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1

Logical reasoning

Analogies

1. Odometer is to mileage as compass is to

A. speed B. hiking C. needle D. direction Answer: Option D

Odometer is used to measure mileage and compass is used to measure direction

2. Marathon is to race as hibernation is to

A. winter B. bear C. dream D. sleep Answer: Option D:

A marathon is a long race and hibernation is a lengthy period of sleep.

3. Window is to pane as book is to

A. novel B. glass C. cover D. page Answer: Option D

A window is made up of panes, and a book is made up of pages.

4. Cup is to coffee as bowl is to

A. dish B. soup C. spoon D. food Answer: Option B

Coffee goes into a cup and soup goes into a bowl.

5. Yard is to inch as quart is to

A. gallon B. ounce C. milk D. liquid Answer: Option B

A yard is a larger measure than an inch (a yard contains 36 inches). A quart is a larger measure than an ounce (a quart contains 32 ounces).

6. Elated is to despondent as enlightened is to

A. aware B. ignorant C. miserable D. tolerant Answer: Option B

Elated is the opposite of despondent; enlightened is the opposite of ignorant.

7. Optimist is to cheerful as pessimist is to

A. gloomy B. mean C. petty D. helpful Answer: Option A

An optimist is a person whose outlook is cheerful. A pessimist is a person whose outlook is gloomy.

8. Reptile is to lizard as flower is to

A. petal B. stem C. daisy D. alligator Answer: Option C

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A lizard is a type of reptile; a daisy is a type of flower. petal and a stem are parts of a flower, not types of flowers.

9. Play is to actor as concert is to

A. symphony B. musician C. piano D. percussion Answer: Option B

An actor performs in a play. A musician performs at a concert.

10. Sponge is to porous as rubber is to

A. massive B. solid C. elastic D. inflexible Answer: Option C

A sponge is a porous material. Rubber is an elastic material.

11. Careful is to cautious as boastful is to

A. arrogant B. humble C. joyful D. suspicious Answer: Option A

Careful and cautious are synonyms. Boastful and arrogant are also synonyms. humble means the opposite of boastful.

12. Pen is to poet as needle is to

A. thread B. button C. sewing D. tailor Answer: Option D

A pen is a tool used by a poet. A needle is a tool used by a tailor.

13. Secretly is to openly as silently is to

A. scarcely B. impolitely C. noisily D. quietly Answer: Option C

Secretly is the opposite of openly, and silently is the opposite of noisily.

14. Embarrassed is to humiliated as frightened is to

A. terrified B. agitated C. courageous D. reckless Answer: Option A

If someone has been humiliated, they have been greatly embarrassed. If someone is terrified, they are extremely frightened. The answer is not choice b because an agitated person is not necessarily frightened. Choices c and d are incorrect because neither word expresses a state of being frightened.

15. Pride is to lion as shoal is to

A. teacher B. student C. self-respect D. fish Answer: Option D:

A group of lions is called a pride. A group of fish swim in a shoal.

16. Artist is to painting as senator is to

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A. attorney B. law C. politician D. constituents Answer: Option B:

An artist makes paintings a senator makes laws. The answer is not choice a because an attorney does not make laws and a senator is not an attorney. Choice c is incorrect because a senator is not a politician.

17. Exercise is to gym as eating is to

A. food B. dieting C. fitness D. restaurant Answer: Option D

A gym is a place where people exercise. A restaurant is a place where people eat.

18. Candid is to indirect as honest is to

A. frank B. wicked C. truthful D. untruthful Answer: Option D

Candid and indirect refer to opposing traits. Honest and untruthful refer to opposing traits.

19. Guide is to direct as reduce is to

A. decrease B. maintain C. increase D. preserve Answer: Option A:

Guide and direct are synonyms, and reduce and decrease are synonyms.

20. Oar is to rowboat as foot is to

A. running B. sneaker C. skateboard D. jumping Answer: Option C

An oar puts a rowboat into motion. A foot puts a skateboard into motion. The answer is not choice a because running is not an object that is put into motion by a foot.

2. Analogies Type 2

1. candle lamp floodlight

hut cottage ?

A. tent B. city C. dwelling D. house Answer: Option D

Above the line the relationship shows a progression of sources of light. The relationship below shows a progression of types of housing, from smallest to largest. (Choice a) is incorrect because a tent is smaller than a house.

2. daisy flower plant

bungalow house ?

A. building B. cottage C. apartment D. city Answer: Option A

Above the line, the relationship is as follows: A daisy is a type of flower, and a flower is a type of

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plant. Below the line, the relationship is as follows: A bungalow is a type of house, and a house is a type of building.

3. palette easel brush

textbook lesson plan ?

A. artist B. teacher C. report card D. paint Answer: Option C

The objects above the line are all things used by an artist. The objects below the line are all things used by a teacher.

4. rule command dictate

doze sleep ?

A. snore B. govern C. awaken D. hibernate Answer: Option D

The words above the line show a continuum: Command is more extreme than rule, and dictate is more extreme than command. Below the line, the continuum is as follows: Sleep is more than doze, and hibernate is more than sleep.

5. apples fruit supermarket

novel book ?

A. bookstore B. magazine C. vegetable D. shopping Answer: Option A

The relationship above the line is as follows; apples are a kind of fruit; fruit is sold in a supermarket. Below the line, the relationship is: a novel is a kind of book; books are sold in a bookstore.

6. ant fly bee

hamster squirrel ?

A. spider B. mouse C. rodent D. cat Answer: Option B

The three above the line are all insects. The hamster and squirrel are rodents, so the correct choice is b because the mouse is also a rodent.

7. carpenter saw nails

pediatrician stethoscope ?

A. thermometer B. baby C. doctor D. illness Answer: Option A

In the relationship above the line, the saw and the nails are tools a carpenter uses. In the relationship below the line, the stethoscope and thermometer are tools a pediatrician uses.

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8. tadpole frog amphibian

lamb sheep ?

A. animal B. wool C. farm D. mammal Answer: Option D

The tadpole is a young frog; frogs are amphibians. The lamb is a young sheep; sheep are mammals.

9. table wood oak

shirt cloth ?

A. sewing B. dress C. cotton D. tree Answer: Option C

A table made of wood could come from an oak tree. A shirt made of cloth could come from a cotton plant.

10. snow mountain ski

warmth lake ?

A. sand B. swim C. sunburn D. vacation Answer: Option B

The relationship above the line is that snow on a mountain creates conditions for skiing. Below the line, the relationship is that warmth at a lake creates conditions for swimming.

11. walk skip run

toss pitch ?

A. swerve B. hurl C. jump D. dance Answer: Option B

Walk, skip, and run represent a continuum of movement: Skipping is faster than walking; running is faster than skipping. Below the line, the continuum is about throwing: Pitch is faster than toss; hurl is faster than pitch.

12. meal banquet feast

shelter palace ?

A. mansion B. hallway C. protection D. haven Answer: Option A

A banquet and a feast are both large meals; a palace and a mansion are both large places of shelter.

13. honeybee angel bat

kangaroo rabbit ?

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A. mermaid B. possum C. grasshopper D. sprinter Answer: Option C

The honeybee, angel, and bat all have wings; they are capable of flying. The kangaroo, rabbit, and grasshopper are all capable of hopping.

14. fence wall boundary

path alley ?

A. ramp B. passageway C. airfield D. pedestrian Answer: Option B

A fence and a wall mark a boundary. A path and an alley mark a passageway.

3. Analogies Type3

1. BINDING : BOOK

A. criminal : gang B. display : museum C. artist : carpenter

D. nail : hammer E. frame : picture Answer: Option E

A binding surrounds a book; a frame surrounds a picture.

2. EXPLORE : DISCOVER

A. read : skim B. research : learn C. write : print

D. think : relate E. sleep : wake Answer: Option B

One explores to discover; one researches to learn.

3. SIAMESE : CAT

A. type : breed B. dog : puppy C. mark : spot

D. romaine : lettuce E. collar : leash Answer: Option D

Siamese is a kind of cat; romaine is a kind of lettuce.

4. FINCH : BIRD

A. frog :toad B. elephant : reptile C. Dalmatian : dog

D. collie : marsupial E. ant : ladybug Answer: Option C

A finch is a type of bird; a Dalmatian is a type of dog.

5. PETAL : FLOWER

A. salt : pepper B. tire : bicycle C. base : ball

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D. sandals : shoes E. puppy : dog Answer: Option B

A petal is a part of a flower; a tire is a part of a bicycle.

6. COTTON : BALE

A. butter : churn B. wine : ferment C. grain : shock

D. curd : cheese E. beef : steak Answer: Option C

Upon harvesting, cotton is gathered into bales; grain is gathered into shocks.

7. ELEPHANT : PACHYDERM

A. mantis : rodent B. poodle : feline C. kangaroo : marsupial

D. zebra : horse E. tuna : mollusk Answer: Option C

An elephant is a pachyderm; a kangaroo is a marsupial.

8. PSYCHOLOGIST : NEUROSIS

A. ophthalmologist : cataract B. dermatologist : fracture C. infant : pediatrician

D. rash : orthopedist E. oncologist : measles Answer: Option A

A psychologist treats a neurosis; an ophthalmologist treats a cataract.

9. PASTORAL : RURAL

A. metropolitan : urban B. harvest : autumn C. agrarian : benevolent

D. sleepy : nocturnal E. wild : agricultural Answer: Option A

Pastoral describes rural areas; metropolitan describes urban areas.

