Candidate's Roll Number

Q. Booklet Code **A**

Sl. No. :

87833

ENGLISH

NMMS - MARCH, 2022

MENTAL ABILITY AND SCHOLASTIC APTITUDE TEST

Time Part - I : 90 Minutes
Time Part - II : 90 Minutes

Maximum Marks : 90
Maximum Marks : 90

Instructions to the Candidates

Read the following instructions carefully before you answer the questions. Answers are to be SHADED on a SEPARATE OMR Answer Sheet given, with a Blue or Black Ballpoint Pen only. Read the **Instructions** printed on the OMR Sheet carefully before answering the questions.

1. Please write your Centre Code No. and Roll No. very clearly (only one digit in one block) on the OMR Sheet as given in your admission card. Please see that no block is left unfilled and even Zeros appearing in the Centre Code No. are correctly transferred to the appropriate blocks on the OMR Sheet as shown in the example given in the OMR Sheet. For all subsequent purposes, your Centre Code No. and Roll No. shall remain the same as given on the Admission Card.

2. The Test is in TWO Parts. Part-I consists of 90 questions and Part-II also consists of 90 questions.

3. All questions in Part-I and Part-II carry one mark each.

4. Since all questions are compulsory, do not try to read through the whole question paper before beginning to answer it.

5. Begin with the first question and keep trying one question after another till you finish both the Parts.

6. If you do not know the answer to any question, do not spend much time on it and pass on to the next one. If time permits, you can come back to the questions which you have left out in the first instance and try them again.

7. Since the time allotted to the two parts of this question paper is very limited, you should make the best use of it by not spending too much time on any question.

8. A blank page is provided for rough work at the end of each part.

9. Remember, you have to shade answers on a separate OMR sheet provided.

10. Answer to each question is to be indicated by SHADING the circle having the number of the correct alternative in the OMR Sheet from among the ones given for the corresponding question in the booklet.

11. Now turn to the next page and start answering the questions.

12. After the examination, you should hand over the OMR Sheet to the Invigilator of the room.

13. The candidate need not return this Question Paper Booklet and can take it after the completion of the examination. No candidate should leave the examination hall before the end of the examination.

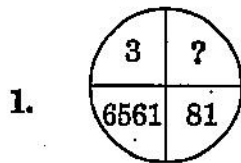K-102/Book-A

[1]

(Space for Rough Work)

PART - I : MENTAL ABILITY TEST

Time : 90 Minutes   **Max. Marks : 90**

Note : **Shade** the correct alternatives in the OMR Answer Sheet provided from amongst the ones given against the corresponding questions in the Question Paper Booklet. For shading the circles, use a **Blue or Black Ballpoint Pén.**
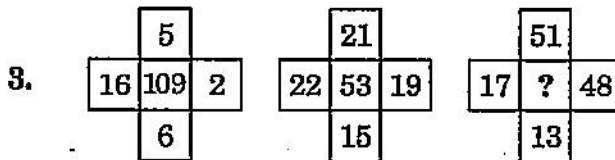
Directions :

Questions 1 to 10 : In each of the following questions, a set of figures carrying certain characters given. Assuming that the characters in each set follows similar pattern, find the missing character in each case from the given four alternatives.
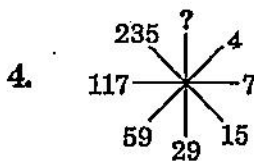
1.

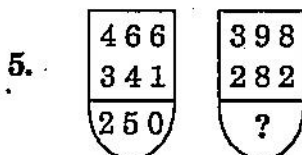(1)   9   (2)   18   (3)   24   (4)   67
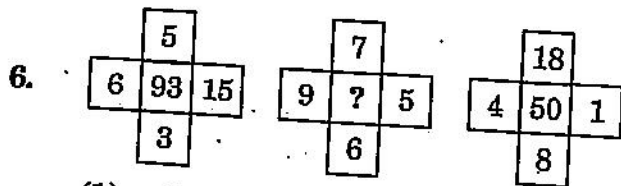
2.

(1)   22   (2)   19   (3)   82   (4)   35

3.

(1)   3   (2)   129   (3)   49   (4)   25

4.

(1)   327   (2)   386   (3)   469   (4)   438

5.

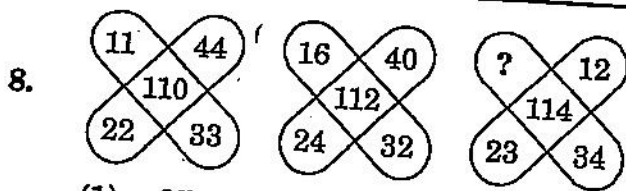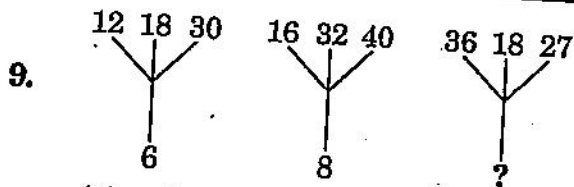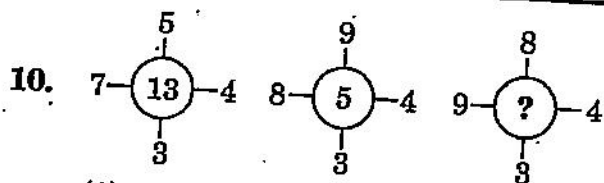(1)   232   (2)   622   (3)   274   (4)   320

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6.

	5	
6	93	15
	3	

	7	
9	?	5
	6	

	18	
4	50	1
	8	

(1) 5　　　(2) 19　　　(3) 27　　　(4) 89

7.

1	7	9
2	14	?
3	105	117

(1) 26　　　(2) 20　　　(3) 16　　　(4) 12

8.

(1) 35　　　(2) 37　　　(3) 45　　　(4) 46

9.

(1) 6　　　(2) 9　　　(3) 12　　　(4) 18

10.

(1) 12　　　(2) 14　　　(3) 15　　　(4) 18

Directions :

Questions 11 to 20 : The following questions are based on simple arithmetic calculations. There are four alternatives given under each question. After identifying the right answer, indicate as per instructions.

