JHARKHAND ACADEMIC COUNCIL
RANCHI, JHARKHAND
NATIONAL TALENT SEARCH EXAMINATION (PRELIMINARY), 2016-17
Class x
MENTAL ABILITY AND SCHOLASTIC APTITUDE TEST

Part I : Time 45 Minutes *Max. Marks : 50*
Part II : Time 45 Minutes *Max. Marks : 50*
Part III : Time 90 Minutes **INSTRUCTIONS TO CANDIDATES** *Max. Marks : 100*

Read *the following instructions carefully before you answer the questions.* **Answers are to be given on *a* separate O.M.R. Answer-Sheet.**

1. Please write your Roll No. very carefully (only one digit in one block) as given on your admission card. Please see that no block is left unfilled and even zeros appearing in the Roll No. are correctly transferred to the appropriate blocks on the booklet and on the answer-sheet. For example, a student appearing from Ranchi and Roll Number 21178899999 will make entries in the boxes as under :

Roll No.

For all subsequent purposes your Roll No. shall remain the same as given on the admission card.

2. This test in three Parts. Part I consists of 50 questions, Part II consists of 50 questions and Part III consists of 100 questions.

3. All questions in Part I, Part II and Part III carry one mark each and are compulsory.

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 on 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. Time permitting, 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 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 has been provided for rough-work at the end of each subject.

9. **Remember you have to mark your answers on a separate O.M.R. Answer-Sheet *as* per instructions given below :**

10. The answer-sheet has three parts : Part I, Part II and Part III corresponding to Part I, Part II and Part III of the test. The answer-sheet comprises three printed columns, one for answering the Mental Ability Test questions, one for answering Language Test and the other for answering the Scholastic Aptitude Test questions. The answers to the Mental Ability Test questions, Language Test questions and Scholastic Aptitude Test questions are to be marked on the respective columns. Marks will not be awarded, if the answers are not entered in proper columns.

11. Answer to each question is to be indicated by darkening the circle by blue or black ball pen only, the number of the correct alternative in the answer-sheet from amongst the ones given for the **corresponding** question in the test booklet.

12. Now turn to the next page and start answering the questions. N.B.:
    Do no write anything except the Roll Number in the Booklet.

Part I
Mental Ability Test

Time : 45 Minutes   Max Marks : 50

DIRECTION

1. All the questions of this part are related to the subjects of Mental Ability Test.

2. Before answering the questions, read these directions very carefully.

3. This part contains 50 questions.

4. Each question carries one mark.

5. Answer to all the question is essential.

6. The questions are to be answered on the O.M.R. Answer Sheet supplied in the Examination Hall.

7. Every question has four alternatives, of which only one is correct.

8. Answer to each question is to be indicated by darkening the circle, by blue or black ball pen only, the number of the correct alternative in the O.M.R. Answer Sheet from amongst the ones given for the corresponding question in the Test (Question) Booklet.
Please Turn Over the Page and Start Your Work.

Mental Ability Test

Q (1 to 5) : In each of the following questions, a group of letters is given, which are numbered differently. Below four alternative are given, containing combination of these numbers. Select that combination of numbers which forms a meaningful word.

1.   ACESTH
        (1) 6, 1, 4, 5, 3, 2   (2) 6, 3, 2, 1, 4, 5
        (3) 2, 6, 1, 4, 5, 3   (4) 4, 3, 5, 6, 1, 2

2.   GTAENM
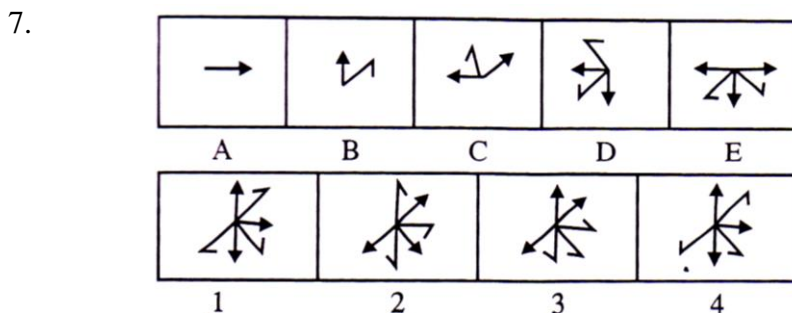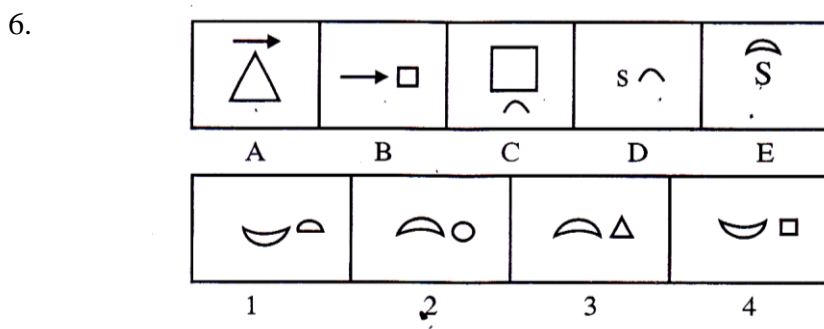   (1) 6, 3, 1, 5, 4, 2   (2) 1,3, 2, 5, 4, 6
        (3) 6, 3,5, 1, 4, 2   (4) 1, 3, 2, 6, 4, 5

3.   TLEMNA
        (1) 2, 6, 4, 5, 3, 1   (2) 3,2, 4, 6, 5, 1
        (3) 4, 3, 5, 1, 6, 2   (4) 5,3, 2, 4, 6, 1

4.   TCOPTER
        (1) 1, 3, 4, 5, 6, 7, 2   (2) 2,6, 4, 5, 1, 3, 7
        (3) 7, 6, 4, 5, 1, 3, 2   (4) 4, 7, 3, 1, 6, 2, 5

5.   RTEODP
        (1) 5, 3, 6, 4, 1, 2   (2) 6, 5, 1, 3, 4, 2
        (3) 2, 3, 1, 6, 4, 5   (4) 1, 3, 5, 6,4, 2

Q (6 to 10) : In each of the following questions, find the figure from the answer – set (i.e. 1, 2, 3 and 4 which will continue the series given in the problem set (i.e. A, B, C, D and E).

6.

7.

8.

9.

10.

Q (11 to 13) : Study the pattern of numbers in the following questions and select the missing numbers in the place of question mark (?). Mark the correct alternative on your answer-sheet as directed.

11.

8	4	5
6	4	0
?	9	4
90	40	20

(1) 42 (2) 8
(3) 16 (4) 4

12.

