NTSE (EE)

Medium : ENGLISH

Language : ENGLISH

Roll No. 2 4 6 1 5 1 6 0 6 1 5 2

NTSE – NOVEMBER, 2014

MENTAL ABILITY AND SCHOLASTIC APTITUDE TEST

Time : 180 Minutes

Mental Ability Test	:	50 Marks
Language Comprehensive Test	:	40 Marks
Aptitude Test	:	90 Marks
Total	:	**180 Marks**

Instructions to Candidates

Read the following instructions carefully before you answer the questions. Answers are to be SHADED on a SEPARATE OMR Answer Sheet given, with **HB Pencil**. Read the **Instructions printed on the OMR Sheet carefully before answering the question.**

1. Please write your Center Code Number and Roll Number 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 Center Code Number are correctly transferred to the appropriate blocks on the OMR Sheet as shown in the example given in the OMR Sheet. For all the subsequent purpose your Center Code Number and Roll Number shall remain the same as given on the Admission Card.

2. The Test is in THREE PARTS. Part – I (Mental Ability) consists of 50 Questions (Q. Nos. 1 to 50), Part – II (Language Comprehensive Test) consists of 40 Questions (Q. Nos. 51 to 90) and Part – III (Aptitude Test) consists of 90 questions (Q. Nos. 91 to 180).

3. All questions 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 all three parts.

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

7. Since the time allotted to the 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 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 completion of the examination. No candidate should leave the examination hall before the end of the examination.

PART – I

MENTAL ABILITY TEST (Q. Nos. 1 to 50)

Max. Marks – 50

Note : **SHADE** the correct alternatives in the OMR Answer Sheet provided, from amongst the ones given against the corresponding question in the Question Booklet. For shading the circles, use **HB Pencil**.

Directions :

Questions (1 to 6) :

In the number series given below, one number is missing. Each series is followed by five alternative answers, (1), (2), (3), (4) and (5). One of them is the right answer. Identify and indicate it as per the "Instructions".

1. 4, 13, 31, 58, ...
   (1) 90
   (2) 85
   (3) 49
   (4) 40
   (5) 94

2. 90, 81, 74, 69, ...
   (1) 64
   (2) 66
   (3) 65
   (4) 78
   (5) 72

3. 785, 664, 543, 422, ...
   (1) 301
   (2) 201
   (3) 101
   (4) 300
   (5) 303

4. 1875, ..., 75, 15, 3
   (1) 370
   (2) 275
   (3) 380
   (4) 375
   (5) 365

5. 3, 6, 24, 192, ...
   (1) 2972
   (2) 576
   (3) 3072
   (4) 1536
   (5) 1152

6. 365, 345, 320, 290, ...
   (1) 300
   (2) 245
   (3) 255
   (4) 260
   (5) 265

Directions :

Questions (7 to 10) are based on letter analogy. There are two pairs of letter combinations in each question. The first (left side) pair has some relationship between its members. In the second pair one member is missing. Find this out from answers (1), (2), (3),(4) and (5) such that this pair has similar relationship as the first pair. Indicate your answer as per the "Instructions".

7. PBL : NDJ : : VCR : ?
   (1) SEP
   (2) SEO
   (3) SEN
   (4) SFO
   (5) SFN

8. ACEG : BDEF : : JLNP : ?
   (1) KLNO
   (2) KMNP
   (3) LMNP
   (4) LMNO
   (5) KMNO

9. SRCA : ONDB : : TSGE : ?
   (1) POHF
   (2) POFH
   (3) POGH
   (4) POHG
   (5) OPHF

10. ABCDE : CDEAB : : RSTUV : ?
   (1) TUVSR
   (2) SRTUV
   (3) RTUVS
   (4) TUVRS
   (5) STUVR

Directions :

Questions (11 to 14) : In the following questions Letters/Letter groups are arranged in a particular order with some underlying criterion. Study the order and choose the answer from the alternatives to fill the gaps.

11. ACFH, BDGI, CEHJ, ...
   (1) DEIK
   (2) DFIK
   (3) DFJK
   (4) DEJK
   (5) DEHJ

12. UABP, TBCO, SCDN, ...
   (1) RDEN
   (2) RDEO
   (3) RDEM
   (4) RDFM
   (5) REFM

13. YXV, BCE, UTR, ...
   (1) FGI
   (2) FGH
   (3) FHI
   (4) EGI
   (5) FGJ

14. LMNOP, MNOPL, NOPLM, ...
   (1) PLMNO
   (2) PONLM
   (3) ONMLP
   (4) NMLOP
   (5) OPLMN

Directions :

Questions (15 to 20) : In each of the following questions, five words are given. Four of them are alike in some way. One is different from them. Identify and indicate it as per the "Instructions".

15. (1) Korea
   (2) China
   (3) Thailand
   (4) Finland
   (5) Bangladesh

16. (1) Leopard
   (2) Elephant
   (3) Tiger
   (4) Cheetah
   (5) Lion

17. (1) Moon
   (2) Earth
   (3) Saturn
   (4) Neptune
   (5) Venus

18. (1) Portuguese
(2) Romanian
(3) Italian
(4) Russian
(5) Pali

19. (1) Srinivasa Ramanujan
(2) Sir C. V. Raman
(3) U. R. Anantha Murthy
(4) U. R. Rao
(5) M. S. Swaminathan

20. (1) Coimbatore
(2) Shimoga
(3) Patiala
(4) Ranchi
(5) Kozhikode

Directions :

Questions (21 to 25) : In these questions there is a certain relationship between two words on one side of : :, and only one word is given on the other side of : : . The missing word is to be found out from the given alternatives (1), (2), (3), (4) and (5) so that the relationship is the same as for the other pair. Identify the correct answer and indicate it as per "Instructions".

21. Rome : Italy : : Helsinki : ?
(1) Sweden
(2) Finland
(3) Latvia
(4) Estonia
(5) Denmark

22. Godaan : Munshi Premchand : : Anandamath : ?
(1) K. M. Munshi
(2) Lokmanya Tilak
(3) Bankim Chandra Chatterjee
(4) Sitakant Mahapatra
(5) Tripuraneni Gopichand

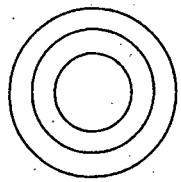
23. Theory of evolution : Darwin : : Crescograph : ?
(1) S. S. Bhatnagar
(2) Raja Ramanna
(3) Srinivasa Ramanujan
(4) C.-R. Rao
(5) Jagadish Chandra Bose

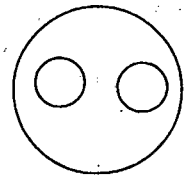
24. Jaipur : Rajasthan : : Dehradun : ?
(1) Jharkhand
(2) Chattisgarh
(3) Meghalaya
(4) Manipur
(5) Uttarakhand

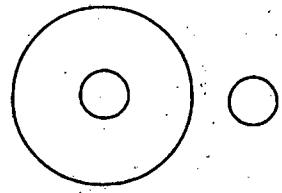
25. Rahul Bajaj : Business : : Chandrasekhar Azad : ?
(1) Freedom Struggle
(2) Literature
(3) Social Reforms
(4) Music
(5) Theatre

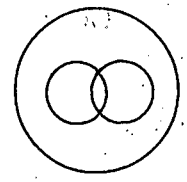
Directions :

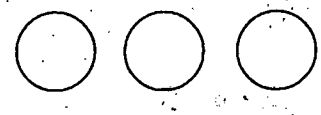
Questions (26 to 30) are based on the following diagrams. Study them carefully and indicate correct answer as per "Instructions".