11. $6 + 66 + 666 + 6666 + 66666 = ?$

(1) 74070　　　(2) 70470　　　(3) 77400　　　(4) 77004

12. $8181 \div 9 = ?$

(1) 99　　　(2) 909　　　(3) 990　　　(4) 999

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13. $7.6 - 6.0357 = ?$

(1) 0.5463   (2) 0.5634   (3) 0.5643   (4) 0.5436

14. $(15 - 7)^3 = ?$

(1) 521   (2) 125   (3) 215   (4) 512

15. $0.009 \times 0.0012 = ?$

(1) 0.0000108   (2) 0.000108   (3) 0.00108   (4) 0.0108

16. $348 \div 0.3 \times 0.5 = ?$

(1) 508   (2) 580   (3) 850   (4) 805

17. If $\sqrt{729} - x^2 = 18$, then $x = ?$

(1) 9   (2) 27   (3) 3   (4) 81

18. If $5^x - 16 = 609$, then $x = ?$

(1) 4   (2) 3   (3) 2   (4) 5

19. 12% of 2150 = ?

(1) 258   (2) 285   (3) 852   (4) 825

20. $89 + 27 \div 3 = ?$

(1) 980   (2) 908   (3) 98   (4) 890

Directions :

Questions 21 to 30 : In the number series given below, one number is missing. Each series is followed by four alternatives (1), (2), (3), (4). One of them is the right answer. Indicate it as per instructions.

21. 5760, 960, ? , 48, 168

(1) 120   (2) 160   (3) 192   (4) 240

22. 198, 194, 185, 169, ?

(1) 92   (2) 112   (3) 136   (4) 144

23. 6, 13, 25, 51, 101, ?

(1) 201   (2) 202   (3) 203   (4) 205

24. 1, 1, 2, 6, 24, ? , 720

(1) 100   (2) 104   (3) 108   (4) 120

25. 3, 15, ? , 63, 99, 143

(1) 27   (2) 35   (3) 45   (4) 56

26. 3, 10, 101, ?

(1) 10101	(2) 10201	(3) 10202	(4) 11012

27. 0, 2, 3, 5, 8, 10, 15, 17, 24, 26, ?

(1) 28	(2) 30	(3) 32	(4) 35

28. 11, 10, ? , 100, 1001, 1000, 10001

(1) 101	(2) 110	(3) 111	(4) 1111

29. 563, 647, 479, 815, ?

(1) 672	(2) 386	(3) 279	(4) 143

30. 8, 28, 116, 584, ?

(1) 1752	(2) 3502	(3) 3504	(4) 3508

Directions :

Questions 31 to 40 : In these questions, there are equations that have become wrong due to incorrect order of signs. From the four alternatives given below, find out the correct order of signs, so that the equations become correct.

31. $25 \div 15 \times 3 = 125$

(1) $\times, \div, =$	(2) $+, \times, =$	(3) $\times, =, +$	(4) $-, \times, =$

32. $39 + 13 = 26 + 78$

(1) $-, +, =$	(2) $\div, \times, =$	(3) $\times, -, =$	(4) $\div, -, =$

33. $36 \div 9 = 27 \div 12$

(1) $+, =, -$	(2) $-, =, +$	(3) $\times, =, \times$	(4) $\times, +, =$

34. $28 + 49 \times 7 = 196$

(1) $-, \div, =$	(2) $\times, =, +$	(3) $\times, \times, =$	(4) $\times, \div, =$

35. $576 \div 96 = 4 + 24$

(1) $=, \div, \times$	(2) $\div, =, \times$	(3) $+, =, \times$	(4) $=, \times, +$

36. $420 = 15 \div 5 \times 23$

(1) $=, \times, \times$	(2) $\div, -, =$	(3) $=, +, \times$	(4) $\div, =, \times$

37. $18 \div 15 = 9 + 30$

(1) $+, =, \times$	(2) $-, +, =$	(3) $\times, =, \times$	(4) $=, \times, +$

38. $112 = 7 + 3 - 48$

(1) $\div, -, =$	(2) $\times, =, \times$	(3) $-, \times, =$	(4) $\div, \times, =$

39. $505 + 5 - 3 = 303$

(1) $\div, \times, =$	(2) $-, \times, =$	(3) $=, \times, \times$	(4) $=, \times, +$

40. $484 \times 11 = 33 - 11$

(1) $+, =, \times$	(2) $\div, =, +$	(3) $-, =, \times$	(4) $=, \times, \times$

Directions :
Questions 41 to 50 : In each of the following questions there is a certain relationship between two given words on one side of :: and one word is given on the another side of :: while another word is to be found from the given 4 alternatives, having the same relation with this word of the given pair. Choose the correct alternative.

41. Speedometer : Speed :: Barometer : ?
    (1) Energy
    (2) Mercury
    (3) Pressure
    (4) Temperature

42. Judge : Justice :: Doctor : ?
    (1) Treatment   (2) Hardwork   (3) Teaching   (4) School

43. Hindus : Bhagavadgita :: Christians : ?
    (1) Quran
    (2) Bible
    (3) Ramayana
    (4) Mahabharatham

44. Tea : Leaves :: Coffee : ?
    (1) Plant   (2) Seeds   (3) Flower   (4) Roots

45. Car : Garage :: Aeroplane : ?
    (1) Port   (2) Depot   (3) Hangar   (4) Harbour

46. Coal : Thermal :: Water : ?
    (1) Steam
    (2) Ice
    (3) Hydro power
    (4) Solar power

47. Tamilnadu : Bharatanatyam :: Andhra Pradesh : ?
    (1) Kuchipudi dance
    (2) Kathakali
    (3) Bhangra
    (4) Bihu

48. Assam : Gauhati :: Manipur : ?
    (1) Imphal   (2) Agartala   (3) Patna   (4) Lucknow

49. Square : Rhombus :: Rectangle : ?
    (1) Trapezium
   (2) Circle
    (3) Triangle
    (4) Parallelogram

50. Bee : Honey :: Cow : ?
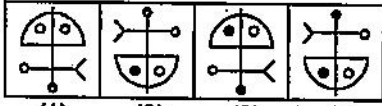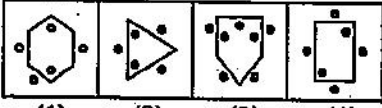   (1) Animal   (2) Water   (3) Grass   (4) Milk

Directions :
Questions 51 to 60 : In each question, out of the four figures marked (1), (2), (3) and (4), three are similar in a certain manner. However one figure is not like the other three. Choose the figure which is different from the rest.
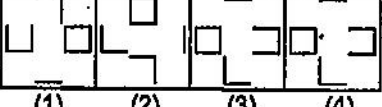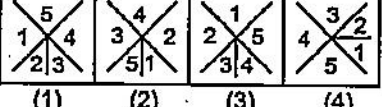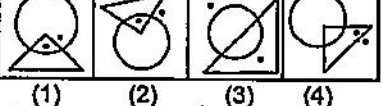
51.
    (1) 1   (2) 2   (3) 3   (4) 4

52.

