

Eighth Edition

GATE

ELECTRONICS & COMMUNICATION

General Aptitude

Vol 1 of 10

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NODIA & COMPANY

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RK Kanodia & Ashish Murolia

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To Our Parents

Preface to the Series

For almost a decade, we have been receiving tremendous responses from GATE aspirants for our earlier books: GATE Multiple Choice Questions, GATE Guide, and the GATE Cloud series. Our first book, GATE Multiple Choice Questions (MCQ), was a compilation of objective questions and solutions for all subjects of GATE Electronics & Communication Engineering in one book. The idea behind the book was that Gate aspirants who had just completed or about to finish their last semester to achieve his or her B.E/B.Tech need only to practice answering questions to crack GATE. The solutions in the book were presented in such a manner that a student needs to know fundamental concepts to understand them. We assumed that students have learned enough of the fundamentals by his or her graduation. The book was a great success, but still there were a large ratio of aspirants who needed more preparatory materials beyond just problems and solutions. This large ratio mainly included average students.

Later, we perceived that many aspirants couldn't develop a good problem solving approach in their B.E/B.Tech. Some of them lacked the fundamentals of a subject and had difficulty understanding simple solutions. Now, we have an idea to enhance our content and present two separate books for each subject: one for theory, which contains brief theory, problem solving methods, fundamental concepts, and points-to-remember. The second book is about problems, including a vast collection of problems with descriptive and step-by-step solutions that can be understood by an average student. This was the origin of *GATE Guide* (the theory book) and *GATE Cloud* (the problem bank) series: two books for each subject. *GATE Guide* and *GATE Cloud* were published in three subjects only.

Thereafter we received an immense number of emails from our readers looking for a complete study package for all subjects and a book that combines both *GATE Guide* and *GATE Cloud*. This encouraged us to present GATE Study Package (a set of 10 books: one for each subject) for GATE Electronic and Communication Engineering. Each book in this package is adequate for the purpose of qualifying GATE for an average student. Each book contains brief theory, fundamental concepts, problem solving methodology, summary of formulae, and a solved question bank. The question bank has three exercises for each chapter: 1) Theoretical MCQs, 2) Numerical MCQs, and 3) Numerical Type Questions (based on the new GATE pattern). Solutions are presented in a descriptive and step-by-step manner, which are easy to understand for all aspirants.

We believe that each book of GATE Study Package helps a student learn fundamental concepts and develop problem solving skills for a subject, which are key essentials to crack GATE. Although we have put a vigorous effort in preparing this book, some errors may have crept in. We shall appreciate and greatly acknowledge all constructive comments, criticisms, and suggestions from the users of this book. You may write to us at rajkumar.kanodia@gmail.com and ashish.murolia@gmail.com.

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We wish you good luck !
R. K. Kanodia
Ashish Murolia

SYLLABUS

GATE Electronics & Communications

Small Signal Equivalent circuits of diodes, BJTs, MOSFETs and analog CMOS. Simple diode circuits, clipping, clamping, rectifier. Biasing and bias stability of transistor and FET amplifiers. Amplifiers: single-and multi-stage, differential and operational, feedback, and power. Frequency response of amplifiers. Simple op-amp circuits. Filters. Sinusoidal oscillators; criterion for oscillation; single-transistor and op-amp configurations. Function generators and wave-shaping circuits, 555 Timers. Power supplies.

IES Electronics & Telecommunication

Transistor biasing and stabilization. Small signal analysis. Power amplifiers. Frequency response. Wide banding techniques. Feedback amplifiers. Tuned amplifiers. Oscillators. Rectifiers and power supplies. Op Amp, PLL, other linear integrated circuits and applications. Pulse shaping circuits and waveform generators.

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CHAPTER 5

ADJECTIVE

5.1 INTRODUCTION

An adjective is a word used with a noun (or a pronoun) to add something for its meaning. In the following section, we will discuss various types of adjectives and their usage.

5.2 USES OF ADJECTIVE

The adjective may be used as follows

1. Attributive usage: In attributive usage, the adjective stands next to the noun.

Example: There were **dark** clouds in the sky.

2. Predicative usage: In predicative usage, the adjectives are used as complement after linking verbs.

Example: The clouds in the sky were **dark**.

RULES

1. The adjective is correctly used with a verb when some quality of the subject, rather than of the action of the verb, is to be expressed.

Incorrect: Flowers were plucked **freshly**.

Correct: Flowers were plucked **fresh**.

2. *Due to* and *prior to* should be used as predicative adjectives. When prepositional functions are to be performed, use *because of* in place of *due to*, and *before* in place of *prior to*.

Incorrect: Wickets fell **due to** superb bowling.

Correct: Wickets fell **because of** superb bowling.

5.3 KINDS OF ADJECTIVE

In this section, we will discuss different kinds of adjective and their uses.

5.3.1 Adjective of Quality

It shows the kind of quality of a person or a thing. It is also known as descriptive adjective.

Example: He loves her soft skin.

Verbal and Oral

Verbal means of or pertaining to words. Oral means the word delivered by mouth. Its opposite is written.

Incorrect: His written statement differs from his **verbal** one.

Correct: His written statement differs from his **oral** one.

Common and Mutual

Common means shared by all concerned. If a fact is common knowledge, it means the knowledge of the fact is shared by all. Everyone knows about it. *Mutual* means in relation to each other. If you and I are mutual admirers, it means I admire you and you admire me.

Incorrect: We started smoking on the advice of a **mutual** friend.

Correct: We started smoking on the advice of a **common** friend.

5.3.2 Adjective of Quantity

It is an adjective which shows how much of a thing is meant.

Some, Any

Both of them express quantity or degree. *Some* is used in affirmative sentences. *Any* is used in negative or interrogative sentences. However, if the question is in fact a request or a command, *some* is used.

Incorrect: I shall not buy **some** rice.

Correct: I shall not buy **any** rice.

Little, a little, the little

Little has a negative meaning. It means not much or hardly any.

Example: He has **little** knowledge of politics.

The above sentence means that he hardly knows politics. It is implied that there is no sense in turning to him when it comes to politics. *A little* has a positive meaning. It means some, though not much.

Example: He has **a little** knowledge of politics.

The above sentence means though he is not thorough with politics, he does have some knowledge of the subject. You could look up to him for simple issues. *The little* means not much, but all there is.

Example: **The little** knowledge of politics that he has (possesses) has been gained through newspapers.

5.3.3 Adjective of Number

It is also known as numeral adjective, it shows how many person or things are meant, or in what order a person or thing stands.

Example: The face of a clock has **sixty** divisions.

Numeral adjective can be further classified as

1. Definite Numeral Adjective: It denotes an exact number. It may be a cardinal denoting how many; as, one, two, three, etc. It may be an ordinal denoting the order; as, first, second, third etc.

Example: It is a twenty-kilometer walk.

2. Indefinite numeral adjective: It does not denote an exact number.

Example: There are **many** petitions lying on the table.

3. Distributive numeral adjective: It refers to each one of a number. Distributive numeral adjectives are the same as distributive pronouns.

Example: **Each** time he missed the bus.

RULE

When a number together with a unit of measurement is to be used as an adjective, it is a compound word and the unit of measurement is taken in the singular.

Incorrect: It is a twenty-kilometers walk.

Correct: It is a twenty-kilometer walk.

5.3.4 Demonstrative Adjective

Demonstrative adjective points out which person or thing is meant.

Example: **This** table is made of wood.

5.3.5 Interrogative Adjective

When an interrogative pronoun is used with a noun to ask a question, it is called an interrogative adjective.

Example: **What** options are available after graduation?

5.3.6 Emphasising Adjective

Emphasising adjective is used to lay a particular emphasis on a noun.

Example: This is evident from your own words.

5.3.7 Exclamatory Adjective

Exclamatory adjective is used with a noun in exclamatory sentences.

Example: What a show!

5.4 COMPARISON OF ADJECTIVES

Adjectives change in form to show comparison. There are three degrees of comparison.

1. Positive degree: The positive degree of an adjective is the adjective in its simple form. It merely tells us of a quality of a thing but does not make any comparison.

Example: This is a small town.

2. Comparative degree: The comparative degree of an adjective denotes a higher degree of the quality than the positive, and is used when two things are compared.

Example: This town is smaller than Ludhiana.

3. Superlative Degree: The superlative degree of an adjective denotes the highest degree of the quality, and is used when more than two things are compared.

Example: This is the smallest town in India.

RULES

1. Most of the adjectives form the comparative by adding *-er* and the superlative by adding *-est* to the positive.

Example: Fast (positive)

Faster (comparative)

Fastest (superlative)

2. When the positive ends in *-e*, only *-r* and *-st* are added.

Example: Fine (positive)

Finer (comparative)

Finest (superlative)

3. When the positive ends in *-y*, preceded by a consonant, the *-y* is changed into *-i* before adding *-er* and *-est*.

Example: Dirty (positive)

Dirtier (comparative)

Dirtiest (superlative)

4. When the positive is a word of one syllable and ends in a single consonant, preceded by a short vowel, this consonant is doubled before adding *-er* and *-est*.

Example: Big (positive)

Bigger (comparative)

Biggest (superlative)

5. Adjectives of more than two syllables, and many of those with two, use the adverbs *more* and *most* respectively.

Example: Difficult

More difficult

Most difficult

6. Some of the adjectives do not go by the above rules. The list of those adjectives are given below.

Positive	Comparative	Superlative
good, well	better	best
bad, evil, ill	worse	worst
little	less, lesser	least
much	more	most
many	more	most
late	later, latter	latest, last
old	older, elder	oldest, eldest
far	farther, further	farthest, furthest
near	nearer	nearest, next
fore	former	foremost, first

Positive	Comparative	Superlative
in	inner	innermost, in-most
up	upper	uppermost, up-most
out	outer, utter	uttermost, ut-most

EXAMPLES

- EX 1 Mark Waugh scored **less** runs in this series than in the previous one.
- ANS 1 Mark Waugh scored **fewer** runs in this series than in the previous one.
Less is the comparative degree of little. We know that little is an adjective of quantity. An adjective of quantity is used with nouns which are names of measurable (not countable) things. Can runs be measured? No, they are counted. So, an adjective of number should be used. *Few* in this category corresponds to *little*. And since it is in the comparative degree, the appropriate word is *fewer*.
- EX 2 This building is taller than **any** building in this city.
- ANS 2 This building is taller than **any other** building in this city.
 In this given sentence, between which two is the comparison? This building and any building. If we think carefully, we find that any building includes this building also. This means that this building is being compared to this building. Absurd! How to set things right? We have to remove this building from the latter term of comparison in the given sentence. The relationship is mathematical as follows
 any building - this building = any other building
- EX 3 Sita is more intelligent than **all of** her sisters.
- ANS 3 Sita is more intelligent than **any of** her sisters.
 Usually, an individual is compared to another individual - not to a group, but to a representative of the group or one member of the group at a time. Sita is an individual. Her intelligence cannot be compared to the entire group - all of
- her sisters. The latter form of comparison should also be individuals.
- EX 4 The living dog is better than **the** dead lion.
- ANS 4 A living dog is better than **a** dead lion.
 Which dog? The living dog. As soon as the noun becomes qualified (here by the participle living), we except the definite article the to pop in. But note that here we are not singling out a particular living dog, it could be any living dog.
- EX 5 Cynics believe that **a few** persons are good in this world.
- ANS 5 Cynics believe that **few** persons are good in this world.
 This one is also a vocabulary test. Who is a cynic? One who thinks that people tend to act only in their own interests. He always has a low opinion of people's reasons for doing things. For him, hardly anyone is good. Now, the correct substitute for hardly anyone is few. A few, on the other hand, would mean some and if you believe some persons to be good, you have a somewhat positive approach. Then you are not a cynic.
- EX 6 Of all militant groups, Hamara Watan is the most extreme.
- ANS 6 The sentence is correct.
 It is true that in usual cases, extreme does not admit of any comparison (like round, perfect, unique etc.) But that is because it means greatest possible or furthest possible. Since it is already in the superlative, we are left with no room for comparison.

The given sentence is, however, different. When we talk of extremist groups, we see that their extremity varies in degrees—from moderately extreme to extremely extreme. Extreme in their case means going beyond the usual limits. But, once having gone beyond the usual limits, the extent to which they go varies in degrees. Hence, comparison (the use of superlative) is justified in this case.

EX 7 The intelligence tests have questions based on figures as well as **oral** ones.

ANS 7 The intelligence tests have questions based on figures as well as **verbal** ones.

The intelligence tests have two types of questions—one based on figures, the other on words. Those questions based on words are known as *verbal* (not *oral*, which means of mouth) ones. Those based on figures are not based on words and are therefore called non-verbal.

EX 8 **Footballer** in him could not resist itself as soon as a ball came into sight.

ANS 8 **The footballer** in him could not resist itself as soon as a ball came into sight.

Here, footballer stands for the qualities of the footballer. The rule says that the definite article is used before a common noun to give it the meaning of an abstract noun.

EX 9 **Lok Sabha** passed the bill today.

ANS 9 **The Lok Sabha** passed the bill today.

Lok Sabha is the Indian version of the House of Commons. Note the use of *the* in the last sentence. Now, House of Commons could have been a common noun. But a capital *H* and a capital *C* ensure that it is the lower house of the Parliament and no other house of commons. So, *the* is used. Similarly, the United States of America (USA, now more popular as US).

EX 10 Nehru made a famous speech on the **historical** occasion of independence.

ANS 10 Nehru made a famous speech on the **historic** occasion of independence.

Historical means connected with history as a study. For example, you conduct historical research. It also means based on or representing events in the past. You might have read a historical play or a historical novel. But anything that is likely to have an influence on history is historic, not historical. Now, Independence was one such occasion.

VERBAL ABILITY

CHAPTER 5

SPOTTING THE ERRORS

Directions For Q.1 to 10:

Each of these questions has four parts. Identify the part which is not correct.

- 5.1 Even after hearing the leader (A)/ for a long time (B)/ the followers could not make out (C)/ which he was talking about. (D)
- 5.2 The principal along with the teachers (A)/ were seen boarding a bus (B)/ to go to a picnic (C)/ on a national holiday (D).
- 5.3 Lost in thought, (A)/ with a vacant look in his eyes, (B)/ he laid (C)/ on the couch. (D)
- 5.4 He would (A)/ never have taken the job if he had been knowing (B)/ what great demands it would make (C)/ on his time. (D)
- 5.5 Smoking is not allowed at petrol pumps because there is (A)/ too many (B)/ easily ignited (C)/ material in the vicinity. (D)
- 5.6 Hard work and self-discipline often result (A)/ in a rise (B)/ not only in one's (C)/ salary but also in your self-esteem. (D)
- 5.7 Studying the science of (A)/ logic is one way to (B)/ cultivate one's reason (C)/ skills. (D)
- 5.8 The water flows at (A)/ about 2.5 m per second for about 12 hours when the tide is rising (B)/ through the channel, paused (C)/ at high tide and then reverses direction. (D)
- 5.9 Many animals and plants live in water (A)/ but not in the same kind of water (B)/ because not all water is the same. (C)/ Sea water, for instance, contains a lot of salt, fresh water contains very little. (D)
- 5.10 The book is well-printed (A)/ and attractively bound (B)/ making altogether (C)/ an attractive volume. (D)

Directions For Q. 11 to 130:

Read each sentence to find out whether there is any error in it. The error, if any, will be in one part of the sentence. Mark the number of that part with error as your answer. If there is no error, mark (D). (Ignore errors of punctuation, if any.)