10. TAILOR : SUIT

A. scheme : agent B. edit : manuscript C. revise : writer

D. mention : opinion E. implode : building Answer: Option B

To tailor a suit is to alter it; to edit a manuscript is to alter it.

11. PEDAL : BICYCLE

A. inch : yardstick B. walk : skip C. tire : automobile

D. buckle : belt E. oar : canoe Answer: Option E

A pedal propels a bicycle; an oar propels a canoe.

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12. DIVISION : SECTION

A. layer : tier B. tether : bundle C. chapter : verse

D. riser : stage E. dais : speaker Answer: Option A

Division and section are synonyms; layer and tier are synonyms.

13. DEPRESSED : SAD

A. neat : considerate B. towering : cringing C. rapid : plodding

D. progressive : regressive E. exhausted : tired Answer: Option E

Depressed is an intensification of sad; exhausted is an intensification of tired.

14. BRISTLE : BRUSH

A. arm : leg B. stage : curtaiC C. recline : chair

D. key : piano E. art : sculpture Answer: Option D

A bristle is a part of a brush; a key is a part of a piano.

15. RAIN : DRIZZLE

A. swim :dive B. hop : shuffle C. juggle : bounce

D. walk : run E. run : jog Answer: Option E

To drizzle is to rain slowly; to jog is to run slowly.

16. PULSATE : THROB

A. walk : run B. tired : sleep C. examine : scrutinize

D. ballet : dancer E. find : lose Answer: Option C

Pulsate and throb are synonyms, as are examine and scrutinize.

17. FISH : SHOAL

A. wolf : pack B. elephant : jungle C. beagle : clan

D. herd : peacock E. cow : farm Answer: Option A

A group of fish is a shoal; a group of wolves is a pack.

18. ODOMETER : DISTANCE

A. scale : weight B. length : width C. inch : foot

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D. mileage : speed E. area : size Answer: Option A

Scale - A measuring instrument for weighing; shows amount of mass.

An odometer measures distance; a scale measures weight.

19. WAITRESS : RESTAURANT

A. doctor : diagnosis B. actor : role C. driver : truck

D. teacher : school E. author : book Answer: Option D

A waitress works in a restaurant; a teacher works in a school.

20. SKEIN : YARN

A. squeeze : lemon B. fire : coal C. ream : paper

D. tree : lumber E. plow : acre Answer: Option C

A skein is a quantity of yarn; a ream is a quantity of paper.

4. Analogies Type4

1. MONK : DEVOTION

A. maniac : pacifism B. explorer : contentment C. visionary : complacency

D. rover : wanderlust E. philistine : culture Answer: Option D

Devotion is characteristic of a monk; wanderlust is characteristic of a rover.

2. SLAPSTICK : LAUGHTER

A. fallacy : dismay B. genre : mystery C. satire : anger

D. mimicry : tears E. horror : fear Answer: Option E

Slapstick results in laughter; horror results in fear.

3. VERVE : ENTHUSIASM

A. loyalty : duplicity B. devotion : reverence C. intensity : color

D. eminence : anonymity E. generosity : elation Answer: Option B

Verve and enthusiasm are synonyms; devotion and reverence are synonyms.

4. SPY : CLANDESTINE

A. accountant : meticulous B. furrier : rambunctious C. lawyer : ironic

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D. shepherd : garrulous E. astronaut : opulent Answer: Option A

A spy acts in a clandestine manner; an accountant acts in a meticulous manner.

5. COBBLER : SHOE

A. jockey : horse B. contractor : building C. mason : stone

D. cowboy : boot E. potter : paint Answer: Option B

A cobbler makes and repairs shoes; a contractor builds and repairs buildings.

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2

Logical reasoning

Logical game

The government of an island nation is in the process of deciding how to spend its limited income. It has $7 million left in its budget and eight programs to choose among. There is no provision in the constitution to have a surplus, and each program has requested the minimum amount they need; in other words, no program may be partially funded. The programs and their funding requests are:

* Hurricane preparedness: $2.5 million

* Harbor improvements: $1 million

* School music program: $0.5 million

* Senate office building remodeling: $1.5 million

* Agricultural subsidy program: $2 million

* National radio: $0.5 million

* Small business loan program: $3 million

* International airport: $4 million

1. Senators from urban areas are very concerned about assuring that there will be funding for a new international airport. Senators from rural areas refuse to fund anything until money for agricultural subsidies is appropriated. If the legislature funds these two programs, on which of the following could they spend the rest of the money?

A. the school music program and national radio B. hurricane preparedness

C. harbor improvements and the school music program

D. small business loan program E. national radio and senate office building remodeling

Answer: Option A

The total cost of the school music program and national radio is $1 million, the amount left after the international airport and agricultural subsidies are funded.

International airport + Agricultural subsidy program

$4 million + $2 million = $6 million

school music program and national radio is $1 million.

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Hence, Total $7 million.

2. If the legislature decides to fund the agricultural subsidy program, national radio, and the small business loan program, what two other programs could they fund?

A. harbor improvements and international airport

B. harbor improvements and school music program

C. hurricane preparedness and school music program

D. hurricane preparedness and international airport

E. harbor improvements and hurricane preparedness

Answer: Option B

The only two programs that total 1.5 million dollars are the harbor improvements and school music program.

3. If the legislature decides to fund the agricultural subsidy program, national radio, and the small business loan program, the only other single program that can be funded is

A. hurricane preparedness. B. harbor improvements. C. school music program.

D. senate office building remodeling. E. international airport. Answer: Option D

The total of the three programs (2 million + 0.5 million + 3 million) is 5.5 million. That leaves 1.5 million (7 million - 5.5 million), and the only single program needing that amount is the senate office building remodeling.

At a small company, parking spaces are reserved for the top executives: CEO, president, vice president, secretary, and treasurer with the spaces lined up in that order. The parking lot guard can tell at a glance if the cars are parked correctly by looking at the color of the cars. The cars are yellow, green, purple, red, and blue, and the executives names are Alice, Bert, Cheryl, David, and Enid.

* The car in the first space is red.

* A blue car is parked between the red car and the green car.

* The car in the last space is purple.

* The secretary drives a yellow car.

* Alice's car is parked next to David's.

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* Enid drives a green car.

* Bert's car is parked between Cheryl's and Enid's.

* David's car is parked in the last space.

1. Who is the secretary?

A. Enid B. David C. Cheryl D. Bert E. Alice Answer: Option E

Cheryl cannot be the secretary, since she's the CEO, nor can Enid, because she drives a green car, and the secretary drives a yellow car. David's, the purple car, is in the last space. Alice is the secretary, because her car is parked next to David's, which is where the secretary's car is parked.

2. Who is the CEO ?

A. Alice B. Bert C. Cheryl D. David E. Enid Answer: Option C

The CEO drives a red car and parks in the first space. Enid drives a green car; Bert's car is not in the first space; David's is not in the first space, but the last. Alice's car is parked next to David's, so Cheryl is the CEO.

3. What color is the vice president's car?

A. green B. yellow C. blue D. purple E. red Answer: Option A

The vice president's car cannot be red, because that is the CEO's car, which is in the first space. Nor can it be purple, because that is the treasurer's car, which is in the last space, or yellow, because that is the secretary's. The president's car must be blue, because it is parked between a red car (in the first space) and a green car, which must be the vice president's.

Five cities all got more rain than usual this year. The five cities are: Last Stand, Mile City, New Town, Olliopolis, and Polberg. The cities are located in five different areas of the country: the mountains, the forest, the coast, the desert, and in a valley. The rainfall amounts were: 12 inches, 27 inches, 32 inches, 44 inches, and 65 inches.

* The city in the desert got the least rain; the city in the forest got the most rain.

* New Town is in the mountains.

* Last Stand got more rain than Olliopolis.

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* Mile City got more rain than Polberg, but less rain than New Town.

* Olliopolis got 44 inches of rain.

* The city in the mountains got 32 inches of rain; the city on the coast got 27 inches of rain.

1. Which city got the most rain?

A. Last Stand B. Mile City C. New Town D. Olliopolis E. Polberg Answer: Option A

Olliopolis got 44 inches of rain. Last Stand got more rain than that, so it got 65 inches, which is the most.

2. How much rain did Mile City get?

A. 12 inches B. 27 inches C. 32 inches D. 44 inches E. 65 inches Answer: Option B

Olliopolis got 44 inches of rain, Last Stand got 65, and Polberg got 12. New Town is in the mountains, and the city in the mountains got 32 inches of rain. Therefore, Mile City got 27.

3. Which city is in the desert ?

A. Last Stand B. Mile City C. New Town D. Olliopolis E. Polberg Answer: Option E

The city that got the least rain is in the desert. New Town is in the mountains. Last Stand got more rain than Olliopolis, so it cannot be the city with the least rain; also,Mile City cannot be the city with the least rain. Olliopolis got 44 inches of rain. Therefore, Polberg is in the desert and got 12 inches of rain.

4. Where is Olliopolis located?

A. the mountains B. the coast C. in a valley D. the desert E. the forest

Answer: Option C

Olliopolis got 44 inches of rain, so it is not in the desert or the forest. The city in the mountains got 32 inches of rain; the coast 27. Therefore, Olliopolis is in a valley.

Five roommates Randy, Sally, Terry, Uma, and Vernon each do one housekeeping task mopping, sweeping, laundry, vacuuming, or dusting one day a week, Monday through Friday.

* Vernon does not vacuum and does not do his task on Tuesday.

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* Sally does the dusting, and does not do it on Monday or Friday.

* The mopping is done on Thursday.

* Terry does his task, which is not vacuuming, on Wednesday.

* The laundry is done on Friday, and not by Uma.