(1) 1   (2) 2   (3) 3   (4) 4

53.

(1) 1   (2) 2   (3) 3   (4) 4

54.

(1) 1   (2) 2   (3) 3   (4) 4

55.

(1) 1   (2) 2   (3) 3   (4) 4

56.

(1) 1   (2) 2   (3) 3   (4) 4

57.

(1) 1   (2) 2   (3) 3   (4) 4

58.

(1) 1   (2) 2   (3) 3   (4) 4

59.

(1) 1   (2) 2   (3) 3   (4) 4

60.

(1) 1   (2) 2   (3) 3   (4) 4

Directions :

Questions 61 to 70 : In each of the following questions select a figure from amongst the four alternatives which when placed in the blank space (?) of the figure (X) would complete the pattern.

61.

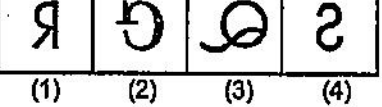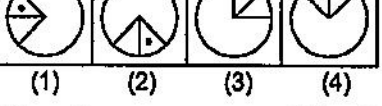(X)   (1)   (2)   (3)   (4)

(1) 1   (2) 2   (3) 3   (4) 4
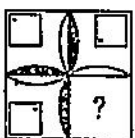
62.

(X)   (1)   (2)   (3)   (4)

(1) 1   (2) 2   (3) 3   (4) 4

63.

(X)   (1)   (2)   (3)   (4)
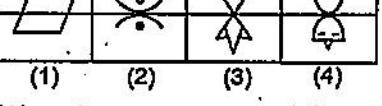
(1) 1   (2) 2   (3) 3   (4) 4
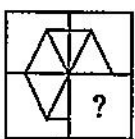
64.

(X)   (1)   (2)   (3)   (4)

(1) 1   (2) 2   (3) 3   (4) 4

65.

(X)   (1)   (2)   (3)   (4)

(1) 1   (2) 2   (3) 3   (4) 4

66.

(X)   (1)   (2)   (3)   (4)

(1) 1   (2) 2   (3) 3   (4) 4

67.

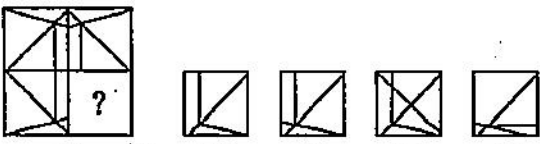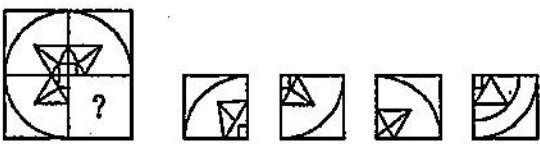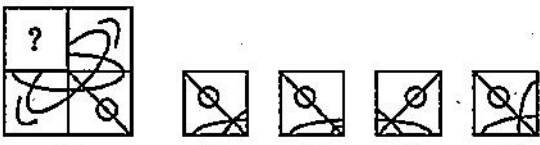(X)   (1)   (2)   (3)   (4)

(1)   1   (2)   2   (3)   3   (4)   4

68.

(X)   (1)   (2)   (3)   (4)

(1)   1   (2)   2   (3)   3   (4)   4

69.

(X)   (1)   (2)   (3)   (4)

(1)   1   (2)   2   (3)   3   (4)   4

70.

(X)   (1)   (2)   (3)   (4)
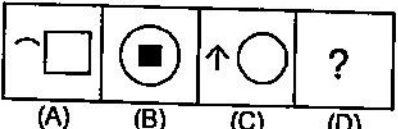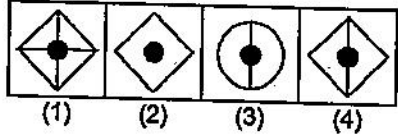
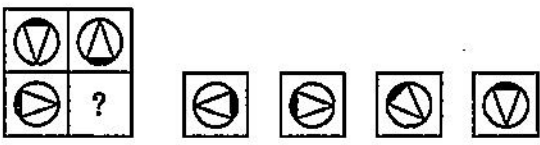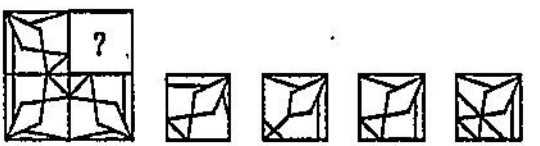(1)   1   (2)   2   (3)   3   (4)   4

Directions :
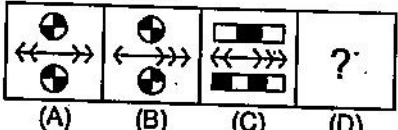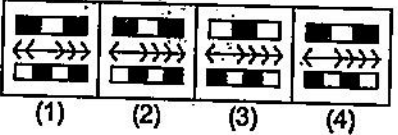
Questions 71 to 80 : In each of the following questions, the second figure in the first unit of the problem figure bears a certain relationship to the first figure. Similarly one of the answer figure bears the same relationship to the first figure of the second unit of problem figures, you have to therefore locate the figure which would fit the Question mark.

71.

Problem figures   Answer figures

(A)   (B)   (C)   (D)   (1)   (2)   (3)   (4)

(1)   1   (2)   2   (3)   3   (4)   4

72.

Problem figures

(A) (B) (C) (D)

Answer figures

(1) (2) (3) (4)

(1) 1   (2) 2   (3) 3   (4) 4

73.

Problem figures

(A) (B) (C) (D)

Answer figures

(1) (2) (3) (4)

(1) 1   (2) 2   (3) 3   (4) 4

74.

Problem figures

(A) (B) (C) (D)

Answer figures

(1) (2) (3) (4)

(1) 1   (2) 2   (3) 3   (4) 4

75.

Problem figures

(A) (B) (C) (D)

Answer figures

(1) (2) (3) (4)

(1) 1   (2) 2   (3) 3   (4) 4

76.

Problem figures

(A) (B) (C) (D)

Answer figures

(1) (2) (3) (4)

(1) 1   (2) 2   (3) 3   (4) 4

77.