- 5.11 The car flew off the road (A)/ and fell into the valley (B)/ because Amit was driving faster. (C)/ No error (D)
- 5.12 Yuvanika is one (A)/ of the latest (B)/ addition to good drama which appeared in recent times. (C)/ No error (D)
- 5.13 I will always remember (A)/ you standing by me (B)/ and offering me encouragement. (C)/ No error (D)
- 5.14 As soon as the sun rose (A)/ over the mountains (B)/ the valley became unbearable hot. (C)/ No error (D)
- 5.15 The clothes were neatly (A)/ hanged (B)/ on the cloth line. (C)/ No error (D)
- 5.16 You will be rady (A)/ to start while (B)/ he comes. (C)/ No error (D)
- 5.17 Hardly I stepped (A)/ out of my house when I saw some policemen (B)/ coming towards my house. (C)/ No error (D)

- 5.18 Swati has such a fine memory that she can (A)/ recollect anything what (B)/ happened many years ago. (C)/ No error (D)
- 5.19 The officer along with (A)/ his family members were (B)/ invited at the reception party organised by his employer. (C)/ No error (D)
- 5.20 A nationwide survey has (A)/ brought up an (B)/ interesting finding regarding infant mortality rate in India. (C)/ No error (D)
- 5.21 When your father inquired (A)/ about your marks you lied to him, (B)/ have you not? (C)/ No error (D)
- 5.22 Simplest solution (A)/ than this expensive method which you are suggesting (B)/ should be found out. (C)/ No error (D)
- 5.23 When he went out he left the radio on (A)/ so that his parents shall think (B)/ that he was still in the house. (C)/ No error (D)
- 5.24 We admired the way he had completed all his work (A)/ and appreciating the method (B)/ adopted by him. (C)/ No error (D)
- 5.25 Even after worked in the office (A)/ for as many as fifteen years, he still does not understand (B)/ the basic objectives of the work. (C)/ No error (D)
- 5.26 He is so realist and so practical that he thinks (A)/ imaginary things should (B)/ not place even in poetry. (C)/ No Error (D)
- 5.27 No method of making (A)/ other people agree to your view-point is (B)/ as effective as this method. (C)/ No error (D).
- 5.28 If we had Mohan (A)/ in our team we (B)/ would have won the match against your team. (C)/ No error (D).
- 5.29 Neither the size nor the colour (A)/ of clothes which I purchased for him (B)/ yesterday were right. (C)/ No error (D)
- 5.30 My daughter never (A)/ would write to me (B)/ so I never know what she is doing. (C)/ No error (D)
- 5.31 The manager with (A)/ his wife and two sons were (B)/ killed by bandits mercilessly in a broad day light. (C)/ No error (D).
- 5.32 As I reached the hospital (A)/ I had found a great rush of visitors (B)/ whose relatives had been admitted there for one or the other ailment. (C)/ No error (D)
- 5.33 As he went through the forest Ram marked the trees (A)/ to let the rest of the party knew (B)/ which way he had gone. (C)/ No error (D)
- 5.34 He thinks that (A)/ once he paid money (B)/ he is relieved of all his responsibilities. (C)/ No Error (D)
- 5.35 Now a days (A)/ the accidents of diabetes (B)/ among urban children is one the rise. (C)/ No error (D)
- 5.36 The instructions clearly state that (A)/ each item is having (B)/ two options. (C)/ No error (D)
- 5.37 Hritik along with his family (A)/ are visiting (B)/ the Prince of Wales museum day after tomorrow. (C)/ No error (D)
- 5.38 You have to remove (A)/ the fish scales before (B)/ you fry them. (C)/ No error (D)
- 5.39 He carried his clothes (A)/ in a black heavy (B)/ steel trunk. (C)/ No error (D).
- 5.40 The man who is perpetually hesitating (A)/ which of the two things (B)/ he will do first, will ultimately do either. (C)/ No error (D)
- 5.41 The demand of the Citizen's Forum that the prices of essential (A)/ commodities to lower down will (B)/ soon be considered by the Government. (C)/ No error (D)

Sample Chapter of Communication System (Vol-9, GATE Study Package)

CHAPTER 5

SPOTTING THE ERRORS

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- 5.42 He was having a bath when the phone rang (A)/ very unwillingly he got out of the bath (B)/ and went to answer it. (C)/ No error (D)
- 5.43 The customer scarcely had (A)/ enough money to pay (B)/ to the cashier at the cash counter. (C)/ No error (D)
- 5.44 I am contacting you (A)/ some time in next week (B)/ to explain to you my problem in detail. (C)/ No Error (D)
- 5.45 Our teeming masses, nevertheless illiterate they may be, (A)/ have a very high sense of consciousness (B)/ and they are fully capable of exercising their franchise. (C)/ No error (D)
- 5.46 People are worried more because of the frequency (A)/ of occurrence of the crime rather (B)/ than the magnitude of each one. (C)/ No error (D)
- 5.47 A gang of armed thieves has (A)/ raided (B)/ the house of Mr Gupta late last night (C)/ No error (D)
- 5.48 That is one of (A)/ the books (B)/ that is listed in the catalogue (C)/ No error (D)
- 5.49 Everyone is expected to attend (A)/ the staff meeting today, but (B)/ the sales manager and I. (C)/ No error (D)
- 5.50 Many people in Bangladesh don't scarcely (A)/ know about the hardships that the (B)/ Chakma refugees are experiencing. (C)/ No error (D)
- 5.51 Due to (A)/ the trucker's strike, the vegetable vendors were doing about half of (B)/ the business that they were doing before. (C)/ No error (D)
- 5.52 Between you and I (A)/, I am convinced that this painting by Neetu shows greater (B)/ artistry than that of Reshma. (C)/ No error (D)
- 5.53 The company is planning a training (A)/ programme for their (B)/ senior officers sometime in December. (C)/ No error (D)
- 5.54 There was only (A)/ a loaf of bread and two bottles of milk in the refrigerator when (B)/ we came back after a weekend in Manali. (C)/ No error (D)
- 5.55 Tonsillitis is (A)/ among those (B)/ disease that is curable. (C)/ No error (D)
- 5.56 We think him as (A)/ a (B)/ silly boy. (C)/ No error (D)
- 5.57 Health is (A)/ more (B)/ preferable to wealth. (C)/No error (D)
- 5.58 The Chief Minister, Mr. Charan Singh, with his (A)/ Cabinet colleagues, were (B)/ warmly received at the (C)/ No error (D)
- 5.59 Satyajit Ray was one of the (A)/ greatest film directors (B)/ that has ever lived. (C)/ No error (D)
- 5.60 Neither the carpenters nor the (A)/ plumber have (B)/ finished the work. (C)/ No error (D)
- 5.61 Either the Head office nor (A)/ the branch offices close (B)/ at 5.00 p.m. (C)/ No error (D)
- 5.62 A few of the windows (A)/ in the main hall was broken (B)/ by the demonstrators. (C)/ No error (D)
- 5.63 Every book and every (A)/ magazine have (B)/ been entered in the record register. (C)/ No error (D)
- 5.64 Sanjay bought (A)/ the suit before (B)/ he met Neetu. (C)/ No error (D)
- 5.65 I enjoyed (A)/ during my (B)/ stay in England. (C)/ No error (D)
- 5.66 I believe that respect (A)/ is more preferable than (B)/money. (C)/ No error (D)
- 5.67 I never have visited (A)/ or intend to visit (B)/ foreign countries. (C)/ No error (D)

- 5.68 John's salary (A)/ is much larger than (B)/ Tom. (C)/ No error (D)
- 5.69 Ramesh helped (A)/ not only me (B)/ but also my brother when he was in need. (C)/ No error (D)
- 5.70 The English defeated (A)/ French (B)/ in the battle of Waterloo. (C)/ No error (D)
- 5.71 The three last chapters (A)/ of this book (B)/ are very interesting (C)/ No error (D)
- 5.72 In summer days are (A)/ warm than (B)/ nights. (C)/ No error (D)
- 5.73 He is (A)/ the strongest and very tall (B)/ boy in the whole college. (C)/ No error (D)
- 5.74 I was born (A)/ on the August 3, 1947 (B)/ in Bihar. (C)/ No error (D)
- 5.75 We should always (A)/ side with those who are true and unselfish (B)/ and work for other. (C)/ No error (D)
- 5.76 His manners indicate that he has no other intention (A)/ than (B)/ to steal his money. (C)/ No error (D)
- 5.77 Page after page (A)/ of Gita were read (B)/ and it gave great consolation to his mind. (C)/ No error (D)
- 5.78 The short story should not exceed (A)/ more than (B)/ two hundred words. (C)/ No error (D)
- 5.79 Our teacher often emphasises on (A)/ the need for (B)/ a lot of oral practice. (C)/ No error (D)
- 5.80 There was (A)/ a number of conferences which produced little (B)/ of practical value (C)/ No error (D)
- 5.81 There was no play (A)/ on the fourth day of the test match (B)/ due to the heavy rain (C)/ No error (D)
- 5.82 In spite of the late hour (A)/ and the bad weather (B)/ Naveen decided to brave it out and drink at bar. (C)/ No error (D)
- 5.83 Hari was unhappy (A)/ that he would (B)/ not attend the marriage of his friend yesterday. (C)/ No error (D)
- 5.84 While going to his office yesterday (A)/ Bhola remembered that (B)/ he had not taken one important office file. (C)/ No error (D)
- 5.85 He was extremely annoyed (A)/ when I reported the matter to him (B)/ and has fired me. (C)/ No error (D)
- 5.86 The director, along with the staff members (A)/ were present for (B)/ the annual day celebrations. (C)/ No error (D)
- 5.87 It is our duty (A)/ to put off our shoes (B)/ before entering the sanctum sanctorum of any temple or mosque. (C)/ No error (D)
- 5.88 Raman was one of those great sons of India (A)/ who has earned everlasting fame (B)/ for scientific researches. (C)/ No error (D)
- 5.89 The taxi was (A)/ hired by the ladies for (B)/ its picnic. (C)/ No error (D)
- 5.90 His ability to talk to strangers (A)/ is one of his (B)/ stronger points. (C)/ No error (D)
- 5.91 I have hunted and (A)/ shot myself (B)/ so I know what it is like. (C)/ No Error (D)
- 5.92 Priyamvada was unhappy to hear the news (A)/ of her son's failing (B)/ in the final examination. (C)/ No error (D)
- 5.93 Have you read (A)/ this book (B)/ farther than I ? (C)/ No error (D)
- 5.94 The production of different kinds of artificial materials (A)/ are essential to the conservation of (B)/ our natural resources. (C)/ No error (D)

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CHAPTER 5

SPOTTING THE ERRORS

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- 5.95 The disclosure of the synopsis of (A)/ the Thakkar Commission Report (B)/ on the assassination of Mrs. Gandhi has raised several vital question. (C)/ No error (D)
- 5.96 Do you really believe (A)/ that she has blamed us (B)/ for the accident, especially you and I ? (C)/ No error (D)
- 5.97 Two men have been arrested (A)/ by the police who are believed (B)/ to be involved in the robbery. (C)/ No error (D)
- 5.98 The manager tested (A)/ the peon to see (B)/ if he could read English. (C)/ No error (D)
- 5.99 But for his cousin's help (A)/ he would have been (B)/ at the height of his career. (C)/ No error (D)
- 5.100 Soon after their child was born (A)/ he went off (B)/ leaving her in the lurch. (C)/ No error (D)
- 5.101 Hardly had we settled down for the night's rest (A)/ when we were started by (B)/ loud noises outside the house. (C)/ No error (D)
- 5.102 No sooner did (A)/ the train arrived at the station (B)/ than the passengers rushed towards it. (C)/ No error (D)
- 5.103 None of the rooms (A)/ are available (B)/ for occupation at present. (C)/ No error (D)
- 5.104 Sumitra appealed to the managing committee (A)/ that she may be (B)/ allowed to join the volunteer force. (C)/ No error (D)
- 5.105 The company has ordered (A)/some (B)/new equipments (C)/ No error (D)
- 5.106 The Arabian Nights (A)/ arc indeed (B)/ an interesting book. (C)/ No error (D)
- 5.107 He (A)/ loved her (B)/ despite of himself. (C)/ No error (D)
- 5.108 Of all the models (A)/ Sessica is (B)/ the more good-looking on. (C)/ No error (D)
- 5.109 The discreet enquiry revealed that his involvement in (A)/ the fraud cases have been (B)/ more than what was first guessed. (C)/ No error (D)
- 5.110 I know nothing about chess because (A)/ my games teacher also (B)/ was not knowing nothing about it. (C)/ No error (D)
- 5.111 I asked the salesman if I could exchange (A)/ the faulty camera (B)/ with another one. (C)/ No error (D)
- 5.112 It took me (A)/ almost a hour (B)/ to fill the application form. (C)/ No error (D)
- 5.113 He is neither in favour of arms race (A)/ or in favour of (B)/ simple nuclear disarmament. (C)/ No error (D)
- 5.114 I was surprised to find that the computer was out of order (A)/ and enquired if any one of them (B)/ have used it recently. (C)/ No error (D)
- 5.115 If your mother (A)/ will come again, (B)/ I shall report against you. (C)/ No error (D)
- 5.116 The recent study has (A)/ indicated that there is a perceptible change in (B)/ the attitude of the people. (C)/ No error (D)
- 5.117 As it was Rajan's (A)/ first interview, he dressed him (B)/ in his most formal suit. (C)/ No error (D)
- 5.118 I shall go to Australia (A)/ for higher studies (B)/ if you like it or not. (C)/ No error (D)
- 5.119 They never thought (A)/ that Raja was oldest than other (B)/ professors in the faculty. (C)/ No error (D)
- 5.120 The reason why (A)/ he was rejected (B)/ was because he was too young. (C)/ No error (D)
- 5.121 Now that she is living in her own flat, (A)/ she

cleans the windows (B)/twice a week in the summer and once a week in the winter. (C)/ No error (D)

5.122 As he had taken only a few sips (A)/ there was still little water (B)/ left in the glass. (C)/ No error (D)

5.123 If a man diligently seeks to come into the contact (A)/ with the best that has been thought and said in this world, (B)/ he will become simple and selfless. (C)/ No error (D)

5.124 May I (A)/ know who you want (B)/ to see please. (C)/ No error (D)

5.125 Being a very (A)/ hot day, I (B)/ remained indoors. (C)/ No error (D)

5.126 No sooner did I open the door (A)/ when the rain, heavy and stormy, rushed in, (B)/ making us shiver from head to foot. (C)/ No error (D)

5.127 He (A)/ came across (B)/ with a beggar. (C)/ No error (D)

5.128 It was time that (A)/ you started (B)/ working. (C)/ No error (D)

5.129 The wheat (A)/ this year is (B)/ finer than last year. (C)/ No error (D)

5.130 I am pleased to sanction one special increment (A)/ to all the employees (B)/ with this month. (C)/ No error (D)

Directions For Q. 131 to 134:

In each of these questions, one sentence has been split into four parts. There is an error in one part. Identify the part having the error.

5.131 (A) During the last centuries
(B) whaling voyages departed regularly from the New England states
(C) and because each voyage normally extends for years
(D) the hold was packed with supplies before a

whaling ship set sail.

5.132 (A) Because they refuse to follow the conventional dress code
(B) neither Shivam
(C) nor her friends
(D) is invited to the local society function

5.133 (A) A very miserly
(B) farmer who lived
(C) with his wife
(D) in the Jamaican islands

5.134 (A) The moment they came to know
(B) that their leader
(C) was issued a charge sheet
(D) the entire groups of workers went on a strike

Directions For Q. 135 to 140:

In each of the following questions four sentences are given which are on the same theme. Decide which sentence is the most preferable with respect to grammar, meaning and usage, suitable for a formal letter or report or any formal writing in English and mark the number of that sentence on the answer sheet.

5.135 (A) If XAT aspirants had not taken so long checking each question before attempting the next question they might not have run out of time.
(B) If XAT aspirants had taken so long checking each question before attempting the next question they might not have run out of time.
(C) Had XAT aspirants not took so long checking every question before attempting the next question they might not have run out of time.
(D) Had XAT aspirants not taken so long checking all questions before attempting the next question they might not have run out of time.

5.136 (A) If you would have told me that you were in Bombay I would have certainly contacted you instead of getting bored there.
(B) If you would have told me that you were in Bombay I had certainly contacted you to

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instead of getting bored there.

(C) If you had told me that you were in Bombay I would have certainly contacted you instead of getting bored there.

(D) If you had told me that you were in Bombay I would have certainly contacted you despite getting bored there.

5.137 (A) The receptionist must answer courteously the questions of all them callers.

(B) The receptionist must answer courteously the question what are asked by the callers.

(C) There would have been no trouble if the receptionist have always answered courteously.