* Randy does his task on Monday.

1. What task does Terry do on Wednesday?

A. vacuuming B. dusting C. mopping D. sweeping E. laundry Answer: Option D

Terry does not dust, mop, do laundry, or vacuum. Therefore, Terry does the sweeping on Wednesday.

2. What day does Uma do her task?

A. Monday B. Tuesday C. Wednesday D. Thursday E. Friday Answer: Option D

Uma does the mopping, which is done on Thursday.

3. What task does Vernon do?

A. vacuuming B. dusting C. moppin D. sweeping E. laundry Answer: Option E

Vernon does not vacuum, dust, or sweep. Randy does the vacuuming, Sally does the dusting, Terry does the sweeping—leaving laundry and mopping for Uma and Vernon. Uma does not do laundry; therefore, she must mop, and Vernon does the laundry.

4. What day is the vacuuming done?

A. Friday B. Monday C. Tuesday D. Wednesday E. Thursday Answer: Option B

Dusting is on Tuesday, sweeping is on Wednesday, mopping is on Thursday, and laundry is on Friday. Therefore, the vacuuming is done on Monday.

5. When does Sally do the dusting?

A. Friday B. Monday C. Tuesday D. Wednesday E. Thursday Answer: Option C

Dusting must be done on Tuesday, Wednesday, or Thursday. However, the mopping is done on Thursday, and Terry does his task on Wednesday. Therefore, Sally does the dusting on Tuesday.

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3

Logical reasoning

Verbal clasfication

1. Which word does NOT belong with the others?

A. parsley B. basil C. dill D. mayonnaise Answer: Option D

Parsley, basil, and dill are types of herbs. Mayonnaise is not an herb.

2. Which word does NOT belong with the others?

A. inch B. ounce C. centimeter D. yard Answer: Option B

An ounce measures weight; the other choices measure length.

3. Which word does NOT belong with the others?

A. tyre B. steering wheel C. engine D. car Answer: Option D

Tyre, steering wheel, and engine are all parts of a car.

4. Which word does NOT belong with the others?

A. tulip B. rose C. bud D. daisy Answer: Option C

Tulip, rose, and daisy are all types of flowers. A bud is not.

5. Which word does NOT belong with the others?

A. rye B. sourdough C. pumpernickel D. loaf Answer: Option A

Loaf, sourdough, and pumpernickel are types of bread. A rye is not a bread type.

6. Which word does NOT belong with the others?

A. guitar B. flute C. violin D. cello Answer: Option B

The guitar, violin, and cello are stringed instruments; the flute is a wind instrument.

7. Which word does NOT belong with the others?

A. dodge B. flee C. duck D. avoid Answer: Option B

Dodge, duck, and avoid are all synonyms meaning evade. Flee means to run away from.

8. Which word does NOT belong with the others?

A. branch B. dirt C. leaf D. root Answer: Option B

A branch, leaf, and root are all parts of a tree. The dirt underneath is not a part of the tree.

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9. Which word does NOT belong with the others?

A. street B. freeway C. interstate D. expressway Answer: Option A

Freeway, interstate, and expressway are all high- speed highways; a street is for low-speed traffic.

10. Which word does NOT belong with the others?

A. heading B. body C. letter D. closing Answer: Option C

Heading, body, and closing are all parts of a letter; the letter is the whole, not a part.

11. Which word does NOT belong with the others?

A. tape B. twine C. cord D. yarn Answer: Option A

The yarn, twine, and cord are all used for tying. The tape is not used in the same way.

12. Which word does NOT belong with the others?

A. leopard B. cougar C. elephant D. lion Answer: Option C

A leopard, cougar, and lion all belong to the cat family; an elephant does not.

13. Which word does NOT belong with the others?

A. couch B. rug C. table D. chair Answer: Option B

The couch, table, and chair are pieces of furniture; the rug is not.

14. Which word does NOT belong with the others?

A. cornea B. retina C. pupil D. vision Answer: Option D

The cornea, retina, and pupil are all parts of the eye.

15. Which word does NOT belong with the others?

A. noun B. preposition C. punctuation D. adverb Answer: Option C

The noun, preposition, and adverb are classes of words that make up a sentence.

16. Which word does NOT belong with the others?

A. book B. index C. glossary D. chapter Answer: Option A

An index, glossary, and chapter are all parts of a book. Choice a does not belong because the book is the whole, not a part.

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4

Logical reasoning

Verbal reasoning

1. Vincent has a paper route. Each morning, he delivers 37 newspapers to customers in his neighborhood. It takes Vincent 50 minutes to deliver all the papers. If Vincent is sick or has other plans, his friend Thomas, who lives on the same street, will sometimes deliver the papers for him.

A. Vincent and Thomas live in the same neighborhood.

B. It takes Thomas more than 50 minutes to deliver the papers.

C. It is dark outside when Vincent begins his deliveries.

D. Thomas would like to have his own paper route.

Answer: Option A

The fact that Vincent and Thomas live on the same street indicates that they live in the same neighborhood. There is no support for any of the other choices.

2. The Pacific yew is an evergreen tree that grows in the Pacific Northwest. The Pacific yew has a fleshy, poisonous fruit. Recently, taxol, a substance found in the bark of the Pacific yew, was discovered to be a promising new anticancer drug.

A. Taxol is poisonous when taken by healthy people.

B. Taxol has cured people from various diseases.

C. People should not eat the fruit of the Pacific yew.

D. The Pacific yew was considered worthless until taxol was discovered.

Answer: Option C

Given the information presented, the only statement that could be considered true is that the fruit should not be eaten because it is poisonous. There is no support that taxol is poisonous or that taxol has cured anyone (choices a and b). There is no support for choice d.

3. Erin is twelve years old. For three years, she has been asking her parents for a dog. Her parents have told her that they believe a dog would not be happy in an apartment, but they have given her permission to have a bird. Erin has not yet decided what kind of bird she would like to have.

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Freeway, interstate, and expressway are all high- speed highways; a street is for low-speed traffic.

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C. It is usually necessary to book at least six months in advance at the spa.

D. Maya and Julian decided to change their vacation plans because of the hurricane.

Answer: Option D

The first sentence makes this statement true. There is no support for choice a. The passage tells us that the spa vacation is more expensive than the island beach resort vacation, but that doesn't necessarily mean that the spa is overpriced; therefore, choice b cannot be supported. And even though the paragraph says that the couple was relieved to find a room on short notice, there is no information to support choice c, which says that it is usually necessary to book at the spa at least six months in advance.

6. Ten new television shows appeared during the month of September. Five of the shows were sitcoms, three were hour-long dramas, and two were news-magazine shows. By January, only seven of these new shows were still on the air. Five of the shows that remained were sitcoms.

A. Only one of the news-magazine shows remained on the air.

B. Only one of the hour-long dramas remained on the air.

C. At least one of the shows that was cancelled was an hour-long drama.

D. Television viewers prefer sitcoms over hour-long dramas.

Answer: Option C

If there were seven shows left and five were sitcoms, this means that only two of the shows could possibly be dramas. Choices a and b may be true, but there is no evidence to indicate this as fact. The fact that all of the sitcoms remained does not necessarily mean that viewers prefer sitcoms (choice d).

7. On weekends, Mr. Sanchez spends many hours working in his vegetable and flower gardens. Mrs. Sanchez spends her free time reading and listening to classical music. Both Mr. Sanchez and Mrs. Sanchez like to cook.

A. Mr. Sanchez enjoys planting and growing vegetables.

B. Mr. Sanchez does not like classical music.

C. Mrs. Sanchez cooks the vegetables that Mr. Sanchez grows.

D. Mrs. Sanchez enjoys reading nineteenth century novels.

Answer: Option A

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Because Mr. Sanchez spends many hours during the weekend working in his vegetable garden, it is reasonable to suggest that he enjoys this work. There is no information to suggest that he does not like classical music. Although Mrs. Sanchez likes to cook, there is nothing that indicates she cooks vegetables (choice c). Mrs. Sanchez likes to read, but there is no information regarding the types of books she reads (choice d).

8. Georgia is older than her cousin Marsha. Marsha's brother Bart is older than Georgia. When Marsha and Bart are visiting with Georgia, all three like to play a game of Monopoly. Marsha wins more often than Georgia does.

A. When he plays Monopoly with Marsha and Georgia, Bart often loses.

B. Of the three, Georgia is the oldest.

C. Georgia hates to lose at Monopoly.

D. Of the three, Marsha is the youngest.

Answer: Option D

If Georgia is older than Marsha and Bart is older than Georgia, then Marsha has to be the youngest of the three. Choice b is clearly wrong because Bart is the oldest. There is no information in the paragraph to support either choice a or choice c.

9. Sara lives in a large city on the East Coast. Her younger cousin Marlee lives in the Mid -west in a small town with fewer than 1,000 residents. Marlee has visited Sara several times during the past five years. In the same period of time, Sara has visited Marlee only once.

A. Marlee likes Sara better than Sara likes Marlee.

B. Sara thinks small towns are boring.

C. Sara is older than Marlee.

D. Marlee wants to move to the East Coast.

Answer: Option C

Since the paragraph states that Marlee is the younger cousin, Sara must be older than Marlee. There is no information to support the other choices.

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5

Logical reasoning

Maching definitions

1. Applying for Seasonal Employment occurs when a person requests to be considered for a job that is dependent on a particular season or time of year. Which situation below is the best example of Applying for Seasonal Employment?

