

Teacher Eligibility Test Guidance & Information

First Teacher Eligibility Test (TET) will be held in 2011.

Background and Rationale

➤ The implementation of the Right of Children to Free and Compulsory Education (RTE) Act, 2009 requires the recruitment of a large number of teachers across the country (About 16 Lakhs) in a time bound manner. In spite of the enormity of the task, it is desirable to ensure that quality requirement for recruitment of teachers are not diluted at any cost. It is therefore necessary to ensure that persons recruited as teachers possess the essential aptitude and ability to meet the challenges of teaching at the primary and upper primary level.

➤ In accordance with the provisions of sub-section (1) of section 23 of the Right of Children to Free and Compulsory Education (RTE) Act, 2009, the National Council for Teacher Education (NCTE) has laid down the minimum qualifications for a person to be eligible for appointment as a teacher in class I to VIII. One of the essential qualifications for a person to be eligible for appointment as a teacher in any of the schools is that he/she should pass the Teacher Eligibility Test (TET) which will be conducted by the appropriate Government.

➤ The rationale for including the TET as a minimum qualification for a person to be eligible for appointment as a teacher is as under:

- (i) It would bring national standards and benchmark of teacher quality in the recruitment process;
- (ii) It would induce teacher education institutions and students from these institutions to further improve their performance standards;
- (iii) It would send a positive signal to all stakeholders that the Government lays special emphasis on teacher quality.

Eligibility

➤ The following persons shall be eligible for appearing in the TET:

- (i) A person who has acquired the academic and professional qualifications specified in the National Council for Teacher Education (NCTE) Notification dated August 23, 2010.
- (ii) A person who is pursuing any of the teacher education courses (recognised by the NCTE) or the RCI, as the case may be) specified in the NCTE Notification dated August 23, 2010.
- (iii) The eligibility condition for appearing in TET may be relaxed in respect of a State/Union Territory which has been granted relaxation under sub-section (2) of section 23 of the RTE

Act. The relaxation will be specified in the Notification issued by the Central Government under that sub-section.

Structure and Content of TET

➤ The structure and content of the TET is given in the following paragraphs. All questions will be Multiple Choice Questions (MCQs), each carrying one mark, with four alternatives out of which one answer will be correct. There will be no negative marking.

➤ There will be two papers of the TET. **Paper I** will be for a person who intends to be a teacher for classes I to V. **Paper II** will be for a person who intends to be a teacher for classes VI to VIII. A person who intends to be a teacher either for classes I to V or for classes VI to VIII will have to appear in both papers (**Paper I and Paper II**).

Paper I (for classes I to V);

No. of MCQs - 150;

Duration of examination :

one-and-a-half hours

Structure and Content (All Compulsory)

- | | |
|------------------------------------|-------------------------|
| (i) Child Development and Pedagogy | 30 MCQs 30 Marks |
| (ii) Language I | 30 MCQs 30 Marks |
| (iii) Language II | 30 MCQs 30 Marks |
| (iv) Mathematics | 30 MCQs 30 Marks |
| (v) Environmental Studies | 30 MCQs 30 Marks |

Nature and standard of questions

While designing and preparing the questions for Paper I, the examining body shall take the following factors into consideration:

- The test items on Child Development and Pedagogy will focus on **educational psychology** of teaching and learning relevant to the age group of 6-11 years. They will focus on understanding the characteristics and needs of diverse learners, interaction with learners and the attributes and qualities of a good facilitator of learning.
- The Test items for Language I will focus on the proficiencies related to the medium of instruction, (as chosen from list of prescribed language options in the application form).
- The Language II will be from among the prescribed options other than Language I. A candidate may choose any one language from the available language options and will be required to specify the same in the application form. The test items in Language II will also focus on the elements of language, communication and comprehension abilities.

- The test items in Mathematics and Environmental Studies will focus on the concepts, problem solving abilities and pedagogical understanding of the subjects. In all these subject areas, the test items shall be evenly distributed over different divisions of the syllabus of that subject prescribed for classes I-V by the appropriate Government.
- The questions in the tests for Paper I will be based on the topics of the prescribed syllabus of the State for classes I-V, but their difficulty standard, as well as linkages, could be upto the secondary stage.

Paper II (for classes VI to VIII);

No. of MCQs – 150;

Duration of examination :

One-and-a-half hours

Structure and Content

- (i) Child Development and Pedagogy (Compulsory) **30 MCQs 30 Marks**
- (ii) Language I (Compulsory) **30 MCQs 30 Marks**
- (iii) Language II (Compulsory) **30 MCQs 30 Marks**
- (iv) (a) For Mathematics and Science teacher :
Mathematics and Science **60 MCQs 60 Marks**
- (b) For Social studies teacher :
Social Studies **60 MCQs 60 Marks**
- (c) for any other teacher – either 4(a) or 4(b)

While designing and preparing the questions for Paper II, the examining body shall take the following factors into consideration:

- The test items on Child Development and Pedagogy will focus on educational psychology of teaching and learning, relevant to the age group 11-14 years. They will focus on understanding the characteristics, needs and psychology of diverse learners, interaction with learners and the attributes and qualities of a good facilitator of learning.
- The test items for Language I will focus on the proficiency related to the medium of instruction, as chosen from list of prescribed options in the application form.
- The Language II will be a language other than Language I. The person may choose any one language from among the available options and as in the specified list in the application form and attempt questions in the one indicated by the candidate in the application form by him. The Test items in Language II will also focus on the elements of language, communication and comprehension abilities.
- The test items in Mathematics and Science, and Social Studies will focus on the concepts, problem solving abilities and pedagogical

understanding of these subjects. The test items of Mathematics and Science will be of 30 marks each. The test items shall be evenly distributed over different divisions of the syllabus of that subject as prescribed for classes VI-VIII by the appropriate government.

- The questions in the tests for Paper II will be based on the topics of the prescribed syllabus of the State for classes VI-VIII but their difficulty standard as well as linkages could be upto the senior secondary stage.

► The question paper shall be bilingual - (i) in language(s) as decided by the appropriate Government; and (ii) English language.

Qualifying marks : A person who scores 60% or more in the TET exam will be considered as TET pass. School managements (Government, local bodies, government aided and unaided)

- (a) may consider giving concessions to persons belonging to SC/ST, OBC, differently abled persons, etc., in accordance with their extant reservation policy;
- (b) should give weightage to the TET scores in the recruitment process; however, qualifying the TET would not confer a right on any person for recruitment/employment as it is only one of the eligibility criteria for appointment.

Applicability

- (a) TET conducted by the Central Government shall apply to all schools referred to in sub-clause (i) of clause (a) of section 2 of the RTE Act.
- (b) TET conducted by a State Government/Union Territory with legislature shall apply to :
 - (i) a school of the State Government/Union Territory with legislature and local authority referred to in sub-clause (i) of clause (n) of section 2 of the RTE Act; and
 - (ii) a school referred to in sub-clause (ii) of clause (n) of section 2 of the RTE Act in that State/Union Territory.

A school at (i) and (ii) may also consider eligibility of a candidate who has obtained TET Certificate awarded by another State/Union Territory with legislature. In case a State Government/Union Territory with legislature decides not to conduct a TET, a school at (i) and (ii) in that State/Union Territory would consider the TET conducted by the Central Government.