(D) The receptionist should answer courteously the questions of all callers.

5.138 (A) The supervisors reprimanded the typist whom he believed had made careless errors.

(B) The typists would have corrected the errors had they of known that the supervisors would see the report.

(C) Many errors were found in the report which they typed and could not disregarded them.

(D) The errors in the typed reports were so numerous that they could hardly be overlooked.

5.139 (A) Since the report lacked needed information it was of no use to them.

(B) The report was useless to them because there were no needed information in it.

(C) Since the report did not contain the needed information, it was not real useful to them.

(D) Being that the report lacked the needed information, they could not use it.

5.140 (A) The company had hardly declared the dividend till the notices were prepared for mailing.

(B) No sooner had the dividend been declared than the notices were prepared for mailing.

(C) They had no sooner declared the dividend when they sent the notices to the stockholders.

(D) Scarcely had the dividend been declared than the notice were sent out.

Directions For Q. 141 to 155:

In these questions, the words or phrases underlined may be incorrectly used. Identify the word or phrase that has an error. The letter indicated against it would be the answer.

5.141 His assistants have (A)/ and are still (B)/ doing excellent (C)/ work for the (D)/ organization.

5.142 There is something more in the (A)/ fact that the (B)/ guns have (C)/ or are about (D)/ to be sent abroad.

5.143 The (A)/ deceased lord along with (B)/ his brother started a (C)/ business in India. (D)

5.144 He relieved (A)/ the monotony of book peddling (B)/ by becoming (C)/ an assistant to a conjuror or to other (D)/ similar engagements.

5.145 The entire (A)/ party is for the (B)/ Bill ready to (C)/ stake their (D)/ political existence.

5.146 He has suffered (A)/ from a similar (B)/ attack but milder as (C)/ that (D)/ of last year.

5.147 Such starling (A)/ never (B)/ have neither (C)/ can and never will be (D)/ offered again.

5.148 For (A)/ this delightful (B)/ excursion it was felt by the members (C)/ that it was due to (D)/ the secretary.

5.149 Most of the critics, (A)/ all over the world, agree (B)/ that this is one (C)/ of the most interesting novels that has (D)/ recently appeared.

5.150 He always (A)/ practices (B)/ the (C)/ justice and cares (D)/ for moral principles.

NOTE :

An abstract noun, when it is qualified by an adjective or an adjectival phrase or clause may have the article; as *the wisdom of Solomon is famous*.

5.151 Some one had said that the English excelled (A)/ all other nations, the Dutch being avaracious,

(B)/ the French, a set of (C)/ sycophants, the Germans drunk and gluttonous and the Spaniards were proud and insolvent. (D)

5.152 I hope you will excuse me (A)/ leaving early, (B)/ as (C)/ I have to attend to (D)/ a patient.

5.153 Such goods (A)/ are made for export, (B)/ and are seldom or ever (C)/ used in (D)/ the country.

5.154 The wise people, who (A)/ are very few (B)/ in our country, they think (C)/ before they act. (D)

5.155 You cannot skip it over; (A)/ it is only a (B)/ part and parcel (C)/ of the ceremony. (D)

Directions For Q. 156 to 159:

Given below are sentences that may or may not have errors. Mark (A) if there is only one error. Mark (B) if there are two errors. Mark (C) if there are three errors. Mark (D) if there are no errors.

5.156 She still is in bed despite I've tried to awake her.

5.157 I have no objection to hear your story again.

5.158 You should have told to me about it early so that I should have talked to the relevant authorities and sort out the issue.

5.159 Which of the following sentences is not correct ?
(A) For years now, pitches have been prepared to suit the home team's strengths and that is fine so long as the pitch is not a lottery.

(B) It is here that BCCI needs to show the same will, as they have shown in making players play domestic cricket.

(C) The only problem is that the wickets that are on offer for domestic cricket are hardly conducive for batsman.

(D) If one goes by the scores in some of the matches, especially Delhi's games, then it is quite obvious that the pitches prepared are substandard and not conducive to a fair contest between bat and ball.

SOLUTIONS

- 5.1 Correct option is (D).
Replace *which* with *what*.
- 5.2 Correct option is (B).
Replace *were* with *was*. When two nouns are joined by *along with*, verb agrees with the first noun.
- 5.3 Correct option is (C).
Lay (laid, laid) means to put something in a definite position; to put oneself flat means lie (lay, lain); so lay. Lie (lied, lied) has another meaning which is to speak false.
- 5.4 Correct option is (B).
In past conditional after *if past perfect follows*; so *had known*.
- 5.5 Correct option is (B).
Subject is *material* and it has been treated here as uncountable and singular (there is). That's why, it should be *too much*. We cannot make material plural putting *s* because then we will have to change *b* as *there are* and then there will be mistakes in both of them.
- 5.6 Correct option is (C).
Since *your* cannot be changed as it is not underlined we will have to change *one's* to make the pronouns similar; so *your*.
- 5.7 Correct option is (C).
Before *skills* an adjective is required; *reason* is a noun; so *reasoning*.
- 5.8 Correct option is (C).
For a natural action present indefinite is used; so *pauses* (*is rising* is o.k. because it denotes a point of time).
- 5.9 Correct option is (D).
Because the last sentence contains two individual sentences, use a conjunction (either *and* or *while*) before *fresh water* to combine both sentences.
- 5.10 Correct option is (C).
The object of *making* is missing which gives a misleading meaning; so it should be *making it altogether*.
- 5.11 Correct option is (C).
Replace *faster* with *fast* because there is no comparison.
- 5.12 Correct option is (C).
Replace *addition* with *additions*. After one of the noun is in plural form.
- 5.13 Correct option is (B).
Replace *you* with *your*. Before gerund.
- 5.14 Correct option is (C).
Replace *unbearable* with *unbearably* because to qualify an adjective (hot) adverb is needed.
- 5.15 Correct option is (B).
Replace *hanged* with *hung*. Hang-Hanged-Hanged (to award death punishment), Hand-Hung-Hung (to keep suspending from something).
- 5.16 Correct option is (B).
With present indefinite (here *he comes*) *while* cannot be used (*while* in continuous); so either *when* or *by the time*.

- 5.17 Correct option is (A).
Rewrite the part as *Hardly did I step*. (Rule of inversion - auxiliary verb will come before the subject.)
- 5.18 Correct option is (B).
Replace *what* with *that*. (After anything, everything etc. only *that* can be used as relative pronoun).
- 5.19 Correct option is (B).
Replace *were* with *was*. (The noun coming before *along with* is the subject of the sentence.)
- 5.20 Correct option is (B).
Replace *up* with *out*. (Bring up = to look after, Bring out = to publish).
- 5.21 Correct option is (C).
Replace *have you not* with *didn't you*. (In question tag auxiliary verb of the main sentence is used.)
- 5.22 Correct option is (A).
than indicates that the sentence is in comparative.
Replace *simplest* with *simpler*
- 5.23 Correct option is (B).
Replace *shall* with *should* because the sentence is in past.
- 5.24 Correct option is (B).
Replace *appreciating* with *appreciated*. (The verb coming after *and* or *but* takes the same form as its counterpart before *and* or *but* (admired))
- 5.25 Correct option is (A).
Replace *worked* with *working*. (After preposition the verb is in gerund i.e. V⁴ form)
- 5.26 Correct option is (C).
Place should be in passive form- *be placed* or *have no place*.
- 5.27 Correct option is (A).
Use *other* after *no*. In positive and comparative degree, if the subject is part of the group to which it is compared (here *this method* is compared with other methods), after *no*, *every*, *all* etc. use of *other* is must.
- 5.28 Correct option is (D).
Past conditional, so the first sentence should have been *If + s + had + v³* (had had). But in the meaning of possession *has / have /had* is not used in perfect structure.
- 5.29 Correct option is (C).
Replace *were* with *was*. The verb is used according to the noun coming after or/nor.
- 5.30 Correct option is (B).
Replace *would write* with *writes* because the sentence indicates a general condition of present.
- 5.31 Correct option is (B).
Replace *were* with *was*. When two nouns are joined by *with*, the noun coming before *with* is the subject of the sentence and verb follows it.
- 5.32 Correct option is (B).
Replace *had found* with *found*. To denote an incident in the past, past indefinite is used.
- 5.33 Correct option is (B).
Replace *knew* with *know*. The verb coming after *let* is always in v¹ form.
- 5.34 Correct option is (B).
Replace *paid* with *pays*. Representing a normal thinking present indefinite should be preferred.
- 5.35 Correct option is (B).
Accident is irrelevant in terms of meaning here. Proper will be to use *incidence* i.e. the number of times something bad occurs.

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- 5.36 Correct option is (B).
Replace *is having* with *has*. In the meaning of containing or possession, *has* is not used in continuous form.
- 5.37 Correct option is (B).
Replace *are* with *is*. When two nouns are combined with *along with* the verb agrees with the first noun. (*Hritik* here).
- 5.38 Correct option is (B).
Them indicates that its antecedent is *fish* and should be in plural. so rewrite it *fishes scales*.
- 5.39 Correct option (B).
Rewrite the part as *heavy black* to ensure proper word agreement.
- 5.40 Correct option is (C).
Replace *either* with *neither*. The sentence should be negative in meaning.
- 5.41 Correct option is (B).
Replace *to lower down* with *be lowered down*. (*that* is conjunction here and so after this a complete sentence should come. So infinitive (to lower) should be given a principle verb form)
- 5.42 Correct option is (B).
Use *and* after *rang* because a different sentence is to be combined.
- 5.43 Correct option is (B).
Replace *enough* with *any* because *scarcely* is negative and in negative *any* is used.
- 5.44 Correct option is (B).
Remove *in*. When before a time denoting word an adjective comes (next + week), it takes no preposition.
- 5.45 Correct option is (A).
Replace *nevertheless* with *though*. *Nevertheless* means *even then* whereas here a word meaning *even if* is required.
- 5.46 Correct option is (C).
Comparison should be in equal things. If after *more because of* has come, after *than* also *because of* should be there. Rewrite the part as *than because of its magnitude*.
- 5.47 Correct option is (B).
A gang of armed thieves raided the....
The use of past tense (raided)-not present perfect tense (has raided)- is necessary because the sentence has a specific time reference (last night).
- 5.48 Correct option is (C)
...the books that are listed....
That refers to books, plural noun, and, therefore, the verb must be plural (are, and not is).
- 5.49 Correct option is (C)
...But the sales manager and me.
The preposition *but* is understood before *me*. Since *me* is the object of the preposition *but*, it has an objective form (me), not a nominative form.
- 5.50 Correct option is (A)
Many people in Bangladesh scarcely know....
The word *scarcely* is sufficiently negative to express the meaning of the sentence. The word *don't* should be omitted.
- 5.51 Correct option is (A)
Because of the....doing before.
Do not begin a sentence with the words *due to*. *Due to* is an adjective, which must have a noun to modify.
- 5.52 Correct answer is (A)
Between you and me,.....
The object of the preposition *between* must be an objective case form (me and not I).

- 5.53 Correct option is (B)
...training programme for its...
 A singular pronoun-adjective (its, not their) must be used to refer to a collective noun (company) when the members of the collective noun are considered a unit.
- 5.54 Correct option is (A)
There were only...
 The subject of the sentence is plural (a bread and bottles)
 Therefore, the verb must be plural (were, not was). Here the word there is not the subject.
- 5.55 Correct option is (C)
 are curable
 A relative pronoun (that, who, which) used as a subject takes on a singular or plural verb to accord with its antecedent Here that is referring to diseases that *are curable*.
- 5.56 Correct option is (C)
We think him a silly boy; Verbs like consider, think, call etc. are not followed by *as*
- 5.57 Correct option is (B)
Health is preferable to wealth. The adjective of comparative degree like senior, junior, prefer, superior are always followed by *to* instead of *than*
- 5.58 Correct option is (B)
.....were warmly... should be replaced by *...was warmly...* when a singular subject is attached to a phrase introduced by *with* or *as well as* the verb is always singular.
- 5.59 Correct option is (C)
....has ever lived should be replaced by *have ever lived*. In this sentence, the subject of *as ever lived* is *that*. It is plural because its antecedents *directors* are plural. A relative pronoun agrees in number with its antecedent
- 5.60 Correct option is (B)
.....have finished... to be replaced by *.....has finished...* when one singular and one plural subjects are joined by *or* and *nor* the subject closer to the verb determines the number of the verb.
- 5.61 Correct option is (D)
 No error, The subject *branch offices* is plural and the verb *close* is also plural here.
- 5.62 Correct option is (B)
.....was broken... should be changed to *.....were broken.....*. Some infinite pronouns like *a few*, *many*, *several* etc. are always plural and take plural verb.
- 5.63 Correct option is (B)
has been entered,: If the subject consists of two or more singular nouns connected by *and* and presided by *each* or *every*, the verb is in singular.
- 5.64 Correct option is (A)
had bought : Past perfect tense indicates that an event had taken place before another event in the past. The suit was purchased before meeting Neetu.
- 5.65 Correct option is (A).
I enjoyed myself in place of *I enjoyed*. Some verbs take reflexive pronouns after them. See Rule 12.
- 5.66 Correct option is (B).
Preferable to in place of *more preferable than*. *Preferable* is a word indicating a comparative sense and thus *more* is superfluous. Secondly, *prefer* is followed by *to*.
- 5.67 Correct option is (B).
Nor in place of *or*. *Nor* is used after *neither*.
- 5.68 Correct option is (C).
That of Tom in place *Tom*. See Rule 27.

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- 5.69 Correct option is (D).
No Error
- 5.70 Correct option is (B).
The French in place of *French*. *The French* means *the French people*.
- 5.71 Correct option is (A).
The last three in place of *The three last*. Explained earlier. See Rule 35.
- 5.72 Correct option is (B).
Warmer; in place of *warm*. Here the sentence is in the comparative degree and thus *warmer* is appropriate.
- 5.73 Correct option is (B).
The stronger and tallest in place of *very tall*. A word showing superlative degree should not be joined by a word showing comparative or the assertive degree. Both qualifiers must be of the same degree.
- 5.74 Correct option is (B).
On 3rd August in place of *the 3rd August*. When the letter or the number form is used, the article is not required. When it is in the word form, the article will be used.
Thus we can say *3rd August* and *the third August*.
- 5.75 Correct option is (C).
Who work for others in place of *work for others*. One form of the verb pattern should be used with one subject. If the verb pattern changes the subject must be mentioned. Here the subject is *those who* and the verb is *are*. It is an auxiliary verb. But, in the next clause, the verb is main verb or action verb. Thus there must be a subject.
- 5.76 Correct option is (B).
But in the place of *than*.
- 5.77 Correct option is (B).
The Gita was in place of *Gita were*.
- 5.78 Correct option is (B).
More than should be deleted. Double comparatives are to be avoided. *Exceed* is sufficient.
- 5.79 Correct option is (B).
Of in place of *for*. Here the correct preposition will be *of*.
- 5.80 Correct option is (A).
There were in place of *there was*.
- 5.81 Correct option is (B).
Because of in place of *due to*. *Due to* always takes an abstract noun after it.
- 5.82 Correct option is (A).
Despite in place of *in spite of*. The meaning of *in spite of* is not appropriate here.
- 5.83 Correct option is (B).
That he could in place of *that he would*. See the Rules of tense.
- 5.84 Correct option is (A).
While he was going to his office in place of *while going to his office*. In sentences beginning with *while*, *when*, *this*, *it*, or similar conjunctions, you should be careful to see that the meaning is clear. There should be no confusion in the first part.
- 5.85 Correct option is (C).
And fired him in place of *and has fired me*. The reporting verb is in the past tense and thus other clauses must be in the past tense.
- 5.86 Correct option is (B).
Was present in place of *were present*. In the case of *along with*, the verb is in accordance with the first object.
- 5.87 Correct option is (B).
Pull off in place of *put off*.