Problem figures

(A) (B) (C) (D)

Answer figures

(1) (2) (3) (4)
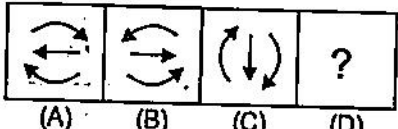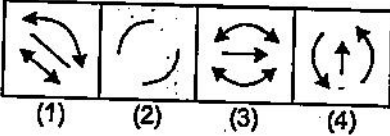
(1) 1   (2) 2   (3) 3   (4) 4

78.

Problem figures

(A) (B) (C) (D)

Answer figures

(1) (2) (3) (4)

(1) 1   (2) 2   (3) 3   (4) 4

79.

Problem figures

(A) (B) (C) (D)

Answer figures

(1) (2) (3) (4)

(1) 1   (2) 2   (3) 3   (4) 4

80.

Problem figures

(A) (B) (C) (D)

Answer figures

(1) (2) (3) (4)

(1) 1   (2) 2   (3) 3   (4) 4

Directions :

Questions 81 to 90 : Select a figure from the given four alternatives which fits exactly into Figure-X to form a complete square.

81.
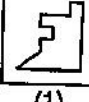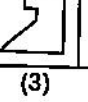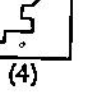
(X) (1) (2) (3) (4)

(1) 1   (2) 2   (3) 3   (4) 4

82.

(X) (1) (2) (3) (4)

(1) 1   (2) 2   (3) 3   (4) 4

83.

(X) (1) (2) (3) (4)

(1) 1   (2) 2   (3) 3   (4) 4

A

84.

(X)   (1)   (2)   (3)   (4)

(1) 1   (2) 2   (3) 3   (4) 4

85.

(X)   (1)   (2)   (3)   (4)

(1) 1   (2) 2   (3) 3   (4) 4

86.

(X)   (1)   (2)   (3)   (4)

(1) 1   (2) 2   (3) 3   (4) 4

87.

(X)   (1)   (2)   (3)   (4)
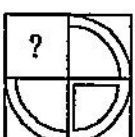
(1) 1   (2) 2   (3) 3   (4) 4

88.

(X)   (1)   (2)   (3)   (4)

(1) 1   (2) 2   (3) 3   (4) 4

89.

(X)   (1)   (2)   (3)   (4)

(1) 1   (2) 2   (3) 3   (4) 4

90.

(X)   (1)   (2)   (3)   (4)

(1) 1   (2) 2   (3) 3   (4) 4

A

PART - II

SCHOLASTIC APTITUDE TEST

Time : 90 Minutes   **Max. Marks : 90**

Note :

(i)   Subjects, Questions Sl. No. and Marks allotted :-

Sl. No.	Subject	Question No.	Marks
(1)	Physics	91 to 102 Questions	12 Marks
(2)	Chemistry	103 to 113 Questions	11 Marks
(3)	Biology	114 to 125 Questions	12 Marks
(4)	Mathematics	126 to 145 Questions	20 Marks
(5)	History	146 to 155 Questions	10 Marks
(6)	Geography	156 to 165 Questions	10 Marks
(7)	Political Science	166 to 175 Questions	10 Marks
(8)	Economics	176 to 180 Questions	05 Marks

(ii)   SHADE the correct alternatives in the OMR Answer Sheet provided, from amongst the ones given against the corresponding questions in the Question Booklet. For shading the circles, use a **Blue or Black Ballpoint Pen.**

PHYSICS

91.
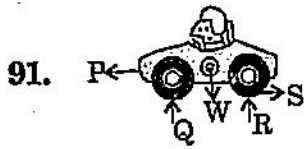
In the above free body diagram, which of the following is correct ?

(1) $P-f, Q-N_1, R-N_2, S-F.$

(2) $P-f, Q-N_1, R-F, S-N_2.$

(3) $P-F, Q-N_1, R-N_2, S-f.$

(4) $P-F, Q-f, R-N_2, S-N_1.$

92. Statement P : Friction depends on area of contact of surfaces.

Statement Q : Friction is reduced by applying oils, grease.

Choose the correct answer.

(1) P and Q are true.   (2) P and Q are false.

(3) P is true, Q is false.   (4) P is false, Q is true.

93. Which of the following is not a non-uniform motion ?

(1) Flying kite.

(2) Movement of housefly.

(3) A boy cycling in a crowded place.

(4) Rotation of Earth.

94. Which one of the following electric appliance used Nichrome as a filament ?

(P) Electric Heater.

(Q) Tape Recorder.

(R) Electric Iron Box

(S) Table Lamp.

(1) P, Q   (2) Q, R

(3) P, R   (4) Q, S

95. Sound cannot travel through ......

    (1) Solid substances.   (2) Liquid substances.

    (3) Gaseous substances.   (4) Vacuum.

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96. The audible range of normal human ear is ......

    (1) 200 vibrations/sec to 20,000 vibrations/sec.

    (2) 20 vibrations/sec to 20,000 vibrations/sec.

    (3) 20 vibrations/sec to 2,000 vibrations/sec.

    (4) 2 vibrations/sec to 200 vibrations/sec.

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97. Which of the following are not field forces ?

    (P) Normal force.   (Q) Gravitational force.

    (R) Magnetic force.   (S) Frictional force.

    (1) P, R   (2) Q, R   (3) P, S   (4) Q, S

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98. Arrange the following in the ascending order on the basis of net forces acting on them.
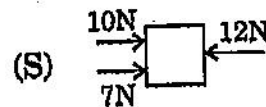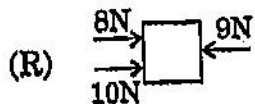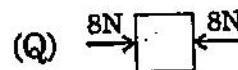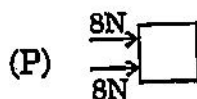
    (1) Q, S, R, P   (2) P, R, S, Q   (3) P, S, R, Q   (4) Q, R, S, P

99. Which of the following are rotatory motions ?

(P)   Motion of blades of a ceiling fan.

(Q)   Motion of the Earth around the Sun.

(R)   Motion of a car travelling on a straight road in only one direction.

(S)   Motion of a pendulum in old wall clock.

(1)   P, Q   (2)   Q, R   (3)   P, R   (4)   P, S

100. Statement P : On rough surfaces, there exists a large number of irregularities.

Statement Q : Force of friction increases if roughness of the surface is increased.