(1) 

(2) 

(3) 

(4) 

(5) 

26. Snakes, Cobra, Vipers

27. Elephants, Camel, Cows

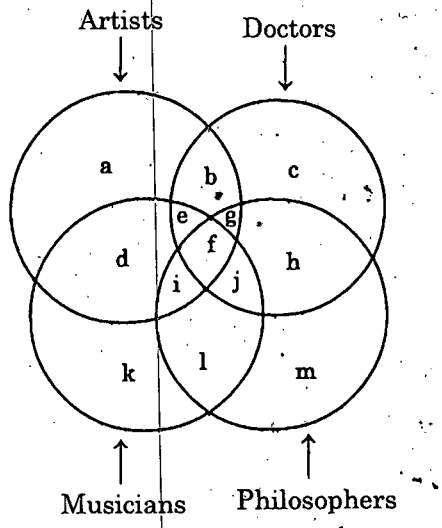
28. Kilogram, Centigram, Milligram

29. Apple, Fruits, Potato

30. Musicians, Pianist, Guitarist

Directions :

Questions (31 to 35) : With the help of the given diagram, answer the following questions making the right choice from the given alternatives. Indicate the answer as per the "Instructions".



31. Doctors who are also Artists and Philosophers are indicated by the letter.

(1) h

(2) e

(3) f

(4) b

(5) g

32. Which letter indicates Philosophers who are also Musicians and Artists ?

(1) f

(2) i

(3) e

(4) g

(5) l

33. Which letter indicates Philosophers who are also Doctors, Artists and Musicians ?
(1) g
(2) j
(3) e
(4) f
(5) i

34. Which letter indicates Philosopher-Doctors who are neither Musicians nor Artists ?
(1) h
(2) j
(3) l
(4) f
(5) b

35. Which letter indicates Doctors who are also Philosophers and Musicians ?
(1) f
(2) g
(3) j
(4) l
(5) i

Directions :

Questions (36 to 38) : If HEART is coded as 12345 and DISK is coded as 6789 respectively. How are the following words coded ? Identify the right answer and indicate it as per the "Instructions".

36. HASTE
(1) 13852
(2) 13942
(3) 13952
(4) 13752
(5) 13762

37. KARATE
(1) 934351
(2) 934342
(3) 933452
(4) 914152
(5) 934352

38. RISK
(1) 4879
(2) 4789
(3) 4798
(4) 4869
(5) 4779

Directions :

Questions (39 to 42) are based on simple arithmetic principles. Find the right answer from among the alternatives and indicate it as per the "Instructions".

39. 159 + ... = 15900
(1) 10.0
(2) 1.0
(3) 0.001
(4) 0.01
(5) 0.1

40. (65 + 100) × 7
(1) 4.55
(2) 4.05
(3) 4.5
(4) 4.65
(5) 4.75

41. $\frac{40+(6\times.04)}{8}$

(1) 0.503
(2) 5.3
(3) 5.003
(4) 5.13
(5) 5.03

42. $\frac{5x+215}{3} = 4x+60$ $x = ?$

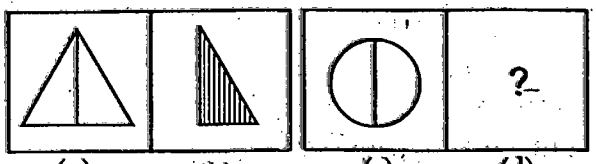
(1) 3
(2) 4
(3) 5
(4) 2
(5) 0.5

Directions :

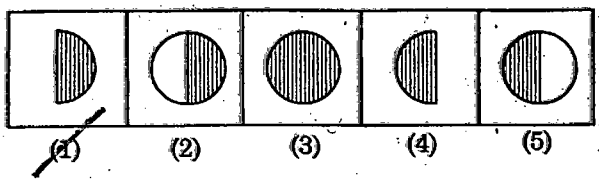
Questions (43 to 46) : Each question has four problem figures (a), (b), (c), (d). Figure (d) has only a question mark '?'. Figure (b) bears a certain relationship to (a). One of the answer figures bears similar relationship to (c). Find this out and indicate it as per the "Instructions".

43.

Problem Figures

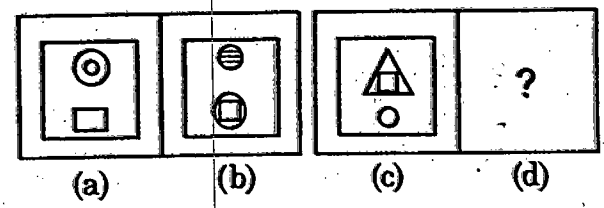


Answer Figures

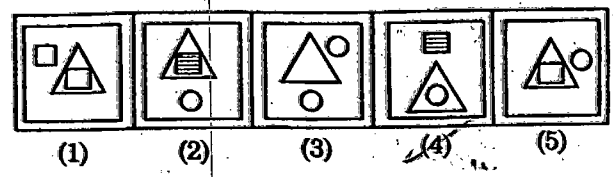


44.

Problem Figures

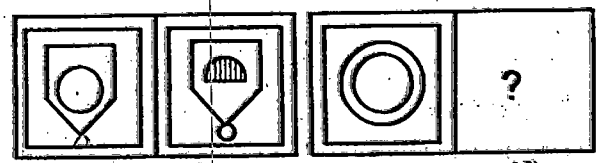


Answer Figures

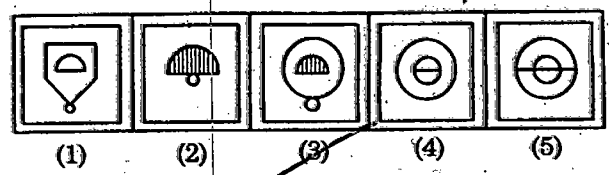


45.

Problem Figures

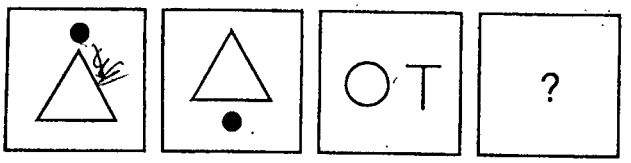


Answer Figures

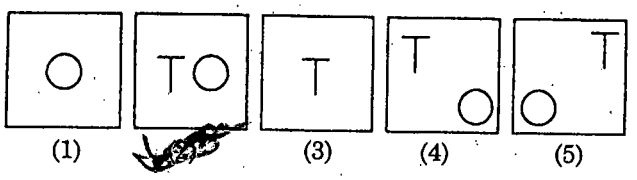


46.