- 5.88 Correct option is (B).
who have in place of *who has*. *Who* has been used here for *sons* and as this is plural, the verb should also be in accordance with that.
- 5.89 Correct option is (C).
Their in place of *its*. The pronoun must be in accordance with *ladies*.
- 5.90 Correct option is (C).
Strong points in place of *stronger points*. No need of the comparative degree. See Rules of degree.
- 5.91 Correct option is (B).
Myself is unwanted. It confuses the meaning.
- 5.92 Correct option is (B).
Son failing in place of *son's failing*. The use of the apostrophe is not required here.
- 5.93 Correct option is (C).
Further in place of *Farther*. *Farther* is used to denote a sense of distance and *further* is used to indicate more.
- 5.94 Correct option is (B).
Is essential in place of *are essential*. The subject is production, not materials. As the subject is singular, the verb will be singular. Be careful about the subject-verb accord.
- 5.95 Correct option is (C).
Vital questions in place of *vital question*.
- 5.96 Correct option is (C).
You and me in place of *you and I*,
- 5.97 Correct option is (B).
Here the words *who are* create confusion. It is not clear whether the words are for the police or for the men who have been arrested. Such tags cause confusion and should be avoided.
- 5.98 Correct option is (B).
To see is redundant. It should be deleted. *Tested* and *to see* both mean the same thing.
- 5.99 Correct option is (B).
He would not have been in place of *he would have been*. In an expression beginning with *but for*, the next part should contain a negative to make the meaning.
- 5.100 Correct option is (B).
Went out in place of *went off*. For a living man, the correct expression is *went out*. *Went off* may be used in cases like *The light went off*.
- 5.101 Correct option is (D).
No Error.
- 5.102 Correct option is (B).
Arrive in place of *arrived*. After *no sooner did* the verb will be in the present tense. *Did* is followed by the present form of verb: *Did he go?* He did not *come* on time.
- 5.103 Correct option is (B).
None of the rooms here indicates a singular sense and thus the verb will be singular. Usually *none* is used in singular.
- 5.104 Correct option is (B).
Might in place of *may*. The reporting verb is *appealed*. It is in the past tense and thus all other clauses will be in the past tense.
- 5.105 Correct option is (C).
The word *equipment* is uncountable noun hence *equipment* should be used in place of *equipments*.
- 5.106 Correct option is (B).
The Arabian Nights name of book and is singular hence *is indeed* should be used in place of *are indeed*.

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- 5.107 Correct option is (C).
despite himself should be used because *despite of* himself is improper word.
- 5.108 Correct option is (C).
more than one degree can not be used for single subjects.
- 5.109 Correct option is (B).
As we are referring to *his involvement*, it should be *has been* and not *have been*. There has to be agreement between the noun, number and the verb. Don't make the mistake of matching the verb with *fraud cases*.
- 5.110 Correct option is (C).
Was not knowing nothing has a wrong tense usage and also involves two negatives. It should be *did not know anything* (or *knew nothing*) in place of *was not knowing nothing*.
- 5.111 Correct option is (C).
For should replace *with* in this sentence. It would also be better to replace *one* with *camera* to avoid the impression that one faulty camera is to be exchanged for another faulty camera.
- 5.112 Correct option is (B).
Hour should be preceded by *an* as *hour* is pronounced with a vowel sound.
- 5.113 Correct option is (B).
It should be *nor*, and not *or*, *Neither... nor* form correlative or corresponsive conjunctions. The first part of the conjunction pair complements the other part.
- 5.114 Correct option is (C).
Past perfect tense (*had used*) and not present perfect is to be used here. This is because the second action (that of someone using the computer) had finished when the first occurred (when I was surprised to find the computer not working and enquired).
- 5.115 Correct option is (B).
This is a conditional sentence. The future tense verb should not be used here in (B); it should be replaced by a verb in simple present tense. *Will come* should be replaced by *comes*.
- 5.116 Correct option is (A).
The reference is to one of the recent studies, not a particular one. So the definite article *the* should not be used at the beginning. As there is no clear reference to a specific study, it is preferable to use the indefinite article *A* instead of the definite article *The*/
- 5.117 Correct option is (B).
One dresses *oneself*. So, Rajan dressed *himself*. *Himself* is a compound personal pronoun of the reflexive kind. It refers back to the subject or turns back the action of the verb upon the doer.
- 5.118 Correct option is (C).
Whether should replace *if*. *Whether you like it or not* implies *irrespective of* - that is, the action of going has already been decided upon. *If*, when used, makes the meaning of the sentence ambiguous. *Whether... or not* is accepted usage; *if ... or not* is a construction that is not used.
- 5.119 Correct option is (B).
When a comparison is being made, a comparative and not superlative form of the word should be used. It should be *older* and not *oldest*.
- 5.120 Correct option is (C).
When *the reason why* is used, there is no need for a *because* in the sentence as the two convey the same meaning. It should be *that* instead of *because*.
- 5.121 Correct option is (C).
The should not be used before *summer* and *winter* in this sentence as no specific *summer* and *winter* are referred to. It is correct to say *Now that...twice a week in summer and once a week in winter*.

- 5.122 Correct option is (B).
Some should be used before *water* in place of *little*. The meaning of *little* is *practically nil* which wouldn't go with *still* in the sentence.
- 5.123 Correct option is (A).
Article *the* is wrongly placed before *contact*. No specific *contact* is being referred to here. A general fact or situation is being stated. Correct usage is *come into contact with*; no *a* or *the* before *contact* when it is used after *into*.
- 5.124 Correct option is (B).
Whom, which is in the objective case, should replace *who* which is in the subjective case. *Whom* is the object of the verb here (want to see *whom?*).
- 5.125 Correct option is (A).
Being should be replaced by *As it was*. When we used a participial phrase, the noun which it governs must be placed next to it. *Being a hot day* seems to lack a noun to modify, as it cannot refer to *I*. It is a case of a dangling modifier. So the sentence construction is wrong. We can also write (A) as *It being a very hot day*.
- 5.126 Correct option is (B).
No sooner should be followed by *than* and not *when*. the pair *no sooner...than* is a subordinate conjunction of time. It indicates that the second event occurs immediately after the first one.
- 5.127 Correct option is (C).
In *across with*, two prepositions are placed together and this is a wrong usage. *Came across a beggar* is the correct expression.
- 5.128 Correct option is (A).
It is time is the correct beginning. The correct usage is *it is time you + past tense* (use of *that*, as in the given sentence, is incorrect). Use of *it was time* would be correct in indirect speech only: *He said it was time I started working*.
- 5.129 Correct option is (C).
As we are comparing the wheat produce in the two years, it should be *last year's* (that is, last year's wheat) at the end. Otherwise we would be comparing dissimilar things- wheat and year.
- 5.130 Correct option is (C).
The preposition *with* should not be used as the special increment is for that month only (it cannot be for every month). There is no need for a preposition in (C).
- 5.131 Correct option is (C).
Replace *extends* with *extended* because the sentence concerns past.
- 5.132 Correct option is (D).
Replace *is* with *are*. When two nouns are joined by neither-nor, the verb agrees with the noun coming after *nor*.
- 5.133 Correct option is (B).
Relative pronoun *who* is not required because then another verb after *islands* will be required.
- 5.134 Correct option is (D).
Remove *entire group of*. Use of *they, their* indicates that the noun should be plural. *Entire group* makes the noun singular.
- 5.135 Correct option is (A).
Between (A) and (D), the former is preferable because *all questions* in (D) makes it unsuitable. Before attempting each next question, one cannot check all questions.
- 5.136 Correct option is (C).
(A) There is error in *if you would have*. It should be *had you*. (B) There are errors in both first and second clauses. (C) It is correct and the meaning is also clear. (D) The structure is correct but the use of *despite* disturbs the meaning of the sentence. Thus the answer is (C).

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- 5.137 Correct option is (D).
(A) Them is wrong (error of pronoun). (B) What is wrong (error of conjunction). (C) Have is wrong (error of verb form). (D) It has no error and thus this is the answer.
- 5.138 Correct option is (D).
(A) Whom is wrong (error of pronoun). (B) they of known is wrong (error of preposition). (C) Could not disregarded is wrong (error of verb form). (D) No error.
- 5.139 Correct option is (A).
(A) No error. (B) Were is wrong (error of verb). (C) Real is wrong (error of adverb). (D) There is error in the first clause.
- 5.140 Correct option is (B).
(A) The first clause is wrong. (B) No error. (C) When is wrong (than should be used). (D) Than is wrong (when should be sued).
- 5.141 Correct option is (A).
have done
The present perfect tense is used to denote an action beginning at some time in the past and continuing upto the present moment as the words *ate still doing* in the sentence reveal.
- 5.142 Correct option is (C).
have been
The present perfect tense is used to express past actions whose time is not given and not definite.
- 5.143 Correct option is (C).
had started
The past perfect tense helps in telling us which action happened earlier than the other when both the actions referred to happen in the past. The simple past is used in one clause and the past perfect in the other.
- 5.144 Correct option is (D).
or by taking up other
Or is a Co-ordinating Conjunction that joins together two statements or clauses of equal rank or importance.
- 5.145 Correct option is (D).
it's
A collective none takes a singular verb when the collection is thought of as one whole; a plural verb when the individuals of which it is composed are thought of, as, The Committee has issued its report. The Committee are divided on one minor point.
- 5.146 Correct option is (C).
but milder than
Than (her used as a preposition) shows the relation between this year and last year's attack. It is more appropriate than *as* which generally shows the relation between two similar things.
- 5.147 Correct option is (C).
The adverb of time, *never* and not the conjunction *neither* is to be used. This is also done to never have the construction in the same series.
- 5.148 Correct option is (C).
The members felt
The subject usually comes before the verb in a sentence. In English, owing to the fewness of the inflections, the order of the words in a sentence is of the first importance.
- 5.149 Correct option is (D).
that have
When the subject of a verb is a relative pronoun, care should be taken to see that the verb agrees in number and person with the antecedent of the relative. In this case the antecedent is *novels*.
- 5.150 Correct option is (C).
The article is to be omitted.
The article is omitted before abstract nouns used in a general sense.

- 5.151 Correct option is (D).
Proud and insolvent.
When one noun follows another to describe it, the noun which follows is said to be in apposition to the noun which comes before it. Part (d) is changed to have the series in the same construction.
- 5.152 Correct option is (A).
will excuse my
The pronoun or noun governing a Gerund should be put in the Possessive case. The work *leaving* is a Gerund (i.e. Verbal Noun) Therefore it must be preceded by the possessive form.
- 5.153 Correct option is (C).
seldom or never
Seldom or never and seldom if ever are both correct but seldom or ever is incorrect.
- 5.154 Correct option is (C).
think
The word *they* should be omitted as the relative pronoun *who* already refers or relates (i.e. carries us back) to the noun before it i.e. it's antecedent (wise people).
- 5.155 Correct option is (B).
a/definitely a
Only in the sense of merely is not to used as *part and parcel* (an idiomatic expression) means an essential part and the *it* referred to in the sentence is apparently important enough not to be missed.
- 5.156 Correct option is (C).
She is still in bed though I've tried to awaken her.
Still is placed after the verb *be* but before other verbs; see this sentence, *She is still in bed* and also the sentence, *She still waits at the bus-stop.* *Despite* (*in spite of*) is not the correct conjunction; *though* (or *although*) is to be used. With *I have*, *awaken* should be used, as the present perfect tense of the verb is used here.
- 5.157 Correct option is (A).
I have no objection to hearing your story again.
When a verb is placed immediately after a preposition as it is done here, the gerund form (*ing*) must be used.
- 5.158 Correct option is (D).
You should have told me about it earlier so that I could have talked to the relevant authorities and sorted out the issue. Verbs like *advise*, *recommend*, *warn* are directly followed by the person addressed (without *to*). Keeping the meaning of the sentence in view, *earlier* (at an earlier time) would be the correct word qualifying *told*. Again, *I could* would be the correct expression. The verb *sort* should be used in the past tense here.
- 5.159 Correct option is (B).
Replace *they have* with *it has*. For BCCI use of *needs* (singular) and *they have* (plural) in the same sentence is incompatible.
- *****

NUMERICAL ABILITY

CHAPTER 24

DATA INTERPRETATION

Common Data For Q. 1 to 5

In the table, number of students studying in different standards of different schools are given.

Standards \ Schools	I	II	III	IV	V	VI
A	42	54	48	58	50	38
B	50	60	58	45	45	46
C	40	48	58	46	42	54
D	45	55	46	40	52	50
E	48	55	44	55	52	48
F	52	52	54	42	60	54

- 24.1 What is the approximate average number of students studying in standard I from all schools together ?
 (A) 50 (B) 46
 (C) 38 (D) 40
- 24.2 Number of students studying in standard IV from school E is what per cent of those studying in standard IV from school D ?
 (A) 124% (B) 128%
 (C) 137.5% (D) 132.5%
- 24.3 Which School has the highest total number of students from all the given standards together ?
 (A) F (B) A
 (C) E (D) B
- 24.4 Which standard has the lowest total number of students from all the given schools together ?
 (A) VI (B) III
 (C) V (D) I
- 24.5 What is the respective ratio of students studying in standard III of schools A and B together to

those studying in standard VI of schools C and D together?

- (A) 43 : 47 (B) 87 : 81
 (C) 53 : 52 (D) 25 : 27

Common Data For Q. 6 to 10

Marks obtained by six students in five different subjects in annual examination is given below.

Students \ Subjects	A	B	C	D	E	F
Maths out of 100	96	85	90	82	78	62
Pay out of 75	55	60	72	69	70	54
Chem out of 75	42	51	63	57	66	45
Eng out of 150	105	90	75	78	120	76
Bio out of 50	40	36	44	35	48	34

- 24.6 Approximately what is the maximum difference between the percentage of total marks obtained by any two students ?
 (A) 24% (B) 28%
 (C) 22% (D) 26%
- 24.7 Marks obtained by C in Physics is approximately what percent of the average of marks obtained in English by all the students ?
 (A) 78% (B) 84%
 (C) 75% (D) 80%
- 24.8 How many students obtained more marks than average marks obtained in Physics by all the students ?
 (A) 4 (B) 3
 (C) 2 (D) 5
- 24.9 Marks obtained by F in Physics and English together are approximately what percent of the total marks obtained by D in all subjects ?

- (A) 40% (B) 44%
(C) 34% (D) 36%

24.10 Who stood first in examination ?

- (A) B (B) D
(C) A (D) None of these

Common Data For Q. 11 and 12

Income tax rates for financial year 2009-10 are given below.

Individual and HUF below of 65 yr	Women below age of 65 yr	Tax rates
Income up to Rs. 160000	Income up to Rs. 190000	Nil
Rs. 160001 to 300001	Rs. 190001 to 300000	10%
Rs 300001 to Rs. 500000	Rs. 300001 to Rs. 500000	20%
Above Rs. 500001	Above Rs. 500001	30%

Total income tax payable is obtained by adding two additional surcharges on calculated income tax. Education Cess, An additional surcharge called education cess is levied at the rate of 2% on the amount of income tax.

Secondary and Higher Education Cess An additional surcharge called secondary and higher education cess is levied at the rate of 1% on the amount of income tax.

24.11 Aishwarya is a young working lady. Towards the end of the financial year 2009-10, she found her total annual income to be Rs. 337425. What percentage of her income is payable as income tax ?

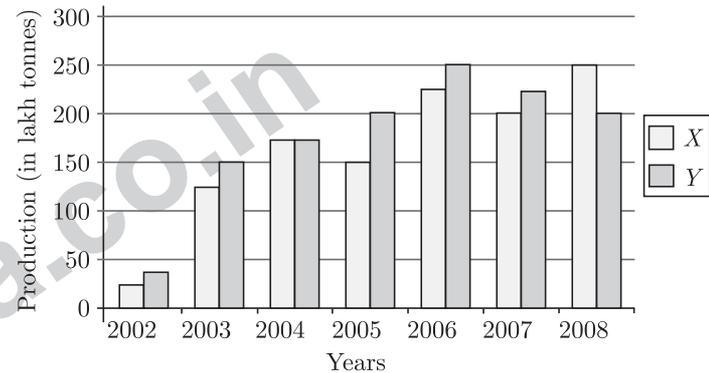
- (A) 6.82% (B) 8.10%
(C) 5.64% (D) 7.38%

24.12 Mr. Vaibhav observed his tax deduction at source, as Rs. 317910. What was his total income (in Rs), if he neither has to pay any additional tax, nor is eligible for any refund ?