Choose the correct answer.

(1)   Both P and Q are true.   (2)   Both P and Q are false.

(3)   P is true, Q is false.   (4)   P is false, Q is true.

101. The property of light involved in the formation of image in plane mirror is ......

(1)   Regular reflection.   (2)   Regular refraction.

(3)   Irregular refraction.   (4)   Irregular reflection.

102. Identify the symbol of fuse in the following.

(1)

(2)

(3)

(4)
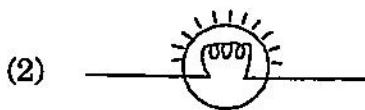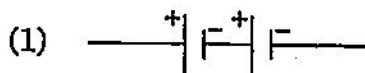
CHEMISTRY

103. Which of the following are not natural fibres ?

    (P) Cotton   (Q) Nylon   (R) Rayon   (S) Silk

    (1) P, S   (2) P, Q   (3) Q, R   (4) Q, S

104. Match the following.

Group - A *Resin*	Group - B *Identification codes*
(P) PET	(i) 2
(Q) HDPE	(ii) 1
(R) PP	(iii) 6
(S) PS	(iv) 5

    (1) P – (ii), Q – (i), R – (iii), S – (iv).

    (2) P – (iv), Q – (i), R – (ii), S – (iii).

    (3) P – (ii), Q – (i), R – (iv), S – (iii).

    (4) P – (iv), Q – (iii), R – (ii), S – (i).

105. Which of the following do not exhibit ductile property ?

    (P) Iron   (Q) Sulphur

    (R) Aluminium   (S) Iodine

    (1) P, Q   (2) Q, S   (3) P, R   (4) Q, R

106. Which one of the following is highly compressible ?

    (1) Steel   (2) Pencil   (3) Water   (4) Oxygen

107. Identify the non biodegradable substance from the following.

    (1) Vegetables.   (2) Left over food.

    (3) Paper.   (4) Plastic bag.

108. Statement P : The acids which are found in animals and plants are called natural acids.

    Statement Q : The bases are soapy to touch.

    Choose the correct answer.

    (1) Both P and Q are true.   (2) Both P and Q are false.

    (3) P is true, Q is false.   (4) P is false, Q is true.

109. Match the following.

Group - A	Group - B
(P) 27°C	(i) 273 K
(Q) 273°C	(ii) 300 K
(R) −273°C	(iii) 546 K
(S) 0°C	(iv) 0 K

(1) P – (iv), Q – (i), R – (iii), S – (ii).
(2) P – (ii), Q – (iii), R – (iv), S – (i).
(3) P – (ii), Q – (iii), R – (i), S – (iv).
(4) P – (i), Q – (iv), R – (ii), S – (iii).

110.
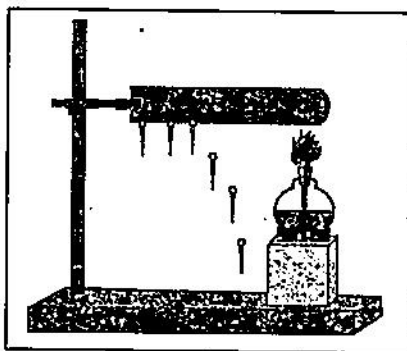
In the above activity, wax melts because of .... physical property of metals.
(1) Conductivity of heat.
(2) Ductility.
(3) Malleability.
(4) Electric conductivity.

111. When an ant bites a human being, ... acid is released at that place.
(1) Acetic Acid.
(2) Sulphuric Acid.
(3) Hydrochloric Acid.
(4) Formic Acid.

112. Which of the following is not a correct statement ?
(1) Lemon juice turns blue litmus to red.
(2) Lime water turns red litmus to blue.
(3) Pure water turns blue litmus to red.
(4) Washing soda turns red litmus to blue.

113. In which of the following changes, new substances are formed ?
(P) Heating of ice.
(Q) Burning of a paper.
(R) Heating of water.
(S) Change of milk to curd.
(1) P, S
(2) Q, R
(3) Q, S
(4) P, R

BIOLOGY

114. Match the following.

SET - A		SET - B	
(i)	Jonas Salk	(P)	Oral Polio Vaccine.
(ii)	Albert Sabin	(Q)	Anthrax Vaccine.
(iii)	Ernst B. Chain	(R)	Polio Vaccine.
(iv)	Louis Pasteur	(S)	Penicillin.

   (1)   (i) - P, (ii) - Q, (iii) - R, (iv) - S.   (2)   (i) - R, (ii) - P, (iii) - S, (iv) - Q.

   (3)   (i) - P, (ii) - R, (iii) - Q, (iv) - S.   (4)   (i) - R, (ii) - S, (iii) - P, (iv) - Q.

115. Identify whether the given statements are correct or incorrect.

Statement (A) : While ploughing the soil with a plough,

'N' shaped ridges are formed.

Statement (B) : *Oryza glaberrima* is a cultivated variety of America.

   (1)   A is incorrect.   (2)   B is incorrect.

   (3)   A and B are incorrect.   (4)   A and B are correct.

116. Which of the following are the water pollutants ?

   (A)   Plant nutrients.   (B)   Heat.

   (C)   Sediment.   (D)   Hydrogen Sulphide.

   (1)   A and D only.   (2)   B and C only.

   (3)   A, B and C only.   (4)   B, C and D only.

117. Observe the given diagrams and identify the type of reproduction seen among these two organisms.

   (A)   Sexual Reproduction.   (B)   Budding.

   (C)   Binary fission.   (D)   Vegetative propagation.

   (1)   A and B.   (2)   C and A.

   (3)   C and B.   (4)   D and A.

118. ASSERTION (A) : Unpolished rice should be eaten.

    REASON (R) : Polished rice lacks carbohydrates.

    (1)   R is the correct explanation for A.

    (2)   R is not the correct explanation for A.

    (3)   R is correct but A is wrong.

    (4)   Both A and R are wrong.

119. Menstruation occurs once in about __(A)__ days. Menstrual cycle stops at the age of __(B)__ years. If it remains irregular for over __(C)__, then there is a need to consult a __(D)__ .

    (1)   (A) 25 - 35, (B) 50 - 55, (C) a year, (D) Gynaecologist.

    (2)   (A) 30 - 35, (B) 50 - 55, (C) 6 months, (D) Psychologist.

    (3)   (A) 28 - 30, (B) 45 - 50, (C) a year, (D) Gynaecologist.