A. The ski instructors at Top of the Peak Ski School work from December through March.

B. Matthew prefers jobs that allow him to work outdoors.

C. Lucinda makes an appointment with the beach resort restaurant manager to interview for the summer waitressing position that was advertised in the newspaper.

D. Doug's ice cream shop stays open until 11 p.m. during the summer months.

Answer: Option C

Although the ski instructors at Top of the Peak Ski School do work seasonally, choice a does not describe anyone applying for seasonal employment. In choice b, the statement that Matthew likes to work outdoors tells us nothing about seasonal employment or someone applying for it. And although choice d describes a business with seasonal hours, it does not describe a person applying for seasonal work. Choice c, on the other hand, very specifically depicts a person, Lucinda, who is applying for a job as a summer waitress at a beach resort, which is dependent upon a particular season of the year.

2. Violating an Apartment Lease occurs when a tenant does something prohibited by the legally binding document that he or she has signed with a landlord. Which situation below is the best example of Violating an Apartment Lease?

A. Tim has decided to move to another city, so he calls his landlord to tell him that he is not interested in renewing his lease when it expires next month.

B. Valerie recently lost her job and, for the last three months, has neglected to pay her landlord the monthly rent they agreed upon in writing when she moved into her apartment eight months ago.

C. Mark writes a letter to his landlord that lists numerous complaints about the apartment he has agreed to rent for two years.

D. Leslie thinks that her landlord is neglecting the building in which she rents an apartment. She calls her attorney to ask for advice.

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Answer: Option B

Valerie signed a legally binding document that requires her to pay a monthly rent for her apartment and she has failed to do this for the last three months. Therefore, she has violated her apartment lease.

3. An Informal Gathering occurs when a group of people get together in a casual, relaxed manner. Which situation below is the best example of an Informal Gathering?

A. The book club meets on the first Thursday evening of every month.

B. After finding out about his promotion, Jeremy and a few coworkers decide to go out for a quick drink after work.

C. Mary sends out 25 invitations for the bridal shower she is giving for her sister.

D. Whenever she eats at the Mexican restaurant, Clara seems to run into Peter.

Answer: Option B

After getting some good news, Jeremy and a few friends casually get together for a drink after work, thereby having an informal gathering. Choices a and c describe more formal types of gatherings. Choice d describes a chance or coincidental kind of meeting.

4. People speculate when they consider a situation and assume something to be true based on inconclusive evidence. Which situation below is the best example of Speculation ?

A. Francine decides that it would be appropriate to wear jeans to her new office on Friday after reading about "Casual Fridays" in her employee handbook.

B. Mary spends thirty minutes sitting in traffic and wishes that she took the train instead of driving.

C. After consulting several guidebooks and her travel agent, Jennifer feels confident that the hotel she has chosen is first-rate.

D. When Emily opens the door in tears, Theo guesses that she's had a death in her family.

Answer: Option D

This is the only situation in which someone makes an assumption that is not based on conclusive evidence. Choices a and c reflect situations in which assumptions are made based on evidence. In choice b, Mary is not assuming anything to be true. She is simply

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wishing that she'd made a different decision.

5. Posthumous Publication occurs when a book is published after the author's death. Which situation below is the best example of Posthumous Publication ?

A. Richard's illness took his life before he was able to enjoy the amazing early reviews of his novel.

B. Melissa's publisher cancels her book contract after she fails to deliver the manuscript on time.

C. Clarence never thought he'd live to see the third book in his trilogy published.

D. Elizabeth is honored with a prestigious literary award for her writing career and her daughter accepts the award on behalf of her deceased mother.

Answer: Option A

Although choice d also mentions a writer who has died, it does not state that one of the writer's books was published after her death, only that she received an award. Choice a states that Richard wasn't around to see the early reviews of his novel, therefore implying that Richard died before the book was published. The other two options depict living writers.

6. A Guarantee is a promise or assurance that attests to the quality of a product that is either (1) given in writing by the manufacturer or (2) given verbally by the person selling the product. Which situation below is the best example of a Guarantee?

A. Melissa purchases a DVD player with the highest consumer ratings in its category.

B. The salesperson advises Curt to be sure that he buys an air conditioner with a guarantee.

C. The local auto body shop specializes in refurbishing and selling used cars.

D. Lori buys a used digital camera from her coworker who says that she will refund Lori's money if the camera's performance is not of the highest quality.

Answer: Option D

Choices a, b, and c do not describe situations in which a product is guaranteed. Only choice d reflects a situation in which a seller attests to the quality of a product by giving the buyer a promise or assurance about its quality.

7. The rules of baseball state that a batter Legally Completes His Time at Bat when he is

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put out or becomes a base runner. Which situation below is the best example of a batter Legally Completing His Time at Bat?

A. Jared's blooper over the head of the short-stop puts him in scoring position.

B. The umpire calls a strike, even though the last pitch was way outside.

C. The pitcher throws his famous knuckleball, Joe swings and misses, and the umpire calls a strike.

D. The count is two balls and two strikes as Mario waits for the next pitch.

Answer: Option A

The fact that Jared is in scoring position due to his blooper indicates that he has hit the ball and is now a base runner; therefore, he has legally completed his time at bat. Choices b and c both describe situations in which a strike is called, but they do not state that the batter has been put out or that he is now a base runner. Choice d describes a situation in which the batter, Mario, is still at the plate waiting for the next pitch.

8. Erratic Behavior occurs when an individual acts in a manner that lacks consistency, regularity, and uniformity. Which situation below is the best example of Erratic Behavior?

A. Julia cannot contain her anger whenever the subject of local politics is discussed.

B. Martin has just been told that he is being laid off. Before leaving his supervisor's office, he punches a hole in the door.

C. Rhonda has visited the dealership several times, but she still cannot decide which car to buy.

D. In the past month, Jeffrey, who has been a model employee for three years, has repeatedly called in sick, forgotten important meetings, and been verbally abusive to colleagues.

Answer: Option D

Jeffrey's recent behavior is clearly inconsistent and irregular.

9. A Tiebreaker is an additional contest or period of play designed to establish a winner among tied contestants. Which situation below is the best example of a Tiebreaker?

A. At halftime, the score is tied at 28.

B. Mary and Megan have each scored three goals in the game.

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C. The referee tosses a coin to decide which team will have possession of the ball first.

D. The Sharks and the Bears each finished with 14 points, and they are now battling it out in a five-minute overtime.

Answer: Option D

This is the only choice that indicates that an additional period of play is taking place to determine the winner of a game that ended in a tie.

10. In the Maple Hill school district, a

Five-Day Suspension occurs when a student is not permitted to attend school for five days for (1) physically assaulting another student, a teacher, or a school employee or (2) willfully destructing or defacing school property. Which situation below is the best example of a Five-Day Suspension?

A. Lillian gets caught cheating on a math test for the second time and is suspended from school.

B. Marc is asked to leave the classroom due to his constant disruptions.

C. Franny uses spray paint to write derogatory comments on the locker room wall and she is given a suspension.

D. Ms. Farmer tells her class that students who fail the midterm exam will be expected to stay after school for tutoring help.

Answer: Option C

Although choices a and c both describe suspensions, only choice c describes a suspension that is the result of one of the two scenarios given in the definition of a five-day suspension (physical assault or destructing or defacing school property). Therefore, we can assume that Franny's suspension, which is the result of spray painting school property, will be a five-day suspension. Since the definition doesn't provide any information about suspensions for cheating, we can assume that Lillian's suspension does not fall into the five-day suspension category.

11. It is appropriate to compensate someone if you have damaged his or her property in some way. This is called Restitution. Which situation below is the best example of Restitution?

A. Jake borrows Leslie's camera and the lens shatters when it falls on the ground because he fails to zipper the case.When Jake returns the camera, he tells Leslie that he will pay for the repair.

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B. Rebecca borrows her neighbor's car, and when she returns it, the gas tank is practically empty. She apologizes profusely and tells her neighbor she will be more considerate the next time.

C. Aaron asks Tom to check in on his apartment while he is out of town. When Tom arrives, he discovers that a pipe has burst and there is a considerable amount of water damage. He calls a plumber to repair the pipe.

D. Lisa suspects that the pothole in her company's parking lot caused her flat tire. She tells her boss that she thinks the company should pay for the repair.

Answer: Option A

Jake damaged Leslie's camera while it was in his possession and he has agreed to compensate Leslie for the cost of the repair.

12. Reentry occurs when a person leaves his or her social system for a period of time and then returns. Which situation below best describes Reentry ?

A. When he is offered a better paying position, Jacob leaves the restaurant he manages to manage a new restaurant on the other side of town.

B. Catherine is spending her junior year of college studying abroad in France.

C. Malcolm is readjusting to civilian life after two years of overseas military service.

D. After several miserable months, Sharon decides that she can no longer share an apartment with her roommate Hilary.

Answer: Option C

Malcolm is the only person returning to a social system that he has been away from for an extended period of time.

13. Embellishing the Truth occurs when a person adds fictitious details or exaggerates facts or true stories. Which situation below is the best example of Embellishing the Truth?

A. Isabel goes to the theater, and the next day, she tells her coworkers she thought the play was excellent.

B. The realtor describes the house, which is eleven blocks away from the ocean, as prime waterfront property.

C. During the job interview, Fred, who has been teaching elementary school for ten years,

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describes himself as a very experienced teacher.

D. The basketball coach says it is likely that only the most talented players will get a college scholarship.

Answer: Option B

The realtor is using a clear exaggeration when she states that a house which is eleven blocks away from the ocean is prime waterfront property.

14. Establishing a Power of Attorney occurs when a legal document is created that gives one individual the authority to act for another. Which situation below is the best example of Establishing a Power of Attorney?