- (A) 1445522
(B) 1570718
(C) 1348835
(D) 1447169

Common Data For Q. 13 to 17

Production of commodities X and Y (in lakh tonnes) over the years are as shown below.



24.13 For which of the following pair of years, the total production of the two commodities together is equal ?

- (A) 2007 and 2008
(B) 2003 and 2005
(C) 2002 and 2008
(D) None of these

24.14 What is the respective ratio between total production of commodities X and Y respectively for all the seven year together ?

- (A) 13 : 14 (B) 18 : 23
(C) 26 : 27 (D) None of these

24.15 During which year the percentage increase/decrease in production of commodity X from the previous year was the maximum ?

- (A) 2005 (B) 2007
(C) 2003 (D) 2008

24.16 Approximately, what was the average production (in lakh tonnes) of commodity Y ?

- (A) 216 (B) 175
(C) 225 (D) 195

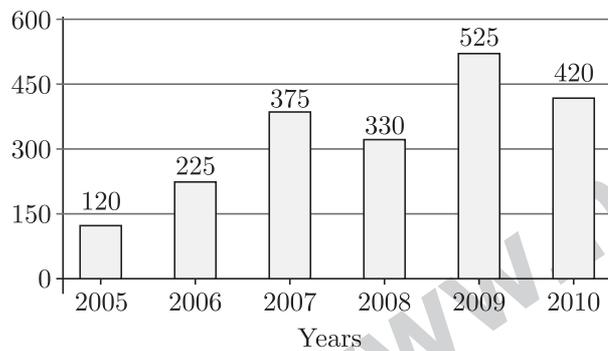
24.17 What is the ratio between total production of the two commodities together for year 2002, 2003 and 2004 and the total production of the two commodities together for year 2006, 2007 and 2008, respectively ?

- (A) 1 : 23 (B) 2 : 3
(C) 2 : 1 (D) 3 : 2

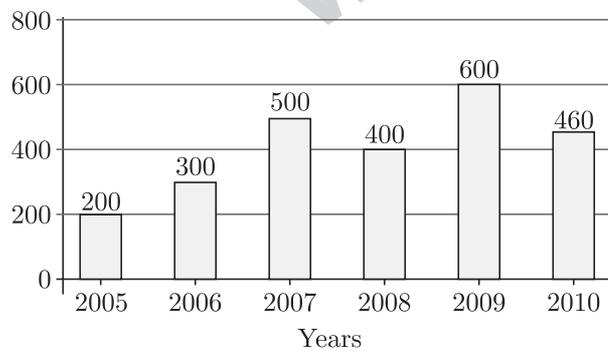
Common Data For Q. 18 to 22

Out of the two bar graphs provided below, one shows the amounts (in Rs. lakh) invested by a company in purchasing raw materials over the years and the other show the values (in Rs lakh) of finished goods sold by the company over the years.

Amount invested in raw materials (in Rs. lakh)



Value of sales of finished goods (in Rs. lakh)



- 24.18 The maximum difference between the amount invested in raw materials and value of sales of finished goods was during the years ?
 (A) 2006 (B) 2008
 (C) 2005 (D) 2007
- 24.19 The value of sales of finished goods in 2009 was approximately what per cent of the sum of amounts invested in raw materials in the years 2007, 2008 and 2009 ?
 (A) 37% (B) 49%
 (C) 33% (D) 45%
- 24.20 What was the difference between the average amount invested in raw materials during the given period and the average value of sales of finished goods during this period ?
 (A) Rs 68.5 lakh (B) Rs 77.5 lakh
 (C) Rs 62.5 lakh (D) Rs 71.5 lakh
- 24.21 In which year, the percentage change (compared to the previous year) in the investment on raw materials was same as that in the value of Sales of finished goods ?
 (A) 2007 (B) 2009
 (C) 2006 (D) 2008
- 24.22 In which year, there has been a maximum percentage increase in the amount invested in raw materials as compared to the previous year ?
 (A) 2007 (B) 2009
 (C) 2006 (D) 2008

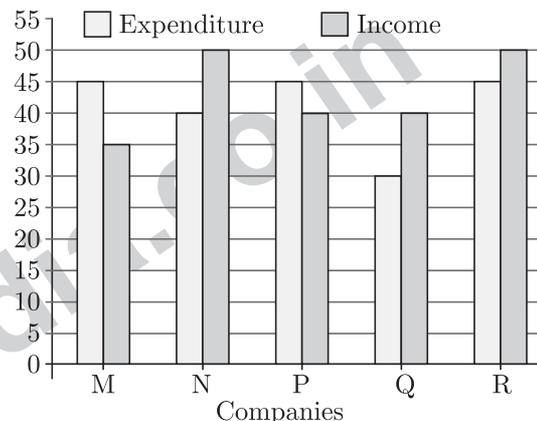
Common Data For Q. 23 to 27

The following bar graph shows the Income and Expenditures (in million US \$) of five companies in the year 2011. The percent profit or loss of a company is given by

Percentage Profit/Loss

$$= \frac{\text{Income} - \text{Expenditure}}{\text{Expenditure}} \times 100\%$$

Income and expenditure (in million US \$) of five companies in the year 2011

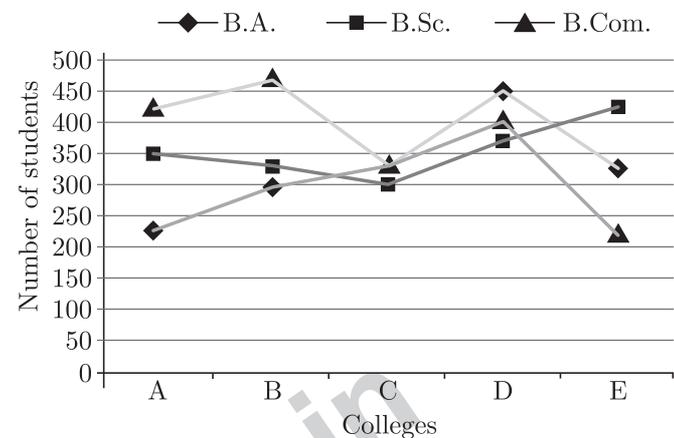


- 24.23 The companies *M* and *N* together had a percentage of profit/loss of
 (A) 10% loss (B) 10% profit
 (C) 12% loss (D) there was no loss or profit
- 24.24 In 2011, what was the approximate percentage of profit/loss of all the five companies taken together ?
 (A) 6.5% profit (B) 7% loss
 (C) 5% profit (D) 4% loss

- 24.25 Which company earned the maximum percentage profit in the year 2011 ?
 (A) *N* (B) *Q*
 (C) *M* (D) *P*
- 24.26 For company *R*, if the expenditure had increased by 20% in year 2011; from year 2010 and the company had earned profit of 10% in 2010, what was the company's income in 2010 (in million US \$) ?
 (A) 37.25
 (B) 41.25
 (C) 35.75
 (D) 38.5
- 24.27 If the income of company *Q* in 2011 was 10% more than its income in 2010 and the its expenditure in 2010 (in million US \$) was
 (A) 30.30 (B) 34.34
 (C) 28.28 (D) 32.32
- 24.29 The difference in the average percentage increase in revenues, from 4th to 6th yr, of yahoo and facebook is
 (A) 40% (B) 50%
 (C) 35% (D) 45%
- 24.30 What would have been facebook's revenue (in \$ million) in its sixth year of operation if the company had matched google's percentage growth in revenues from the fifth to the sixth year ? (Choose the option that is nearest to the answer.)
 (A) 1700 (B) 2100
 (C) 1600 (D) 1900

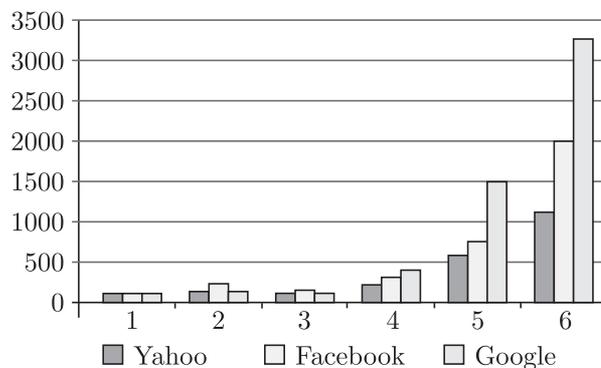
Common Data For Q. 31 to 35

Consider the graph shown below.



Common Data For Q. 28 to 30

The following graph shows the revenue (in \$ million) of three companies in their initial six ears of operations, in an economy which is characterised by a persistent inflation.

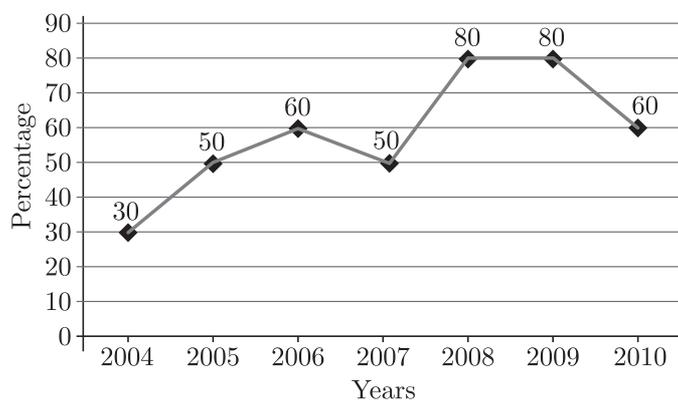


- 24.28 In 2010, which could be a valid statement about the revenues (adjusted for inflation) of these three companies ?
 (A) Revenues of all three companies could be equal
 (B) Total of yahoo and facebook which was definitely less than google.
 (C) Revenue of yahoo was definitely less than facebook which was definitely less than google.
 (D) None of the above
- 24.31 Number of students studying B.Com. in college *C* forms approximately what per cent of the total number of students studying B.Com. in all the colleges together ?
 (A) 18% (B) 22%
 (C) 14% (D) None of these
- 24.32 What is the respectively ratio of total number of students studying B.Sc., B.A. and B.Com. in all the colleges together ?
 (A) 67 : 71 : 75 (B) 71 : 65 : 74
 (C) 71 : 67 : 75 (D) None of these
- 24.33 What is the average number of students studying B.Sc. in all the colleges together ?
 (A) 435 (B) 545
 (C) 355 (D) None of these

- 24.34 Number of students studying B.A. in college *B* forms what per cent of total number of students studying all the disciplines together in the college ?
 (A) 27.27% (B) 29.84%
 (C) 26.86% (D) None of these
- 24.35 What is the respective ratio of total number of students studying B.Sc. in the colleges *C* and *E* together to those studying B.A. in the college together ?
 (A) 25 : 27 (B) 29 : 26
 (C) 24 : 23 (D) None of these
- 24.39 If the total number of candidate appeared in 2006 and 2007 together was 47400, then the total number of candidates qualified in these two years together was
 (A) 32100 (B) 31500
 (C) 34700 (D) data inadequate
- 24.40 The total number of candidates qualified in 2009 and 2010 together was 33500 and the number of candidates appeared in 2009 was 26500. What was the number of candidates appeared in 2010 ?
 (A) 22000
 (B) 19000
 (C) 24500
 (D) 20500

Common Data For Q. 36 to 40

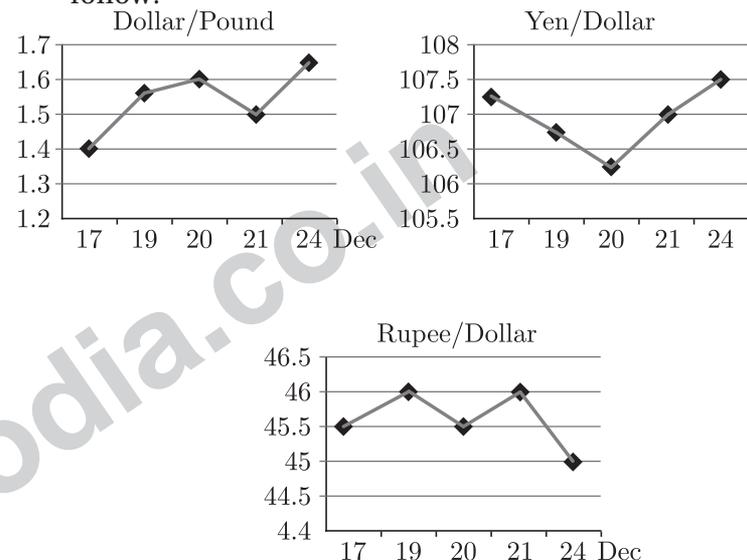
The following line graph gives the percentage of the number of candidates who qualified an examination out of the total number of candidates who appeared for the examination over a period of seven years from 2004 to 2010.



- 24.36 The difference between the percentage of candidates qualified to appeared was maximum in which of the following pairs of years ?
 (A) 2007 and 2008 (B) 2009 and 2010
 (C) 2004 and 2009 (D) 2008 and 2009
- 24.37 In which pair of years was the number of candidates qualified, the same ?
 (A) 2005 and 2010 (B) 2008 and 2009
 (C) 2005 and 2007 (D) data inadequate
- 24.38 If the number of candidates qualified in 2008 was 21200, what was the number of candidates appeared in 2008 ?
 (A) 28500 (B) 25000
 (C) 32000 (D) 26500
- 24.41 On 19th December how much Yen would be approximately Rs. 4000 amount be ?
 (A) 9985 (B) 8600
 (C) 9300 (D) 10100
- 24.42 If the Yen/Doller ratio follows the same trend from 24th December to 27th December as from 21st to 24th, then what will be the value of 50 Dollar on 27th December ?
 (A) 5400 Yen (B) 3000
 (C) Rs. 2000 (D) 6000 Yen

Common Data For Q. 41-44

Consider the line graph given below which show the currency ratio from 17th December to 24th December 2010 and answer the questions that follow.