- (c) A school referred to in sub-clause (iv) of clause (n) of section 2 of the RTE Act may exercise the option of considering either the TET conducted by the Central Government or the TET conducted by the State Government/ Union Territory with legislature.

Frequency of conduct of TET and validity period of TET certificate

► The appropriate Government should conduct a TET at least once every year. The Validity Period of TET qualifying certificate for appointment will be decided by the appropriate Government subject to a maximum of seven years for all categories. But there will be no restriction on the number of attempts a person can take for acquiring a TET Certificate. A person who has qualified TET may also appear again for improving his/her score.

Procedure for conduct of the Test

► The examining body shall formulate a detailed procedure and lay down instructions for conduct of the TET. Candidates should be informed that a very serious view will be taken of any malpractice or impersonation.

Legal Disputes

► All legal disputes with regard to conduct of TET shall be subject to the jurisdiction of the appropriate Government.

Award of TET Certificate

► The appropriate Government conducting the Test shall award a TET Certificate to all successful candidates. The certificate should contain the name

and address of the candidate, date of birth, Registration No. year/month of award of Certificate, marks obtained in each Paper, class level of its validity (Class I to V, class VI to VIII or both), and, in case of classes VI to VIII, the subject area (Science and Mathematics, Social Studies, etc.). The certificate may be electronically generated with adequate security features. Appropriate may consider utilizing the services of specialized agencies for issuing de-materialized (demat) TET certificates as a security feature to avoid any kind of malpractice.

Monitoring

► Following measures would be taken for monitoring the quality and administration of the TET:

- (a) The appropriate Government shall appoint a Nodal Officer for the purpose of TET.
- (b) The NCTE would organize meetings of the Nodal Officers at least once every year.
- (c) Every appropriate will forward a report of each TET to the NCTE in a format to be prescribed by the NCTE.
- (d) The NCTE shall maintain data base and be the repository of experts and resources, including the technological tools for conduct of the TET, and shall share it with the appropriate Government.

Teacher Eligibility Test Paper-I Model Paper

CHILD DEVELOPMENT AND PEDAGOGY

- Which of the following activity is never done by a good teacher in class?
 - Telling life stories of great men
 - Asking students for silent reading
 - Asking students to write their life stories
 - Addressing students by their caste name
- Which type of subject matter should first be taught to primary school children?
 - Simple
 - Known
 - Simple and known
 - Difficult but known
- How does an effective teacher make students attentive in class?
 - By punishing naughty children
 - By making one's teaching interesting
 - By telling stories
 - By distributing sweets
- A popular teacher is one who
 - loves children
 - is favourite of children
 - is favourite of Principal
 - respects children's parents
- Mahatma Gandhi is associated with
 - Basic education
 - Secondary education
 - Self-education
 - Technical education
- A successful teacher's most important function is
 - helping students to pass examination
 - helping students to become good players
 - to develop thinking abilities among children
 - to develop love for books among children
- How shall you help a student who has failed in the half year by examination?
 - by giving grace marks
 - by holding re-examination
 - by re-teaching difficult concepts
 - by asking parents to arrange private tuition
- The students of Class V make too much of noise in Maths class. The probable reason of this could be that the teacher
 - is not well versed in teaching methodology
 - is not able to maintain discipline in the class
 - the children do not pay attention
 - the children dislike the subject
- Which ministry in the Central government looks after education?
 - Education Ministry
 - Education and Cultural Ministry
 - Ministry of Science and Education
 - Ministry of Human Resource Development
- According to Mahatma Gandhi, what should be the medium of education at the primary stage?
 - Hindi
 - English
 - Child's mother tongue
 - Regional language
- What does an ideal teacher do to maintain discipline in the class?
 - Tells stories
 - Recites poems
 - Distributes sweets
 - Selects contents in tune with children's interest
- What shall you do to become a successful teacher?
 - Intensive study of my subject
 - Shall give financial assistance to poor students
 - shall undertake social service
 - shall always follow Principal's orders
- In the Constitution of India, education is included in the
 - Union List
 - State list
 - Zila Parishad list
 - Concurrent list
- In the context of a teacher training programme, which is the least important?
 - Black-board writing
 - Lesson planning
 - Participation in Enrolment drive
 - Classroom teaching
- Which one of the following is not an essential function of a school?
 - Organisation of parent's meeting
 - Providing vocational guidance to students
 - Organisation of social functions
 - Organisation of remedial teaching
- Which institution develops national curriculum frame-work for school education?
 - NCERT
 - CBSE
 - SCERT
 - NTCE
- Why is it necessary to have a code of professional ethics for teachers?
 - Punishing teachers becomes easy
 - It helps in disciplining teachers
 - It facilitates compulsory retirement of teachers
 - It enhances respect of teachers

18. How shall you deal with a child who is in the habit of coming late to school ?
- (1) Shall give physical punishment
 - (2) Shall lodge a complaint with the Principal
 - (3) Shall invite the child's guardian for discussion
 - (4) Shall give a strong warning
19. A child gives a partly correct answer to your question. How shall you respond to this type of situation ?
- (1) By ignoring the child
 - (2) By asking him to think before speaking
 - (3) By reprimanding the child
 - (4) By appreciating the child's effort
20. A teacher in your school is not interested in teaching profession. How shall you help him to develop interest in teaching ?
- (1) Shall ask him to read books on teaching
 - (2) Shall tell him that teaching is a noble profession
 - (3) Shall remind him that interest in teaching is necessary for a successful teacher
 - (4) Shall help him to analyse the reasons for his lack of interest
21. Introduction of English education in India was supported by
- (1) Raja Ram Mohan Roy
 - (2) Swami Dayanand
 - (3) Swami Vivekananda
 - (4) Zakir Husain
22. Three language formula implies
- (1) Three languages should be taught at school stage
 - (2) Every teacher should teach in three languages
 - (3) Official work should be done in three languages
 - (4) Examination should be conducted in three languages
23. The study of which of the following is most useful for a Primary teacher ?
- (1) Law
 - (2) Child Psychology
 - (3) Astronomy
 - (4) Statistics

24. Why is Craft education important for a primary teacher ?
- (1) Helps in the preparation of teaching aids
 - (2) Source of additional income
 - (3) Keeps teachers busy
 - (4) Necessary for the entertainment of teachers
25. Which of the following is not an essential quality of a successful teacher ?
- (1) Love for children
 - (2) Love for books
 - (3) Respect for Human Rights
 - (4) Knowledge of dance
26. When is Teacher's Day celebrated in India ?
- (1) 5th September
 - (2) 5th October
 - (3) 14th November
 - (4) 10th December
27. What is the objective of celebrating Teacher's Day ?
- (1) To remember great teachers
 - (2) To pay homage to Dr. Radha Krishnan
 - (3) To honour the teaching community
 - (4) To remember teachers of ancient times
28. Home work is given to
- (1) give punishment to children
 - (2) reinforce classroom learning
 - (3) communicate school's seriousness
 - (4) keep children busy at home
29. Many children in your class do not complete their home work regularly. You shall tackle this situation by
- (1) making a complaint to the Principal
 - (2) holding discussion with children's parents
 - (3) stopping assignment for home work
 - (4) delivering a lecture on the importance of home work
30. Who presides over the Conference of State Education Ministers in India?
- (1) Prime Minister
 - (2) Union HRD Minister
 - (3) Vice President of India
 - (4) Deputy Education Minister

LANGUAGE-I (हिन्दी)