A. Louise is selling her house and she hires a lawyer to review the contract.

B. Simone's mother can no longer get to the bank to cash her checks and make deposits, so she has taken legal steps to enable Simone to do these things for her.

C. Jack's father is elderly and Jack thinks he is no longer able to make decisions for himself.

D. At her daughter's urging, Mrs.Lenox opens up a retirement account with the local bank.

Answer: Option B

Simone's mother has taken legal steps to allow another person to act on her behalf. Therefore, this is the only choice that indicates that a power of attorney has been established.

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6

Logical reasoning

Number series

1. Look at this series: 8, 6, 9, 23, 87 , ... What number should come next?

A. 128 B. 226 C. 324 D. 429 Answer: Option D

Explanation:

8 x 1 - 2 = 6

6 x 2 - 3 = 9

9 x 3 - 4 = 23

23 x 4 - 5 = 87

87 x 5 - 6 = 429 ...

2. Look at this series: 2, 6, 18, 54, ... What number should come next?

A. 108 B. 148 C. 162 D. 216 Answer: Option C

This is a simple multiplication series. Each number is 3 times more than the previous number.

3. Look at this series: 3, 4, 7, 8, 11, 12, ... What number should come next?

A. 7 B. 10 C. 14 D. 15 Answer: Option D

This alternating addition series begins with 3; then 1 is added to give 4; then 3 is added to give 7; then 1 is added, and so on.

4. Look at this series: 201, 202, 204, 207, ... What number should come next?

A. 205 B. 208 C. 210 D. 211 Answer: Option D

In this addition series, 1 is added to the first number; 2 is added to the second number; 3 is added to the third number; 4 is added to the fourth number; and go on.

5. Look at this series: 14, 28, 20, 40, 32, 64, ... What number should come next?

A. 52 B. 56 C. 96 D. 128 Answer: Option B

This is an alternating multiplication and subtracting series: First, multiply by 2 and then subtract 8.

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6. 28 25 5 21 18 5 14

A. 11 5 B. 10 7 C. 11 8 D. 5 10 E. 10 5 Answer: Option A

This is an alternating subtraction series with the interpolation of a random number, 5, as every third number. In the subtraction series, 3 is subtracted, then 4, then 3, and so on.

7. 2 3 4 5 6 4 8

A. 9 10 B. 4 8 C. 10 4 D. 9 4 E. 8 9 Answer: Option D

This is an alternating addition series with a random number, 4, interpolated as every third number. In the main series, 1 is added, then 2 is added, then 1, then 2, and so on.

8. 17 17 34 20 20 31 23

A. 26 23 B. 34 20 C. 23 33 D. 27 28 E. 23 28 Answer: Option E

This is an alternating subtraction series with repetition. There are two different patterns here. In the first, a number repeats itself; then 3 is added to that number to arrive at the next number, which also repeats. This gives the series 17, 17, 20, 20, 23, and so on. Every third number follows a second pattern, in which 3 is subtracted from each number to arrive at the next: 34, 31, 28.

9. 61 57 50 61 43 36 61

A. 29 61 B. 27 20 C. 31 61 D. 22 15 E. 29 22 Answer: Option E

This is an alternating repetition series, in which a random number, 61, is interpolated as every third number into an otherwise simple subtraction series. Starting with the second number, 57, each number (except 61) is 7 less than the previous number.

10. 42 40 38 35 33 31 28

A. 25 22 B. 26 23 C. 26 24 D. 25 23 E. 26 22 Answer: Option C

This is an alternating subtraction series in which 2 is subtracted twice, then 3 is subtracted once, then 2 is subtracted twice, and so on.

11. 16 26 56 36 46 68 56

A. 80 66 B. 64 82 C. 66 80 D. 78 68 E. 66 82 Answer: Option C

Here, every third number follows a different pattern from the main series. In the main series, beginning with 16, 10 is added to each number to arrive at the next. In the alternating series, beginning with 56, 12 is added to each number to arrive at the next.

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12. Look at this series: F2, __, D8, C16, B32, ... What number should fill the blank?

A. A16 B. G4 C. E4 D. E3 Answer: Option C

The letters decrease by 1; the numbers are multiplied by 2.

13. Look at this series: V, VIII, XI, XIV, __, XX, ... What number should fill the blank?

A. IX B. XXIII C. XV D. XVII Answer: Option D

This is a simple addition series; each number is 3 more than the previous number.

14. Look at this series: 70, 71, 76, __, 81, 86, 70, 91, ... What number should fill the blank?

A. 70 B. 71 C. 80 D. 96 Answer: Option A

In this series, 5 is added to the previous number; the number 70 is inserted as every third number.

15. Look at this series: VI, 10, V, 11, __, 12, III, ... What number should fill the blank?

A. II B. IV C. IX D. 14 Answer: Option B

This is an alternating addition and subtraction series. Roman numbers alternate with Arabic numbers. In the Roman numeral pattern, each number decreases by 1. In the Arabic numeral pattern, each number increases by 1.

16. Look at this series: J14, L16, __, P20, R22, ... What number should fill the blank?

A. S24 B. N18 C. M18 D. T24 Answer: Option B

In this series, the letters progress by 2, and the numbers increase by 2.

17. Look at this series: XXIV, XX, __, XII, VIII, ... What number should fill the blank?

A. XXII B. XIII C. XVI D. IV Answer: Option C

This is a simple subtraction series; each number is 4 less than the previous number.

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7 Data interpretation

Study the following table and answer the questions based on it.

Entrance

Expenditures of a Company (in Lakh Rupees) per Annum Over the given Years.

Year	Item of Expenditure				
	Salary	Fuel and Transport	Bonus	Interest on Loans	Taxes
1998	288	98	3.00	23.4	83
1999	342	112	2.52	32.5	108
2000	324	101	3.84	41.6	74
2001	336	133	3.68	36.4	88
2002	420	142	3.96	49.4	98

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1. What is the average amount of interest per year which the company had to pay during this period?

A. Rs. 32.43 lakhs

B. Rs. 33.72 lakhs

C. Rs. 34.18 lakhs

D. Rs. 36.66 lakhs

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Answer: Option **D**

Explanation:

Average amount of interest paid by the Company during the given period

$$= \text{Rs.} \left[\frac{23.4 + 32.5 + 41.6 + 36.4 + 49.4}{5} \right] \text{lakhs}$$

$$= \text{Rs.} \left[\frac{183.3}{5} \right] \text{lakhs}$$

= Rs. 36.66 lakhs.

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2. The total amount of bonus paid by the company during the given period is approximately what percent of the total amount of salary paid during this period?

A. 0.1%

B. 0.5%

C. 1%

D. 1.25%

Answer: Option C

Explanation:

$$\text{Required percentage} = \left[\frac{(3.00 + 2.52 + 3.84 + 3.68 + 3.96)}{(288 + 342 + 324 + 336 + 420)} \times 100\right]\%$$

$$= \left[\frac{17}{1710} \times 100\right]\%$$

$$\approx 1\%.$$

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3. Total expenditure on all these items in 1998 was approximately what percent of the total expenditure in 2002?

A. 62%

B. 66%

C. 69%

D. 71%

Answer: Option **C**

Explanation:

$$\text{Required percentage} = \left[\frac{(288 + 98 + 3.00 + 23.4 + 83)}{(420 + 142 + 3.96 + 49.4 + 98)} \times 100\right]\%$$

$$= \left[\frac{495.4}{713.36} \times 100\right]\%$$

$$\approx 69.45\%.$$

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4. The total expenditure of the company over these items during the year 2000 is?

A. Rs. 544.44 lakhs

B. Rs. 501.11 lakhs

C. Rs. 446.46 lakhs

D. Rs. 478.87 lakhs

Answer: Option A

Explanation:

Total expenditure of the Company during 2000

= Rs. (324 + 101 + 3.84 + 41.6 + 74) lakhs

= Rs. 544.44 lakhs.

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5. The ratio between the total expenditure on Taxes for all the years and the total expenditure on Fuel and Transport for all the years respectively is approximately?

A. 4:7

B. 10:13

C. 15:18

D. 5:8

Answer: Option B

Explanation:

$$\text{Required ratio} = \left[\frac{(83 + 108 + 74 + 88 + 98)}{(98 + 112 + 101 + 133 + 142)}\right]$$

$$= \left[\frac{451}{586}\right]$$

$$= \frac{1}{1.3}$$

$$= \frac{10}{13}.$$

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Study the following table and answer the questions.

Number of Candidates Appeared and Qualified in a Competitive Examination from Different States Over the Years.

State	Year									
	1997		1998		1999		2000		2001	
	App.	Qual.	App.	Qual.	App.	Qual.	App.	Qual.	App.	Qual.
M	5200	720	8500	980	7400	850	6800	775	9500	1125
N	7500	840	9200	1050	8450	920	9200	980	8800	1020
P	6400	780	8800	1020	7800	890	8750	1010	9750	1250
Q	8100	950	9500	1240	8700	980	9700	1200	8950	995
R	7800	870	7600	940	9800	1350	7600	945	7990	885

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1. Total number of candidates qualified from all the states together in 1997 is approximately what percentage of the total number of candidates qualified from all the states together in 1998?

A. 72%

B. 77%

C. 80%

D. 83%

Answer: Option **C**

Explanation:

$$\text{Required percentage} = \left[\frac{(720 + 840 + 780 + 950 + 870)}{(980 + 1050 + 1020 + 1240 + 940)} \times 100\right]\%$$

$$= \left[\frac{4160}{5230} \times 100\right]\%$$

$$= 79.54\% \approx 80\%.$$

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2. What is the average candidates who appeared from State Q during the given years?