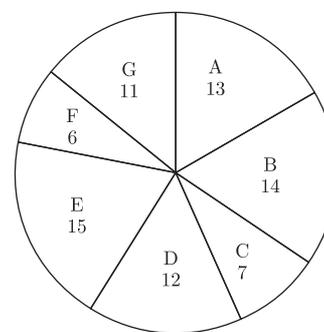


- 24.43 A stereo set costs \$400. A person has Rs. 18200, 225 Pounds and 35000 Yen with him. He would be able to buy the stereo set on 20th December using (assume that he can use only type of currency for the transaction).
 (A) 225 Pound
 (B) 35000 Yen
 (C) Rs. 18200
 (D) Can't be determined
- 24.44 On 15th December the Rupee/Dollar ratio was 46.5, on that day, Rs. 5000 would fetch _____ Pounds.
 (A) 71.68
 (B) 74.15
 (C) 80.06
 (D) Can't be determined
- 24.47 Land allotted for green zone is greater than that for commercial purpose by
 (A) $\frac{2}{3}$ acre
 (B) $\frac{3}{4}$ acre
 (C) $\frac{3}{2}$ acre
 (D) $\frac{4}{3}$ acre
- 24.48 The total land allotted for residential and commercial purpose is
 (A) $4\frac{1}{2}$ acre
 (B) $2\frac{1}{2}$ acre
 (C) $2\frac{1}{4}$ acre
 (D) $2\frac{3}{4}$ acre

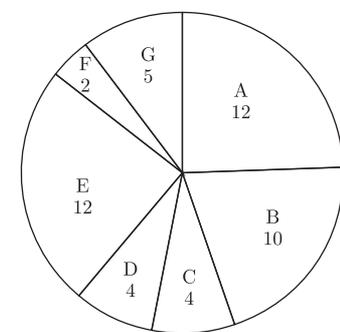
Common Data For Q. 49 to 53

Number of appeared candidates and passed candidates (in hundreds) in a test from seven different institutions

Appeared Candidates

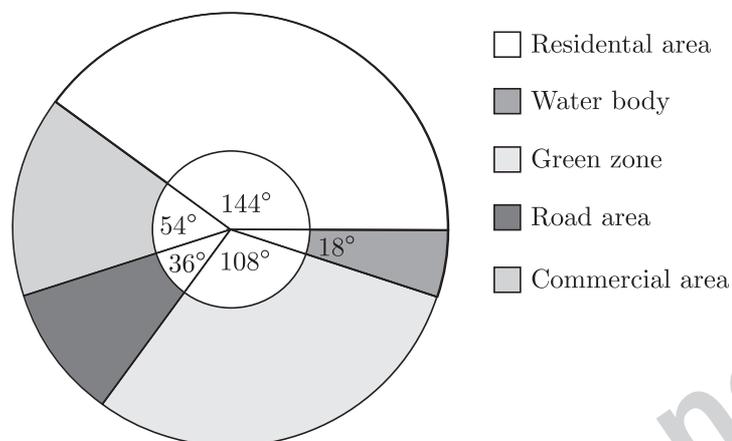


Passed Candidates



Common Data For Q. 45 to 48

The following pie chart shows the land distribution of a housing complex. If the total area of the complex is 5 acre, examine the pie chart and answer the following questions



- 24.45 The ratio of area allotted for residential and road purpose is
 (A) 4 : 1
 (B) 8 : 3
 (C) 1 : 4
 (D) 3 : 8
- 24.46 The percentage of the total area allotted for water body and green zone together is
 (A) 30%
 (B) 40%
 (C) 35%
 (D) 45%
- 24.49 What is the difference between the number of candidates appeared from institutions B, C, D and F together and candidates passed from institutions A, E and G together?
 (A) 900
 (B) 540
 (C) 100
 (D) 1000
- 24.50 What is the average number of candidates passed from all the institutions together?
 (A) 490
 (B) 675
 (C) 700
 (D) 350
- 24.51 Number of candidates passed from institutions C and E together is approximately, what per cent of the total number of candidates from institutions A and G together?
 (A) 62%
 (B) 54%
 (C) 72%
 (D) 67%

24.52 From which institution, the difference between the appeared candidates and passed candidates is maximum

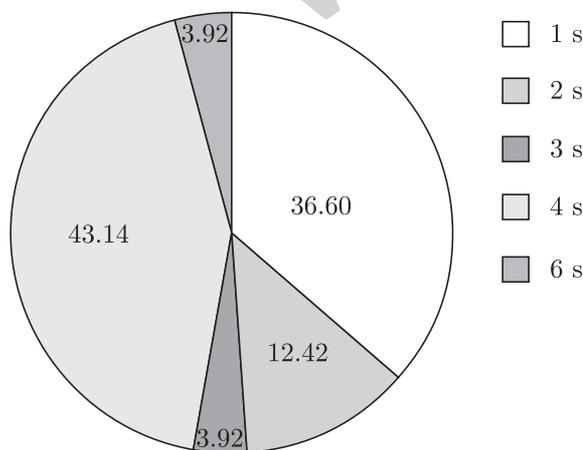
- (A) *G* (B) *F*
(C) *B* (D) *D*

24.53 What is the respective ratio between the number of candidates who have failed from institution *B* and the number of candidates who have appeared from institution *F* ?

- (A) 2 : 3 (B) 1 : 3
(C) 2 : 5 (D) 4 : 3

Common Data For Q. 54 to 55

The following pie chart shows the percentage distribution of runs scored by a batsman in a test innings.



24.54 If the batsman has scored a total of 306 runs, how many 4s and 6s did he hit ?

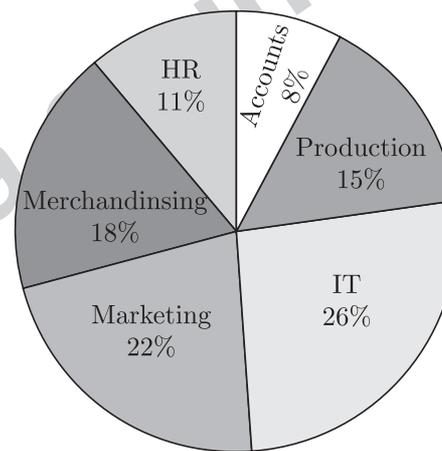
- (A) 32 and 2, respectively
(B) 33 and 1, respectively
(C) 33 and 2, respectively
(D) 31 and 3, respectively

24.55 If 5 of the dot balls had been hit for 4s and if two of the shots for which the batsman scored 3 runs each had fetched him one run instead. What would have been the central angle of the sector corresponding to the percentage of runs scored in four ?

- (A) 163° (B) 167°
(C) 160° (D) 165°

Common Data For Q. 56 to 60

Number of employees working in various departments of an organization and the ratio of men to women in the same



Total Number of Employees = 4600

Ratio of men to women is given below.

Departments	Men	Women
HR	1	1
Accounts	3	1
Production	3	2
IT	1	3
Marketing	1	1
Merchandising	5	1

24.56 What is the number of women in the accounts departments ?

- (A) 102 (B) 92
(C) 86 (D) 80

24.57 What is the total number of employees working in the IT department and HR department together ?

- (A) 1742
(B) 1766
(C) 1628
(D) None of these

24.58 What is the ratio of the total number of men to the total number of women working in all the departments together ?

- (A) 41 : 27 (B) 27 : 19
(C) 63 : 41 (D) 53 : 47

- 24.59 The number of women in the merchandising department forms what percent of the total number of employees in the organization ?
 (A) 6% (B) 12%
 (C) 3% (D) 1%
- 24.60 What is the ratio of the number of men in the production department to the number of men in the marketing department ?
 (A) 9 : 11 (B) 11 : 9
 (C) 7 : 3 (D) 13 : 7
- 24.61 The number of students, who get jobs in finance is less than the students getting marketing jobs, in the 5 yr by
 (A) 650 (B) 548
 (C) 826 (D) 750
- 24.62 What is the percentage increase in the average salary of finance from 1992-96 ?
 (A) 32% (B) 80%
 (C) 60% (D) 96%

Common Data For Q. 61 to 65

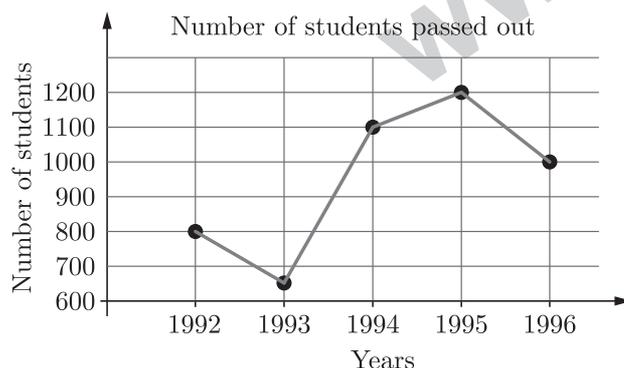
The first table gives the percentage of students in MBA class, who sought employment in the areas of finance, marketing and software. The second table gives the average starting salaries of the students per month (in Rs. thousand) in these areas. The third table gives the number of students who passed out in each year.

Percentage of students

Years	Finance	Marketing	Software	Others
1992	22	36	19	23
1993	17	48	23	12
1994	23	43	21	13
1995	19	37	16	28
1996	32	32	20	16

Average of starting salary (in Rs. thousand)

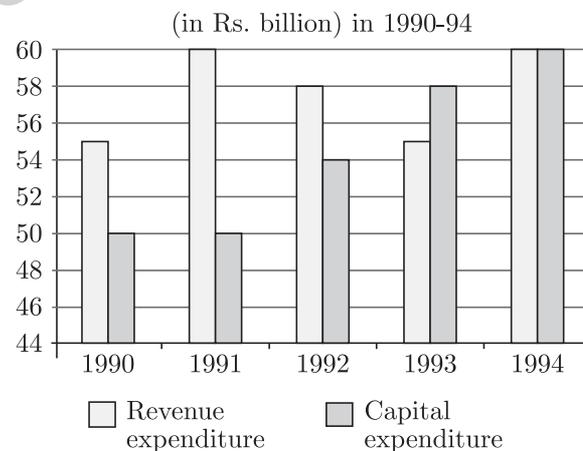
Years	Finance	Marketing	Software
1992	5450	5170	5290
1993	6380	6390	6440
1994	7550	7630	7050
1995	8920	8960	8160
1996	9810	10220	8640



- 24.63 The average annual rate at which the initial salary offered in software increase is
 (A) 33% (B) 65%
 (C) 21% (D) 15.9%
- 24.64 What is the percentage increase in the average monthly salary offered to a marketing student over the given 5 yr ?
 (A) 117% (B) 80%
 (C) 98% (D) 56%
- 24.65 In 1994, students seeking jobs in finance earned more than those opting for software (per annum) by
 (A) Rs. 33.8 lakh (B) Rs. 38.8 lakh
 (C) Rs. 43 lakh (D) Rs. 28.4 lakh

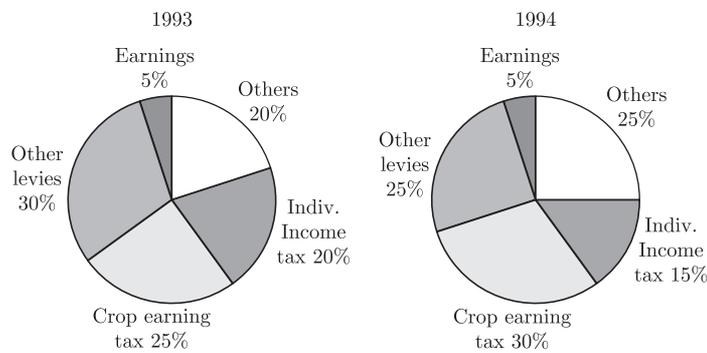
Common Data For Q. 66 to 69

Consider the bar graph and the pie charts below that shows the Government revenue and capital expenditure



Percentage breakup of government revenue

Sample Chapter of Communication System (Vol-9, GATE Study Package)



Government expenditure

$$= \text{Borrowing} + \text{Government revenue}$$

$$\text{Revenue expenditure} + \text{Capital expenditure}$$

$$= \text{Government expenditure}$$

- 24.66 In 1993, individual income tax collection was Rs. 18 billion. The Government borrowings (in Rs. billion) is
- (A) 17 (B) 27
(C) 13 (D) 23

- 24.67 Between 1991 and 1993 borrowing declined by Rs. 10 billion. The average annual increase in revenues (in Rs. billion) is
- (A) 13 (B) 6.5
(C) 23 (D) 11.5

- 24.68 Government borrowings in 1992 and 1994 were equal. What is the increase in Government revenue during this period?
- (A) Rs. 8 billion (B) Rs. 11 billion
(C) Rs. 6 billion (D) Rs. 10 billion

- 24.69 Borrowings and individual income tax collections in 1993 are equal to those in 1990, respectively. If the revenue in 1993 is 10% higher as compared to that in 1990, what percentage of the Government revenue in 1990 comes from individual income tax collections?
- (A) 23% (B) 25%
(C) 22% (D) 24%

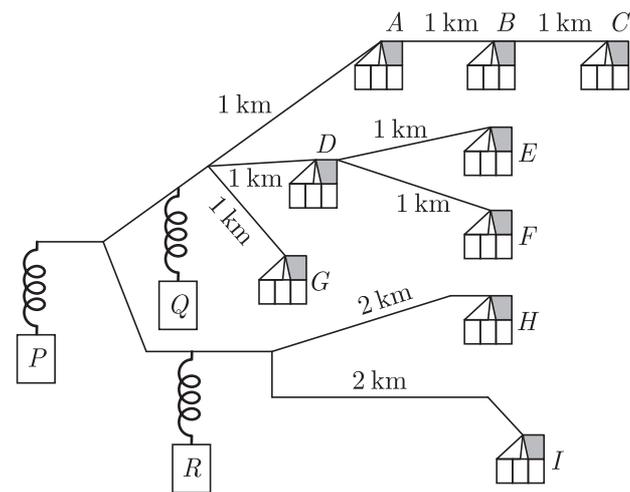
Common Data For Q. 70 to 74

Power plant P produces certain amount of electricity, which it distributes equally to substations Q and R . They further distribute the obtained electricity equally to the different ministations A, B, C, D

, E, F, G, H and I . It is assumed that after the substations, the wire loses 10% of the original electricity it is carrying for every kilometer, i.e. if 10 amp is sent through a wire, after 1 km it will have 9 amp and after 2 km it will have 8 amp and so on.

Further it is known that every ministration retains 50% of the electricity that it receives (after the losses) and passes on the remainder 50% of the electricity that it receives to the stations down the line.

Power distribution from a power plant



- 24.70 If ministration I is receiving 10 amp, then how much is ministration A receiving?
- (A) 8.2 amp (B) 10.5 amp
(C) 7.5 amp (D) None of these
- 24.71 Approximately how much should P produce, so that C can get 10 amp of current?
- (A) 300 amp (B) 360 amp
(C) 230 amp (D) 330 amp
- 24.72 If ministration H is receiving 34 amp, how much is G receiving?
- (A) 26.66 amp (B) 24 amp
(C) 80 amp (D) None of these
- 24.73 If F is receiving 9 amp, how much is G receiving?
- (A) 45 amp (B) 25 amp
(C) 40 amp (D) 20 amp
- 24.74 What percentage of the current produced by P , reaches F ?

- (A) 3.5% (B) 7.5%
(C) 3.375% (D) 15%

Common Data For Q. 75 to 79

The officer's colony of Badaun has 2800 members out of which 650 members read only English newspaper. 500 members read only Hindi newspaper and 450 members read only Marathi newspaper. The number of members reading all the three newspapers is 200. 400 members read Hindi as well as Marathi newspaper only and 300 members read English as well as Marathi newspaper only and 300 members read English and as well as Hindi newspaper only.

- 24.75 What is the difference between the number of members reading English as well as Marathi newspaper only and the number of members reading English as well as Hindi newspaper only ?
(A) 200 (B) 100
(C) 300 (D) None of these
- 24.76 How many members read atleast two newspaper ?
(A) 800 (B) 500
(C) 600 (D) None of these
- 24.77 The number of members reading Hindi newspaper is
(A) 980 (B) 1020
(C) 750 (D) 1400
- 24.78 How many members read only one newspaper ?
(A) 1600 (B) 1540
(C) 1560 (D) 1650
- 24.79 The number of members reading atleast three newspaper is
(A) 460 (B) 750
(C) 200 (D) 550

Common Data For Q. 80 to 84

There are 7200 students in an engineering college. The ratio of boys to girls is 7 : 5, respectively. All the students are enrolled in six different specialization viz. B. Tech. (electronics), B.Tech. (computer science), B.Tech. (mechanical), B.Tech. (aerospace), B.Tech. (nano technology), B.Tech.

(civil). 22% of the total students are in B.Tech. (nano technology). 16% of the girls are in B.Tech. (computer science). 18% of boys are in B.Tech. (mechanical). Girls in B.Tech. (civil) are 30% of the girls in B.Tech. (computer science). 15% of boys are in B.Tech. (electronics). Boys in B.Tech. (computer science) are 50% of the girls in the same. 15% of girls are in B.Tech. (aerospace). The ratio of boys to girls in B.Tech. (civil) is 3 : 1 respectively. 24% of the total numbers of students are in B.Tech. (electronics). The ratio of boys to girls in B.Tech. (aerospace) is 12 : 5, respectively.

- 24.80 What is the total number of students enrolled in B.Tech. (mechanical) ?
(A) 1530 (B) 1728
(C) 1062 (D) 1584
- 24.81 Number of girls enrolled in B.Tech. (electronics) forms approximately, what per cent of total number of students in the college ?
(A) 13% (B) 22%
(C) 7% (D) 15%
- 24.82 What is the total number of girls enrolled in B.Tech. (nano technology) ?
(A) 306 (B) 365
(C) 144 (D) 522
- 24.83 Number of boys enrolled in B.Tech. (aerospace) forms, what per cent of the total number of girls enrolled in B.Tech. (computer science) ?
(A) 200% (B) 225%
(C) 187.5% (D) 212.5%
- 24.84 What is the total number of boys enrolled in B.Tech. (civil) ?
(A) 432 (B) 756
(C) 240 (D) 630

SOLUTIONS

24.1 Correct answer is (B).

Required average number of students studying in standard I

$$\begin{aligned} &= (42 + 50 + 40 + 45 + 48 + 52) / 6 \\ &= 277 / 6 \\ &= 46.16 \simeq 46 \end{aligned}$$

24.2 Correct answer is (C).

Number of students studying in standard IV from school $E = 55$

Number of students studying in standard IV from school $D = 40$

$$\text{Required percentage} = 55/40 \times 100\% = 137.5\%$$

24.3 Correct answer is (A).

Total number of students of school A
 $= 42 + 54 + 48 + 58 + 50 + 38 = 290$

Total number of students of school B
 $= 50 + 60 + 58 + 45 + 45 + 46 = 304$

Total number of students of school C
 $= 40 + 48 + 58 + 46 + 42 + 54 = 288$

Total number of students of school D
 $= 45 + 55 + 46 + 40 + 52 + 50 = 288$

Total number of students of school E
 $= 48 + 55 + 44 + 55 + 52 + 48 = 302$

Total number of students of school F
 $= 52 + 52 + 54 + 42 + 60 + 54 = 314$

Thus, school F has the highest total number of students.