    (4)   (A) 21 - 31, (B) 45 - 50, (C) 6 months, (D) Gynaecologist.

120. Observe the given picture and find out the number of cartilages combined to form the part A.
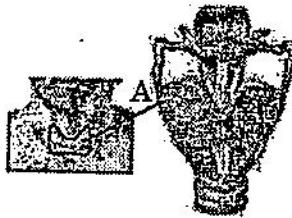
    (1)   4   (2)   6   (3)   8   (4)   9

121. Arrange the following stages of waste water treatment in a proper order.

    (A)   Stage of using anaerobic bacteria.

    (B)   Stage of using skimmer.

    (C)   Stage of using sand drying beds.

    (D)   Stage of using bar screens.

    (1)   BDCA   (2)   DBAC

    (3)   ADCB   (4)   DABC

122. Identify the incorrect statement (S) related to the given picture.

(A) It is a part of a bisexual flower.

(B) Stamens are numerous in number.

(C) Stigma is not divided into lobes.

(1) A only.

(2) B only.

(3) C only.

(4) A and C.

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123. _(A)_ described the leaves as organs of transpiration. _(B)_ demonstrated the role of animals in making the air impure, plants in making the air pure.

(1) (A) Stephen Hales (B) Von Helmont.

(2) (A) Stephen Hales (B) Priestley.

(3) (A) Priestley (B) Von Helmont.

(4) (A) Ingen Housz (B) Von Helmont.

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124. Assertion (A) : The growth of the Rice plant is better when it is cultivated alongwith blue - green algae.

Reason (R) : Blue green algae increase soil fertility through N_2 fixation.

(1) Both A and R are true, but R is not the correct explanation for A.

(2) A and R are true, R is the correct explanation for A.

(3) A is true, R is false.

(4) A is false but R is true.

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125. Daphnia : Microarthropod :: Spirulina : ?

(1) Fungus

(2) Protozoan

(3) Algae

(4) Bacterium

126. The value of $\sqrt{59.29} + \sqrt{0.5929} + \sqrt{0.005929}$

    (1)   7.854   (2)   0.8547   (3)   0.7547   (4)   8.547

127. $11.2 \times 1.8 \div 3.6 + 5.4 \left(\dfrac{1}{9}\right) - \dfrac{1}{5} = \ldots\ldots$

    (1)   6.0   (2)   7.6   (3)   8.6   (4)   9.5

128. If p, q, r, s are the consecutive multiples of 4, then $(p-r)(s-q) = \ldots\ldots$ (here $p < q < r < s$).

    (1)   16   (2) -64 (3)   32   (4) -216

129. $x_1, x_2, x_3, \ldots., x_n$ are 'n' values of x respectively such that $\displaystyle\sum_{i=1}^{n}(x_i - 2) = 110$ and $\displaystyle\sum_{i=1}^{n}(x_i - 7) = -30$, then $n = \ldots\ldots$

    (1)   23   (2)   25   (3)   28   (4)   52

130. If $x = \dfrac{1}{3}$, then what is the value of $x + \cfrac{1}{1 + \cfrac{1}{1 + \cfrac{1}{1 + \frac{1}{x}}}}$?

    (1) $\dfrac{8}{9}$ (2) $\dfrac{10}{11}$ (3) $\dfrac{7}{8}$ (4) $\dfrac{9}{8}$

131. If $3^n - 3^{n-1} = 162$, then what is the value of $n^2 - 2^n$?

    (1)   7   (2) -7 (3)   5   (4) -5

132. The ratio of two numbers is 4 : 5. If 8 is added to both the numbers the ratio will be 6 : 7, then what are the two numbers ?

    (1)   12, 15   (2)   8, 10   (3)   16, 20   (4)   20, 25

133. Match the following.

(a)	Area of Circle whose radius is 7 cm.	(i) $96 \, cm^2$.
(b)	Area of Rectangle whose length is 12 cm and breadth is 9 cm.	(ii) $108 \, cm^2$.
(c)	Area of Square whose side is 11 cm.	(iii) $154 \, cm^2$.
(d)	Area of Rhombus whose diagonals are 12 cm and 16 cm.	(iv) $121 \, cm^2$.

Choose the correct answer.
(1) (a) - (iv), (b) - (iii), (c) - (i), (d) - (ii).   (2) (a) - (ii), (b) - (iii), (c) - (iv), (d) - (i).
(3) (a) - (iii), (b) - (ii), (c) - (iv), (d) - (i).   (4) (a) - (i), (b) - (iv), (c) - (ii), (d) - (iii).

134. Statement - I : If $A = x^2 - 5xy + 2y^2$, $B = y^2 - 2xy - 3x^2$,

$C = 3xy - y^2 - x^2$, then $A + B - C = 0$.

Statement - II : If $\dfrac{5x+2}{2x+3} = \dfrac{12}{7}$, then $x = 2$.

Choose the correct answer.
(1) Statement I and Statement II both are true.
(2) Statement I and Statement II both are false.
(3) Statement I is false, but Statement II is true.
(4) Statement I is true, but Statement II is false.

135. The value of product $\left(2 - \dfrac{1}{3}\right) \cdot \left(2 - \dfrac{3}{5}\right) \cdot \left(2 - \dfrac{5}{7}\right) \cdots \left(2 - \dfrac{2019}{2021}\right)$ on simplification

is ......

(1) $\dfrac{2021 \times 2019}{3 \times 5 \times \ldots \times 2021}$ (2) $\dfrac{2023}{2021}$

(3) $\dfrac{2019}{2021}$ (4) $\dfrac{2023}{3}$

136. The difference of two numbers is equal to 20% of the bigger number. If the smaller number is 12, then the bigger number is ......
(1) 15   (2) 16   (3) 18   (4) 20

137. Assertion (A) : We can construct a Parallelogram 'BEST' with the measures BE = 7 cm, ∠BES = 110° and ES = 5 cm.
Reason (R) : Opposite sides of a Parallelogram are equal.
Choose the correct answer.
(1) Both Assertion (A) and Reason (R) are true and Reason is supporting Assertion.
(2) Both Assertion (A) and Reason (R) are true, but Reason is not supporting Assertion.
(3) Assertion (A) is true, but Reason (R) is false.
(4) Assertion (A) is false, but Reason (R) is true.

138. In the adjacent figure, ABC is a triangle and BCDE is a Parallelogram. $\overline{AB}$ is extended to X, then the value of $\dfrac{x^\circ - y^\circ}{x^\circ + y^\circ}$ is ......