(1) 667 (2) 676
(3) 766 (4) 340

13.

First figure: top 2, 9, 4; center 216; bottom 2, 7, 6.
Second figure: top 6, 5, 9; center ?; bottom 6, 8, 5.
Third figure: top 9, 5, 8; center 298; bottom 5, 6, 1.
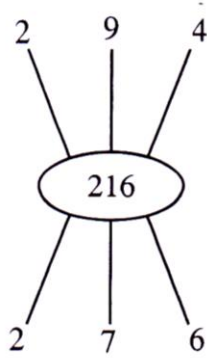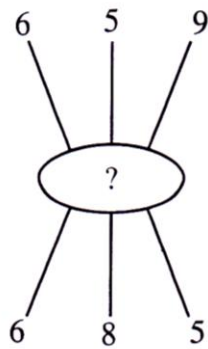
(1) 271   (2) 712
(3) 331   (4) 261

Q (14 to 19) :

14. If '−' means '+', '×′ means '−', '÷' means '×' and '+' means '÷' ; then,
$$7 - 3 \div 5 \times 8 + 2 = ?$$
(1) 18   (2) 20
(3) 15   (4) 12

15. If '−' means '+', '÷′ means '×', '×' means '−' and '+' means '÷' ; then, ; then which of the following is right.
(1) $25 - 12 + 14 \div 2 \times 4 = 15$ (2) $25 - 11 - 14 \div 10 \times 6 = 20$
(3) $25 - 15 + 5 \div 4 \times 16 = 21$ (4) $25 \times 12 - 14 \div 4 + 6 = 16$

16. If $16 - 2 = 2; 9 - 3 = 0; 81 - 1 = 8$; then $64 - 4 = ?$
(1) 2   (2) 4
(3) 6   (4) 8

17. Choose the correct arrangement of mathematical signs at the place of $*$ for equating the given equation.
(1) x + = x   (2) + ÷ x =
(3) + − x =   (4) + ÷ = x

18. If 'M' means '−', 'Y' means 'x', 'P' means '÷' and 'R' means '+' then
60 P 2 R 10 Y 5 M 20 = ?
(1) 60   (2) 100
(3) 50   (4) 40

19. If 'A' means '−', 'B' means 'x', 'C' means '÷' and 'D' means '+' then
80 C 4 B 13 A 5 B 6 D 15 C 5 = ?
(1) 263   (2) 200
(3) 233   (4) 333

Q (20 to 25) : In each of the following questions, a series of number is given which follow certain rules. One of the numbers is missing. Choose the missing number from the alternatives given below and mark it on your answer-sheet as directed.

20. 70, 71, 76, ?, 81, 86, 70, 91.
(1) 70   (2) 80
(3) 96   (4) 71

21. 83, 73, 93, ?, 103, 53.
(1) 93 (2) 73
(3) 63 (4) 33

22. 17, 44, 62, 53, ?
(1) 26 (2) 66
(3) 29 (4) 63

23. 2, 6, 12, 20, 30, ?
(1) 44 (2) 42
(3) 36 (4) 40

24. ?, 19, 37, 61, 91, 127, 169.
(1) 17 (2) 13
(3) 11 (4) 7

25. 16, 33, 65, 131, 261, ?
(1) 523 (2) 521
(3) 625 (4) 725

Q (26 to 30): In the given below what will come in the place of question mark (?).

26. MDDM, OFFO, QHHQ, ?, ULLU
(1) RITR (2) SIIS
(3) RJJR (4) SJJS

27. BXF, DCI, FTL, ?, JPR.
(1) HRP (2) HRN
(3) HRO (4) HSO

28. ATTRIBUTION, TTRIBUTIO, RIBUTIO, BUTI, ?
(1) IBU (2) UT
(3) UTI (4) BUT

29. BEH, DGJ, ?, EJO, GLQ, INS.
(1) FLR (2) FIS
(3) FKO (4) FIL

30. DCXW, FEVU, HGTS, JIRQ, ?
(1) LMRS (2) ABYZ
(3) LKPO (4) JIRQ

Q (31 to 34): Choose the correct mirror image of the given words/numbers from amongst the alternatives.

31. JUDGEMRNT
(1) TNEMEGDUJ
(2) TИƎMƎGDUl
(3) TИƎMƎGDUl
(4) lUGƎMƎИT

32. EFFECTIVE
    (1) EFFECTIVE (mirror)
    (2) EVITCEFFE
    (3) EVITCEFFE (mirror)
    (4) EFFECIVE (mirror)

33. UTZFY6KH
    (1) UTZFY6KH (mirror)
    (2) HK6YFZTU
    (3) HK6YFZTU (mirror)
    (4) HK6YFZTU (mirror)

34. SUPERCISOR
    (1) SUPERVISOR (mirror)
    (2) SUPERVISOR (mirror)
    (3) RSOUPSERIV (mirror)
    (4) SUPERVISOR (mirror)

Q (36 to 36): Find the mirror image of x from 1, 2, 3 and 4 amongst the given alternatives.

35.

X   1   2   3   4

36.

X   1   2   3   4
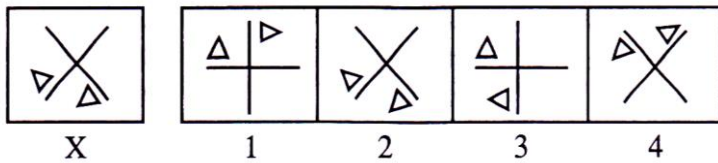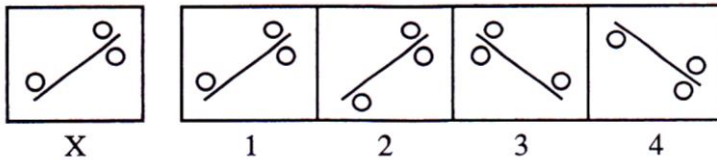
Q (37 to 41): In the diagram below ▭ rectangle represents married people, ◯ circle represents people who lives in joint family, △ triangle represents school teacher.
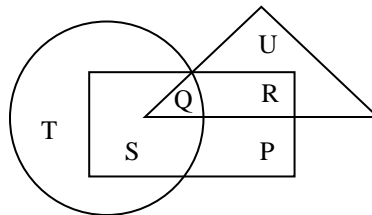
37. By which letter, the married teachers who live in joint family are represented?
(1) R   (2) Q
(3) S   (4) P

38. By which letter, the married people, who live in joint family but are not school teachers, are represented?
(1) R   (2) U
(3) S   (4) P

39. By which letter, the people, who live in joint family but are neither married nor teachers, are represented?
(1) T   (2) R
(3) Q   (4) S

40. By which letter, the people who are married but neither teacher nor live in a joint family are represented?

(1) R   (2) P

(3) Q   (4) S

41. By which letter, the people, who are married teacher but do not live in joint family, are represented?

(1) S   (2) Q

(3) R   (4) P

Q (42 to 46): In every question a dice has been shown in different faces on which letters/ numbers/ symbol have been written randomly. Carefully study the faces of the dice and answer the questions based on it.