24.4 Correct answer is (D).

Total number of students in standard I
 $= 42 + 50 + 40 + 45 + 48 + 52 = 277$

Total number of students in standard II
 $= 54 + 60 + 48 + 55 + 55 + 52 = 324$

Total number of students in standard III
 $= 48 + 58 + 58 + 46 + 44 + 54 = 308$

Total number of students in standard IV

$$= 58 + 45 + 46 + 40 + 55 + 42 = 286$$

Total number of students in standard V
 $= 50 + 45 + 42 + 52 + 52 + 60 = 301$

Total number of students in standard VI
 $= 38 + 46 + 54 + 50 + 48 + 54 = 290$

Thus, standard I has the least number of students

24.5 Correct answer is (C).

Number of students studying in standard III of school A and B together $= (48 + 58) = 106$

Number of students studying in standard VI of school C and D together $= (54 + 50) = 104$

$$\text{Required ratio} = 106 : 104 = 53 : 52$$

24.6 Correct answer is (A).

Total maximum marks for all the subjects together

$$= 100 + 75 + 75 + 150 + 50 = 450$$

Students	Total marks	Percentage of total marks
A	$96 + 55 + 42 + 105 + 40 = 338$	$\frac{338}{450} \times 100 = 75.11\%$
B	$85 + 60 + 51 + 90 + 36 = 322$	$\frac{322}{450} \times 100 = 71.55\%$
C	$90 + 72 + 63 + 75 + 44 = 344$	$\frac{344}{450} \times 100 = 76.44\%$
D	$82 + 69 + 57 + 78 + 35 = 321$	$\frac{321}{450} \times 100 = 71.33\%$
E	$78 + 70 + 66 + 120 + 48 = 382$	$\frac{382}{450} \times 100 = 84.88\%$
F	$62 + 54 + 45 + 76 + 34 = 271$	$\frac{271}{450} \times 100 = 60.22\%$

Maximum percentage marks = 84.88%

Minimum percentage marks = 60.22%

So, required difference
= $(84.88 - 60.22)\% = 24.66\% \simeq$

ALTERNATIVE METHOD :

Here, for finding the answer, there is no need to calculate percentage marks of each student. Take the maximum difference of marks of any two students, then find the required percentage.

Maximum difference = $382 - 271 = 111$

So, required percentage difference

$$= \frac{111}{450} \times 100\% = 24.66\% \simeq 24\%$$

24.7 Correct answer is (D).

Average of marks obtained in English by all the students

$$= \frac{105 + 90 + 75 + 78 + 120 + 76}{6}$$

$$= 90.66 \simeq 90$$

So, required percentage = $\frac{72}{90} \times 100\% = 80\%$

24.8 Correct answer is (B).

Average of marks obtained in Physics by all the students

$$\frac{55 + 60 + 72 + 69 + 70 + 54}{6} = 63.33$$

Thus, three students i.e., *C*, *D* and *E* obtained the marks more than the average.

24.9 Correct answer is (A).

Marks obtained by *F* in Physics and English together = $54 + 76 = 130$

So, required percentage = $\frac{130}{321} \times 100 = 40.5 \simeq 40\%$

24.10 Correct answer is (D).

Since, *E* got the highest marks in the class, thus, *E* is first in the class.

24.11 Correct answer is (C).

Total text to be paid = $(300000 - 190000)$ at the rate of 10%

= 110000 at the rate of 10% = 11000

$(337425 - 300000)$ at the rate of 20%

= 37425 at the rate of 20% = 7485

Tax = $11000 + 7485 = 18485$

Education cess = 3% of $18485 = 554.55$

total tax = $18485 + 554.55 = 1903.55$

Hence, required percentage

$$= \frac{19039.55}{337425} \times 100 = 5.64\%$$

24.12 Correct answer is (C).

Checking from options, it can be seen that if his income is Rs. 1348835, the paid is Rs. 317910.

24.13 Correct answer is (D).

Total production of two commodities

for the year 2002 = $20 + 30 = 50$

for the year 2003 = $125 + 150 = 275$

for the year 2004 = $175 + 175 = 350$

for the year 2005 = $150 + 200 = 350$

for the year 2006 = $225 + 250 = 475$

for the year 2007 = $200 + 225 = 425$

for the year 2008 = $250 + 200 = 450$

Thus, required year are 2004 and 2005.

24.14 Correct answer is (D).

Total production of commodity *X*

= $20 + 125 + 175 + 150 + 225 + 200 + 250 = 1145$

Total production of commodity *Y*

= $30 + 150 + 175 + 200 + 250 + 225 + 200 = 1230$

Required ratio = $1145:1230 = 229:246$

24.15 Correct answer is (C).

Percentage increase/decrease in production of commodity *X* from the previous year

In the year 2003 = $\frac{125 - 20}{20} \times 100\% = 525\%$

In the year 2004 = $\frac{175 - 125}{125} \times 100\% = 40\%$

In the year 2005 = $\frac{175 - 150}{175} \times 100\% = 14.28\%$

In the year 2006 = $\frac{225 - 150}{150} \times 100\% = 50\%$

In the year 2007 = $\frac{225 - 200}{225} \times 100\% = 11.11\%$

In the year 2008 = $\frac{250 - 200}{200} \times 100\% = 25\%$

Thus, percentage increase is maximum for the year 2003

24.16 Correct answer is (B).

Total production of commodity Y.

$$= 30 + 150 + 175 + 200 + 250 + 225 + 200 = 1230$$

$$\text{Required average} = \frac{1230}{7}$$

$$\approx 175 \text{ lakh tonnes}$$

24.17 Correct answer is (A).

Total production of the two commodities together for the years 2002, 2003 and 2004

$$= (20 + 30) + (125 + 150) + (175 + 175) = 675$$

Total production of the two commodities together for the year 2006, 2007 and 2008

$$= (225 + 250) + (200 + 225) + (250 + 200) = 1350$$

$$\text{Required ratio} = 675 : 1350$$

$$= 1 : 2$$

24.18 Correct answer is (D).

The differences between the amount invested in raw material and the value sales of finished goods

$$\text{for 2005} = \text{Rs. } (200 - 120) \text{ lakh} = \text{Rs. } 80 \text{ lakh}$$

$$\text{for 2006} = \text{Rs. } (300 - 225) \text{ lakh} = \text{Rs. } 75 \text{ lakh}$$

$$\text{for 2007} = \text{Rs. } (500 - 375) \text{ lakh} = \text{Rs. } 125 \text{ lakh}$$

$$\text{for 2008} = \text{Rs. } (400 - 330) \text{ lakh} = \text{Rs. } 70 \text{ lakh}$$

$$\text{for 2009} = \text{Rs. } (600 - 525) \text{ lakh} = \text{Rs. } 75 \text{ lakh}$$

$$\text{for 2010} = \text{Rs. } (460 - 420) \text{ lakh} = \text{Rs. } 40 \text{ lakh}$$

Clearly, maximum difference was during the year 2007.

24.19 Correct answer is (B).

Value of sales of finished goods in the year 2009

$$= \text{Rs. } 600 \text{ lakh}$$

Amount invested in raw materials in the years 2007, 2008 and 2009

$$= 375 + 330 + 525$$

$$= \text{Rs. } 1230$$

$$\text{Required percentage} = \frac{600}{1230} \times 100\%$$

$$= 48.78\% \approx 49\%$$

24.20 Correct answer is (B).

Required difference = Average amount invested in raw materials – Average values of sales of finished goods

$$= \text{Rs. } \left[\frac{1}{6} \times (200 + 300 + 500 + 400 + 600 + 460) \right.$$

$$\left. - \frac{1}{6} \times (120 + 225 + 375 + 330 + 525 + 420) \right]$$

$$= \text{Rs. } \left[\frac{2460}{6} - \frac{1995}{6} \right] \text{ lakh}$$

$$= \text{Rs. } (410 - 332.5) \text{ lakh}$$

$$= \text{Rs. } 77.5 \text{ lakh}$$

24.21 Correct answer is (A).

The percentage change in the amount invested in raw materials and in the value of sales of finished goods for different years are as follow :

Percentage change in amount invested in raw materials.

$$\text{for 2006} = \frac{(225 - 120)}{120} \times 100\% = 87.5\%$$

$$\text{for 2007} = \frac{(375 - 225)}{225} \times 100\% = 66.67\%$$

$$\text{for 2008} = \frac{(330 - 375)}{375} \times 100\% = -12\%$$

$$\text{for 2009} = \frac{(525 - 330)}{330} \times 100\% = 59.09\%$$

$$\text{for 2010} = \frac{(420 - 525)}{525} \times 100\% = -20\%$$

Percentage change in value of sales of finished goods

$$\text{for 2006} = \frac{(330 - 200)}{200} \times 100\% = 50\%$$

$$\text{for 2007} = \frac{(500 - 300)}{300} \times 100\% = 66.67\%$$

$$\text{for 2008} = \frac{(400 - 500)}{500} \times 100\% = -20\%$$

$$\text{for 2009} = \frac{(600 - 400)}{400} \times 100\% = 50\%$$

$$\text{for 2010} = \frac{(460 - 600)}{600} \times 100\% = -23.33\%$$

Thus, the percentage change was same during the year 2007.

24.22 Correct answer is (C).

From the above solution, we can say that the maximum percentage increase is in 2006.

24.23 Correct answer is (D).

Total income of companies M and N together
 $= \$ (35 + 50)$ US million
 $= \$ 85$ US million
 Total expenditure of companies M and N together.
 $= \$ (45 + 40)$ US million
 $= \$ 85$ US million
 Thus, there was neither loss nor profit for companies
 M and N together.

$$\frac{120X}{100} = 45$$

$$X = 37.5$$

i.e., expenditure of company R in 2010

$$= \$ 37.5 \text{ US million}$$

Let the income of company R in 2010 be I million
 US \$

$$\text{Then, } 10 = \frac{(I - 37.5)}{37.5} \times 100$$

(\because Profit percentage in 2010 = 10%)

$$I - 37.5 = 3.75$$

$$I = 41.25$$

i.e., income of company R in 2010 = \$ 41.25 US
 million

24.24 Correct answer is (C).

Total income of all five companies
 $= \$ (35 + 50 + 40 + 40 + 50)$ US millions
 $= \$ 215$ US million
 Total expenditure of all five companies
 $= \$ (45 + 40 + 45 + 30 + 45)$ US million
 $= \$ 205$ US million
 Profit percentage = $\left[\frac{(215 - 205)}{205} \times 100 \right] \%$
 $= 4.88 \approx 5 \%$

24.27 Correct answer is (A).

Let the income of company Q in 2010 = \$ X US
 million then, income of company Q in 2010
 $= \$ \left(\frac{110}{100} \times X \right)$ US million

$$\frac{110X}{100} = 40$$

$$X = \left(\frac{400}{11} \right)$$

i.e. income of company Q in 2010 = \$ $\left(\frac{400}{11} \right)$ US
 million

Let the expenditure of company Q in 2010 be E
 million US \$

$$\text{Then, } 20 = \frac{[(400/11) - E]}{E} \times 100$$

(Profit percentage = 20%)

$$20 = \left[\frac{400}{11E} - 1 \right] \times 100$$

$$E = \frac{400}{11} \times \frac{100}{120} = 30.30$$

Expenditure of company Q in 2010 = \$ 30.30 US
 million

24.25 Correct answer is (B).

The percentage profit/loss in the year 2011 for
 various companies are as follow
 for M and P , there is a loss

$$\text{for } N = \frac{(50 - 40)}{40} \times 100\% = 25\%$$

i.e., Profit = 25%

$$\text{for } Q = \frac{(40 - 30)}{30} \times 100\% = 33.33\%$$

i.e., Profit = 33.33%

$$\text{for } R = \frac{(50 - 45)}{45} \times 100\% = 11.11\%$$

i.e., Profit = 11.11%

Clearly, the company Q earned the maximum profit
 in 2011.

24.26 Correct answer is (B).

Let the expenditure of company R in 2010 be X
 millions US \$ then, expenditure of company R in
 2011

$$= \$ \left(\frac{120}{100} \times X \right) \text{ US million}$$

24.28 Correct answer is (D).

No data has been given the question as to which
 year amongst the given years in the graph is 2010.
 So, its answer can't be given and hence last option
 is correct.

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24.29 Correct answer is (D).

$$\text{Revenue of yahoo in 6th year} = 1200$$

$$\text{Revenue of yahoo in 4th year} = 250$$

$$\text{So, percentage increase} = \frac{950}{250} \times 100 = 380\%$$

$$\text{Average percentage increase} = \frac{380}{2} = 190\%$$

$$\text{Revenue of facebook in 6th year} = 2000$$

$$\text{Revenue of facebook in 4th year} = 350$$

$$\text{So, percentage increase} = \frac{1650}{350} \times 100 = 471.43\%$$

$$\text{Average percentage increase} = 235.72\%$$

$$\text{Required difference} = 235.72\% - 190\% = 45.72\% \\ \approx 45\%$$

24.30 Correct answer is (C).

Percentage increase in google's growth between 5th and 6th year

$$= \frac{3250 - 1500}{1500} \times 100\% = 116.67\%$$

So, required value of facebook revenue after 6th year

$$= 750 \times (100 + 116.67)\%$$

$$= 750 \times 216.67\%$$

$$= 1625.025$$

$$\approx 1600$$

24.31 Correct answer is (A).

Number of students studying B.Com. in college $C = 325$

Total number of students studying B.Com. in all the colleges together

$$= (425 + 475 + 325 + 400 + 225)$$

$$= 1850$$

$$\text{Required percentage} = \frac{325}{1850} \times 100\% \approx 18\%$$

24.32 Correct answer is (B).

Total number of students studying

$$\text{in B.Sc.} = 350 + 325 + 300 + 375 + 425 = 1775$$

$$\text{in B.A.} = 225 + 300 + 325 + 450 + 325 = 1625$$

$$\text{in B.Com.} = 425 + 475 + 325 + 400 + 225 = 1850$$

$$\text{Therefore, required ratio} = 1775 : 1625 : 1850$$

$$= 71 : 65 : 74$$

24.33 Correct answer is (C).

Average number of students studying in B.Sc. in all the colleges together

$$\text{Total number of students in B.Sc.} \\ = \frac{\text{in all the colleges together}}{5}$$

$$= \frac{1775}{5} = 355$$

24.34 Correct answer is (A).

Number of students studying B.A. in college $B = 300$

Number of students studying all the disciplines together in college

$$B = 300 + 325 + 475 = 1100$$

$$\text{Required percentage} = \frac{300}{1100} \times 100\% = 27.27\%$$

24.35 Correct answer is (B).

Total number of students studying B.Sc. in the college C and E together

$$= 300 + 425 = 725$$

Total number of students studying B.A. in the college C and E together

$$= 325 + 325 = 650$$

$$\text{Required ratio} = 725 : 650 = 29 : 26$$

24.36 Correct answer is (C).

From the given line graph, it is clear that the difference between the percentage of candidates qualified to appeared was maximum for the years 2004 and 2009 as 2004 has the minimum percentage while 2009 has the maximum percentage.

24.37 Correct answer is (D).

We can't determine the actual number of qualified candidates as we don't know the number of appeared students.

