part of Jain literature in tamil
- Which of the statements given above is / are correct?
- I and II only
  - II only
  - II and III only
  - I, II and III
60. Which of the following is not correct?
- Pradhan Mantri Kisan SAMPADA Yojana - Modernisation of Agriculture
  - Rashtriya Gokul Mission - to arrange quality artificial insemination
  - Krishi Kalyan Avijan - for improving farming techniques to farmers and to rise their income
  - Deen Dayal Upadhyah Gram Jyoti Yojana - Welfare scheme for Male and Female Teachers
61. Which one of the following Parliamentary Constituencies voted in Ballot paper instead of EVM in 2019 General Election?
- Nizamabad Constituency
  - Amaravathi Constituency
  - Jammu Constituency
  - Baramullah Constituency
62. 'QRSAM' very much news in 2019 is associated with
- Defence Research and Development Organisation (DRDO)
  - Unlawful Activities Prevention Amendment Bill (UAPA), 2019
  - Triple Talaq Bill, 2019
  - Indian Space Research Organisation

63. Ringelmann Chart is used in measuring
- Relative humidity
  - Odour intensity
  - Smoke density
  - Movement of pollutants
64. Ecological niche is:
- the surface area of the ocean
  - an ecologically adapted zone
  - the physical position and functional role of a species within the community
  - formed of all plants and animals living at the bottom of a lake
65. Consider the following statements:
- Dirty Dozen is related to 12 ozone depleting substances
  - Paris Deal, 2015 is associated with climate change
- Which of the statements given above is / are true?
- I only
  - II only
  - Both I and II
  - Neither I nor II
66. The Brundtland Report focused on the three fundamental components of sustainable development also known as triple bottom line. Which of the following is not one among them
- the environment
  - the energy
  - the economy
  - the society
67. What is 'Blue Carbon'?
- It is the carbon emitted from gas and diesel engines, coal-fired power plants, etc.,
  - It is the carbon stored in the deep sea ecosystems not accessible to humans
  - It is the carbon stored and sequestered in coastal ecosystems such as mangrove forests
  - It is the carbon stored in the Tropical Rainforests
68. Three Mile Island incident is associated with
- Air pollution
  - Water pollution
  - Radio-active pollution
  - Bio-medical waste pollution
69. In a water body which are the following is the correct ascending order of living things associate with bio-magnification.
- fish eating bird - zooplankton- small fish- large fish
  - zooplankton- small fish- large fish- fish eating bird
  - large fish- small fish- zooplankton-fish eating bird
  - zooplankton- large fish- small fish - fish eating bird
70. Which among the following correctly depicts the concept of "Pink Tax"?
- Higher prices on the women-specific products, as compared to products designed for men
  - Tax imposed on the meat based products.
  - Tax imposed on the goods and services meant for benefit of women
  - Tax imposed on the pharmaceutical products



71. Consider the following statements:

- I. The Central Government Debt, as defined in the FRBM Act, includes all liabilities of Central Government against the Consolidated Fund of India, all public account liabilities, reduced by the cash balance available at the end of that date.
  - II. Extra Budgetary Resources, (fully serviced Government Bonds) have been included from BE 2019-20, as it falls within the purview of the definition of debt as the repayment of principal and interest are through the Annual Financial Statement
- Which of the statements given above is / are true?

- a. I only                      b. II only                      c. Both I and II                      d. Neither I nor II

72. The currency convertibility concept originated in

- a. Bretton Woods agreement                      b. Taylors agreement  
c. Wells agreement                      d. None of the above

73. A proposal of imposing small tax on all foreign exchange transactions with the objective to discourage destabilising speculation and volatility in the foreign exchange markets. The tax described in this paragraph is

- a. Tobin Tax                      b. Stealth Tax                      c. Lorenz Tax                      d. Laffer Tax

74. Atal Bimit Vyakti Kalyan Yojana is related to

- a. House building for the BPL widowed women  
b. Financially aid the farmers to build the house  
c. Providing employment opportunity to farmers since they face seasonal unemployment  
d. Financially support for those who lost jobs due to changing employment pattern

75. Which of the following is not a parameter in HDI?

- a. Real per capita income                      b. Infant mortality rate  
c. Social inequality                      d. Life expectancy

76. Consider the following statements:

- I. The programme, named as UNNATI (UNISpace Nanosatellite Assembly & Training by ISRO), is being conducted by ISRO's U.R. Rao Satellite Centre (URSC) at Bengaluru.
- II. This programme provides an excellent opportunity for the participant countries to strengthen their capabilities in assembling, integrating and testing nano satellites.
- III. It is not one of the UNISPACE+50 initiatives

Which of the statements given above is / are correct?