42. Which number is just opposite of 56?
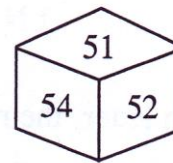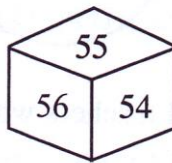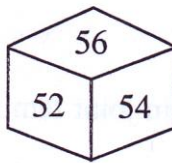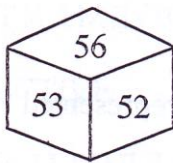
(1) 54   (2) 55

(3) 52   (4) 51

43. Which number is just opposite of '1' ?
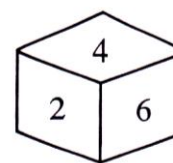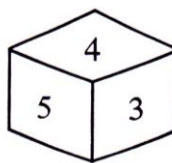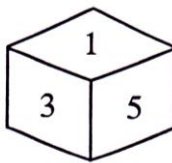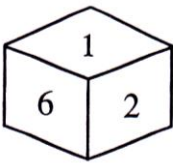
(1) 5   (2) 6

(3) 3   (4) 4

44. Which number is just opposite of 4?
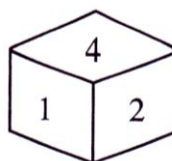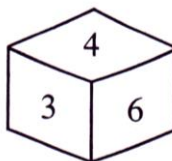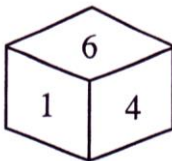
(1) 6   (2) 5

(3) 3   (4) 1

45. Which number is just opposite of 6 ?
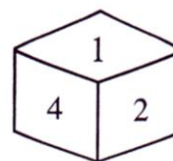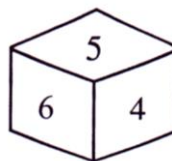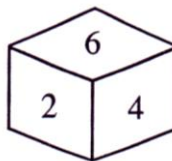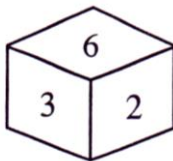
(1) 4   (2) 1

(3) 2   (4) 3

46. Which symbol will be on the face opposite to the face with symbol '✳' ?

(1) @ 　　　　　　　　　　　　　　　(2) $
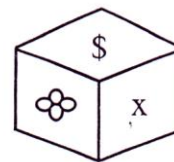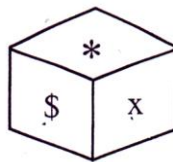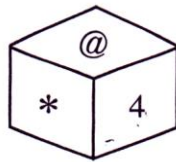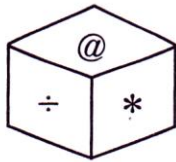
(3) ✿ 　　　　　　　　　　　　　　　(4) x

47. Some boys are sitting in a row. P is sitting fourteenth from the left and Q is seventh from the right. If there are four boys between P and Q, How many boys are there in the row?
(1) 25 　　　　　　　　　　　　　　　(2) 23
(3) 21 　　　　　　　　　　　　　　　(4) 19

48. Malai is fourteenth from the right end in a row of 40 boys. What is his position from the left end?
(1) 24th 　　　　　　　　　　　　　　(2) 26th
(3) 27th 　　　　　　　　　　　　　　(4) 28th

49. A father is now three times as old as his son. Five years back, he was four times as old as his son. The age of the son (in years) is.
(1) 10 　　　　　　　　　　　　　　　(2) 12
(3) 15 　　　　　　　　　　　　　　　(4) 18

50. When Rahul was born, his father was 32 years older than his brother ans his mother was 25 years older than his sister. Rahul's brother is 6 years older than him his mother is 3 years younger his father. How old was Rahul's sister when he was born?
(1) 14 years 　　　　　　　　　　　　(2) 10 years
(3) 8 years 　　　　　　　　　　　　　(4) 20 years

PART-II
LANGUAGE TEST

Time : For General - 45 Minutes, For Disabled (Visually Impaired) - 60 Minutes   **Full Marks : 50**

INSTRUCTIONS

I.   All the questions of this part are related to Language Test.

2.   This part contains 50 questions in Hindi Language and 50 questions in English Language. The candidate has to choose and attempt this test only in **one Language i.e. either in Hindi or in English.**

Language Sub	Full Marks	No. of Questions	Marks allotted to each Question	Page No.
Hindi	50	50	1 (one)	14-16
or				
English	50	50	1 (one)	17-20

3.   Before answering the questions, read these instructions very carefully.

4.   Each question carries 1 (one) mark.

5.   Answer to all the question is essential.

6.   This questions are to be answered on OMR Answer-Sheet supplied in the Examination Hall.

7.   Every question has four alternatives of which only one is correct.

8.   Answer to each question is to be indicated by darkening the number of the correct alternative in the Answer Sheet from amongst the ones given for the corresponding question in the Test (Question) Booklet.

ENGLISH

Q (1 to 5) : Read the passage given below and answer the questions that follow.

Toto was a good looking monkey. His bright eyes sparkled with mischief beneath deep-set eyebrows, and his teeth, which were pearly white, were often displayed in a smile that frightened the life out out of elderly ladies. But his hands looked dried up as though they had been pickled in the sun for many years. Yet his fingers were quick and wicked; and his tail, while adding to his good looks, also served as a third hand. Grandfather had to leave Dehradun for Saharanpur. As we had not told grandmother that Toto was our new pet, grandfather decided to take him along. A big black canvas bag was provided for Toto. This, with some straw at the bottom, became his new home. When the strings of his bag were tied, there was no escape. His efforts to get out only had the effect of making the bag roll about on the floor or occasionally jump in the air − an exhibition that attached curious crowd of onlookers on the Dehradun Railway Platform.