24.38 Correct answer is (D).

Let number of candidates appeared in 2008 be x .

$$\text{Then, } 80\% \text{ of } x = 21200$$

$$x = 21200 \times \frac{100}{80} = 26500$$

24.39 Correct answer is (D).

Data is inadequate to answer this question as we don't know the number of candidates appeared in 2006 and in 2007, separately.

24.40 Correct answer is (D).

Number of candidates appeared in 2009 = 26500
Therefore, number of candidates qualified in 2009
= 80% of 26500 = 21200

Number of candidates qualified in 2010
= 33500 - 21200 = 12300

Now, let the number of candidates appeared in 2010 be x .

$$\begin{aligned} \text{Then, 60\% of } x &= 12300 \\ x &= \frac{12300}{60} \times 100 = 20500 \end{aligned}$$

24.41 Correct answer is (C).

On 19th December,

$$\frac{\text{Rupee}}{\text{Dollar}} = 46$$

$$\text{Dollar} = \frac{4000}{46} = \frac{2000}{23}$$

and $\frac{\text{Yen}}{\text{Dollar}} = 106.75$

$$\begin{aligned} \text{Yen} &= 106.75 \times \frac{2000}{23} \\ &= 9282 \approx 9300 \end{aligned}$$

24.42 Correct answer is (A).

Following the same trend from 24th December to 27th December as from 21st December to 24th December,

$$\begin{aligned} \frac{\text{Yen}}{\text{Dollar}} &= 108 \\ \text{Yen} &= 50 \times 108 = 5400 \end{aligned}$$

24.43 Correct answer is (C).

On 20th December,

$$\frac{\text{Rupee}}{\text{Dollar}} = 45.5$$

$$\text{Dollar} = \frac{18200}{45.5} = \$400$$

Thus, the person can purchase the stereo set using Rs. 18200.

24.44 Correct answer is (D).

It cannot be determined as we do not know the ratio of dollar to pound on 15th December.

24.45 Correct answer is (A).

$$\begin{aligned} \text{Required ratio} &= \frac{\text{Angle of area allotted for resident}}{\text{Angle of area allotted for road}} \\ &= \frac{144^\circ}{36^\circ} = 4:1 \end{aligned}$$

24.46 Correct answer is (C).

Angle of area allotted for water body and green zone together

$$= 18^\circ + 108^\circ = 126^\circ$$

$$\text{Required percentage} = \frac{126}{360} \times 100\% = 35\%$$

24.47 Correct answer is (B).

$$\begin{aligned} \text{Land allotted to green zone} &= \frac{108^\circ}{360^\circ} \times 5 \text{ acre} \\ &= 1.5 \text{ acre} \end{aligned}$$

$$\begin{aligned} \text{Land allotted to commercial area} \\ &= \frac{54^\circ}{360^\circ} \times 5 = 0.75 \text{ acre} \end{aligned}$$

$$\begin{aligned} \text{Required value} &= (1.5 - 0.75) \text{ acre} \\ &= 0.75 \text{ acre} \\ &= \frac{3}{4} \text{ acre} \end{aligned}$$

24.48 Correct answer is (D).

$$\begin{aligned} \text{Land allotted for residential purpose} \\ &= \frac{144}{360} \times 5 = 2 \text{ acre} \end{aligned}$$

$$\begin{aligned} \text{Land allotted for commercial purpose} \\ &= \frac{54}{360} \times 5 = 0.75 = \frac{3}{4} \text{ acre} \end{aligned}$$

$$\text{Total required land} = 2 + \frac{3}{4} = 2\frac{3}{4} \text{ acre}$$

24.49 Correct answer is (D).

Number of candidates appeared from institutions B, C, D and F together

$$= 1400 + 700 + 1200 + 600 = 3900$$

Candidates passed from institutions A, E and G together

$$= 1200 + 1200 + 500 = 2900$$

$$\text{Required difference} = 3900 - 2900 = 1000$$

24.50 Correct answer is (C).

Average number of candidates passed from all the institute together

$$= \frac{1200 + 1000 + 400 + 400 + 1200 + 200 + 50}{7}$$

$$= \frac{4900}{7} = 700$$

24.51 Correct answer is (D).

Number of candidates passed from institutions C and E institutes together

$$= 400 + 1200 = 1600$$

Number of candidates appeared from institutions A and G together

$$= 1300 + 1100 = 2400$$

Therefore, required percentage

$$= \frac{1600}{2400} \times 100\% \approx 67\%$$

24.52 Correct answer is (D).

Difference between appeared and passed candidates from

$$\text{institution } A = 1300 - 1200 = 100$$

$$\text{institution } B = 1400 - 1000 = 400$$

$$\text{institution } C = 700 - 400 = 300$$

$$\text{institution } D = 1200 - 400 = 800$$

$$\text{institution } E = 1500 - 1200 = 300$$

$$\text{institution } F = 600 - 200 = 400$$

$$\text{institution } G = 1100 - 500 = 600$$

Thus, difference is maximum for institution D .

24.53 Correct answer is (A).

Number of candidates who have failed from institution B

= Number of appeared candidates from institution B

– Number of passed candidates from institution B

$$= 1400 - 1000 = 400$$

and number of candidates appeared from institution $F = 600$

$$\text{Required ratio} = 400 : 600 = 2 : 3$$

24.54 Correct answer is (C).

Total runs scored by the batsman = 306

$$\text{Total runs scored by 4's} = 43.14\% \text{ of } 306$$

$$= 132$$

$$= 33 \text{ fours } (33 \times 4 = 132)$$

$$\text{Total runs scored by 6's} = 3.92\% \text{ of } 306 = 12$$

$$= 2 \text{ sixes } (2 \times 6 = 12)$$

24.55 Correct answer is (C).

Considering the changes mentioned in the question,

$$\text{Total runs} = 306 + 3 \times 4 + 2 \times 3$$

$$= 306 + 12 + 6 = 324$$

$$\text{Total runs scored in 4's} = 132 + 12 = 144$$

$$\text{Required angle} = \frac{144}{324} \times 360^\circ = 160^\circ$$

24.56 Correct answer is (B).

Total number of employees in accounts department

$$= 8\% \text{ of } 4600 = 368$$

$$\text{Number of women} = \frac{368}{(3+1)} \times 1 = 92$$

24.57 Correct answer is (D).

Total number of employees in IT and HR departments

$$= (26 + 11)\% \text{ of } 4600$$

$$= \frac{37}{100} \times 4600 = 1702$$

24.58 Correct answer is (D).

Total number of men in all the departments

$$= \left[\left(\frac{11}{2} \times 1 \right) + \left(\frac{8}{4} \times 3 \right) + \left(\frac{15}{5} \times 3 \right) + \left(\frac{26}{4} \times 1 \right) \right.$$

$$\left. + \left(\frac{22}{2} \times 1 \right) + \left(\frac{18}{6} \times 5 \right) \right] \% \text{ of } 4600$$

$$= (5.5 + 6 + 9 + 6.5 + 11 + 15)\% \text{ of } 4600$$

$$= 47\% \text{ of } 4600$$

Hence, required ratio = 53 : 47

24.59 Correct answer is (C).

Number of women in merchandising department

$$= \frac{1}{6} \text{ of } 18\% \text{ of } 4600$$

Total number of employees in the organization = 4600

$$\begin{aligned} \text{Then, required percentage} \\ = \frac{\frac{1}{6} \text{ of } 18\% \text{ of } 4600}{4600} \times 100 = 3\% \end{aligned}$$

$$\begin{aligned} &= \frac{9810 - 5450}{5450} \times 100 \\ &= \frac{4360}{5450} \times 100\% = 80\% \end{aligned}$$

24.60 Correct answer is (A).

Number of men in the production department

$$= \frac{3}{5} \text{ of } 15\% \text{ of } 4600$$

Number of men in marketing department

$$= \frac{1}{2} \text{ of } 22\% \text{ of } 4600$$

Then, required ratio = $\frac{3}{5}$ of 15% of 4600 : $\frac{1}{2}$ of 22% of 4600

$$\begin{aligned} &= \frac{3}{5} \times 15 : \frac{1}{2} \times 22 \\ &= 9 : 11 \end{aligned}$$

24.61 Correct answer is (D).

Years	Number of students employed	Number of students employed from finance	Number of students employed from marketing
1992	800	0.22×800 = 176	0.36×800 = 288
1993	650	0.17×650 = 110.5	0.48×650 = 312
1994	1100	0.23×1100 = 253	0.43×1100 = 473
1995	1200	0.19×1200 = 228	0.37×1200 = 444
1996	1000	0.32×1000 = 320	0.32×1000 = 320
Total		1087.50	1837

$$\begin{aligned} \text{Required difference} &= 1837 - 1087.5 \\ &= 749.5 \approx 750 \end{aligned}$$

24.62 Correct answer is (B).

Average salary of Finance in 1992

$$= \text{Rs. } 5450 \text{ thousand}$$

Average salary of Finance in 1996

$$= \text{Rs. } 9810 \text{ thousand}$$

Required percentage increase

24.63 Correct answer is (D).

Salary offered in software

in 1992 = Rs. 5290 thousand

in 1996 = Rs. 8640 thousand

$$\text{Percentage increase} = \frac{8640 - 5290}{5290} \times 100\%$$

$$= \frac{3350}{5290} \times 100 = 63.32\%$$

Thus, required average annual increase rate

$$= \frac{1}{4} \times 63.32 = 15.83\%$$

$$\approx 15.9\%$$

24.64 Correct answer is (C).

Average monthly salary to a marketing student

in 1992 = Rs. 5170 thousand

in 1996 = Rs. 10220 thousand

Required percentage increase

$$= \frac{10220 - 5170}{5170} \times 100$$

$$= \frac{5050}{5170} \times 100\% \approx 98\%$$

24.65 Correct answer is (A).

In 1994, students seeking jobs in finance earned

$$= 23\% \text{ of } 1100 \times 7550$$

$$= \text{Rs. } 1910150$$

Students seeking jobs in software earned

$$= 21\% \text{ of } 1100 \times 7050 = \text{Rs. } 1628550$$

$$= \text{Rs. } 1628550$$

Difference in the amount earned

$$= 1910150 - 1628550$$

$$= \text{Rs. } 281600$$

$$= \text{Rs. } 2.81 \text{ lakh per month}$$

$$= \text{Rs. } 2.81 \times 12 \text{ lakh per annum}$$

$$= \text{Rs. } 33.8 \text{ lakh per annum}$$

24.66 Correct answer is (D).

Income tax collection = 20% of revenue = 18

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$$\text{Revenue} = \frac{18}{0.2} = \text{Rs. 90 billion}$$

$$\text{Expenditure} = 55 + 58 = \text{Rs. 113 billion}$$

$$\begin{aligned} \text{Borrowing} &= \text{Expenditure} - \text{Revenue} \\ &= 113 - 90 = \text{Rs. 23 billion} \end{aligned}$$

24.67 Correct answer is (B).

Let revenue in 1991 and 1993 be r_1 and r_2 , respectively and borrowing in these years be B and $(B - 10)$, respectively.

$$\text{In year 1991, } r_1 = 110 - B$$

$$\text{In year 1993, } r_2 = 113 - (B - 10)$$

$$\text{Increase in revenue, } r_2 - r_1 = 13$$

$$\begin{aligned} \text{Average increase in revenue} &= \frac{13}{2} \quad (\text{for the period} \\ &\text{from 1991-93}) \\ &= \text{Rs. 6.5 billion} \end{aligned}$$

24.68 Correct answer is (A).

Since, borrowing are equal, increase in Government revenue would be equal to increase in Government expenditure (Government expenditure = Borrowing + Government revenue)

$$\begin{aligned} \text{Increase in government revenue} \\ &= \text{Expenditure in 1994} - \text{Expenditure in 1992} \end{aligned}$$

$$= (60 + 60) - (58 + 54) = \text{Rs. 8 billion}$$

24.69 Correct answer is (C).

$$\begin{aligned} \text{Let } r \text{ be the revenue in 1990, then revenue in 1993} \\ &= 1.1r \end{aligned}$$

$$\text{Expenditure} = \text{Borrowing} + \text{Revenue}$$

$$\text{In year 1993, } 58 + 55 = b + 1.1r$$

$$\text{In year 1990, } 55 + 50 = b + r$$

$$0.1r = 113 - 105 = 8 \text{ billion}$$

$$r = \text{Rs. 80 billion}$$

$$\text{Revenue in 1993} = 1.1 \times 80 = \text{Rs. 88 billion}$$

$$\text{Income tax in 1990} = \text{Income tax in 1993}$$

$$= 0.2 \times 88 = \text{Rs. 17.6 billion}$$

Percentage income tax in revenues in 1990

$$= \frac{17.6}{80} \times 100\% = \frac{176}{8}\% = 22\%$$

24.70 Correct answer is (C).

It I receiving 10 amp, then H will also receive 10 amp. Hence, substation R will receive 25 amp as R is giving 20 amp to I and H after 10% loss two times for 2 km. Thus, substation Q will also receive 25 amp. The 25 amp that Q receives will be distributed equally into A , D and G , with a 10% loss for 1 km. A would receive $1/3$ of 90% of 25 = 7.5 amp.

24.71 Correct answer is (D).

For C to receive 10 amp, B should send 11.11 amp to C as after a loss of 10%, C will receive 10 amp. If C receives 10 amp, B will have received 22.22 amp (since, B will retain half and send forward half the electricity is receives.) That means A should send 24.7 amp to B (approx.) Thus, A receives $(24.7 \times 2) = 49.4$ amp. Thus, substation Q sends 55 amp to A . So, Q must have received $55 \times 3 = 165$ amp. Hence, P must have produced $165 \times 2 = 330$ amp.

24.72 Correct answer is (B).

As H is receiving 34 amp, as R must be sending 40 amp to H . Thus, R receives 80 amp and so will Q , Q will send forward towards G , $1/3$ of 90% of 80 = 24 amp as 10% of 80 amp will be lost on the way.

24.73 Correct answer is (C).

As we have done above, F will receive 9 amp, if D sends 10 amp to each of E and F . Thus, D must be getting 40 amp. Since, D and G are identical, G must be receiving 40 amp.

24.74 Correct answer is (C).

Suppose, P is producing 100% current, then 50% of it will reach Q . Then, D will receive $(1/3$ of 90% of 50)% = 15%

$$\text{Thus, } F \text{ will receive} = \frac{1}{2} \text{ of } 90\% \text{ of } \left(\frac{15}{2}\right) = 3.375\%$$

24.75 Correct answer is (D).

Number of members reading English as well as Marathi newspaper only is 300. Number of members reading English as well as Hindi newspaper only is 300. Therefore, required difference = $300 - 300 = 0$

24.76 Correct answer is (D).

From the above venn diagram,

$$\begin{aligned} \text{Number of members reading atleast two newspapers} \\ = 300 + 300 + 400 + 200 = 1200 \end{aligned}$$

24.77 Correct answer is (D).

From the above Venn diagram,

$$\begin{aligned} \text{Number of members reading Hindi newspaper} \\ = 500 + 300 + 200 + 400 = 1400 \end{aligned}$$

24.78 Correct answer is (A).

From the above venn diagram, the number of members reading only one newspaper

$$= 650 + 500 + 450 = 1600$$

24.79 Correct answer is (C).

From the above venn diagram, the number of members reading atleast three newspapers = 200.

24.80 Correct answer is (C).

From the table, it is clear that total number of students enrolled in B.Tech. (mechanical).

$$= 756 + 306 = 1062$$

24.81 Correct answer is (D).

Number of girls enrolled in B.Tech. (electronics) = 1098

$$\text{Required percentage} = \frac{1098}{7200} \times 100 = 15.25 \simeq 15\%$$

24.82 Correct answer is (D).

Number of girls enrolled in B.Tech. (nano technology) = 522

24.83 Correct answer is (B).

Number of boys enrolled in B.Tech (aerospace) = 1080

Number of girls enrolled in B.Tech (computer science) = 480

$$\text{Required percentage} = \frac{1080}{480} \times 100\% = 225\%$$

24.84 Correct answer is (A).

Total number of boys enrolled in B.Tech. (civil) = 432.