- a. I and III only                      b. I and II only                      c. I, II and III                      d. II only

77. Consider the following statements:

- I. Global Navigation Satellite System is the standard generic term for satellite navigation systems that provide geo-spatial positioning with global or regional coverage.
- II. GNSS includes the GLONASS (Russia), GPS (USA), Galileo (Europe), Beidou (China), IRNSS (India) and other systems.

Which of the statements given above is / are true?

- a. I only                      b. II only                      c. Both I and II                      d. Neither I nor II

78. Consider the following pairs with respect to warning issued by the Indian Meteorological Department (IMD)
- | Type of Warning  | Significance           |
|------------------|------------------------|
| I. Red Alert     | Warning (Take Action)  |
| II. Orange Alert | Watched (Be Updated)   |
| III. Green Alert | No Warning (No action) |
- Which of the pairs given above are correct?
- a. I and II only      b. II and III only      c. I and III only      d. I, II and III
79. Which of the following countries share an International Border with India?
- I. Nepal      II. China      III. Bangladesh
- Select the correct code:
- a. I and II only      b. II and III only      c. I and III only      d. I, II and III
80. The 'Horn of Africa' is not bordered with which of the following water bodies?
- a. Red Sea      b. Gulf of Persia      c. Gulf of Guinea      d. Gulf of Aden
81. In the entire history of the Delhi Sultanate there was only one Sultan who voluntarily abdicated his throne and moved to a small town away from Delhi, where he lived for three full decades in contentment and peace. He was Alam Shah. Alam Shah belongs to which Dynasty?
- a. Khalji Dynasty      b. The Slave Dynasty
- c. Sayyid Dynasty      d. Tughlaq Dynasty
82. After reading a particular book Gandhiji wrote:  
"I was at that time a believer in violence. Its reading cured me of my scepticism and made me a firm believer in ahimsa."  
Identify the book that brought about such a change in him
- a. The Kingdom of God is Within You      b. India – What can it Teach us
- c. Unto this Last      d. The Gospel in Brief
83. Consider the following statements:
- I. Al-Beruni came to India along with Mahmud Ghori.  
II. Al-Beruni translated the Greek work of Euclid into Sanskrit.
- Which of the statements given above is / are true?
- a. I only      b. II only      c. Both I and II      d. Neither I nor II
84. Consider the following statements:
- I. Gupta period is particularly memorable for the compilation of Amarakosa, a thesaurus in Sanskrit by Amarasimha  
II. Periyapuram is a hagiography of the sixty-three Nayanmars inclusive of Appar, Sundarar, Sammandar and Manikkavasagar
- Which of the statements given above is / are true?
- a. I only      b. II only      c. Both I and II      d. Neither I nor II



85. Articles 371 to 371-J in Part XXI of the constitution contain special provisions for twelve states. Which of the following states are included therein?  
 I. Meghalaya II. Manipur III. Mizoram  
 IV. Tripura V. Nagaland  
 Select the correct answer using the code given below:

- a. I, II and IV  
 b. I, III, IV and V  
 c. II, III and V  
 d. I, II, III, IV and V

86. Consider the following statements with respect to the process of impeachment of a Judge of Supreme Court:

- I. Article 124 of Constitution of India and the Judges (Inquiry) Act, 1968, provide for the procedure.
- II. A Judge of Supreme Court can be removed only on the ground of 'proved misbehaviour' or 'incapacity'.
- III. A motion to remove a judge, addressed to the President must be submitted to the Speaker of Lok Sabha or Chairman of Rajya Sabha.
- IV. The motion has to be signed by at least 55 members of Lok Sabha or 25 members of Rajya Sabha

Which of the above given statements is / are correct?

- a. I and II only  
 b. II and III only  
 c. I, II and III only  
 d. All of the above

87. Consider the following statements with respect to the Judicial review:

- I. The main contention in the Coelho case was whether a law inserted in the Schedule IX of the constitution was immunized from judicial review.
- II. The Supreme Court ruled that after Kesavananda Bharti case, the basic features of the constitution cannot be taken away by any amendment.
- III. Therefore, any law included in the schedule after 1 April 1973 will be subjected to judicial review and is not immunized from judicial review.