1.　How did grandfather carry Toto to Saharanpur ?
　　(1) in a canvas bag　　　　　　　　　　(2) in a tap
　　(3) in a canvas box　　　　　　　　　　(4) in a wooden box

2.　The teeth of Toto were :
　　(1) black　　　　　　　　　　　　　　(2) yellowish white
　　(3) pearly white　　　　　　　　　　　(4) green white

3.　The tail of Toto was also used as
　　(1) a third hand　　　　　　　　　　　(2) a hunter
　　(3) a rope　　　　　　　　　　　　　　(4) a fourth bag

4.　Grandfather decided to leave
　　(1) Saharanpur　　　　　　　　　　　(2) Dehradun
　　(3) Haridwar　　　　　　　　　　　　(4) Bikaner

5.　What happened when Toto tried to get out?
　　(1) He got hurt　　　　　　　　　　　(2) The bag got damaged
　　(3) the box got damaged　　　　　　　(4) The bag rolled about on the floor.

Q (6 to 10) : Read the passage given below and answer the questions that follow.

When I realized that my companions were fed like cattle only to be killed, I was filled with horror. I became extremely cautious. I never touched any food they gave me, and since I looked as thin as a starved rat, they did not bother about me anymore. So one day while my friends were being fed, I slipped away and ran for my life praying for Almighty Allah's blessings. He must have blessed me, for I suddenly came upon a road which led to another part of the island. There I found some people gathering grain.

6.　What filled the speaker with horror ?
　　(1) the realisation that they are being fed like cattle.
　　(2) the companions were not fed
　　(3) the realisation that they were fed like cattle only to be killed
　　(4) the realisation that they would not be fed

7. What caution did he take ?
   (1) he became alert   (2) he ate well
   (3) he kept an eye on others   (4) he did not eat at all

8. Which religion did the speaker belong to?
   (1) Islam   (2) Hinduism
   (3) Sikkhism   (4) Christian

9. Which word in the passage means similar to 'alert'.
   (1) come upon   (2) cautious
   (3) horror   (4) bother

10. Why did they not take notice of the narrator?
    (1) because the was gentle   (2) because he was fat
    (3) because he was very thin   (4) because he did not eat

    Q (11 to 12) : The following five sentences come from a parragraph. The first and the last sentences are given. Choose the order in which the three sentences (PQR) should appear to complete the paragraph.

11. S1   Tendulkar went to Sharda Sharan Vidya Mandir High School for his studies

    S2   ………………………………………………………………………….

    S3   ………………………………………………………………………….

    S4   ………………………………………………………………………….

    S5   His batting was more attractive and technically sound than his bowling.

    P   But Australian fast bowler Dennis Lillie suggested him to focus on his batting.

    Q   There he began his cricket career under the guidance of Mr. Ramakant Achreker.

    R   He attended the MRF Pace Foundation during his school days to get training as a fast bowler.

    Choose from the options given below :
    (1) PRQ   (2) QRP
    (3) QPR   (4) RQP

12. S1   Eyes are the most important organ the body.

    S2   …………………………………………………………

    S3   …………………………………………………………

    S4   …………………………………………………………

    S5   Eyes certainly are extremely valuable to life.
    P   A blind man is deprived of many natural joys of life.
    Q   Absence of eyesight or blindness is a great disability
    R   He cannot do many things on his own.

Choose from the options given below

(1) QPR   (2) PQR

(3) RQP   (4) RPQ

Q(13 to 22) : Choose the word which best fills the blank in the sentences from the four options given.

13.   He was injured in a serious ……….
         (1) incident   (2) accident
         (3) indolence   (4) intimation

14.   There is a ………. Connection between food and health.
         (1) cautions   (2) casual
         (3) chaotic   (4) causal

15.   He is a man of ……. Character.
         (1) lose   (2) loose
         (3) loosely   (4) losing

16.   These …….. are no longer in force.
         (1) statutes   (2) statues
         (3) silk   (4) siblings

17.   They took ………. In a cave.
         (1) Refuse   (2) Refuge
         (3) Refuel   (4) Refill

18.   Having scored good marks, he was in a …….... mood.
         (1) pensive   (2) sad
         (3) happy   (4) worried

19.   All civilized nations now believe in the …….... treatment of the prisoners.
         (1) humane   (2) human
         (3) humorous   (4) humid

20.   He has …….... with the will
         (1) tampered   (2) tempered
         (3) pampered   (4) typed

21.   Cross-examination failed to ………. any useful information.
         (1) Illicit   (2) illicit
         (3) Elicit   (4) Elucit

22.   He felt ……….. of his brother.
         (1) zealous   (2) jealous
         (3) Envy   (4) Relived

Q(23 to 25) : Select the meaning of the given phrases / idioms.

23.   Close shave
         (1) shaving closely   (2) nice shaving
         (3) narrow escape   (4) run away

24. Out and out
    (1) remaining outside   (2) not inside
    (3) completely   (4) nearly

25. Do away with
    (1) retain   (2) abolish
    (3) distribute   (4) consider

Q(26 to 30) : In the following passage there are some blanks with numbers. Fill in the blanks by selecting the most appropriate word for each blank from given options of each number.

But they ………… 26 ………… care. They began eating like hungry wolves. If I had joined them in eating, that ………… 27 ………… the end of my story, for whoever ………… 28 ………… that food began to lose his reason. But they ………… 29 ………… to eat more and more and very soon they became idiots ………… 30 …………

26. (1) did not   (2) will not
    (3) does not   (4) are not

27. (1) will have been   (2) will be
    (3) would have been   (4) would be

28. (1) eats   (2) ate
    (3) eaten   (4) has eaten

29. (1) stopped   (2) continued
    (3) kept   (4) started

30. (1) with sense   (2) without any sense
    (3) noble   (4) gentle

Q(31 to 33) : Select the word which means the opposite of the given word.

31. Ample
    (1) Scant   (2) Inflated
    (3) Capacious   (4) Expanded

32. Disparage
    (1) Abuse   (2) Decry
    (3) Applaud   (4) Malign

33. Refrain
    (1) Abstain   (2) Continue
    (3) Avoid   (4) Cease

Q(34 to 36) : Select the word which means the opposite of the given word.

34. Besiege
    (1) Defend   (2) Guard
    (3) Protect   (4) Attack

35. Garrulous
    (1) Blunt   (2) Chattering
    (3) Reserved   (4) Terse

36.   Wretched
       (1) Despicable   (2) Excellent
       (3) Animated   (4) Lively

Q(37 to 45) : In each of the following sentences you will find a blank. Fill in the blanks from the given alternatives.