Problem Figures



Answer Figures

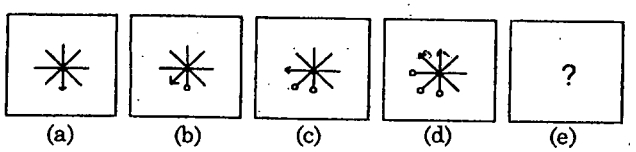


Directions :

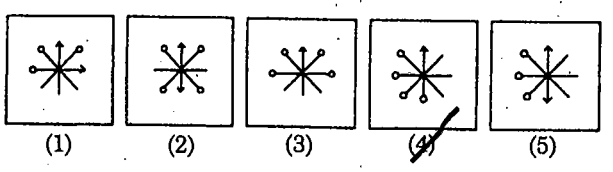
Questions (47 to 50) : In these questions there are five problem figures (a), (b), (c), (d) and (e). Figure (e) has a question mark '?'. Select one figure from answer figures (1), (2), (3), (4) and (5) such that the series is completed. Indicate your answer as per the "Instructions".

47.

Problem Figures

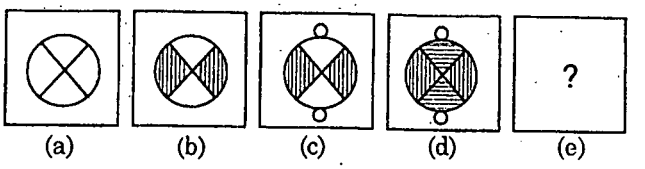


Answer Figures

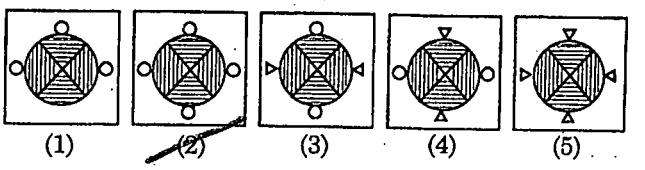


48.

Problem Figures

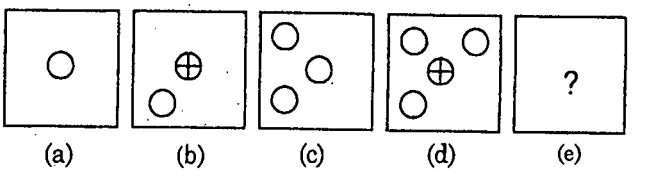


Answer Figures

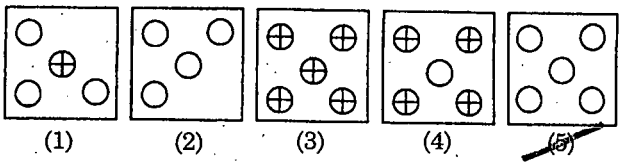


49.

Problem Figures

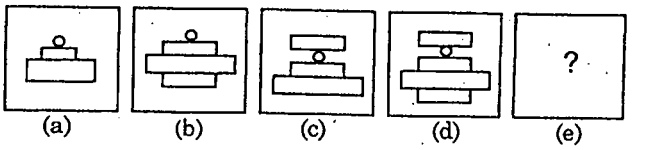


Answer Figures

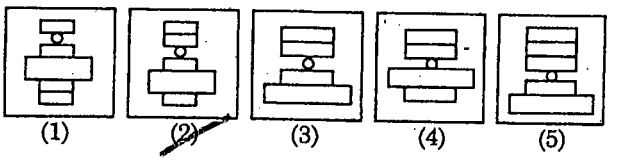


50.

Problem Figures



Answer Figures



PART – II

LANGUAGE COMPREHENSIVE TEST
(Q. Nos. 51 to 90)

Max. Marks – 40

Note :

i) **SHADE** the correct alternatives in the OMR Answer Sheet provided, from amongst the ones given against the corresponding question in the Question Booklet. For shading the circles, use **HB Pencil.**

ii) Q. No. 51 to 90 of Language Comprehensive Test contains English Language along with a blank sheet for rough work.

Directions :

Questions (51 to 55) :

Read the following passage and answer the questions given after it.

The surprisingly abundant life of the Indian Ocean is confined to the upper layers; the deeper especially the bottom waters are devoid of oxygen and are often permeated with hydrogen sulphide.

Choose the correct answer for the following questions :

51. The passage gives information about

(1) The life of the people near Indian Ocean

(2) The reasons why life exists in particular water layers

(3) The reason why oxygen is not found in the bottom layers

(4) The reasons why hydrogen sulphide is found in the bottom layers

52. The bottom water of the Indian Ocean

(1) Have no oxygen

(2) Contain hydrogen sulphide

(3) Have large amount of oxygen

(4) Contain a lot of sea plants and animals

53. The water of Indian Ocean

(1) Are devoid of life

(2) Are always permeated with hydrogen sulphide

(3) Have life only in the lower layers

(4) Have life only in the upper layers

54. Which of the following is the most opposite of the word ABUNDANT, as used in the passage ?

(1) Plentiful (2) Minute

(3) Meagre (4) Insufficient

55. The passage suggests which one of the following :

(1) Observers are surprised at abundant life exists in the Indian Ocean

(2) Hydrogen sulphide is necessary to life

(3) Oxygen is not necessary for marine life

(4) There are different layers of water in the Ocean

Directions :

Questions (56 to 60) :

Read the following passage and answers the questions given after it.

Up the river Hudson in North America are the Catskill mountains. They are not so high as the Himalayas in India. In certain village at the foot of these mountains there lived a long ago a man called Rip Van Winkle. He was simple and good natured. A very kind neighbour and great favourite of all the good wives in the neighbourhood. The women took his side and put the blame on Dam Van Winkle.

The children of the village too would shout with joy whenever they saw him. He made play things for them. He told them fairy tales. So they liked him.

56. Where are the Catskill mountains ?

(1) In South America

(2) In Africa

(3) In North America

(4) In Asia

57. Where did Rip Van Winkle live ?
(1) On the top of the Catskill mountains
(2) At the foot of the Catskill mountains
(3) In a city in North America
(4) Far away from the Catskill mountains

58. Who like the Rip Van Winkle very much ?
(1) All the wives in the neighbourhood
(2) All the husbands in the neighbourhood
(3) All the children in the village
(4) All the friends in the village

59. Who shouted with joy on seeing Rip Van Winkle ?
(1) The women
(2) The men
(3) All the persons
(4) All the children

60. Why did children like Rip Van Winkle ?
(1) As he played with them
(2) As he told them fairy tales and made playing things for them
(3) He took them to the Catskill mountains
(4) None of the above

Directions :

Questions (61 to 65) :

Read the following passage and answer the questions given after it.

An elephant does not work mechanically, like many other animals. He never stops learning because he is always thinking. Not even really a good sheep, dog can compare with an elephant in intelligence. An elephant never forgets. His little actions reveal an intelligence which finds in prompt solutions for new difficulties. If he can not reach with his trunk some part of his body that itches, he does not rub it against a tree, he may pick up a long stick and give himself a good stretch with that instead. If he pulls up some grass, and it comes up by the roots with the lump of earth, he will smack it against foot until all the earth is shaken off or, if the water is handy, he will wash it clean, before putting it into his mouth.