31. किस वाक्य में पूर्वकालिक क्रिया का प्रयोग हुआ है ?
- (1) मुझे घोष नहीं आता।
 - (2) मोहन पढ़कर विद्यलय से लौटा।
 - (3) अभी वह आ ही रहा होगा।
 - (4) वह खाले-खाले ही उठ पड़ा।
32. कौन-सा वाक्य संकुल वाक्य है ?
- (1) मैं चले ही स्टेशन पहुँच, गाड़ी चल पड़ी।
 - (2) जब मैं स्टेशन पहुँच, गाड़ी बस पड़ी।
 - (3) मैं स्टेशन पर पहुँच और गाड़ी चल पड़ी।
 - (4) क्योंकि मैं स्टेशन पर पहुँच, गाड़ी चल पड़ी।
33. किस वाक्य में अधिकतम कारक नहीं है ?
- (1) लड़क को बीच छोड़े जा।
 - (2) राम के घर एक भी दान नहीं है।
 - (3) अलमारी को पीत किलवे है।
 - (4) इस कक्षा को लड़के सुनते हैं।
34. निम्नलिखित में से कौन-सा वाक्य कक्षा का शोध प्रश्न कहता है ?
- (1) मुझे तुमसे देवी आता न थी।
 - (2) दूर हो जाओ मेरे सम्बन्ध से।
 - (3) तुम किले नं हो।
 - (4) तुम तो बड़े भोखेंचन निकले।
35. कौन सा शब्द 'संकर' शब्द नहीं है ?
- (1) किलोमीटर (2) दण्डमान
 - (3) लक्ष्मणन (4) बैलगाड़ी
36. इनमें से किस वाक्य में 'बेचारा' शब्द विशेषण के रूप में आया है ?
- (1) बेचारा ऐ रहा है।
 - (2) वह बेचारा गिर पड़ा।
 - (3) बेचारा दिल क्या करे।
 - (4) बेचारा कुछ नहीं कर पाया।
37. किस वाक्य में सभी ध्वनि अक्षर हैं ?
- (1) क, ट, उ, र (2) क, ट, उ, र
 - (3) उ, र, उ, क (4) ट, र, उ, र
38. इनमें से किस वाक्य में भाववाच्य है ?
- (1) कक्षा में आज एक ही पंख नहीं चला गया।
 - (2) मोहन से कहाँ तक नहीं पता चला।
 - (3) अभी घर पर खाना बनाया जा रहा होगा।
 - (4) मोची में आज कई कलियाँ चुनवाई करीं।
39. किस शब्द में गुण संधि है ?
- (1) पर्यवेष्ट (2) सुस्फुटन
 - (3) निर्दोषता (4) सुनिर्मिता
40. 'उठ चलते का मय डिकल' में 'उठ चलते' है:
- (1) क्रिया (2) विशेषण
 - (3) क्रिया-विशेषण (4) संज्ञा

41. विभासिद्धि में से सुलक्षण शब्द है:
 (1) धाम (2) अथ
 (3) सत्ताय (4) गहर
42. 'जैसे घूमने वाले' किस प्रकार का वाक्य है?
 (1) विधानवाचक (2) इच्छावाचक
 (3) आश्चर्याचक (4) संबोधवाचक
43. कौन-सा शब्द योग्य है?
 (1) जलज (2) कपत
 (3) प्रवृत्त (4) सुदृष्ट
44. कौन-सी क्रिया उल्लेख है?
 (1) चलना (2) समझना
 (3) इच्छित (4) अचानक
45. 'बूढ़ाई' हिन्दी भाषा में किस वर्ग की शब्दी है?
 (1) परिचयी शब्दी (2) पूर्वी हिन्दी
 (3) विशारी (4) टाकावती
46. कौन सा शब्द लयान है?
 (1) भाव (2) व्याज
 (3) शैव (4) अंगुलि
47. काव्यात्मक के अनुभव, कीर्तना, भोरलसित, पीछरात और पीछेद्वत का है?
 (1) काव्य के लक्षण (2) कविता के
 (3) लयन के प्रकार (4) शब्द के अर्थ
48. विद्यया को अज्ञान-ज्ञान से कुछ नहीं, पर वह बहुत बढ़-बढ़ कर बात करता है। ठीक ही क्या है
 (1) कोच बहादुर विक्रमी पुत्रिया
 (2) अक्षयत गरी छलकत अर्थ
 (3) एक करोड़, दुजे नीम चढ़ा
 (4) अक्षय सन अक्ष, गंड का पूरा
49. विभासिद्धि में से कौन-सा शब्द असुद्ध है?
 (1) कृपण पत्र का उतर लीप में
 (2) पर सुपुत्र सजिम डंग री
 (3) अपने एक-एक कब्र प्रथमी होते हैं।
 (4) राज ने अपने हातु को बंदी बंद दिला।
50. 'पारुषी' में कौन-सा समास है?
 (1) लक्षण (2) बहुव्रीहि
 (3) कर्मधारय (4) अव्ययीभाव
51. किस शब्द में अनुप्रासिक का गलत प्रयोग हुआ है?
 (1) कौट (2) कौल
 (3) कौच (4) कौन
52. इन शब्दों में कौन-सा सत्यता शर शर में विद्य है?
 (1) धी-सम्पत्ता (2) रहीं-बहा
 (3) कर्मकांड (4) टैलि-विद्यता
53. इन्में से किस वाक्य में संबोधवाचक शब्दों का प्रयोग नहीं हुआ है?
 (1) जो कपड़े में बेल हैं, वह कौन हैं।

- (2) जो कठिन परिश्रम करता है, वही सफल रहता है।
 (3) जो आरपी अमी-अमी चहर गया है, क्या तुम उसे जानते हो?
 (4) जो तुम्हें पत्र दे गया था, वह बल फिर आया।
54. कौन-सा सौम्य रूप गलत है?
 (1) सधु - सधुअथ
 (2) सलल - सललथ
 (3) सौधरी - सौधरथ
 (4) हलगाई - हलगाथ
55. कौन-सा शब्द गलत है?
 (1) सौम्यी में कल्पना का अभाव नहीं होता।
 (2) अत्यन्त बर्नरूपन होती है।
 (3) रेखाचित्र पर, व्यक्ति अचला पटना का शब्दों द्वारा चित्रित चित्रण कहलाता है।
 (4) निबंध की प्रस्तावना का उद्देश्य विषयवस्तु का विस्तार विवेचन करना होता है।
56. कौन-सा शब्द शब्दकोष रूप में सबसे अंश में आया?
 (1) लय (2) लयन
 (3) लय (4) लय
57. "तो पर माँ उरवती, सुनि लीके सुजान, सु मोहन के उरवती, हे उरवती समान -" में अलंकार है:
 (1) सनेन (2) उल्लेख
 (3) सलक (4) लयक
58. 'विष्णु ज्ञान' के शिष्ट शब्द शब्द है-
 (1) भ्रम (2) संका
 (3) संशय (4) संशय
59. इन्में से कौन-सी विशेष शब्दों की नहीं है?
 (1) किसी कल्प/सर्प की उष्टि काली है।
 (2) सरापित और अधिग्रह होती है।
 (3) अक्षय सत्य अक्षय नहीं होता है।
 (4) उसका कोरल एवं व्यक्ति अर्थ होता है।
60. किस वाक्य का परलभ नहीं है?
 (1) एक तुल्य और में, जी सल लय।
 (2) अपने किसी कर्मों की सभा में कहा।
 (3) कई सलु के विचारों देस करते हैं।
 (4) मेले में बच्चों की कां टोसियां थीं।

LANGUAGE-II (ENGLISH)

Directions (61-63) : In the following questions, some of the sentences have errors and some have none. Find out which part of a sentence has an error. The number of that part is your answer. Your answer is (4) i.e., No error.