37.   He welcomed us ………
       (1) with open arms   (2) With closed arms
       (3) With closed hands   (4) With open legs

38.   The culprit should be ………..
       (1) brought to notebook   (2) brought to book
       (3) brought to copy   (4) brought to cover

39.   A laborious student ……… all year.
       (1) saves midnight oil   (2) saved oil
       (3) burns the midnight oil   (4) burns oil

40.   They are leading ……. Life.
       (1) a cat and rat   (2) a dog and cat
       (3) a rat and cat   (4) a cat and dog

41.   It rained ………. yesterday.
       (1) dogs and cats   (2) rats and cats
       (3) cats and rats   (4) cats and dogs

42.   The teacher …..…… me the meaning of the poem.
       (1) brought to   (2) brought lodge to
       (3) brought home to   (4) took home to

43.   The Indian army faught …… against Pakistan.
       (1) tooth and tongue   (2) tooth and nail
       (3) nose and nail   (4) tooth and lip

44.   She threw …….. on my planning
       (1) cold water   (2) hot water
       (3) lukewarm water   (4) tepid water

45.   The student was caught ……..
       (1) on the wrong foot   (2) on the right foot
       (3) on the high foot   (4) on the low foot

       Q(46 to 50) : In each of the following sentences you will find a blank. Fill in the blanks from the given alternatives.

46.   He is ……. In English.
       (1) M.A.   (2) an M.A.
       (3) a M.A.   (4) the M.A.
47.   I go to school ………
       (1) on the foot   (2) by the foot
       (3) on foot   (4) by foot

48. I have read …….
    (1) several poetries   (2) several poems
    (3) several poetry   (4) several poem

49. He is in ………
    (1) a hurry   (2) hurry
    (3) the hurry   (4) hurriedly

50. I don't mine ………….
    (1) to open the window   (2) to open
    (3) opening the window   (4) to shut

Part III

Scholastic Aptitude Test

Time : 90 Minutes   Max Marks : 100

DIRECTION

1. All the questions of this part are related to the subjects of Scholastic Aptitude Test.
2. Before answering the questions, read these directions very carefully.
3. This part contains 100 questions.
4. Each question carries one mark.
5. Answer to all the questions is essential.
6. The subjects of Scholastic Aptitude Test are divided into three groups, as given below:

SI No.	Title of the group	Subjects covered under the group	Full marks	No. of questions	Marks allotted to each question
(i)	Science Discipline	Physics, Chemistry and Biology	**40**	**40**	1 (one)
(ii)	Mathematics	Mathematics	20	20	1 (one)
(iii)	Social Sciences and Humanities	History, Geography Civics and Economics	**40**	40	1 (one)

7. The questions are to be answered on the **O.M.R.** Answer Sheet supplied in the Examination Hall.
8. Every question has four alternatives, of which only one is correct.
9. Answer to each question is to,be indicated by darkening the circle, by blue or black ball pen only, the number of the correct alternative in the O.M.R. Answer Sheet from amongst the ones given for the corresponding question in the Test (Question) Booklet.

Please Turn Over the Page and Start Your Work.

PHYSICS

1. A rod of length 5cm lies along the principal axis of the concave mirror of focal length 15cm in such a way that the end of the closer to the pole is 30cm away from it. Then the length of the image —
    (1) 2.75 cm
    (2) 3.75 cm
    (3) 4.75 cm
    (4) None of the above

2. If an object moves towards or away a plane with a velocity v then the image will approach or recede with velocity.
    (1) v
    (2) 2v
    (3) 3v
    (4) 4v

3. The focal length of a concave mirror depends upon
    (1) The distance of the object from the mirror
    (2) The distance of the image from the mirror
    (3) The radius of curvature of the mirror
    (4) None of the above

4. The rainbow is formed due to ?
    (1) Refraction
    (2) Internal Reflection
    (3) Dispersion
    (4) all the above

5. A person cannot see distincly any object placed beyond 40cm from his eye. What is the power of the lens which will enable him to see distant stars clearly?
    (1) +2.5D
    (2) –2.5D
    (3) +3.5D
    (4) –3.5D

6. An electrical power station has the power 200 Megawatt (MW), then the electrical energy produced per day will be
    (1) 200 MW –hour
    (2) 4800 MW – hour
    (3) 4800 MW
    (4) 4800 joule

7. How many electrons flow per second through the filament of 220V and 110W electric bulb?
    (1) 3.125×10^{18}
    (2) 3.125×10^{18}
    (3) 3.125×10^{18}
    (4) 3.125×10^{18}

8. The S.I unit of electrical resistivity is?
    (1) ohm
    (2) m
    (3) ohm m^{-1}
    (4) ohm m

9. A bulb of 100 Watt, 250 Volt has the resistance of.
    (1) 2500 ohm
    (2) 625 ohm
    (3) 25 ohm
    (4) 2.5 ohm

10. The first artificial satellite was
    (1) Sputnik – 1
    (2) explorer – 1
    (3) Aryabhatta
    (4) Luna – 3

11. A piece of wire of resistance R is cut into five equal parts. These parts are then connected in parallel. If the equivalent resistance of this combination is R^1, then the ratio $\dfrac{R}{R^1}$ is

(1) $\dfrac{1}{25}$ (2) $\dfrac{1}{5}$

(3) 5   (4) 25

12. Magnetic effect of current were discovered by
(1) Faraday   (2) Oersted
(3) Joule   (4) Ampere

13. An electron enters a magnetic field at right angles to it as shown in Figure. The direction of force acting on electron will be.
(1) to the right   (2) to the left
(3) out of the page   (4) into the page

Magnetic field

Electron
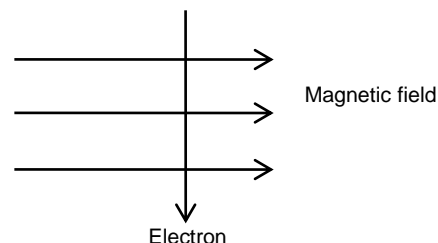
CHEMISTRY

14. 10gm of hydrogen is burnt in the presence of excess oxygen. The mass of water formed is
(1) 90gm   (2) 45gm
(3) 10gm   (4) 18gm

15. Which information is not converged by a balance chemical equation ?
(1) Physical quantity of reactants and products.
(2) Symbols and formula of all the substances involved in a particular reaction
(3) No of atoms/molecules of the reactants and products formed.
(4) Whether a particular reaction is actually feasible or not.

16. Identify the following type of reaction

$$2KClO_3 \xrightarrow[\text{catalyst}]{\text{heat}} 2KCl(s) + 3O_2(g)$$

(1) It is combination reaction.
(2) It is a decomposition reaction and is accompanies by release of heat.
(3) It is a Photo Chemical decomposition reaction by release of heat.
(4) It is a decomposition reaction and is endothermic in nature.