61. What is the passage about ?
(1) An elephant
(2) An elephant's learning
(3) An elephant's training
(4) An elephant resourcefulness

62. What does a little actions of an elephant reveal ?
(1) His ways of solving difficulties
(2) His food habits
(3) His power of remembrance
(4) His clean habits

63. Why does an elephant want a long stick ?

(1) To dig out a lump of earth
(2) To smack it against his foot
(3) To rub that part of his body that itches
(4) To defend himself from the enemy

64. Why does the elephant smack some grass against his foot ?

(1) To grind it
(2) To shake off the grass
(3) To rub his body with
(4) To chew the roots

65. What does the elephant do before putting the grass roots with a lump of earth into his mouth ?

(1) He smacks it against his foot
(2) He washes it clean
(3) He either smacks it against the foot or washes it clean
(4) He grinds it under his feet

Directions :

Questions (66 – 67) :

The following five sentences come from a paragraph. The first and the last sentences are given, choose the order in which the three sentences (PQR) should appear to complete the paragraph.

66. S_1. It rains continuously in the rainy season.

S_2. _____

S_3. _____

S_4. _____

S_5. Indians are still ill equipped to utilized this rain water.

Choose from the options given below :

(1) PQR (2) RPQ
(3) QRP (4) RQP

67. S_1. The train arrived from Tirupathi.

S_2. _____

S_3. _____

S_4. _____

S_5. The platform was finally empty.

Choose from the options given below :

(1) RPQ (2) QRP
(3) PQR (4) RQP

Directions :

Questions (68 – 74) :

Choose the word which best fills the blank from the four options given :

68. Rani can use both of her hands equally well as she is _____

(1) fallacious
(2) ambitious
(3) ambidextrous
(4) artistic

69. Whom would you prefer _____ the two of us ?

(1) among (2) of
(3) between (4) to

70. If you make a promise, you must be sure to _____ it.

(1) accomplish (2) keep
(3) follow (4) succeed

71. The volcanic _____ was the cause of great devastation.

(1) outburst (2) eruption
(3) erosion (4) movement

72. I congratulate you _____ your success.
(1) on (2) for
(3) at (4) in

73. This legend has been _____ from father to son.
(1) handed in
(2) handed out
(3) handed over
(4) handed down

74. Suitable steps are taken to bring _____ the cost of living.
(1) up
(2) over
(3) on
(4) down

Directions :

Questions (75 to 78) :
Select the meaning of the given/underlined phrases/idioms.

75. Our school is <u>within a stone's throw</u> of the railway station.
(1) very far away
(2) within certain radius
(3) at a short distance
(4) within a definite circumference

76. The leader must have the <u>Lion's share of the booty</u>.
(1) the stronger one
(2) the smaller part
(3) the worthy part
(4) the larger part

77. We <u>kept our fingers crossed</u> till the final results were declared.
(1) waited expectantly
(2) kept praying
(3) felt scared
(4) kept hopeful

78. In this competition there is a complete <u>fair play</u>.
(1) good name
(2) honest means
(3) good chances
(4) no cheating

Directions :

Questions (79 to 83) :
In the following passage there are some numbered blanks. Fill in the blanks by selecting the most appropriate word for each blank from the given options.
The first problem to be tackled was that of feeding the huge population of our country. It became <u>79</u> to adopt <u>80</u> for agricultural development. The construction of multi purpose <u>81</u> with the development of <u>82</u> as one of its major components was the <u>83</u> step towards the provision of agricultural infrastructure.

79. (1) essential
(2) desirable
(3) notional
(4) optional

80. (1) crops
(2) families
(3) regions
(4) strategies

81. (1) offices
(2) organisations
(3) agencies
(4) projects

82. (1) markets
(2) irrigation
(3) villages
(4) fields

83. (1) last
(2) least
(3) first
(4) intermediate

Directions :
Questions (84 to 86) :
Select the most appropriate option to fill in the blanks from the given alternatives.

84. She _____ that she was in the wrong floor.
(1) remembered
(2) told
(3) realised
(4) reprimanded

85. I could not _____ what he wanted to say.
(1) make up
(2) make out
(3) make in
(4) make away

86. He is too _____ to be deceived easily.
(1) strong
(2) kind
(3) honest
(4) intelligent

Directions :
Questions (87 to 90) :
Select the word which means the opposite of the given words.

87. DEMISE
(1) growth
(2) live
(3) birth
(4) request

88. PAUCITY
(1) surplus
(2) scarcity
(3) presence
(4) richness

89. DEARTH
(1) extravagance
(2) scarcity
(3) abundance
(4) sufficiency

90. GENUINE
(1) rotten
(2) bogus
(3) unsound
(4) impure

PART – III

APTITUDE TEST (Q. Nos. 91 to 180)

Max. Marks – 90

Note :

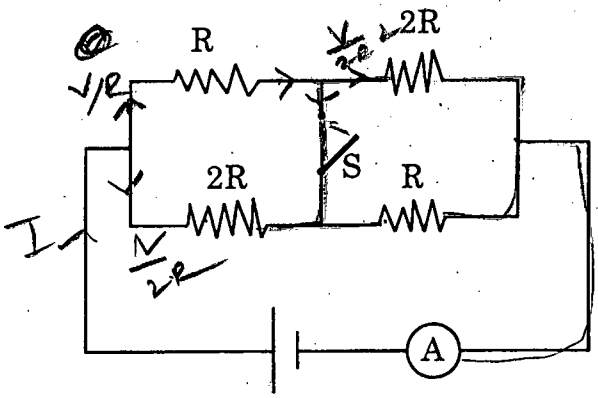
i. Subjects, Questions Sl. No. and Marks allotted :

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 circle having the correct alternative in the OMR Sheet provided, from among the ones given against the corresponding question in the Question Paper Booklet. For shading the circles, use **HB Pencil**.

PHYSICS

91. A circuit is shown in the figure. If switch 'S' is closed, the reading of an ammeter(A)



(1) does not change
(2) increases
(3) decreases
(4) may decrease or increase

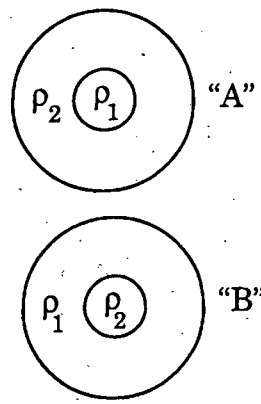
92. Four students discuss about the possible paths of a particle moving with constant speed. See the table for the results of the discussion.

Name	Possible path or paths
Anand	Any path
Srinu	Straight line, Circle, Helix
Krishna	Straight line
Somesh	Straight line, Circle

Who is correct ? Assume that the forces acting on the particle are time independent.