61. He is a university professor (1)/ but of his three sons (2)/ neither has any merit. (3)/ No error (4)
62. After knowing truth, (1)/ they took the right decision (2)/ in the matter. (3)/ No error (4)
63. It is time you (1)/ decide on your next (2)/ course of action. (3)/ No error (4)

Directions (64 - 65) : Sentences are given with blanks to be filled in with an appropriate word(s). Four alternatives are suggested for each question. Choose the correct alternative out of the four.

64. The hotel was not too expensive.
 (1) was it ? (2) wasn't it ?
 (3) is it ? (4) isn't it ?
65. Like humans, zoo animals must have a dentist _____ their teeth.
 (1) fill (2) filled
 (3) filling (4) to be filled

Directions (66 - 68) : In the following questions choose the word opposite in meaning to the given word.

66. FLORID
 (1) Weak (2) Pale
 (3) Monotonous (4) Ugly
67. VERITY
 (1) Sanctity (2) Reverence
 (3) Falschood (4) Rarity
68. PERSPICUITY
 (1) Vagueness (2) Dullness
 (3) Unfairness (4) Unwillingness

Directions (69 - 71) : In the following questions out of the four alternatives, choose the one which best expresses the meaning of the given word.

69. LUXURIANT
 (1) Luxury-loving
 (2) Lovely
 (3) Rich (4) Abundant
70. CANTANKEROUS
 (1) Cancerous (2) Ferocious
 (3) Quarrelsome
 (4) Pissparous
71. ONUS
 (1) Sadness (2) Happiness
 (3) Responsibility
 (4) Criticism

Directions (72-74) : In the following questions a part of the sentence is bold. Below are given alternatives to the bold part at (1), (2) and (3) which may improve the sentence. Choose the correct alternative. In case no improvement is needed, your answer is (4).

72. Obviously he isn't **cut up** to be a good teacher.
 (1) cut out (2) cut in
 (3) cut for
 (4) No improvement
73. Power got with money is the most **craved for** today.
 (1) sought after
 (2) wished for
 (3) welcomed for
 (4) No improvement
74. The brown shirt **wants washing**.
 (1) has to wash
 (2) is in need of a wash
 (3) requires a wash
 (4) No improvement

Directions (75-77) : In the following questions, out of the four alternatives, choose the one which can be substituted for the given words/sentence:

75. An underhand device resorted to in order to justify misconduct
 (1) Subterfuge (2) Manoeuvre
 (3) Stratagem (4) Complicity
76. Impossible to describe
 (1) Miraculous (2) Ineffable
 (3) Stupendous (4) Appalling
77. One who criticises popular beliefs which he thinks is mistaken or unwise
 (1) Philistine (2) Iconoclast
 (3) Imposter (4) Cannibal

Directions (78-80) : In the following questions, groups of four words are given. In each group, one word is correctly spelt. Find the correctly spelt word.

78. (1) collaborate (2) comemorate
 (3) colate (4) choclate
79. (1) circuleous (2) clatrvoiyant
 (3) chvelery (4) cavelcade
80. (1) severety (2) soveretignity
 (3) superiorty (4) serenity

Directions (81-83) : In the following questions, the 1st and the last sentences of the passage are numbered 1 and 6. The rest of the passage is split into four parts and named P, Q, R and S. These four parts are

not given in their proper order. Read the sentence and find out which of the four combinations is correct. Then find the correct answer.

81. 1. Education in India had a glorious beginning.
 P. But after the British rule, it faced many changes.
 Q. It went on for centuries with the same glory.
 R. English as the medium of instruction had a very great response.
 S. One of the changes was the introduction of English as the medium of instruction.
 6. As the Britishers left we had a complexity of opinions regarding English
 (1) PQRS (2) QPSR
 (3) PQSR (4) SRPQ

82. 1. It is easy to criticize the people at the helm, for the slow progress in every field.
 P. We are well aware that the intellectuals are leaving our country for better employment opportunities.
 Q. Then question remains unanswered because our country cannot show opportunities to the intellectuals.
 R. Then, what about their obligation to the Motherland?
 S. First, we should ask ourselves as to what is happening to the young intellectuals in India.
 6. This situation of 'Brain-Drain' leads to a variety of problems.
 (1) PSQR (2) RPSQ
 (3) PSRQ (4) SPRQ

83. 1. It is the responsibility of parents to teach the young moral values in life.
 P. Many children take advantage of their parents' busy schedule.
 Q. This results in children's ignorance of social values.
 R. The reason behind it is that parents are quite busy nowadays.
 S. Nowadays parents spend very meagre time with children.
 6. As such, the society is going away from the value system.
 (1) SRPQ (2) PQRS
 (3) SQRP (4) SPQR

Directions (84-86) : In the following questions, a sentence has been given in Active Voice/Passive Voice. Out of the four alternatives suggested, select the one which best expresses the same sentence in Passive/Active Voice.

84. They have made a film based on this novel.
 (1) A film was based on this novel and made.
 (2) A film have been made based on this novel.
 (3) A film, based on this novel, has been made
 (4) A film has been biased and made on this novel.
85. The people couldn't move me to the hospital and the doctor operated on me at home.
 (1) I couldn't be moved to the hospital and was operated on at home by the doctor.
 (2) I couldn't be moved to the hospital and I had to be operated on at home.
 (3) I couldn't be moved to the hospital and I was operated at home by the doctor.
 (4) I couldn't be moved to the hospital by the people and operated on at home.
86. Why did he deprive you of the membership?
 (1) Why you were deprived of the membership?
 (2) Why were you deprived of his membership by him?
 (3) Why was he deprived of his membership
 (4) Why were you deprived of your membership by him?

Directions (87-90) : In the following passage, you have one brief passage with four questions following the passage. Read the passage carefully and choose the best answer to each question out of the four alternatives.

Every profession or trade, every art and every science has its technical vocabulary, the function of which is partly to designate things or processes which have no names in ordinary English and partly to secure greater exactness in nomenclature. Such special dialects or jargons are necessary in technical discussion of

any kind. Being universally understood by the devotees of the particular science or art, they have the precision of a mathematical formula. Besides, they save time, for it is much more economical to name a process than to describe it. Thousands of these technical terms are very properly included in every large dictionary, yet, as a whole, they are rather on the outskirts of the English language than actually within its borders.

Different occupations, however, differ widely in the character of their special vocabularies. In trades and handicrafts and other vocations like farming and fishing that have occupied great numbers of men from remote times, the technical vocabulary is very old. An average man now uses these in his own vocabulary. The special dialects of law, medicine, divinity and philosophy have become familiar to cultivated persons.