17. A solution turns red listmus blue, its pH is likely to be
(1) 1   (2) 4
(3) 5   (4) 10

18. A solution reacts with erushed egg shells to give a gas that turns lime water milky. The solution contains -
(1) NaCl   (2) HCl
(3) LiCl   (4) KCl

19. The pH of a solution of HCl is 4 shows that the molarity of the solution is
(1) 4.0 M   (2) 0.4 M
(3) 0.000 M   (4) 0.001 M

20. Which of the following pairs will give displacement reactions ?
    (1) NaCl soln and Copper metal
    (2) $MgCl_2$ soln and Aluminium metal
    (3) $FeSO_4$ solution and Silver metal
    (4) $AgNO_3$ soln and Copper metal

21. Which of the following metals is present in the anode mud during the electrolytic refining of copper ?
    (1) Sodium
    (2) Aluminium
    (3) Gold
    (4) Iron

22. An alloy of Zn and Cu is dissolved in dil HCl. Hydrogen gas is evolved. In this evolution of gas.
    (1) Only zinc reacts with dil HCl
    (2) Only copper reacts with dil HCl
    (3) Both zinc and copper reacts with dil HCl
    (4) Only copper reacts with water

23. 5ml each of cone HCl, HNO_3 and a mixture of conc HCl (15 ml) and conc HNO_3 (5ml) was taken in a separate test tube and labelled as A.B.C. A small piece of metal was put in each test tube, No change occurred in test tube A & B but the metal got dissolved in test tube C.The metal could be
    (1) Al
    (2) Au
    (3) Cu
    (4) Na

24. Ethane with the molecular formula C_2H_6 has -
    (1) 6 Covalent bonds
    (2) 7 Covalent bonds
    (3) 8 Covalent bonds
    (4) 9 Covalent bonds

25. Bromine reacts with saturated hydrocarbon at room temperature in the
    (1) Absence of Sum light
    (2) Presence of Water
    (3) Presence of Sun light
    (4) Presence of Hydrochloric Acid

26. 14 elements after actinium is called
    (1) Lanthanides
    (2) Actinides
    (3) d-block elements
    (4) p-block elements.

BIOLOGY

27. The process of photosynthesis is?
    (1) Anabolic
    (2) Catabolic
    (3) Anabolic and Catabolic
    (4) None of these

28. The book "Origin of species" belongs to :
    (1) Lamarck
    (2) Weismann
    (3) Darwin
    (4) Oparin

29. The wings of butterfly and birds are the example of -
    (1) Vestigial organ
    (2) Analogous organ
    (3) Homologous organ
    (4) None of these

30. Sex-chromosome found in male human
    (1) only X
    (2) only Y
    (3) XX
    (4) X and Y both

31. Genotypic ratio of Mendel's monohybrid cross is :
    (1) 1 : 3
    (2) 3 : 1
    (3) 9 : 3
    (4) 1 : 2 : 1

32. The age of fossils is scientifically determined by :
    (1) Radio-carbon dating method   (2) by counting the choromosomes
    (3) by counting the annual rings   (4) None of these

33. How many ATP is formed due to completed oxidation of 1 molecule of glucose?
    (1) 2   (2) 36
    (3) 38   (4) None of these

34. What is the blood pressure of a healthy person in a normal state?
    (1) 120/80   (2) 80/120
    (3) 160/100   (4) 100/160

35. Male reproductive part of the flower is :
    (1) Gynoecium   (2) Corolla
    (3) Calyx   (4) Androecium

36. Which enzyme converts protein into peptone found in our food?
    (1) Ptyalin   (2) Insulin
    (3) Pepsin   (4) None of these

37. The yellow colour of urine is due to the presence of which of the following :
    (1) Salt   (2) Glucose
    (3) Urochrome   (4) Protein

38. The flow of energy in an ecosystem is :
    (1) Unidirectional   (2) Bidirectional
    (3) Multidirectional   (4) In any direction

39. Which of the following inherits the characters from generation to generation?
    (1) Gene   (2) Sex-chromosome
    (3) Autosome   (4) Nucleosome

40. In any ecosystem, fungi and bacteria are called :
    (1) Producers   (2) Decomposers
    (3) Consumers   (4) None of these

MATHEMATICS

41. If one of the zeros of the cubic polynomial $x^3 + ax^2 + bx + c$ is -1, then the product of the other two zeros is
    (1) $a - b - 1$ (2) $b - a - 1$
    (3) $1 - a + b$ (4) $1 + a - b$

42. How many numbers lie between 10 to 300, which when divided by 4 leave a remainder 3.
    (1) 71   (2) 72
    (3) 73   (4) 74

43. If $\cos\theta + \sec\theta = 2$, then $\cos^{10}\theta + \sec11\theta = \ldots 3$
    (1) 0   (2) 1
    (3) 2   (4) -1

44. If $xy + yz + zx = 0$, then the value of $\left(\dfrac{1}{x^2 - yz} + \dfrac{1}{y^2 - zx} + \dfrac{1}{z^2 - xy} \right)$

    (1) 3   (2) 0
    (3) 1   (4) $x + y + z$

45. The sum of n terms of an AP is given by $(Sn = 2n^2 + 3n)$ what is the common difference of the AP.
    (1) 3   (2) 4
    (3) 5   (4) 9

46. A boat goes 16 km upstream and 24 km downstream in 6 hours. Also it covers 12 km up stream and 36 km downstream in the same time. Find the speed of the boat in still water ?
    (1) 8 km/h   (2) 4 km/h
    (3) $2\frac{1}{2}$ km/h   (4) None of these

47. If $\sin A + \sin^2 A = 1$, then $\cos^2 A + \cos^4 A = $ ……
    (1) ½   (2) 1
    (3) 2   (4) 4

48. $\sqrt{\dfrac{\sec A - \tan A}{\sec A + \tan A}} = ?$

    (1) $\sec A - \tan A$ (2) $\sec A + \tan A$
    (3) $\sec A \cdot \tan A$ (4) None of these

49. If $\cos 9\alpha = \sin\alpha$ and $9\alpha < 90^{\circ}$, then the value of $\tan 5\alpha$?

    (1) $\dfrac{1}{\sqrt{3}}$ (2) $\sqrt{3}$
    (3) 1   (4) 0

50. If $x = a\cos 3\theta$ and $y = b\sin 3\theta$ then $\left(\dfrac{x}{a}\right)^{2/3} + \left(\dfrac{y}{b}\right)^{2/3} = ?$