(1) Srinu (2) Anand
(3) Somesh (4) Krishna

93. Two planets 'A' and 'B' of same mass and same radius are shown in the figure. ρ_1 and ρ_2 are densities of the materials in the planets and $\rho_1 > \rho_2$. If the accelerations due to gravity on the surfaces of the planets A and B are g_A and g_B respectively, then

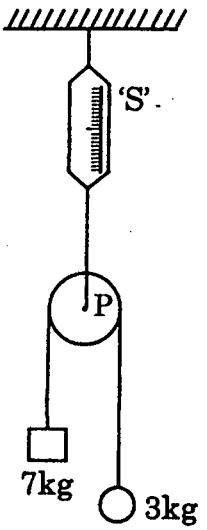


(1) Given information is not sufficient
(2) $g_A < g_B$
(3) $g_A > g_B$
(4) $g_A = g_B$

94. An electric stove boils 1 kg of water in time 2 min and another stove boils 1 kg of water in time 3 min. Both electric stoves are designed for the same voltage. When they are joined in parallel, the time required to boil 1 kg of water is

(1) 1.2 min (2) 5 min
(3) 2.4 min (4) 1 min

95. In the figure, a pulley of negligible weight is suspended by a spring balance 'S'. Masses of 3 kg and 7 kg respectively are attached to opposite ends of a string passing over a pulley 'P'. The spring balance reads

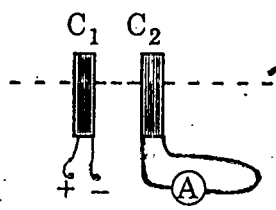


(1) equal to 10 kg
(2) less than 10 kg
(3) more than 10 kg
(4) equal to 4 kg

96. A small ball is dropped from a balloon moving vertically up at a speed 10 m/s when the balloon is at a height 15 m from the ground. Neglect air friction and take g = 10 m/s². Which of the following is not suitable to the present situation ?

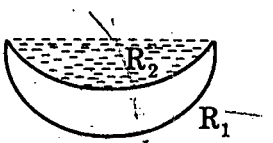
(1) The ball reaches the ground in 3 s
(2) The ball covers a distance of 25 m
(3) The magnitude of average velocity of the ball is 8.33 m/s
(4) The ball moves up at a speed 10 m/s at an instant when it is dropped from the balloon

97. Two coils C_1 and C_2 are arranged coaxially as shown in figure. The ends of the coil 'C_2' are connected to an ammeter A. The current sent through the coil C_1 is directly proportional to the time. If the magnetic field induction produced by the coil C_1 is proportional to the current in it, then the induced current through the coil C_2 is



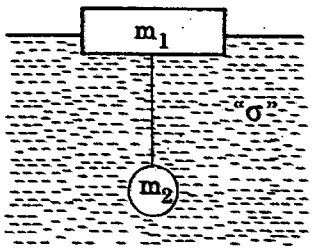
(1) zero
(2) increasing with time
(3) constant
(4) decreasing with time

98. As shown in figure, a liquid of refractive index 'n_2' is poured onto the concave surface of concave-convex lens. R_1 and R_2 are the radii of curvature of convex and concave surfaces of the lens respectively and $R_1 = 2R_2$. The refractive index of material of lens is n_1. For which combination of n_1 and n_2, the whole system behaves as a diverging lens.



(1) $n_1 = 1.2$ and $n_2 = 1.8$
(2) $n_1 = 1.63$ and $n_2 = 1.35$
(3) $n_1 = 1.56$ and $n_2 = 1.33$
(4) $n_1 = 1.7$ and $n_2 = 1.33$

99. A cork of mass m_1 and a steel of mass m_2 are tied to the ends of a massless string. The whole system is kept in a liquid of density 'σ' as shown in figure. ρ_1 and ρ_2 are densities of cork and steel respectively. Which of the following is wrong ?



(1) The tension in the string $T = m_2 g\left(1 - \frac{\sigma}{\rho_2}\right)$ when the system is in equilibrium

(2) The cork is completely immersed in the liquid if $(m_1 + m_2)\,\rho_1\rho_2 < (m_1\rho_2 + m_2\rho_1)\,\sigma$

(3) The volume of submerged part of cork is equal to $\frac{m_1}{\sigma} + \frac{m_2}{\sigma}\left(1 - \frac{\sigma}{\rho_2}\right)$ when the system is in equilibrium

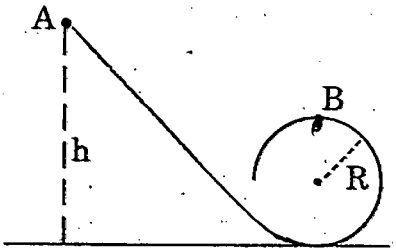
(4) The system sinks if $T > m_1 g\left(\frac{\sigma}{\rho_1} - 1\right)$

100. One vessel with ice of 10 gr at 0°C and another similar vessel with water of 100 gr at 0°C are taken and hung in a room. After 15 min., the temperature of water is raised to 2°C. The time required for the ice to be converted completely into water is

(1) 1 hr (2) ½ hr

(3) $1\frac{1}{2}$ hr (4) 2 hr

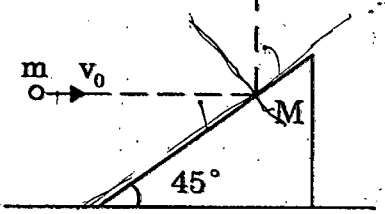
101. In the figure shown, a particle is released from the position A on a smooth track. If h = 3R, then the normal force on the particle by the track at B is



(1) $\frac{mg}{2}$ (2) $\frac{3mg}{2}$

(3) mg (4) 2 mg

102. A body is made in the form of wedge with an angle 45°. See figure. A ball of mass m, moving horizontally at a speed $v_0 = \sqrt{2}$ m/s, collides with the wedge of mass M = 2m. As a result of the impact, the ball bounces vertically upward. Neglect the friction between the wedge and horizontal surface. The speed of the ball just after the impact is



(1) 0.5 m/s (2) 2 m/s

(3) $\sqrt{2}$ m/s (4) 1 m/s

CHEMISTRY

103. What are the values of the quantum numbers of 19th electron of Scandium (Z = 21) ?

(1) $n = 4 ; l = 0 ; m = 0 ; m_s = +1/2$

(2) $n = 4 ; l = 1 ; m = 0 ; m_s = +1/2$

(3) $n = 4 ; l = 2 ; m = 1 ; m_s = +1/2$

(4) $n = 4 ; l = 3 ; m = 2 ; m_s = +1/2$

104. First and second ionisation energies of magnesium are 7.646 eV and 15.035 eV respectively. The amount of energy in kJ needed to convert all the atoms of magnesium into Mg^{2+} ions present in 12×10^{-3} g of magnesium vapour is [1eV $atom^{-1}$ = 96.5 $kJmol^{-1}$]

(1) 2.0

(2) 1.5

(3) 1.1

(4) 0.5

105. Which one of the following possesses covalent, ionic as well as co-ordinate covalent bonds ?

(1) HCl

(2) NH_4Cl

(3) Cl_2

(4) CH_4

106. $Mg + CuO \longrightarrow MgO + Cu$

Which of the following is wrong relating to the above reaction ?

(1) CuO gets reduced

(2) Mg gets oxidised

(3) CuO gets oxidised

(4) It is a redox reaction

107. How many number of 'sigma' bonds are present in $CH_3 - C \equiv N$?

(1) 4

(2) 3

(3) 2

(4) 5

108. The IUPAC name of

$$CH_3\,CH_2 - CH_2 - CH(CH = CH_2) - CH_2\,CH_2\,CH_3$$

is

(1) 4 – ethelene – 1 – heptane

(2) 3 – propyl – hex – 1 – ene

(3) 4 – propyl – hex – 6 – ene

(4) 3 – propyl – 1 – heptane

109. How many number of protons and electrons are present in Ca^{2+} ?

(1) 20 protons ; 20 electrons

(2) 20 protons ; 22 electrons

(3) 18 protons ; 18 electrons

(4) 20 protons ; 18 electrons

110. What is the wavelength of radiation whose frequency is $2\times10^{14}\ S^{-1}$? Velocity of radiation is 3×10^{8} m/s.