87. Special words used in technical discussion
- (1) may become part of common speech
 - (2) never last long
 - (3) should resemble mathematical formula
 - (4) should be confined to scientific fields
88. The writer of this article is
- (1) a scientist
 - (2) a politician
 - (3) a linguist
 - (4) a businessman
89. This passage is primarily concerned with
- (1) various occupations and professions
 - (2) technical terminology
 - (3) scientific undertakings
 - (4) a new language
90. It is true that
- (1) various professions and occupations often interchange words
 - (2) there is always a non-technical word that may be substituted for the technical word
 - (3) the average man often uses in his own vocabulary what was once technical language not meant for him
 - (4) everyone is interested in scientific findings

MATHEMATICS

91. The H.C.F. and L.C.M. of two numbers are 8 and 48 respectively. If one of the numbers is 24, then the other number is
- (1) 48
 - (2) 36
 - (3) 24
 - (4) 16
92. The greatest number, which when subtracted from 5834, gives a number exactly divisible by each of 20, 28, 32 and 35, is
- (1) 1120
 - (2) 4714
 - (3) 5200
 - (4) 5600
93. The ninth term of the sequence 0, 3, 6, 15, 24, 35, is
- (1) 63
 - (2) 70
 - (3) 80
 - (4) 99
94. $\frac{0.125 + 0.027}{0.25 - 0.15 + 0.09}$ is equal to
- (1) 0.3
 - (2) 0.5
 - (3) 0.8
 - (4) 0.9
95. $\sqrt{\frac{0.009 \times 0.036 \times 0.016 \times 0.08}{0.002 \times 0.0008 \times 0.0002}}$ is equal to
- (1) 34
 - (2) 36
 - (3) 38
 - (4) 39
96. A number, when divided by 114, leaves remainder 21. If the same number is divided by 19, then the remainder will be
- (1) 1
 - (2) 2
 - (3) 7
 - (4) 17
97. The square root of 0.09 is
- (1) 0.30
 - (2) 0.03
 - (3) 0.81
 - (4) 0.081
98. Two numbers are in the ratio 3 : 4. Their L.C.M. is 84. The greater number is
- (1) 21
 - (2) 24
 - (3) 28
 - (4) 64
99. By what least number should 675 be multiplied so as to obtain a perfect cube number?
- (1) 3
 - (2) 5
 - (3) 24
 - (4) 40
100. $0.\overline{001}$ is equal to
- (1) $\frac{1}{1000}$
 - (2) $\frac{1}{999}$
 - (3) $\frac{1}{99}$
 - (4) $\frac{1}{9}$
101. $\frac{4.41 \times 0.16}{21 \times 1.6 \times 0.21}$ is simplified to
- (1) 1
 - (2) 0.1
 - (3) 0.01
 - (4) 10
102. $\frac{256 \times 256 - 144 \times 144}{112}$ is equal to
- (1) 420
 - (2) 400
 - (3) 360
 - (4) 320
103. A manufacturer marked an article at Rs. 50 and sold it allowing 20% discount. If his profit was 25%, then the cost price of the article was
- (1) Rs. 40
 - (2) Rs. 35
 - (3) Rs. 32
 - (4) Rs. 30
104. If A's income is 50% less than that of B's, then B's income is what per cent more than that of A?
- (1) 125
 - (2) 100
 - (3) 75
 - (4) 50
105. 1.14 expressed as a per cent of 1.9 is
- (1) 6%
 - (2) 10%
 - (3) 60%
 - (4) 90%
106. If 60% of A = $\frac{3}{4}$ of B, then A : B is
- (1) 9 : 20
 - (2) 20 : 9
 - (3) 4 : 5
 - (4) 5 : 4
107. An equilateral triangle of side 6 cm has its corners cut off to form a regular hexagon. Area (in cm²) of this regular hexagon will be
- (1) $3\sqrt{3}$
 - (2) $3\sqrt{6}$
 - (3) $6\sqrt{3}$
 - (4) $\frac{5\sqrt{3}}{2}$
108. The length (in metres) of the longest rod that can be put in a room of dimensions 10 m × 10 m × 5 m is
- (1) $15\sqrt{3}$
 - (2) 15
 - (3) $10\sqrt{2}$
 - (4) $5\sqrt{3}$
109. If Rs. 1000 is divided between A and B in the ratio 3 : 2, then A will receive
- (1) Rs. 400
 - (2) Rs. 500
 - (3) Rs. 600
 - (4) Rs. 800
110. What must be added to each term of the ratio 7 : 11, so as to make it equal to 3 : 4?
- (1) 8
 - (2) 7.5
 - (3) 6.5
 - (4) 5

111. A sum of money at compound interest doubles itself in 15 years. It will become eight times of itself in
 (1) 45 years (2) 48 years
 (3) 54 years (4) 60 years
112. Buses start from a bus terminal with a speed of 20 km/hr at intervals of 10 minutes. What is the speed of a man coming from the opposite direction towards the bus terminal if he meets the buses at intervals of 8 minutes?
 (1) 3 km/hr (2) 4 km/hr
 (3) 5 km/hr (4) 7 km/hr
113. If the circumference of a circle is decreased by 50% then the percentage of decrease in its area is
 (1) 25 (2) 50
 (3) 60 (4) 75
114. At what rate per cent per annum will a sum of Rs. 1,000 amount to Rs. 1,102.50 in 2 years at compound interest?
 (1) 5 (2) 5.5
 (3) 6 (4) 6.5
115. The average of the first 100 positive integers is
 (1) 100 (2) 51
 (3) 50.5 (4) 49.5
116. In a family, the average age of a father and a mother is 35 years. The average age of the father, mother and their only son is 27 years. What is the age of the son?
 (1) 12 years (2) 11 years
 (3) 10.5 years (4) 10 years
117. If A and B together can complete a piece of work in 15 days and B alone in 20 days, in how many days can A alone complete the work?
 (1) 60 (2) 45
 (3) 40 (4) 30
118. By walking at $\frac{3}{4}$ of his usual speed, a man reaches his office 20 minutes later than his usual time. The usual time taken by him to reach his office is
 (1) 75 minutes (2) 60 minutes
 (3) 40 minutes (4) 30 minutes
119. A can complete a piece of work in 18 days, B in 20 days and C in 30 days. B and C together start the work and are forced to

leave after 2 days. The time taken by A alone to complete the remaining work is

- (1) 10 days (2) 12 days
 (3) 15 days (4) 16 days
120. A train, 300m long, passed a man, walking along the line in the same direction at the rate of 3 km/hr in 33 seconds. The speed of the train is
 (1) 30 km/h (2) 32 km/h
 (3) $32\frac{8}{11}$ km/h
 (4) $35\frac{8}{11}$ km/h