    (1) 2   (2) a
    (3) b   (4) 1

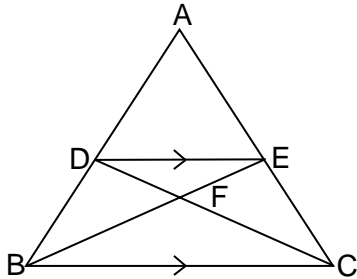51. In the given figure, AB‖DE and BD‖EF, then
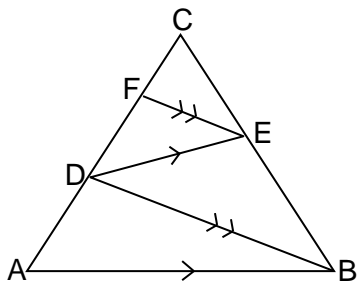
    (1) $AD^2 = CF \times AC$ (2) $DC^2 = CF \times AC$
    (3) $CE^2 = DE \times BF$ (4) $EF^2 = BD \cdot AB$

52. In the given figure, ABCD is trapezium in which AB‖CD and its diagonals intersect at O. If AO = $(3x - 1)$ cm, OC = $(5x - 3)$ cm, BO = $(2x + 1)$ cm and OD = $(6x - 5)$ cm, find the value of x.
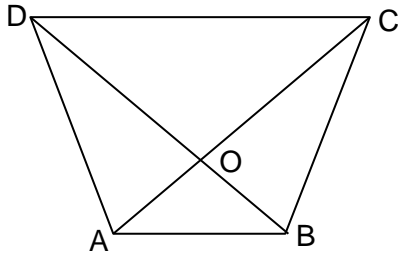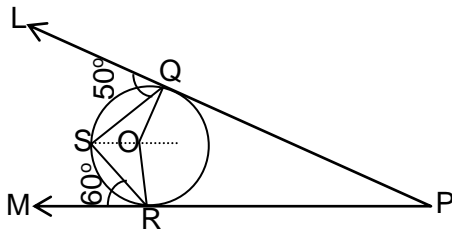
(1) 1/2   (2) 3
(3) 4   (4) 2

53. In the given figure, DE∥BC and AD:DB = 5:4, find the ratio area (ΔDFE) : area (ΔCFB).

(1) 5:9   (2) 4:9
(3) 25:81   (4) 81:25

54. In the given figure, O is the centre of a circle. PQL and PRM are the tangents at the points QSR respectively and S is a point on the circle such that <SQL = 50º and <SRM = 60º. Then, <QSR = ?

(1) 40º   (2) 50º
(3) 60º   (4) 70º

55. In the given figure, Δ ABC is a right-angled triangle semicircles are drawn on AB,AC and BC as diameters. It is given that AB = 3cm and AC = 4cm. Find the Area of shaded region.
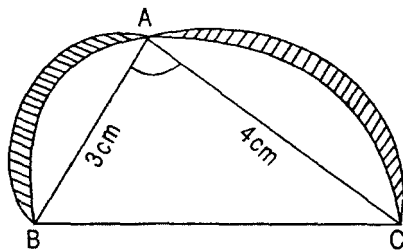
(1) 12cm^2 (2) 6cm^2
(3) 9cm^2 (4) 15cm^2

56. Water flows through a circular pipe whose internal diameter is 2cm, at the rate of 0.7m/s into a cylindrical tank, the radius of whose into a cylindrical tank, the radius of whose base is 40cm. How much will the level of water rise in the tank in half an hour?
(1) 75cm   (2) 75.25cm
(3) 78cm   (4) 78.75cm

57. The probability that it will rain today is 0.84. What is the probability that it will not rain today?
    (1) 2   (2) 1
    (3) 0.16   (4) 0.61

58. In what ratio does the line $x - y - z = 0$, Divide the line segment joining the point $A(3, -1)$ and $B(8, 9)$
    (1) 3:2   (2) 2:3
    (3) 3:1   (4) 3:5

59. If points $A(a, 0)$, $B(0,b)$ and $C(1, 1)$ are collinear, then $\frac{1}{a} + \frac{1}{b} = ?$
    (1) 0   (2) 1
    (3) 2   (4) $\frac{1}{2}$

60. The mean and mode of a frequency distribution are 28 and 16 respectively, then the median is -
    (1) 23.5   (2) 22
    (3) 24   (4) 24.5

HISTORY

61. "Indian War of Independence, 1857' was written by -
    (1) R.C. Majumdar   (2) S. B. Choudhari
    (3) S.N. Sen   (4) V.D. Savarkar

62. Who was the Nawab of Bengal during the "Battle of Plassey"?
    (1) Mir Jafar   (2) Mir Kasim
    (3) Siraj-ud-daulla   (4) None of these

63. Who said ? "Tilak is the father of Indian unrest?"
    (1) V. Chirol   (2) Lousi Fischer
    (3) Web Miller   (4) Lord Reading

64. The Mountbatten plan became the basis for
    (1) Continuity of British rule   (2) Transfer of Power
    (3) Partition of the Country   (4) Solution of communal problems.

65. By whom the "Quit India" resolution was moved in the Bombay Session of the Congress in the year 1942?
    (1) Jawaharlal Nehru   (2) Narendra Deo
    (3) Rajendra Prasad   (4) J. B. Kripalani

66. Lahore session of Muslim League (1940) was presided over by -
    (1) Liaquat Ali Khan   (2) Mohammad Alil Jinnah
    (3) Mohammad Sarfaraj   (4) Fatima Jannah

67. The first leader to use the word 'Swaraj' was -
    (1) Bal Gangadhar Tilak   (2) Lal Lajpat Rai
    (3) S.C. Bose   (4) Mahatma Gandhi

68. The Policy of Liberalisation, Privatisation and Globalisation was announced as Economic Policy by Prime Minister -
    (1) Rajiv Gandhi   (2) Vishwanath Pratap Singh
    (3) Narasimha Rao   (4) Atal Bihari Vajpayee

69. The Arya Mahila Sabha was founded by :
(1) Raj Kumari Amrit Kaur   (2) Nellie Sengupta
(3) Durgabai Deshmukh   (4) Pandita Ramabai

70. The first President of the All India Trade Union Congress was -
(1) S.A. Dange   (2) Lala Lajpat Rai
(3) Z.A. Ahmed   (4) N.M. Joshi

71. Who among the following was founder of the "Khudai Khidmatgar Organization?
(1) Khan Abdul Ghaffar Khan   (2) Abdur Rab Nishtar
(3) Shaukatullah Ansari   (4) Khan Adul Quayum Khan

72. In 1526 who established the Mughal Empire in India?
(1) Akbar   (2) Barbar
(3) Humayun   (4) Turks

73. Who became the Badashah of India in 1720?
(1) Murshid Kuli Khan   (2) Paraweza
(3) Muhammad Shah   (4) Azimushan

74. Martin Luthar was of which country?
(1) England   (2) Germany
(3) France   (4) America

75. Which French colony became the part of India in 1954?
(1) Kerala   (2) Madras
(3) Pondicherry   (4) Goa

GEOGRAPHY

76. Assertion (A) : The eastern part of western Ghat receives very little rain.
Reason (R) : It lies in a region too hot to allow precipitation.
(1) Both A and R are true and R explains A
(2) Both A and R are true but R does not explain A
(3) A is true and R is false
(4) A is false and R is true