(1)　0

(2)　$\dfrac{3}{2}$

(3)　$\dfrac{1}{2}$

(4)　$\dfrac{1}{3}$

139. $\dfrac{2.1 \times 0.635 \times 0.43 + 0.635 \times 0.28 \times 2.1 + 0.29 \times 2.1 \times 0.635}{3.875 \times 0.7 - 0.7 \times 2.605} = ?$

(1)　1

(2)　0

(3)　$\dfrac{635}{387}$

(4)　$\dfrac{3}{2}$

140. A sum of amount is doubled in 15 years by compound interest. In how many years, the sum will be 8 times ?

(1)　45 years

(2)　35 years

(3)　23 years

(4)　120 years

141. What is the area of the shaded region in the figure ?

(1)　100 cm^2

(2)　110 cm^2

(3)　125 cm^2

(4)　150 cm^2

142. The angles of a quadrilateral are in the ratio of 3 : 4 : 5 : 6. The smallest angle of this quadrilateral is x°. It is given

$$y = \left[\left(\frac{x^\circ + 40^\circ}{20^\circ} \right)^3 - \left(\frac{x^\circ - 40^\circ}{10^\circ} \right)^6 + \frac{x^\circ}{30^\circ} \right] \div 21^\circ, \text{ then the value of } y^2 \div 9 \text{ is ......}$$

(1)　63

(2)　3

(3)　1

(4)　12

143. If $0.00084 = 8.4 \times 10^x$, then the value of $x^3 + 5x^2 + 4x + 1$ is ......

(1)　-64

(2)　0

(3)　1

(4)　81

144. If a, b, c, d are four consecutive prime numbers, such that $a \cdot b \cdot c \cdot d = b \cdot d \cdot (a + b + c)$, then the value of $(a + d)^2 \div (b + c)^2 = ...$

(1)　17

(2)　210

(3)　945

(4)　105

145. If $(4x^2 - 3y^2) : (2x^2 + 5y^2) = 12 : 19$, then $x : y =$ ......

(1)　2 : 3

(2)　1 : 2

(3)　3 : 2

(4)　2 : 1

HISTORY

146. Who among the following fought for Kanauj for centuries ?
- (1) Gurjara - Pratihara, Rashtrakuta and Chola dynasties.
- (2) Gurjara - Pratihara, Pala and Chola dynasties.
- (3) Gurjara - Pratihara, Rashtrakuta and Pala dynasties.
- (4) Chola, Chahamana and Rashtrakuta dynasties.

147. According to Uttaramerur inscription, all those who wish to become members of the 'Sabha' should have :
- (i) Land from which land revenue is collected.
- (ii) Own home.
- (iii) Knowledge of the vedas.
- (iv) Knowledge in administrative matters and honesty.

- (1) (i), (ii) and (iii) only.
- (2) (i), (ii) and (iv) only.
- (3) (i), (ii), (iii) and (iv).
- (4) (iv) only.

148. Match the following.

	Book		Author
(i)	Prataparudra Yasho Bhushanam	(a)	Vinukonda Vallabharaya.
(ii)	Prataparudra Charitramu	(b)	Srinatha.
(iii)	Kridabhiramamu	(c)	Vidyanatha.
(iv)	Palnati Virula Charitra	(d)	Ekamranatha.

- (1) (i) - (a), (ii) - (b), (iii) - (c), (iv) - (d).
- (2) (i) - (d), (ii) - (c), (iii) - (b), (iv) - (a).
- (3) (i) - (b), (ii) - (a), (iii) - (d), (iv) - (c).
- (4) (i) - (c), (ii) - (d), (iii) - (a), (iv) - (b).

149. The construction shown in the picture belongs to :
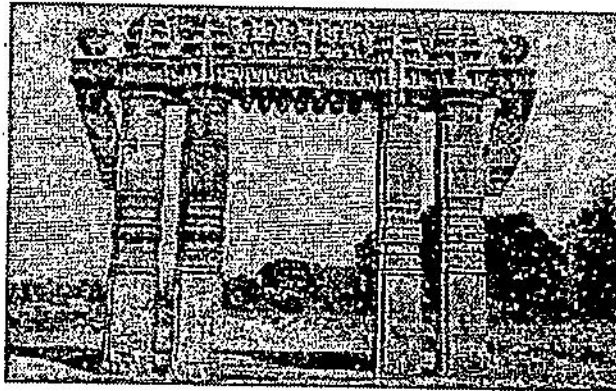
- (1) Swayambhu Siva temple built by Kakatiya kings.
- (2) Hazara Rama temple built by Vijayanagara kings.
- (3) Nishumbhasudini temple built by Cholas.
- (4) Brihadiswara temple built by Cholas.

150. Theme of the book 'Amuktamalyada' is :
    (1) Appreciation of art and architecture.
    (2) Life of Andal, a Bhakta poetess.
    (3) Importance of cavalry in wars.
    (4) Greatness of Telugu language.

151. With reference to foreign travellers who visited Vijayanagara Kingdom ? Which of the following sets is / are wrong ?

	Traveller	His Country	Then the King of Vijayanagara
Set i	Abdul Razzak	Persia	Devaraya II.
Set ii	Nuniz	Portugal	Krishnadevaraya.
Set iii	Paes	Portugal	Achyutaraya.

    (1) ii only.   (2) iii only.
    (3) ii and iii only.   (4) i, ii and iii.

152. Which of the following areas was / were under the British rule by 1770 A.D. ?
    (i) Bombay   (ii) Madras
    (iii) Calcutta   (iv) Benarus

    (1) (i), (ii), (iii) and (iv).   (2) (ii), (iii) and (iv) only.
    (3) (ii) and (iii) only.   (4) (iii) only.

153. Match the following.
    (i) Nawab of Arcot.   (a) Muzaffar Jang.
    (ii) Nawab of Bengal.   (b) Anwaruddin Khan.
    (iii) Nizam of Deccan.   (c) Sirajuddaula
    (1) (i) - (b), (ii) - (c), (iii) - (a).   (2) (i) - (a), (ii) - (b), (iii) - (c).
    (3) (i) - (c), (ii) - (b), (iii) - (a).   (4) (i) - (a), (ii) - (c), (iii) - (b).