ENVIRONMENTAL STUDIES

121. What is the harm from the depletion of Earth's ozone layer?
 (1) The average temperature of earth's surface will increase gradually
 (2) The oxygen content of the atmosphere will decrease
 (3) Increased amount of Ultra violet radiation will reach earth's surface
 (4) Sea levels will rise as the polar ice caps will gradually melt
122. In a lake polluted with pesticides, which one of the following will contain the maximum amount of pesticides?
 (1) small fish
 (2) microscopic animals
 (3) big fish
 (4) water birds
123. Which of the following is non-biodegradable?
 (1) animal bones
 (2) nylon
 (3) tea leaves
 (4) wool
124. Acid rain is formed due to contribution from the following pair of gases
 (1) Methane and ozone
 (2) Oxygen and nitrous oxide
 (3) Methane and sulphur dioxide
 (4) Carbon dioxide and sulphur dioxide
125. Which of the following is a prime health risks associated with greater UV radiation through the atmosphere due to depletion of stratospheric ozone?
 (1) Damage to digestive system
 (2) Increased liver cancer
 (3) Neurological disorder
 (4) Increased skin cancer
126. The most serious environmental effect posed by hazardous wastes is
 (1) air pollution
 (2) contamination of groundwater
 (3) increased use of land for landfills
 (4) destruction of habitat
127. The concentration of which gas is highest in our environment?
 (1) Oxygen
 (2) Hydrogen
 (3) Nitrogen
 (4) Carbon dioxide
128. Which of the following is not as a consequence of global warming?
 (1) rising sea level
 (2) increased agricultural productivity worldwide
 (3) worsening health effects
 (4) increased storm frequency and intensity
129. Which of the following is not a primary contributor to the greenhouse effect?
 (1) carbon dioxide
 (2) carbon monoxide
 (3) chlorofluorocarbons
 (4) methane gas
130. The increase in the concentration of CO₂ in our environment in last fifty years; since 1960 is about
 (1) 20% (2) 10%
 (3) 14% (4) 6%
131. The depletion in the Ozone layer is caused by
 (1) nitrous oxide
 (2) carbon dioxide
 (3) chlorofluorocarbons
 (4) methane
132. Which of the following has negative effects on the soil and water due to conventional, mechanized farming practices?
 (1) soil compaction
 (2) reduction in soil organic matter
 (3) soil erosion
 (4) All of the above
133. A natural phenomenon that becomes harmful due to pollution is _____

- (1) global warming
 - (2) ecological balance
 - (3) greenhouse effect
 - (4) desertification
134. A major in-stream use of water is for
- (1) producing hydroelectric power
 - (2) dissolving industrial wastes
 - (3) agricultural irrigation
 - (4) domestic use
135. Which of the following are the example of Municipal and Industrial discharge pipes?
- (1) non-point sources of pollution
 - (2) violations of the Clean Water Act
 - (3) point sources of pollution
 - (4) irrigation
136. The presence of high coliform counts in water indicate
- (1) contamination by human wastes
 - (2) phosphorus contamination
 - (3) decreased biological oxygen demand
 - (4) hydrocarbon contamination
137. How does the biological oxygen demand get affected with the increased presence of organic matter in water?
- (1) the oxygen demand increases
 - (2) the oxygen demand decreases
 - (3) the oxygen demand remains unchanged
 - (4) None of the above
138. Which of the following is not a major source of groundwater contamination?
- (1) agricultural products
 - (2) landfills
 - (3) underground storage tanks
 - (4) All of the above
139. Name the substance whose accumulation in pelicans of Lake Michigan led to the formation of thin shells of their eggs.
- (1) CFC
 - (2) PAN
 - (3) DDT
 - (4) PAC
140. Which of the following is not considered as part of water use planning?
- (1) waste water treatment
 - (2) water diversion projects
 - (3) salinization
 - (4) All of the above

141. The stage in which the biological processes is used to purify water in a wastewater treatment plants is called
- (1) secondary sewage treatment
 - (2) primary sewage treatment
 - (3) wastewater reduction
 - (4) biochemical reduction
142. Groundwater mining in coastal areas can result into
- (1) increase in the salinity of groundwater
 - (2) decrease in the toxicity of groundwater
 - (3) decrease in the salinity of groundwater
 - (4) increase in the water table
143. Which of the following is not an important characteristic of the Green Revolution?
- (1) mechanized agriculture
 - (2) hybrid seeds
 - (3) slash and burn
 - (4) monoculture
144. Name one non-biodegradable waste which may pollute the earth to dangerous levels of toxicity, if not handled properly.
- (1) DDT
 - (2) CFC
 - (3) Radioactive substances
 - (4) PAN
145. The three primary soil macronutrients are
- (1) carbon, oxygen, and water
 - (2) copper, cadmium, and carbon
 - (3) potassium, phosphorus, and nitrogen
 - (4) boron, zinc, and manganese
146. The pollutant responsible for ozone holes is _____.
- (1) CO₂
 - (2) SO₂
 - (3) CO
 - (4) CFC
147. One of the best solutions to get rid of non-biodegradable wastes is _____.
- (1) Burning
 - (2) Dumping
 - (3) Burying
 - (4) Recycling
148. Animal dung is _____ waste
- (1) biodegradable
 - (2) non-biodegradable
 - (3) hazardous
 - (4) toxic
149. Which of the following is biodegradable?
- (1) iron nails
 - (2) plastic mugs
 - (3) leather belts
 - (4) silver foil

150. Name the process in which a harmful chemical enters the food chain and gets concentrated at each level in the food chain.
- (1) Concentration
 - (2) Biomagnifications
 - (3) Expansion
 - (4) Pollution

ANSWERS

| | | | |
|---------|---------|---------|---------|
| 1.(4) | 2.(3) | 3.(2) | 4.(2) |
| 5.(1) | 6.(3) | 7.(3) | 8.(1) |
| 9.(4) | 10.(3) | 11.(4) | 12.(1) |
| 13.(4) | 14.(3) | 15.(3) | 16.(1) |
| 17.(2) | 18.(3) | 19.(4) | 20.(4) |
| 21.(1) | 22.(1) | 23.(2) | 24.(1) |
| 25.(4) | 26.(1) | 27.(3) | 28.(2) |
| 29.(2) | 30.(2) | 31.(4) | 32.(3) |
| 33.(4) | 34.(2) | 35.(1) | 36.(2) |
| 37.(1) | 38.(2) | 39.(3) | 40.(4) |
| 41.(3) | 42.(3) | 43.(1) | 44.(1) |
| 45.(4) | 46.(4) | 47.(3) | 48.(2) |
| 49.(1) | 50.(2) | 51.(1) | 52.(2) |
| 53.(3) | 54.(2) | 55.(4) | 56.(3) |
| 57.(4) | 58.(1) | 59.(3) | 60.(4) |
| 61.(3) | 62.(1) | 63.(2) | 64.(1) |
| 65.(1) | 66.(2) | 67.(3) | 68.(1) |
| 69.(4) | 70.(3) | 71.(3) | 72.(1) |
| 73.(4) | 74.(3) | 75.(2) | 76.(2) |
| 77.(2) | 78.(1) | 79.(2) | 80.(4) |
| 81.(2) | 82.(4) | 83.(1) | 84.(3) |
| 85.(1) | 86.(4) | 87.(3) | 88.(3) |
| 89.(2) | 90.(3) | 91.(4) | 92.(2) |
| 93.(3) | 94.(3) | 95.(2) | 96.(2) |
| 97.(1) | 98.(3) | 99.(2) | 100.(2) |
| 101.(1) | 102.(2) | 103.(3) | 104.(2) |
| 105.(3) | 106.(4) | 107.(3) | 108.(2) |
| 109.(3) | 110.(4) | 111.(1) | 112.(3) |
| 113.(2) | 114.(1) | 115.(3) | 116.(2) |
| 117.(1) | 118.(2) | 119.(3) | 120.(4) |
| 121.(3) | 122.(4) | 123.(2) | 124.(2) |
| 125.(4) | 126.(2) | 127.(3) | 128.(2) |
| 129.(3) | 130.(3) | 131.(3) | 132.(4) |
| 133.(3) | 134.(1) | 135.(3) | 136.(1) |
| 137.(1) | 138.(4) | 139.(3) | 140.(4) |
| 141.(1) | 142.(1) | 143.(3) | 144.(3) |
| 145.(4) | 146.(4) | 147.(4) | 148.(1) |
| 149.(3) | 150.(2) | | |