A. 8700

B. 8760

C. 8990

D. 8920

Answer: Option **C**

Explanation:

$$\text{Required average} = \frac{8100 + 9500 + 8700 + 9700 + 8950}{5}$$

$$= \frac{44950}{5}$$

$$= 8990.$$

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3. In which of the given years the number of candidates appeared from State P has maximum percentage of qualified candidates?

A. 1997

B. 1998

C. 1999

D. 2001

Answer: Option **D**

Explanation:

The percentages of candidates qualified to candidates appeared from State P during different years are:

For 1997 $\left(\frac{780}{6400} \times 100\right)\% = 12.19\%.$

For 1998 $\left(\frac{1020}{8800} \times 100\right)\% = 11.59\%.$

For 1999 $\left(\frac{890}{7800} \times 100\right)\% = 11.41\%.$

For 2000 $\left(\frac{1010}{8750} \times 100\right)\% = 11.54\%.$

For 2001 $\left(\frac{1250}{9750} \times 100\right)\% = 12.82\%.$

$\therefore$ Maximum percentage is for the year 2001.

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4. What is the percentage of candidates qualified from State N for all the years together, over the candidates appeared from State N during all the years together?

A. 12.36%

B. 12.16%

C. 11.47%

D. 11.15%

Answer: Option D

Explanation:

$$\text{Required percentage} = \left[\frac{(840 + 1050 + 920 + 980 + 1020)}{(7500 + 9200 + 8450 + 9200 + 8800)} \times 100\right]\%$$

$$= \left[\frac{4810}{43150} \times 100\right]\%$$

$$= 11.15\%$$

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5. The percentage of total number of qualified candidates to the total number of appeared candidates among all the five states in 1999 is?

A. 11.49%

B. 11.84%

C. 12.21%

D. 12.57%

Answer: Option **B**

Explanation:

$$\text{Required percentage} = \left[\frac{(850 + 920 + 890 + 980 + 1350)}{(7400 + 8450 + 7800 + 8700 + 9800)} \times 100\right]\%$$

$$= \left[\frac{4990}{42150} \times 100\right]\%$$

$$= 11.84\%.$$

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The following table gives the percentage of marks obtained by seven students in six different subjects in an examination.

The Numbers in the Brackets give the Maximum Marks in Each Subject.

	Subject (Max. Marks)					
Student	**Maths**	**Chemistry**	**Physics**	**Geography**	**History**	**Computer Science**
	(150)	**(130)**	**(120)**	**(100)**	**(60)**	**(40)**
Ayush	90	50	90	60	70	80
Aman	100	80	80	40	80	70
Sajal	90	60	70	70	90	70
Rohit	80	65	80	80	60	60
Muskan	80	65	85	95	50	90
Tanvi	70	75	65	85	40	60
Tarun	65	35	50	77	80	80

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1. What are the average marks obtained by all the seven students in Physics? (rounded off to two digit after decimal)

A. 77.26

B. 89.14

C. 91.37

D. 96.11

Answer: Option B

Explanation:

Average marks obtained in Physics by all the seven students

$$= \frac{1}{7} \times [(90\% \text{ of } 120) + (80\% \text{ of } 120) + (70\% \text{ of } 120) + (80\% \text{ of } 120) + (85\% \text{ of } 120) + (65\% \text{ of } 120) + (50\% \text{ of } 120)]$$

$$= \frac{1}{7} \times [(90 + 80 + 70 + 80 + 85 + 65 + 50)\% \text{ of } 120]$$

$$= \frac{1}{7} \times [520\% \text{ of } 120]$$

$$= \frac{624}{7}$$

$$= 89.14.$$

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2. The number of students who obtained 60% and above marks in all subjects is?

A. 1

B. 2

C. 3

D. None

Answer: Option **B**

Explanation:

From the table it is clear that Sajal and Rohit have 60% or more marks in each of the six subjects.

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3. What was the aggregate of marks obtained by Sajal in all the six subjects?

A. 409

B. 419

C. 429

D. 449

Answer: Option D

Explanation:

Aggregate marks obtained by Sajal

= [(90% of 150) + (60% of 130) + (70% of 120)

+ (70% of 100) + (90% of 60) + (70% of 40)]

= [135 + 78 + 84 + 70 + 54 + 28]

= 449.

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4. In which subject is the overall percentage the best?

A. Maths

B. Chemistry

C. Physics

D. History

Answer: Option A

Explanation:

We shall find the overall percentage (for all the seven students) with respect to each subject.

The overall percentage for any subject is equal to the average of percentages obtained by all the seven students since the maximum marks for any subject is the same for all the students.

Therefore, overall percentage for:

(i) Maths $= \left[\frac{1}{7} \times (90 + 100 + 90 + 80 + 80 + 70 + 65)\right]\%$

$= \left[\frac{1}{7} \times (575)\right]\%$

$= 82.14\%.$

(ii) Chemistry $= \left[\frac{1}{7} \times (50 + 80 + 60 + 65 + 65 + 75 + 35)\right]\%$

$= \left[\frac{1}{7} \times (430)\right]\%$

$= 61.43\%.$

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(iii) Physics $= \left[\frac{1}{7} \times (90 + 80 + 70 + 80 + 85 + 65 + 50)\right]\%$

$= \left[\frac{1}{7} \times (520)\right]\%$

$= 74.29\%.$

(iv) Geography $= \left[\frac{1}{7} \times (60 + 40 + 70 + 80 + 95 + 85 + 77)\right]\%$

$= \left[\frac{1}{7} \times (507)\right]\%$

$= 72.43\%.$

(v) History $= \left[\frac{1}{7} \times (70 + 80 + 90 + 60 + 50 + 40 + 80)\right]\%$

$= \left[\frac{1}{7} \times (470)\right]\%$

$= 67.14\%.$

(vi) Comp. Science $= \left[\frac{1}{7} \times (80 + 70 + 70 + 60 + 90 + 60 + 80)\right]\%$

$= \left[\frac{1}{7} \times (510)\right]\%$

$= 72.86\%.$

Clearly, this percentage is highest for Maths.

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5. What is the overall percentage of Tarun?

A. 52.5%

B. 55%

C. 60%

D. 63%

Answer: Option **C**

Explanation:

Aggregate marks obtained by Tarun

= [(65% of 150) + (35% of 130) + (50% of 120)

+ ((77% of 100) + (80% of 60) + (80% of 40)]

= [97.5 + 45.5 + 60 + 77 + 48 + 32]

= 360.

The maximum marks (of all the six subjects)

= (150 + 130 + 120 + 100 + 60 + 40)

= 600.

$\therefore$ Overall percentage of Tarun $= \left(\frac{360}{600} \times 100\right)\% = 60\%$

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Study the following table and answer the questions.

Classification of 100 Students Based on the Marks Obtained by them in Physics and Chemistry in an Examination.

Subject	Marks out of 50				
	40 and above	30 and above	20 and above	10 and above	0 and above
Physics	9	32	80	92	100
Chemistry	4	21	66	81	100
Average (Aggregate)	7	27	73	87	100

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1. What is the different between the number of students passed with 30 as cut-off marks in Chemistry and those passed with 30 as cut-off marks in aggregate?

A. 3

B. 4

C. 5

D. 6

Answer: Option **D**

Explanation:

Required difference

= (No. of students scoring 30 and above marks in Chemistry)

- (Number of students scoring 30 and above marks in aggregate)

= 27 - 21

= 6.

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2. If at least 60% marks in Physics are required for pursuing higher studies in Physics, how many students will be eligible to pursue higher studies in Physics?

A. 27

B. 32

C. 34

D. 41

Answer: Option **B**

Explanation:

We have 60% of 50 = $\left(\frac{60}{100} \times 50\right) = 30.$

∴ Required number

= No. of students scoring 30 and above marks in Physics

= 32

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3. The percentage of number of students getting at least 60% marks in Chemistry over those getting at least 40% marks in aggregate, is approximately?

A. 21%

B. 27%

C. 29%

D. 31%

Answer: Option **C**

Explanation:

Number of students getting at least 60% marks in Chemistry

= Number of students getting 30 and above marks in Chemistry

= 21.

Number of students getting at least 40% marks in aggregate

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= Number of students getting 20 and above marks in aggregate

= 73.

$$\text{Required percentage} = \left(\frac{21}{73} \times 100\right)\%$$

$$= 28.77\%$$

$$\approx 29\%.$$

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4. The number of students scoring less than 40% marks in aggregate is?

A. 13

B. 19

C. 20

D. 27

Answer: Option **D**

Explanation:

We have 40% of 50 = $\left(\frac{40}{100} \times 50\right) = 20.$

∴ Required number

= Number of students scoring less than 20 marks in aggreagate

= 100 - Number of students scoring 20 and above marks in aggregate

= 100 - 73

= 27.

CamScanner

5. If it is known that at least 23 students were eligible for a Symposium on Chemistry, then the minimum qualifying marks in Chemistry for eligibility to Symposium would lie in the range?

A. 40-45

B. 30-40

C. 20-30

D. Below 20

Answer: Option **C**

Explanation:

Since 66 students get 20 and above marks in Chemistry and out of these 21 students get 30 and above marks, therefore to select top 35 students in Chemistry, the qualifying marks should lie in the range 20-30.