(1) $1.5 \times 10^{+6}$ m

(2) 1.8×10^{-6} m

(3) 1.2×10^{6} m

(4) 1.5×10^{-6} m

111. The electronic configuration of the atom of an element 'X' is $(n-2)\ s^2\ (n-1)\ s^2(n-1)p^6\ ns^2np^5$. If n = 3, the element 'X' is placed in modern periodic table

(1) 7^{th} group, 3^{rd} period

(2) 17^{th} group, 3^{rd} period

(3) 17^{th} group, 5^{th} period

(4) 3^{rd} group ; 3^{rd} period

112. How many moles of electrons weigh one kilogram ? Mass of electron $= 9.108\times10^{-31}$ kg ; Avagadro number $= 6.023\times10^{23}$.

(1) $\frac{1}{9.108\times6.023}\times10^{8}$

(2) 6.023×10^{23}

(3) $\frac{1}{9.108}\times10^{31}$

(4) $\frac{6.023}{9.108}\times10^{54}$

113. Which one of the following oxides gives pink colour with phenolphthalein indicator in aqueous solution ?

(1) N_2O

(2) NO

(3) CaO

(4) CO_2

BIOLOGY

114. Plant cells can withstand greater changes in surrounding medium than animal cells because of their _____

(1) Cell wall

(2) Plasma membrane

(3) Chlorophyll

(4) Root system

115. The following eukaryotic cells do not contain nucleus

a) Red blood cells

b) Slime molds

c) Phloem sieve tube

d) White blood cells

(1) a) and b)

(2) b) and c)

(3) a) and c)

(4) d) and a)

116. Study of tissues is

(1) Cytology

(2) Pathology

(3) Tissueology

(4) Histology

117. The element present in Chlorophyll

(1) Iron

(2) Magnesium

(3) Manganese

(4) Copper

118. In animals, the protective tissue inside or outside the body is_____

(1) Epithelial tissue

(2) Nerve tissue

(3) Muscular tissue

(4) Connective tissue

119. In paramoecium, food enters the body through _____

(1) Mouth

(2) Pseudopodia

(3) Cilia

(4) Cytosome

120. The longest part in human alimentary canal is _____

(1) Oesophagus

(2) Small intestine

(3) Large Intestine

(4) Stomach

121. In this disease, caused due to protein deficiency face and limbs are swollen

(1) Kwashiorkor

(2) Marasmus

(3) Rickets

(4) Pellagra

122. During respiration, gaseous exchange takes place in _____

(1) Alveoli

(2) Pharynx

(3) Trachea

(4) Nasal cavity

123. Metanephridia are the excretory organs in _____

(1) Reptilians

(2) Arthropodans

(3) Annelids

(4) Molluscans

124. Scopolamine, a sedative is produced from _____

(1) Neem

(2) Rose

(3) Datura

(4) Tobacco

125. The hormone that effects urination is _____

(1) Adrenalin

(2) Vasopressin

(3) Estrogen

(4) Thyroxin

MATHEMATICS

126. Triangle ABC has a right angle at C. If $\sin A = \frac{2}{3}$ then tan B is

(1) $\frac{3}{5}$ (2) $\frac{\sqrt{5}}{3}$

(3) $\frac{2}{\sqrt{5}}$ (4) $\frac{\sqrt{5}}{2}$

127. Find the smallest positive number from the numbers below

(1) $10 - 3\sqrt{11} = 0.07$

(2) $3\sqrt{11} - 10 = -0.07$

(3) $51 - 10\sqrt{26} = 0.16$

(4) $18 - 5\sqrt{13} =$

128. If x = 9ab where a is an integer consists of a sequence of 2014 eights and the integer b consists of a sequence of 2014 fives. What is the sum of the digits of x ?

(1) 9000

(2) 18135

(3) 18000

(4) 8585

129. If $a^2 + b^2 + 2c^2 - 4a + 2c - 2bc + 5 = 0$ then the possible value of a + b – c

(1) 1

(2) 2

(3) –1

(4) –2

130. a and b are both 4-digit numbers a > b and one is obtained from the other by reversing the digits. Then the value of b if $\frac{a+b}{5} = \frac{b-1}{2}$ is

(1) 2003

(2) 1002

(3) 2005

(4) 2015

131. The value of

$$\frac{(10^4+324)(22^4+324)(34^4+324)(46^4+324)(58^4+324)}{(4^4+324)(16^4+324)(28^4+324)(40^4+324)(52^4+324)}$$

is

(1) 324 (2) 400

(3) 373 (4) 1024

132. Let x = 0.123456789101112 ..... 998999 where the digits are obtained by writing the integers 1 through 999 in order. Then the 2014th digit to right of the decimal point is

(1) 7 (2) 6

(3) 5 (4) 9

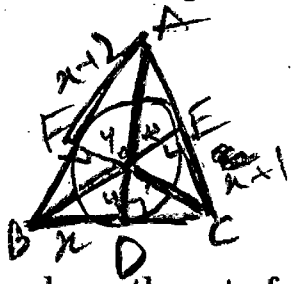
133. ABC is a right angled triangle with $\angle B = 90°$. M is the mid point of AC and BM = $\sqrt{117}$ cm. Sum of the lengths of the sides AB and BC is 30 cm. The area of the triangle is

(1) 96 cm^2 (2) 108 cm^2

(3) 114 cm^2 (4) 125 cm^2

134. In a triangle ABC, the incircle touches the sides BC, CA and AB at D, E, F respectively. If the radius of the incircle is 4 units and if BD, CE and AF are consecutive integers the lengths of the sides of the triangle are

(1) 13, 14, 15
(2) 6, 8, 10
(3) 3, 4, 5
(4) 5, 12, 13



135. In the coordinate plane, the set of points A_0, A_1, A_2, A_3, ... A_n are determined as follows. A_0 is the origin. A_1 is the point (3, 4), A_2 is the image of A_1 reflected through the origin, for $k \geq 3$ A_k is the image of A_{k-1} reflected through A_{k-2}. Then the length of the line segment $\overline{A_0A_7}$ is

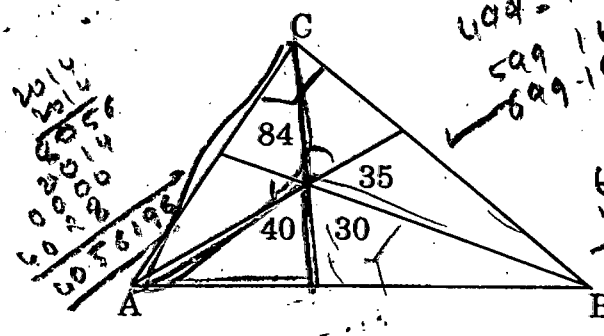
(1) 100
(2) 215
(3) 125
(4) 251

136. The value of

$$\frac{(2014^2 - 2020)(2014^2 + 4028 - 3)(2015)}{(2011)(2013)(2016)(2017)}$$ is

(1) 2014
(2) 2015
(3) 2016
(4) 2017

137. As shown in the figure on the right ΔABC is divided into six smaller triangles by lines drawn from the vertices through a common interior point. The areas of four of these triangles are indicated in the figure. Then the area of the triangle is