EXPLANATIONS

1. (4) Addressing students by their caste name
2. (3) Simple and known
3. (2) By making one's teaching interesting
4. (2) is favourite of children
5. (1) Basic education
6. (3) to develop thinking abilities among children
7. (3) by re-teaching difficult concepts
8. (1) is not well versed in teaching methodology
9. (4) Ministry of Human Resource Development
10. (3) Child's mother tongue
11. (4) Selects contents in tune with children's interest
12. (1) Intensive study of my subject
13. (4) Concurrent list
14. (3) Participation in Enrolment drive
15. (3) Organisation of social functions
16. (1) NCERT
17. (2) It helps in disciplining teachers
18. (3) Shall invite the child's guardian for discussion
19. (4) By appreciating the child's effort
20. (4) Shall help him to analyse the reasons for his lack of interest
21. (1) Raja .. Mehan Roy
22. (1) Three languages should be taught at school stage
23. (2) Child Psychology
24. (1) Helps in the preparation of teaching aids
25. (4) Knowledge of dance
26. (1) 5th September
27. (3) To honour the teaching community
28. (2) reinforce classroom learning
29. (2) holding discussion with children's parents
30. (2) Union HRD Minister
31. (4) वह खारे-खारे ही उस पढ़ा।
32. (3) मैं स्टेज पर पहुँच और मही बल पढ़ी।
33. (4) इस कथ के सङ्के सुशील है।
34. (2) दूर हो जाने के समान से।
35. (1) निराश्रीत
36. (2) वह बेचारा निर पढ़ा।

37. (1) ए, इ, ए, ए
38. (2) मोहन से वहों तक नहीं पता करवा।
39. (3) निरक्षरता
40. (4) खेत
41. (3) लालन
42. (3) अलक्ष्यक
43. (1) कलन
44. (1) पालन
45. (4) उन्मत्तता
46. (4) अंगुलि
47. (3) कलक के प्रकार
48. (2) अधकल पत्ती कलक कर
49. (1) कृपण पत्र का उतर शीघ्र दें।
50. (2) बहुवीरि
51. (1) कौड
52. (2) दही-बड़ा
53. (3) जो आरथी अभी-अभी बाहर गया है, क्या तुम उसे जानते हो?
54. (2) ललक - लालक
55. (4) विषय की प्रशिक्षण का उद्देश्य विचक्षणता का विस्तार विवेचन बनता है।
56. (3) नर्
57. (4) पलक
58. (1) षण
59. (3) उसका स्वर्ण अक्षर नहीं होता है।
60. (4) ऐसे में वर्षों की कई रीतिचर्चा थी।
61. (3) Neither is used for two things. For more than two things, none should be used.
62. (1) After knowing the truth will be a correct usage.
63. (2) It is time/It is high time is followed by the clause in simple past that shows present time. Hence, **decided on your next** should be used.
64. (1) was it ?
65. (1) fill
66. (2) The word **Florid (Adjective)** means : rosy; gaudy; ornate; red; having too much decoration or detail.
The word **Pale (Adjective)** means : light in colour; not strong or bright; having skin that is almost white because of illness. Hence, the words **florid** and **pale** are antonymous.
67. (3) The word **Verity (Noun)** means : a belief or principle about life that is accepted as true; truth). Hence, the words **verity** and **falsehood** are antonymous.

68. (1) The word **Perspicuity (Noun)** means : clarity.
The word **Vagueness (Noun)** means : no clarity in a person's mind.
Hence, the words **perspicuity** and **vagueness** are antonymous.
69. (4) The word **Luxuriant (Adjective)** means : growing thickly and strongly; rich in something that is pleasant or beautiful; abundant.
70. (3) The word **Cantankerous (Adjective)** means : bad tempered and always complaining.
Hence, the words **cantankerous** and **quarrelsome** are synonymous.
71. (3) The word **Onus (Noun)** means: the responsibility for something.
Look at the sentence :
The onus is on employers to follow health and safety laws.
72. (1) Phrase 'cut out' means : to have the qualities and abilities needed for something.
73. (4) No improvement
74. (3) requires a wash
75. (2) Manoeuvre
76. (2) Ineffable
77. (2) Iconoclast
78. (1) Correct spellings of other words are : commemorate, colate and chocolate.
79. (2) Correct spellings of other words are : circuitous, chivalry and cavalcade.
80. (4) Correct spellings of other words are : severity, sovereignty and superiority.
81. (2) QPSR
82. (4) SPRQ
83. (1) SRPQ
84. (3) A film, based on this novel, has been made
85. (1) I couldn't be moved to the hospital and was operated on at home by the doctor.
86. (4) Why were you deprived of your membership by him ?
87. (3) should resemble mathematical formula
88. (3) a linguist
89. (2) technical terminology
90. (3) the average man often uses in his own vocabulary what was once technical language not meant for him

91. (4) First number \times second number
 = HCF \times LCM
 $\rightarrow 24 \times$ second number
 = 8×48
 \therefore Second number
 = $\frac{8 \times 48}{24} = 16$

92. (2)

| | |
|---|----------------|
| 2 | 20, 28, 32, 35 |
| 2 | 10, 14, 16, 35 |
| 5 | 5, 7, 8, 35 |
| 7 | 1, 7, 8, 7 |
| 1 | 1, 8, 1 |

\therefore LCM = $2 \times 2 \times 5 \times 7 \times 8$
 = 1120
 \therefore Required number
 = $5834 - 1120 = 4714$

93. (3) $0 + 3 = 3$
 $3 + 5 = 8$
 $8 + 7 = 15$
 $15 + 9 = 24$
 $24 + 11 = 35$
 $35 + 13 = 48$
 $48 + 15 = 63$
 $63 + 17 = \boxed{80}$

94. (3) **Tricky approach**

If $0.5 = a$ and $0.3 = b$ then,

$$\text{Expression} = \frac{a^3 + b^3}{a^2 - ab + b^2}$$

$$= \frac{(a+b)(a^2 - ab + b^2)}{a^2 - ab + b^2} = a + b$$

$$= 0.5 + 0.3 = 0.8$$

95. (2) Expression

$$= \sqrt{\frac{0.009 \times 0.036 \times 0.016 \times 0.08}{0.002 \times 0.0008 \times 0.0002}}$$

$$= \sqrt{\frac{9 \times 36 \times 16 \times 8}{2 \times 8 \times 2}}$$

$$= 3 \times 2 \times 3 \times 2 = 36$$

96. (2) **Tricky approach**

If the first divisor is a multiple of second divisor, then the remainder in second case = remainder obtained by dividing the first remainder by the second divisor.