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Number of Candidates Appeared, Qualified and Selected in a Competitive Examination from Five States Delhi, H.P, U.P, Punjab and Haryana Over the Years 1994 to 1998

Year	Delhi			H.P			U.P			Punjab			Haryana		
	App	Qual	Sel	App	Qual	Sel	App	Qual	Sel	App	Qual	Sel	App	Qual	Sel
1997	8000	850	94	7800	810	82	7500	720	78	8200	680	85	6400	700	75
1998	4800	500	48	7500	800	65	5600	620	85	6800	600	70	7100	650	75
1999	7500	640	82	7400	560	70	4800	400	48	6500	525	65	5200	350	55
2000	9500	850	90	8800	920	86	7000	650	70	7800	720	84	6400	540	60
2001	9000	800	70	7200	850	75	8500	950	80	5700	485	60	4500	600	75

1. For which state the average number of candidates selected over the years is the maximum?

A. Delhi

B. H.P

C. U.P

D. Punjab

Answer: Option A

Explanation:

The average number of candidates selected over the given period for various states are:

$$\text{For Delhi} = \frac{94 + 48 + 82 + 90 + 70}{5} = \frac{384}{5} = 76.8.$$

$$\text{For H.P.} = \frac{82 + 65 + 70 + 86 + 75}{5} = \frac{378}{5} = 75.6.$$

$$\text{For U.P.} = \frac{78 + 85 + 48 + 70 + 80}{5} = \frac{361}{5} = 72.2.$$

$$\text{For Punjab} = \frac{85 + 70 + 65 + 84 + 60}{5} = \frac{364}{5} = 72.8.$$

$$\text{For Haryana} = \frac{75 + 75 + 55 + 60 + 75}{5} = \frac{340}{5} = 68.$$

Clearly, this average is maximum for Delhi

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2. The percentage of candidates qualified from Punjab over those appeared from Punjab is highestin the year?

A. 1997

B. 1998

C. 1999

D. 2000

Answer: Option **D**

Explanation:

The percentages of candidates qualified from Punjab over those appeared from Punjab during different years are:

$$\text{For 1997} = \left(\frac{680}{8200} \times 100\right)\% = 8.29\%.$$

$$\text{For 1998} = \left(\frac{600}{6800} \times 100\right)\% = 8.82\%.$$

$$\text{For 1999} = \left(\frac{525}{6500} \times 100\right)\% = 8.08\%.$$

$$\text{For 2000} = \left(\frac{720}{7800} \times 100\right)\% = 9.23\%.$$

$$\text{For 2001} = \left(\frac{485}{5700} \times 100\right)\% = 8.51\%.$$

Clearly, this percentage is highest for the year 2000.

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3. In the year 1997, which state had the lowest percentage of candidates selected over the candidates appeared?

A. Delhi

B. H.P

C. U.P

D. Punjab

Answer: Option **D**

Explanation:

The percentages of candidates selected over the candidates appeared in 1997, for various states are:

(i) For Delhi $= \left(\frac{94}{8000} \times 100\right)\% = 1.175\%.$

(ii) For H.P. $= \left(\frac{82}{7800} \times 100\right)\% = 1.051\%.$

(iii) For U.P. $= \left(\frac{78}{7500} \times 100\right)\% = 1.040\%.$

(iv) For Punjab $\left(\frac{85}{8200} \times 100\right)\% = 1.037\%.$

(v) For Haryana $\left(\frac{75}{6400} \times 100\right)\% = 1.172\%.$

Clearly, this percentage is lowest for Punjab.

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4. The number of candidates selected from Haryana during the period under review is approximately what percent of the number selected from Delhi during this period?

A. 79.5%

B. 81%

C. 84.5%

D. 88.5%

Answer: Option **D**

Explanation:

$$\text{Required percentage} = \left[\frac{(75 + 75 + 55 + 60 + 75)}{(94 + 48 + 82 + 90 + 70)} \times 100\right]\%$$

$$= \left[\frac{340}{384} \times 100\right]\%$$

$$= 88.54\%$$

$$\approx 88.5\%$$

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5. The percentage of candidates selected from U.P over those qualified from U.P is highest in the year?

A. 1997

B. 1998

C. 1999

D. 2001

Answer: Option **B**

Explanation:

The percentages of candidates selected from U.P. over those qualified from U.P. during different years are:

$$\text{For 1997} = \left(\frac{78}{720} \times 100\right)\% = 10.83\%.$$

$$\text{For 1998} = \left(\frac{85}{620} \times 100\right)\% = 13.71\%.$$

$$\text{For 1999} = \left(\frac{48}{400} \times 100\right)\% = 12\%.$$

$$\text{For 2000} = \left(\frac{70}{650} \times 100\right)\% = 10.77\%.$$

$$\text{For 2001} = \left(\frac{80}{950} \times 100\right)\% = 8.42\%.$$

Clearly, this percentage is highest for the year 1998.

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6. What is the approximate percentage of total number of candidates selected to the total number of candidates qualified for all five states together during the year 1999?

A. 10%

B. 11%

C. 12%

D. 13%

Answer: Option D

Explanation:

$$\text{Required percentage} = \left[\frac{(82 + 70 + 48 + 65 + 55)}{(640 + 560 + 400 + 525 + 350)}\right]\%$$

$$= \left[\left(\frac{320}{2475} \times 100\right)\right]\%$$

$$= 12.93\%$$

$$\approx 13\%.$$

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Number of Different Types of Batteries Sold by a Company Over the Years (Numbers in Thousands)

Year	Types of Batteries					
	4AH	7AH	32AH	35AH	55AH	Total
1992	75	144	114	102	108	543
1993	90	126	102	84	126	528
1994	96	114	75	105	135	525
1995	105	90	150	90	75	510
1996	90	75	135	75	90	465
1997	105	60	165	45	120	495
1998	115	85	160	100	145	605

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1. What was the approximate percentage increase in the sales of 55AH batteries in 1998 compared to that in 1992?

A. 28%

B. 31%

C. 33%

D. 34%

Answer: Option **D**

Explanation:

$$\text{Required percentage} = \left[\frac{(145 - 108)}{108} \times 100\right]\%$$

$$= 34.26\%$$

$$\approx 34\%.$$

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2. The total sales of all the seven years is the maximum for which battery?

A. 4AH

B. 7AH

C. 32AH

D. 35AH

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Answer: Option **C**

Explanation:

The total sales (in thousands) of all the seven years for various batteries are:

For 4AH = 75 + 90 + 96 + 105 + 90 + 105 + 115 = 676

For 7AH = 144 + 126 + 114 + 90 + 75 + 60 + 85 = 694

For 32AH = 114 + 102 + 75 + 150 + 135 + 165 + 160 = 901

For 35AH = 102 + 84 + 105 + 90 + 75 + 45 + 100 = 601

For 55AH = 108 + 126 + 135 + 75 + 90 + 120 + 145 = 799.

Clearly, sales are maximum in case of 32AH batteries.

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3. What is the difference in the number of 35AH batteries sold in 1993 and 1997?

A. 24000

B. 28000

C. 35000

D. 39000

Answer: Option **D**

Explanation:

Required difference = [(84 - 45) x 1000] = 39000.

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4. The percentage of 4AH batteries sold to the total number of batteries sold was maximum in the year?

A. 1994

B. 1995

C. 1996

D. 1997

Answer: Option D

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Explanation:

The percentages of sales of 4AH batteries to the total sales in different years are:

$$\text{For 1992} = \left(\frac{75}{543} \times 100\right)\% = 13.81\%.$$

$$\text{For 1993} = \left(\frac{90}{528} \times 100\right)\% = 17.05\%.$$

$$\text{For 1994} = \left(\frac{96}{525} \times 100\right)\% = 18.29\%.$$

$$\text{For 1995} = \left(\frac{105}{510} \times 100\right)\% = 20.59\%.$$

$$\text{For 1996} = \left(\frac{96}{465} \times 100\right)\% = 19.35\%.$$

$$\text{For 1997} = \left(\frac{105}{495} \times 100\right)\% = 21.21\%.$$

$$\text{For 1998} = \left(\frac{115}{605} \times 100\right)\% = 19.01\%.$$

Clearly, the percentage is maximum in 1997.

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5. In case of which battery there was a continuous decrease in sales from 1992 to 1997?

A. 4AH

B. 7AH

C. 32AH

D. 35AH

Answer: Option **B**

Explanation:

From the table it is clear that the sales of 7AH batteries have been decreasing continuously from 1992 to 1997.

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A school has four sections A, B, C, D of Class IX students.

The results of half yearly and annual examinations are shown in the table given below.

Result	No. of Students			
	Section A	Section B	Section C	Section D
Students failed in both Exams	28	23	17	27
Students failed in half-yearly but passed in Annual Exams	14	12	8	13

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Students passed in half-yearly but failed in Annual Exams	6	17	9	15
Students passed in both Exams	64	55	46	76

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1. If the number of students passing an examination be considered a criteria for comparision of difficulty level of two examinations, which of the following statements is true in this context?

A. Half yearly examinations were more difficult.

B. Annual examinations were more difficult.

C. Both the examinations had almost the same difficulty level.

D. The two examinations cannot be compared for difficulty level.

Answer: Option **C**

Explanation:

Number of students who passed half-yearly exams in the school

= (Number of students passed in half-yearly but failed in annual exams)

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+ (Number of students passed in both exams)

= (6 + 17 + 9 + 15) + (64 + 55 + 46 + 76)

= 288.

Also, Number of students who passed annual exams in the school

= (Number of students failed in half-yearly but passed in annual exams)

+ (Number of students passed in both exams)

= (14 + 12 + 8 + 13) + (64 + 55 + 46 + 76)

= 288.