154. Which among the following details about the first session of Indian National Congress is / are wrong ?
    (i) Year : 1885
    (ii) Place : Bombay
    (iii) Number of delegates attended : 172
    (iv) Presided by : Dadabhai Naoroji
    (1) (i), (ii), (iii) and (iv).   (2) (iii) and (iv) only.
    (3) (i) and (ii) only.   (4) (iii) only.

155. Which of the following incidents is associated to 13th April 1919 ?
    (1) Formation of East India Association.
    (2) Champaran revolt.
    (3) Rowlatt Satyagraha.
    (4) Jallianwala Bagh massacre.

156. Which of the following is NOT correct about the world map prepared by Al Idrisi ?
  (1) Details were in Arabic.
  (2) It showed the Eurasian continent fully.
  (3) It showed only the southern part of African continent.
  (4) It showed the south towards the top of the map and north towards the bottom.

157. Identify the wrongly matched pair.
  (1) James Rennell - Preparation of survey based Indian maps.
  (2) Da Ming Hun Yi Tu - Preparation of map on silk cloth for chinese emperor.
  (3) Anaximander - Greek geographer who prepared maps.
  (4) Ptolemy - Father of Dutch Cartography.

158. With reference to Northern Hemisphere, which among the following is / are TRUE ?
  (i) The angle of incidence of Sun's rays increases during the months of November and December.
  (ii) The angle of incidence of Sun's rays decreases during the months of May and June.
  (1) (i) only.   (2) (ii) only.   (3) (i) and (ii).   (4) None of them.

159. Which among the following regions has no winter ?
  (1) Sahara desert   (2) Indonesia   (3) Japan   (4) Norway

160. The equator does not pass through this continent :
  (1) Asia   (2) Europe   (3) Africa   (4) South America

161. The equinoxes occur in the months of :
  (1) November, June.   (2) June, December.
  (3) March, September.   (4) January, May.

162. The forests that grow in the regions with very high rainfall and very warm climate.
  (1) Evergreen forests.   (2) Deciduous forests.
  (3) Thorny forests.   (4) Mangrove forests.

163. Match the following.
  River   *Merging sea*
  (i) Seine   (a) North sea.
  (ii) Rhine   (b) English Channel.
  (iii) Oder   (c) Black sea.
  (iv) Danube   (d) Baltic sea.
  (1) (i) - (b), (ii) - (a), (iii) - (c), (iv) - (d).   (2) (i) - (d), (ii) - (c), (iii) - (b), (iv) - (a).
  (3) (i) - (b), (ii) - (a), (iii) - (d), (iv) - (c).   (4) (i) - (c), (ii) - (d), (iii) - (a), (iv) - (b).

164. Which among the following countries does not border the Black sea ?
  (1) Rumania   (2) Turkey   (3) Russia   (4) Poland

165. Which among the following is FALSE with respect to the African continent ?
  (1) The highest peak is Kilimanjaro.   (2) The largest desert is Sahara.
  (3) The largest lake is Nyasa.   (4) The longest river is Nile.

166. Which among the following statements is / are correct ?
   (i)   The tenure of Legislative Assembly is of five years.
   (ii) It may be dissolved earlier by the Governor in some situations.
   (iii) It's term can be extended by 12 months during National emergency by the Parliament.
   (1) (i) and (ii) only.   (2) (i), (ii) and (iii).
   (3) (i) and (iii) only.   (4) (i) only.

167. The present chairman of Rajya Sabha is :
   (1) Ram Nath Kovind   (2) Venkaiah Naidu
   (3) Narendra Modi   (4) Amit Shah

168. The Indian government recently (21.12.2021) proposed a bill in the Parliament raising the legal age of marriage for women to :
   (1) 18 years   (2) 20 years   (3) 21 years   (4) 25 years

169. At which of the sessions of the Indian National Congress, the resolution was made on how independent India's Constitution should look like ?
   (1) Surat session   (2) Karachi session
   (3) Lahore session   (4) Nagpur session

170. Who among the following was not a member of Indian Constituent Assembly ?
   (1) Dr. B. R. Ambedkar   (2) Gandhiji
   (3) Jawaharlal Nehru   (4) Sarojini Naidu

171. Which of the following is / are the independent institution(s) that are established to guard the Constitution ?
   (i) The Judiciary.   (ii) The Comptroller and Auditor General.
   (iii) The Election Commission.
   (1) (i), (ii) and (iii).   (2) (i) and (iii) only.
   (3) (i) only.   (4) (iii) only.

172. If the majority of the Lok Sabha members say they have 'no-confidence' in the Council of Ministers :
   (1) All the Ministers except the Prime Minister, have to quit.
   (2) All the Ministers including the Prime Minister, have to quit.
   (3) The no confidence motion will be sent to Rajya Sabha for the discussion.
   (4) Final decision will be taken by the President.

173. The Chief Election Commissioner of India holds the office :
   (1) For 6 years or till they complete 65 years of age, whichever is earlier.
   (2) For 5 years or till they complete 55 years of age, whichever is earlier.
   (3) For 6 years or till they complete 60 years of age, whichever is earlier.
   (4) For 6 years ; There is no relation with age.

174. Who among the following demanded the British government in 1911 to make a law for free and compulsory education ?
   (1) Bal Gangadhar Tilak   (2) Dadabhai Naoroji
   (3) Gopala Krishna Gokhale (4) Ambedkar

175. National voters' day is celebrated on 25th January because :
   (1) It was the day of Universal franchise.
   (2) It was the founding day of Election Commission.
   (3) It was the inaugural day of first general elections.
   (4) The Constitution came into force from the next day.

ECONOMICS

176. The present finance minister of India is :

(1) Sushma Swaraj

(2) Nirmala Sitharaman

(3) Rajnath Singh

(4) Nitin Gadkari

177. Which of the following is closely related to a new system of paper money or hundis ?

(1) Barter system.

(2) Growth of trust in gold smiths and their branches in many cities.

(3) Kings introducing standardized coins.

(4) Emergence of banks.

178. The largest port in Andhra Pradesh is :

(1) Vishakhapatnam

(2) Kakinada

(3) Gangavaram

(4) Machilipatnam

179. On current account deposits, the banks use to :

(1) Impose more restrictions on withdrawals.

(2) Pay high interest.

(3) Pay low interest.

(4) Pay no interest.

180. Which of the following is FALSE regarding the initial days of industrialisation ?

(1) Poor working conditions.

(2) Long working hours.

(3) Children are not allowed to work.

(4) Low salaries.

(Space for Rough Work)