(1) 315
(2) 240
(3) 275
(4) 185

138. If α and β are the angles in the first Quadrant $\tan\alpha = \frac{1}{7}$, $\sin\beta = \frac{1}{\sqrt{10}}$ then the value of $\alpha + 2\beta$ is

(1) 0°
(2) 45°
(3) 60°
(4) 90°

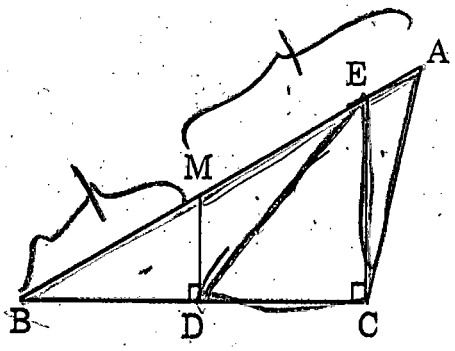
139. The point which is equi-distant from the points (0, 0) (0, 8) and (4, 6) is

(1) $\left(\frac{1}{2}, -4\right)$ (2) $\left(\frac{-1}{2}, 4\right)$

(3) $\left(\frac{1}{2}, 4\right)$ (4) $\left(\frac{-1}{2}, -4\right)$

[Turn Over

140. In the obtuse triangle ABC, AM = MB, MD ⊥ BC, EC ⊥ BC. If the area of Δ ABC is 24, then the area of Δ BED is

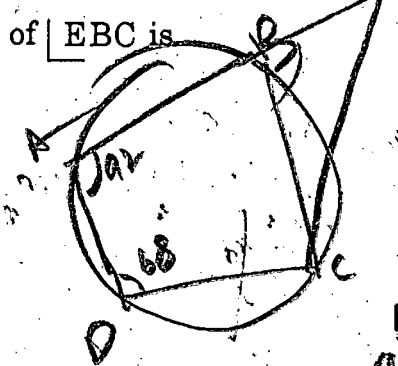


(1) 9
(2) 12
(3) 15
(4) 18

141. Let $p(x) = x^2 + bx + c$ where b and c are integers. If p(x) is a factor of both $x^4 + 6x^2 + 25$ and $3x^4 + 4x^2 + 28x + 5$ what is p(1) ?

(1) 0
(2) 1
(3) 2
(4) 4

142. Given a quadrilateral ABCD inscribed in a circle with side AB extended beyond B to point E. If $\angle BAD = 92°$ and $\angle ADC = 68°$ then the value of $\angle EBC$ is

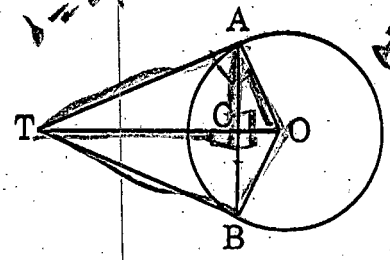


(1) 66°
(2) 68°
(3) 70°
(4) 92°

143. If $x^2 + x + 1 = 0$, then what is the value of $\left(x^3 + \frac{1}{x^3}\right)^3$?

(1) −8
(2) −1
(3) 0
(4) 1

144. TA, TB are tangents to a circle with centre O. Chord AB intersects TO at C. Given $\frac{1}{OA^2} + \frac{1}{TA^2} = \frac{1}{36}$ then the value of AB



(1) 10
(2) 12
(3) 14
(4) 8

145. The coefficient of x^7 in the polynomial expansion of $(1 + 2x - x^2)^4$ is

(1) − 8
(2) 12
(3) 6
(4) −12

HISTORY

146. After the death of Komaram Bheem, whom did the Nizams government appoint to do some research on the life of tribal people ?

(1) Furor Haimondorf

(2) Begum Rukaya Sakhawath Hussain

(3) Chandu Menon

(4) Ramashankar Ray

147. Which of the following is not correct ?

(1) The spirit of laws – Montesquieu

(2) Reign of Terror – Maxmillian Robespierre

(3) Social Contract Theory – Rousseau

(4) French Revolution – July 4, 1789

148. Which of the following is not correctly matched ?

(1) Reichstag – German Parliament

(2) Duma – Russian Parliament

(3) DIET – France Parliament

(4) All the above

149. In which year was the Indian Forest Services set up ?

(1) 1864

(2) 1972

(3) 1905

(4) 1988

150. Find out the correctly matched.

(1) Hambeldon – The first Cricket Club of the world

(2) Dubai – The headquarters of International Cricket Council

(3) MCC stands for – Marylebene Cricket Club

(4) All the above

151. Who is the author of 'Indulekha' which was the first modern novel in Malayalam ?

(1) Narayana Guru

(2) Sahadaran

(3) Chandu Menon

(4) Srinivas Das

[Turn Over

152. Find out the wrong statement.
(1) The first known printing press was developed by Gutenberg.
(2) The first known printing press was started in Strasbourg in Germany.
(3) The first book printed by him was 'The Bible'.
(4) The second book printed by him was 'The Prince'.

153. 'Irish Potato Famine' occurred in
(1) 1845 to 1849
(2) 1863 to 1867
(3) 1858 to 1863
(4) 1929 to 1934

154. Find out the wrongly matched.
(1) 1929 – Lahore Congress; Congress adopts the demand for Purna Swaraj
(2) 1930 – Ambedkar establishes Depressed Classes Association
(3) 1930 – Gandhiji begins Civil Disobedience Movement
(4) 1931 – First Round Table Conference

155. Sun Yat Sen's, ideas became the basis of the Political Philosophy of the
(1) Communist Party of China
(2) Guomindang
(3) China Liberation Party
(4) Socialist Party

GEOGRAPHY

156. "There is enough for everybody's need and not for anybody's greed" – Who's concern about the resource conservation are the above words ?
(1) Malthus
(2) Sundarlal Bahuguna
(3) Medha Patkar
(4) M. K. Gandhi

157. Based on the International Union for Conservation of Nature and Natural Resources (IUCN) which species are considered as vulnerable species ?
(1) Asiatic Elephant
(2) Indian Rhino
(3) Pink head duck
(4) Brown Bear

158. Which of the following pairs are correctly matched ?
(1) Mettur – Periyar
(2) Salal Project – Ravi
(3) Pravara – Godavari
(4) Rihand – Chambal

159. Which of the following pairs are correctly matched ?
(1) Ladong – Indonesia
(2) Podu – Andhra Pradesh
(3) Roca – Brazil
(4) All the above

160. Initially coffee cultivation was introduced on the _____
(1) Shevoroy Hills
(2) Palakonda Range
(3) Javadi Hills
(4) Baba Buden Hills

161. Which is the finest iron ore with a very high content of iron upto 70% ?
(1) Hematite
(2) Magnatite
(3) Limonite
(4) Geothite