77. Arrange the following national parks/ sanctuaries of India from north to south according to their location.
I. Periyar II. Kanheri III. Bandipur IV. Gir
(1) IV – III – I – II   (2) IV – II – III – I
(3) IV – I – II – III   (4) I – II – III – IV

78. Match List-I (Atomic Power Plant) with List-II (State) and select the correct answer using the codes given below:

List – I (Atomic Power Plant)	List – II (State)
A. Tarapur	I. Tamil Nadu
B. Rana Pratap Sagar	II. Uttar Pradesh
C. Narora	III. Maharashtra
D. Kalpakkam	IV. Rajasthan

(1) A-IV, B-I, C-II, D-III   (2) A-III, B-IV, C-II, D-I
(3) A-III, B-II, C-I, D-IV   (4) A-III, B-I, C-II, D-IV

79. Match List – I (Railway zone) with List – II (Headquarter) and select the correct answer using the codes given below :

List – I (Railway zone)	List – II (Headquarter)
A. Eastern	I. Secunderabad
B. South Central	II. Kolkata
C. North Western	III. Allahabad
D. North Central	IV. Jaipur

(1) A-II, B-I, C-III, D-IV
(2) A-II, B-I, C-IV, D-III
(3) A-II, B-III, C-IV, D-I
(4) A-II, B-IV, C-III, D-I

80. Assertion (A) : There is a clockwise circulation of ocean currents in the northern hemisphere.
Reason (R) : This is in the conformity with Ferrel's Law.
(1) Both A and R are true and R explains A
(2) Both A and R are true but R does not explain A
(3) A is true and R is false
(4) A is false and R is true

81. Which of the following are wrongly matched?

A.   Tropic of Cancer – 23.5° N latitude
B.   Tropic of Capricorn – 66.5° N latitude
C.   Indian Standard Time – 82° E longitude
D.   Antarctic Circle – 6.5° S latitude

(1) only A
(2) A and B
(3) B and C
(4) A, B and D

82. Match list – I (Thermal Power Plant) with List – II (State) and select the correct answer using the codes given below :

List – I (Thermal Power Plant)	List – II (State)
A. Ramagundam	I. Odisha
B. Korba	II. Bihar
C. Jharsuguda	III. Andhra Pradesh
D. Barauni	IV. Chhatisgarh

(1) A-III, B-I, C-IV, D-II
(2) A-III, B-IV, C-I, D-II
(3) A-III, B-IV, C-II, D-I
(4) A-I, B-II, C-III, D-IV

83. Which river flows through a narrow valley between the Vindhya and Satpura ranges ?
(1) Narmada
(2) Tapti
(3) Both of these
(4) None of these

84. Match List – I (River Valley Project) with List – II (River) and select the correct answer using the codes given below :

List – I (River Valley Project)	List – II (River)
A. Hirakund	I. Betwa
B. Ukai	II. Sutlej
C. Matatila	III. Mahanadi
D. Bhakhra Nangal	IV. Tapti

(1) A-III, B-IV, C-II, D-I
(2) A-III, B-IV, C-I, D-II
(3) A-III, B-II, C-IV, D-I
(4) A-I, B-II, C-III, D-IV

85. Copper – Gold – Iron – Coal are related to :
    (1) Kolar – Khetri – Jharia – Kundermukh (2) Kolar – Kudremukh – Khetri - Jharia
    (3) Khetri – Kolar – Kudremukh - Jharia (4) Khetri – Kolar – Jharia - Kundremukh

86. Match List – I (Hydroelectric Project) with List – Ii (State) and select the correct answer using the codes given below :

List – I (Hydroelectric Project)	List – II (State)
A. Koyna	I. Kerala
B. Pong	II. Jammu & Kashmir
C. Idukki	III. Maharashtra
D. Salal	IV. Himachal Pradesh

    (1) A-III, B-I, C-IV, D-II (2) A-III, B-IV, C-III, D-I
    (3) A-III, B-IV, C-I, D-II (4) A-I, B-II, C-III, D-IV

87. Assertion (A) : Sugarcane is not produced in all the States of India.
    Reason (R) : Geographical conditions in the States are different.
    (1) Both A and R are true and R explains A
    (2) Both A and R are true but R does not explain A
    (3) A is true and R is false
    (4) A is false and R is true

88. Which of the following soils is more fertile?
    (1) Bangar (2) Khadar
    (3) Laterite (4) Red Soil

89. The Ganges of the South is
    (1) Kaveri (2) Godavari
    (3) Narmada (4) Krishna

90. The origin of Himalaya was in which era?
    (1) Tertiary (2) Miocene
    (3) Paleozoic (4) Pleistocene

CIVICS

91. Who was Chairman of the committee which proposed Democratic decentralisation and Panchayati Raj?
    (1) K. M. Pannikar (2) H. N. Kunjru
    (3) Mahatma Gandhi (4) Balbant Rai Mehta

92. Which one of the following not a constitutional body?
    (1) Union Public Service Commission (2) State Public Service Commision
    (3) Finance Commission (4) NITI Commission

93. Right to vote in India is a
    (1) Fundamental Right (2) Constitutional Right
    (3) Natural Right (4) Legal Right

94. The Chairman of the Rajya Sabha is -
    (1) Appointed by the President
    (2) Elected by Parliament
    (3) The Vice-President is ex-officio Chairman
    (4) Elected by the members of the Council of States

95. Who among the following is the head of Indian Republic
    (1) President of India
    (2) Prime Minister of India
    (3) Cabinet
    (4) Political head alongwith Council of Ministers

ECONOMICS

96. NABARD came into existence in the year -
    (1) 1979   (2) 1980
    (3) 1981   (4) 1982

97. Major Banks (14) were nationalized in the year -
    (1) 1968   (2) 1969
    (3) 1970   (4) 1971

98. Which one of the following is not a tax/duty levied by the Government of India ?
    (1) Service Tax   (2) Education Tax
    (3) Custom Duty   (4) Toll Tax

99. Government of India enacted Consumer Protection Act in the year
    (1) 1951   (2) 1975
    (3) 1990   (4) 1986

100. The Indian Economy is a
    (1) Liberal Economy   (2) Socialist Economy
    (3) Mixed Economy   (4) None of these