$$\therefore \text{Remainder} = 21 \div 19 = 2$$

97. (1) $\sqrt{0.09} = \sqrt{0.3 \times 0.3} = 0.3$

98. (3) Let the numbers be $3x$ and $4x$

$$\therefore \text{Their LCM} = 12x$$

$$\therefore 12x = 84$$

$$\Rightarrow x = \frac{84}{12} = 7$$

\therefore Larger number

$$= 4x = 4 \times 7 = 28$$

99. (2) $675 = 5 \times 5 \times 3 \times 3 \times 3$

\therefore Required number = 5

100. (2) $0.001 = \frac{1}{999}$

101. (1) $\frac{4.41 \times 0.16}{21 \times 16 \times 0.21}$

$$= \frac{441 \times 16}{21 \times 16 \times 21} = 1$$

102. (2) **Tricky approach**

If $256 = a$ and $144 = b$, then

$$\text{Expression} = \frac{a^2 - b^2}{a - b}$$

$$[a - b = 256 - 144 = 112]$$

$$= \frac{(a+b)(a-b)}{(a-b)} = a + b$$

$$= 256 + 144 = 400$$

103. (3) Marked price = Rs. 50

S.P. after discount = 80% of 50

$$= \text{Rs. } 40$$

If the CP of article be Rs. x , then

$$\frac{125 \times x}{100} = 40$$

$$\Rightarrow x = \frac{40 \times 100}{125} = \text{Rs. } 32$$

104. (2) **Tricky approach**

Required percentage

$$= \frac{50}{100 - 50} \times 100$$

$$= 100\%$$

105. (3) Required percentage

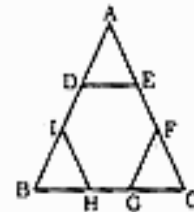
$$= \frac{114}{19} \times 100 = 60\%$$

106. (4) $\frac{A \times 60}{100} = B \times \frac{3}{4}$

$$\Rightarrow A \times \frac{3}{5} = B \times \frac{3}{4}$$

$$\Rightarrow \frac{A}{B} = \frac{3}{4} \times \frac{5}{3} = 5 : 4$$

107. (3) **Tricky approach**



Side of the regular hexagon

$$= \frac{1}{3} \times 6 = 2 \text{ cm}$$

$$\therefore \text{Area of the hexagon} = \frac{3\sqrt{3}}{2} a^2$$

$$= \frac{3\sqrt{3}}{2} \times 2 \times 2$$

$$= 6\sqrt{3} \text{ sq. cm.}$$

108. (2) **Tricky approach**

Length of the longest rod

$$= \sqrt{10^2 + 10^2 + 5^2}$$

$$= \sqrt{225} = 15 \text{ metre}$$

109. (3) **Tricky approach**

A's share

$$= \text{Rs. } \left(\frac{3}{5} \times 1000 \right) = \text{Rs. } 600$$

110. (4) Let the required number be x .

$$\therefore \frac{7+x}{11+x} = \frac{3}{4}$$

$$\Rightarrow 28 + 4x = 33 + 3x$$

$$\Rightarrow x = 33 - 28 = 5$$

111. (1) **Tricky approach**

$$A = P \left(1 + \frac{R}{100} \right)^T$$

$$2 = 1 \left(1 + \frac{\text{Rate}}{100} \right)^{15}$$

Cubing on both sides, we have

$$8 = 1 \left(1 + \frac{\text{Rate}}{100} \right)^{45}$$

Required time = 45 years

112. (3) Distance covered in 10 minutes at 20kmph = distance covered in 8 minutes at $(20 + x)$ kmph

$$\Rightarrow 20 \times \frac{10}{60}$$

$$= \frac{8}{60}(20 + x)$$

$$\Rightarrow 200 = 160 + 8x$$

$$\Rightarrow 8x = 40$$

$$\Rightarrow x = \frac{40}{8} = 5 \text{ kmph}$$

113. (2) **Tricky approach**

Circumference = $2\pi r$ (one variable)
 \therefore The decrease in area = 50%

114. (1) $A = P \left(1 + \frac{R}{100}\right)^T$

$$\Rightarrow \frac{110250}{10000} = \left(1 + \frac{r}{100}\right)^2$$

$$\Rightarrow \frac{11025}{10000} = \left(1 + \frac{r}{100}\right)^2$$

$$\Rightarrow \left(\frac{105}{100}\right)^2 = \left(1 + \frac{r}{100}\right)^2$$

$$\Rightarrow 1 + \frac{r}{100} = \frac{105}{100}$$

$$\Rightarrow \frac{r}{100} = \frac{5}{100}$$

$$\Rightarrow r = 5\%$$

115. (3) **Tricky approach**

$$1 + 2 + 3 + \dots + n$$

$$= \frac{n(n+1)}{2}$$

\therefore Average of these numbers

$$= \frac{n+1}{2}$$

\therefore Required average

$$= \frac{100+1}{2} = 50.5$$

116. (2) Father + mother

$$= 2 \times 35 = 70 \text{ years}$$

Father + mother + son

$$= 27 \times 3 = 81 \text{ years}$$

$$\therefore \text{Son's age} = 81 - 70$$

$$= 11 \text{ years}$$

117. (1) **Tricky approach**

$$(A + B)\text{'s 1 day's work} = \frac{1}{15}$$

$$B\text{'s 1 day's work} = \frac{1}{20}$$

\therefore A's 1 day's work

$$= \frac{1}{15} - \frac{1}{20} = \frac{4-3}{60} = \frac{1}{60}$$

\therefore A alone will do the work in 60 days.

118. (2) **Tricky approach**

$$\frac{4}{3} \text{ of usual time}$$

$$= \text{Usual time} + 20 \text{ minutes}$$

$$\therefore \frac{1}{3} \text{ rd of usual time}$$

$$= 20 \text{ minutes}$$

$$\therefore \text{Usual time} = 20 \times 3$$

$$= 60 \text{ minutes}$$

119. (3) (B + C)'s 2 days' work

$$= 2 \left(\frac{1}{20} + \frac{1}{30} \right) = 2 \left(\frac{3+2}{60} \right)$$

$$= \frac{1}{6} \text{ part}$$

$$\text{Remaining work} = 1 - \frac{1}{6} = \frac{5}{6} \text{ part}$$

\therefore Time taken by A to complete this part of work

$$= \frac{5}{6} \times 18 = 15 \text{ days}$$

120. (4) If the speed of the train be x kmph, then relative speed

$$= (x - 3) \text{ kmph.}$$

$$= (x - 3) \times \frac{5}{18} \text{ m/sec}$$

$$\therefore \frac{300}{(x - 3) \times \frac{5}{18}} = 33$$

$$\Rightarrow 5400 = 33 \times 5 (x - 3)$$

$$\Rightarrow 360 = 11 (x - 3)$$

$$\Rightarrow 11x - 33 = 360$$

$$\Rightarrow x = \frac{393}{11}$$

$$= 35 \frac{8}{11} \text{ kmph}$$

121. (3) Increased amount of Ultra violet radiation will reach earth's surface

122. (4) water birds

123. (2) nylon

124. (2) Oxygen and nitrous oxide

125. (4) Increased skin cancer

126. (2) contamination of groundwater

127. (3) Nitrogen

128. (2) increased agricultural productivity worldwide

129. (3) chlorofluorocarbons

130. (3) 14%

131. (3) chlorofluorocarbons

132. (4) All of the above

133. (3) greenhouse effect

134. (1) producing hydroelectric power

135. (3) point sources of pollution

136. (1) contamination by human wastes

137. (1) the oxygen demand increases

138. (4) All of the above

139. (3) DDT

140. (4) All of the above

141. (1) secondary sewage treatment

142. (1) increase in the salinity of groundwater

143. (3) slash and burn

144. (3) Radioactive substances

145. (4) boron, zinc, and manganese

146. (4) CFC 147. (4) Recycling

148. (1) biodegradable

149. (3) leather belts

150. (2) Biomagnifications