162. Which two of the following extreme locations are connected by east-west corridor ?
(1) Mumbai and Nagpur
(2) Mumbai and Kolkata
(3) Silcher and Porbander
(4) Nagpur and Siligudi

163. The highest peak in Western Ghats is
(1) Anaimudi
(2) Dodabetta
(3) Mahendragiri
(4) Khasi

164. The magnitude of population growth refers to
(1) The total population of an area
(2) The number of persons added each year
(3) The rate at which the population increases
(4) The number of females per thousand males

165. The average density of population in India during 2001 was _____
(1) 257
(2) 275
(3) 340
(4) 324

POLITICAL SCIENCE

166. Which Act under British rule first prescribed a federation for India ?
(1) Government of India Act, 1919
(2) Government of India Act, 1935
(3) Indian Council Act, 1909
(4) The Indian Independence Act, 1947

167. The most profound influence was exerted on the Constitution of India by
(1) The Government of India Act, 1935
(2) England Constitution
(3) US Constitution
(4) Canadian Constitution

168. Which part of our constitution deals with fundamental rights ?
(1) Part II
(2) Part III
(3) Part IV
(4) Part V

169. The constitution provides three methods of amendments of different portions of the constitution under Article _____
(1) 326
(2) 356
(3) 368
(4) 370

170. The Constituent Assembly that finally framed India's constitution was set up
(1) Under the Indian Independence Act
(2) Under the Government of India Act, 1935
(3) Under the Cabinet Mission Plan, 1946
(4) By the Wavell Plan

171. The right against exploitation prohibits children
(1) Below 14 years of age from employment in family businessess
(2) Below 14 years of age from being employed in hazardous occupations
(3) Below 14 years from working on family farms
(4) From doing all the above

172. By Parliament, we mean
(1) Lok Sabha
(2) Lok Sabha and Rajya Sabha
(3) Rajya Sabha
(4) Lok Sabha, Rajya Sabha and the President

173. According to 'Act of Judicial Services Authority' who are not eligible for availing Judicial Assistance ?

(1) Citizens belonging to scheduled castes and scheduled tribes

(2) Victims of immoral human trafficking, beggers, woman and children

(3) Victims of Natural Disasters

(4) Citizens earning annual income less than Rs. 2,00,000

174. Name the party led by Aung San Suu Kyi

(1) National League for Democracy

(2) ZANU – PF

(3) Revolutionary Command Council

(4) Myanmar Nationalist Party

175. In the context of assessing democracy which among the following is odd one out ?

(1) Free and fair elections

(2) Dignity of the individual

(3) Majority Rule

(4) Equal treatment before law

ECONOMICS

176. Human Development Report published by UNDP compares countries based on the

(1) Educational levels of the people
(2) Per capita income
(3) Health status
(4) All the above

177. Match list A with list B and select the correct answer using the codes given below the lists.

A		B
A)	Women Employment	i) World Bank
B)	World Development Report	ii) Average Income
C)	Health and Education	iii) Bihar
D)	Low per Capita Income	iv) Social indicators
E)	Per capita income	v) Increases family income

	A	B	C	D	E
(1)	v	i	iv	iii	ii
(2)	v	i	iii	ii	iv
(3)	i	v	iii	iv	ii
(4)	i	iii	ii	iv	v

178. Which of these following occupations not belongs to tertiary sector ?

(1) Fishermen
(2) Milk Vendor
(3) Priest
(4) Bank Manager

179. Consider the following statements

A) Economic development is a broader and normative concept. It concerns with structural change in economy.

B) Economic growth is a narrow concept. It concerns with increase in the economy's output. Which of the statement (s) given above is/are true ?

(1) Only A
(2) Only B
(3) Both A and B
(4) None of the above

180. Real National Income refers to

(1) National income growth adjusted for inflation
(2) National income growth adjusted for population growth
(3) National income growth adjusted for depreciation rate
(4) National income growth adjusted for saving growth

NTSE Stage – 1 **Exam Date: 2.11.2014**

MAT (1- 50)

1.	**5**	2.	**2**	3.	**1**	4.	**4**	5.	**3**
6.	**3**	7.	**4**	8.	**5**	9.	**1**	10.	**4**
11.	**2**	12.	**3**	13.	**1**	14.	**5**	15.	**4**
16.	**1**	17.	**1**	18.	**5**	19.	**3**	20.	**4**
21.	**2**	22.	**3**	23.	**5**	24	**5**	25	**1**
26	**2**	27	**5**	28	**1**	29	**3**	30	**4**
31	**5**	32	**2**	33	**4**	34	**1**	35	**3**
36.	**1**	37.	**5**	38.	**2**	39.	**4**	40.	**1**
41.	**5**	42.	**3**	43.	**1**	44.	**4**	45.	**3**
46.	**2**	47.	**4**	48.	**2**	49.	**5**	50.	**3**

ENGLISH (51 – 90)

51	**2**	52	**2**	53	**4**	54	**3**	55	**4**
56	**3**	57	**2**	58	**1**	59	**4**	60	**2**
61	**4**	62	**1**	63	**3**	64	**BONUS**	65	**3**
66	**BONUS**	67	**BONUS**	68	**3**	69	**3**	70	**2**
71	**2**	72	**1**	73	**4**	74	**4**	75	**3**
76	**4**	77	**1**	78	**2**	79	**1**	80	**4**
81	**4**	82	**2**	83	**3**	84	**3**	85	**2**
86	**4**	87	**3**	88	**1**	89	**3**	90	**2**

Physics (91 – 102)

91.	**2**	92.	**1**	93.	**4**	94.	**1**	95.	**2**
96.	**3**	97.	**3**	98.	**4**	99.	**2**	100.	**1**
101.	**3**	102.	**4**						

CHEMISTRY (103 – 113)

103.	**1**	104.	**3**	105.	**2**	106.	**3**	107.	**4**
108.	**2**	109.	**4**	110.	**4**	111.	**2**	112.	**1**

113.	**3**								

BIOLOGY 114-125

114.	**1**	115.	**3**	116.	**4**	117.	**2**	118.	**1**
119.	**4**	120.	**2**	121.	**1**	122.	**1**	123.	**4**
124.	**3**	125.	**2**						

MATHS 126 – 145

126.	**4**	127.	**3**	128.	**BONUS**	129.	**2**	130	**1**
131.	**3**	132.	**1**	133.	**2**	134.	**1**	135.	**2**
136.	**2**	137.	**1**	138.	**2**	139.	**3**	140.	**2**
141.	**4**	142.	**2**	143.	**BONUS**	144.	**2**	145.	**1**

HISTORY 146 – 155

146.	1	147.	4	148.	3	149.	1	150.	4
151.	3	152.	4	153.	1	154.	2	155.	2

156 – 165 GEOGRAPHY

156.	4	157.	2	158.	1	159.	4	160.	4
161.	1	162.	3	163.	2	164.	2	165.	4

166 – 175 POLITICAL SCIENCE

166.	2	167.	1	168.	2	169.	3	170.	3
171.	2	172.	4	173.	4	174.	1	175.	2

176 – 180 ECONOMICS

176.	4	177.	1	178.	1	179.	3	180.	3