Which of the above given statements is / are correct?

- a. I, II, III  
 b. I only  
 c. II only  
 d. I and II

88. With reference to administration of Union Territories (UTs), consider the following statement:

- I. Governor is the executive head of UTs
- II. Parliament can make laws on any subject of the three lists including the State List for the UTs
- III. UTs are represented in Rajya Sabha.

Which of the statements given above is / are correct?

- a. I and II only  
 b. II only  
 c. II and III only  
 d. I, II and III

89. Which of the following committees of parliament has all the members from Lok Sabha only?

- a. Estimates Committee
- b. Public Accounts Committee
- c. Committee on Public undertakings
- d. All of the above has representation from Lok Sabha only

90. In which among the following matters UPSC is consulted by the Government of India?
- In making reservations of appointments or posts in favour of any backward class of citizens.
  - To take into consideration the claims of schedule castes and schedule tribes in making appointments to services and posts
  - To make selections for the chairmanship or members of the Commissions or Tribunals
- Select the correct answer using the code give below:
- a. II and III only      b. I only      c. III only      d. None of the above
91. Kessler syndrome is associated with
- E waste management
  - Bio-medical management
  - Air-pollution
  - Space-pollution
92. Consider the following statements:
- In vitro fertilization is associated with test tube baby
  - Somatic cell nuclear transfer technology is commonly known as cloning
  - Polymerase Chain Reaction (PCR) is used to produce multiple copy of DNA
- Which of the statements given above is / are true?
- a. I only      b. II only      c. I and III      d. All of these above
93. Consider the following
- The orbiter, Lander, Rover are the 3 components of Chandrayan - 2
  - Chandrayan - 2 attempted to launch the Rover to the North Polar region of the Moon.
- Select the correct answer using the code given below
- a. I only      b. II only      c. Both I and II      d. None of the above
94. Pre biotics are
- Micro organisms associated with digestion
  - substances favours the growth of pathogenic bacteria
  - substances used to kill harmful bacteria
  - substance favours the growth of beneficial bacteria
95. Which of the biological weapon is not classified as lethal agent under US biological warfare program
- Bacillus anthracis
  - Brucella suis
  - Francisella tularensis
  - Botulinum toxin
96. I. He is an honourable man  
II. He is a honourable man  
III. My father owns a house  
IV. My father is owning a house
- In the above four sentences grammatically correct ones are :
- a. I and II      b. II and III      c. I and III      d. II and IV



97. Identify the right pair
- |                   |   |                             |
|-------------------|---|-----------------------------|
| I. Epistemology   | : | W. A Branch of Biology      |
| II. Etymology     | : | X. Study of causes, origins |
| III. Etiology     | : | Y. Theory of knowledge      |
| IV. Endocrinology | : | Z. Origin of words          |
- a. I-Y, II-Z, III-X, IV-W  
c. I-X, II-W, III-Y, IV-Z
98. Match the authors with their works :
- |                    |   |                             |
|--------------------|---|-----------------------------|
| I. Karl Marx       | : | W. Mein Kampf               |
| II. Adolf Hitler   | : | X. Interpretation of Dreams |
| III. Sigmund Freud | : | Y. Time Machine             |
| IV. H.G. Wells     | : | Z. German Ideology          |
- a. I-Z, II-X, III-W, IV-Y  
c. I-W, II-Z, III-Y, IV-X
99. Associate the authors and their statements :
- |                        |   |   |
|------------------------|---|---|
| I. Julius Caesar       | - | W. Eloi, Eloi lama sabakthani                           |
| II. Duke of Wellington | - | X. Et tu Brute  |
| III. Jesus Christ      | - | Y. The Battle of Waterloo was won on playfields of Eton |
| IV. Napoleon Bonaparte | - | Z. An army marches on its stomach                       |
- a. I-X, II-Y, III-Z, IV-W  
c. I-Y, II-X, III-Z, IV-W
100. Pair the following correctly :
- |                    |   |                             |
|--------------------|---|-----------------------------|
| I. Praxis          | - | W. Violent seizure of power |
| II. Coup d'etat    | - | X. easing of relations      |
| III. caveat emptor | - | Y. practicing ideas         |
| IV. détente        | - | Z. Buyer Beware             |
- a. I-Z, II-Y, III-X, IV-W  
c. I-X, II-W, III-Y, IV-Z

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