Since, the number of students passed in half-yearly = the number of students passed in annual exams. Therefore, it can be inferred that both the examinations had almost the same difficulty level.

Thus Statements (a), (b) and (d) are false and Statement (c) is true.

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2. How many students are there in Class IX in the school?

A. 336

B. 189

C. 335

D. 430

Answer: Option **D**

Explanation:

Since the classification of the students on the basis of their results and sections form independent groups, so the total number of students in the class:

= (28 + 23 + 17 + 27 + 14 + 12 + 8 + 13 + 6 + 17 + 9 + 15 + 64 + 55 + 46 + 76)

= 430.

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3. Which section has the maximum pass percentage in at least one of the two examinations?

A. A Section

B. B Section

C. C Section

D. D Section

Answer: Option D

Explanation:

Pass percentages in at least one of the two examinations for different sections are:

For Section A $\left[\frac{(14+6+64)}{(28+14+6+64)} \times 100\right]\% = \left[\frac{84}{112} \times 100\right]\% = 75\%.$

For Section B $\left[\frac{(12+17+55)}{(23+12+17+55)} \times 100\right]\% = \left[\frac{84}{107} \times 100\right]\% = 78.5\%.$

For Section C $\left[\frac{(8+9+46)}{(17+8+9+46)} \times 100\right]\% = \left[\frac{63}{80} \times 100\right]\% = 78.75\%.$

For Section D $\left[\frac{(13+15+76)}{(27+13+15+76)} \times 100\right]\% = \left[\frac{104}{131} \times 100\right]\% = 79.39\%.$

Clearly, the pass percentage is maximum for Section D.

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4. Which section has the maximum success rate in annual examination?

A. A Section

B. B Section

C. C Section

D. D Section

Answer: Option A

Explanation:

Total number of students passed in annual exams in a section

= [(No. of students failed in half-yearly but passed in annual exams)

+ (No. of students passed in both exams)

] in that section

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$\therefore$ Success rate in annual exams in Section A

$$= \left[\frac{\text{No. of students of Section A passed in annual exams}}{\text{Total number of students in Section A}} \times 100\right]\%$$

$$= \left[\frac{(14 + 64)}{(28 + 14 + 6 + 64)} \times 100\right]\%$$

$$= \left[\frac{78}{112} \times 100\right]\%$$

$$= 69.64\%.$$

Similarly, success rate in annual exams in:

Section B $\left[\frac{(12 + 55)}{(23 + 12 + 17 + 55)} \times 100\right]\% = \left[\frac{67}{107} \times 100\right]\% = 62.62\%.$

Section C $\left[\frac{(8 + 46)}{(17 + 8 + 9 + 46)} \times 100\right]\% = \left[\frac{54}{80} \times 100\right]\% = 67.5\%.$

Section D $\left[\frac{(13 + 76)}{(27 + 13 + 15 + 76)} \times 100\right]\% = \left[\frac{89}{131} \times 100\right]\% = 67.94\%.$

Clearly, the success rate in annual examination is maximum for Section A.

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5. Which section has the minimum failure rate in half yearly examination?

A. A section

B. B section

C. C section

D. D section

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Answer: Option **D**

Explanation:

Total number of failures in half-yearly exams in a section

= [(Number of students failed in both exams)

+ (Number of students failed in half-yearly but passed in Annual exams)

] in that section

∴ Failure rate in half-yearly exams in Section A

$$= \left[\frac{\text{Number of students of Section A failed in half-yearly}}{\text{Total number of students in Section A}} \times 100\right]\%$$

$$= \left[\frac{(28 + 14)}{(28 + 14 + 6 + 64)} \times 100\right]\%$$

$$= \left[\frac{42}{112} \times 100\right]\%$$

= 37.5%.

Similarly, failure rate in half-yearly exams in:

Section B $\left[\frac{(23 + 12)}{(23 + 12 + 17 + 55)} \times 100\right]\% = \left[\frac{35}{107} \times 100\right]\% = 32.71\%.$

Section C $\left[\frac{(17 + 8)}{(17 + 8 + 9 + 46)} \times 100\right]\% = \left[\frac{25}{80} \times 100\right]\% = 31.25\%.$

Section D $\left[\frac{(27 + 13)}{(27 + 13 + 15 + 76)} \times 100\right]\% = \left[\frac{40}{131} \times 100\right]\% = 30.53\%.$

Clearly, the failure rate is minimum for Section D.

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different categories of employees in a company and also the number of employees from these categories who left the company every year since the foundation of the Company in 1995.

Year	Managers		Technicians		Operators		Accountants		Peons	
	New	Left	New	Left	New	Left	New	Left	New	Left
1995	760	-	1200	-	880	-	1160	-	820	-
1996	280	120	272	120	256	104	200	100	184	96
1997	179	92	240	128	240	120	224	104	152	88
1998	148	88	236	96	208	100	248	96	196	80
1999	160	72	256	100	192	112	272	88	224	120
2000	193	96	288	112	248	144	260	92	200	104

1. What is the difference between the total number of Technicians added to the Company and the total number of Accountants added to the Company during the years 1996 to 2000?

   A. 128

   B. 112

   C. 96

   D. 88

Answer: Option **D**

Explanation:

Required difference

= (272 + 240 + 236 + 256 + 288) - (200 + 224 + 248 + 272 + 260)

= 88.

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2. What was the total number of Peons working in the Company in the year 1999?

A. 1312

B. 1192

C. 1088

D. 968

Answer: Option B

Explanation:

Total number of Peons working in the Company in 1999

= (820 + 184 + 152 + 196 + 224) - (96 + 88 + 80 + 120)

= 1192.

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3. For which of the following categories the percentage increase in the number of employees working in the Company from 1995 to 2000 was the maximum?

A. Managers

B. Technicians

C. Operators

D. Accountants

Answer: Option A

Explanation:

Number of Managers working in the Company:

In 1995 = 760.

In 2000 = (760 + 280 + 179 + 148 + 160 + 193) - (120 + 92 + 88 + 72 + 96)

= 1252.

∴ Percentage increase in the number of Managers

$$= \left[\frac{(1252 - 760)}{760} \times 100\right]\% = 64.74\%.$$

Number of Technicians working in the Company:

In 1995 = 1200.

In 2000 = (1200 + 272 + 240 + 236 + 256 + 288) -

(120 + 128 + 96 + 100 + 112)

= 1936.

∴ Percentage increase in the number of Technicians

$$= \left[\frac{(1936 - 1200)}{1200} \times 100\right]\% = 61.33\%.$$

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Number of Operators working in the Company:

In 1995 = 880.

In 2000 = (880 + 256 + 240 + 208 + 192 + 248) -

(104 + 120 + 100 + 112 + 144)

= 1444.

∴ Percentage increase in the number of Operators

$$= \left[\frac{(1444 - 880)}{880} \times 100\right]\% = 64.09\%.$$

Number of Accountants working in the Company:

In 1995 = 1160.

In 2000 = (1160 + 200 + 224 + 248 + 272 + 260) -

(100 + 104 + 96 + 88 + 92)

= 1884.

∴ Percentage increase in the number of Accountants

$$= \left[\frac{(1884 - 1160)}{1160} \times 100\right]\% = 62.41\%.$$

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Number of Peons working in the Company:

In 1995 = 820.

In 2000 = (820 + 184 + 152 + 196 + 224 + 200) -

(96 + 88 + 80 + 120 + 104)

= 1288.

∴ Percentage increase in the number of Peons

$$= \left[\frac{(1288 - 820)}{820} \times 100\right]\% = 57.07\%.$$

Clearly, the percentage increase is maximum in case of Managers.

CamScanner

4. What is the pooled average of the total number of employees of all categories in the year 1997?

A. 1325

B. 1195

C. 1265

D. 1235

Answer: Option B

Explanation:

Total number of employees of various categories working in the Company in 1997 are:

Managers = (760 + 280 + 179) - (120 + 92) = 1007.

Technicians = (1200 + 272 + 240) - (120 + 128) = 1464.

Operators = (880 + 256 + 240) - (104 + 120) = 1152.

Accountants = (1160 + 200 + 224) - (100 + 104) = 1380.

Peons = (820 + 184 + 152) - (96 + 88) = 972.

∴ Pooled average of all the five categories of employees working in the Company in 1997

$$= \frac{1}{5} \times (1007 + 1464 + 1152 + 1380 + 972)$$

$$= \frac{1}{5} \times (5975)$$

$$= 1195.$$

CamScanner

5. During the period between 1995 and 2000, the total number of Operators who left the Company is what percent of total number of Operators who joined the Company?

A. 19%

B. 21%

C. 27%

D. 29%

Answer: Option D

Explanation:

Total number of Operators who left the Company during 1995 - 2000

= (104 + 120 + 100 + 112 + 144)

= 580.

Total number of Operators who joined the Company during 1995 - 2000

= (880 + 256 + 240 + 208 + 192 + 248)

= 2024.

$\therefore$ Required Percentage = $\left(\frac{580}{2024} \times 100\right)\% = 28.66\% \approx 29\%.$

CamScanner

The following table gives the percentage distribution of population of five states, P, Q, R, S and T on the basis of poverty line and also on the basis of sex.

State	Percentage of Population below the Poverty Line	Proportion of Males and Females	
		Below Poverty Line	Above Poverty Line
		M : F	M : F
P	35	5 : 6	6 : 7
Q	25	3 : 5	4 : 5
R	24	1 : 2	2 : 3
S	19	3 : 2	4 : 3
T	15	5 : 3	3 : 2

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1. If the male population above poverty line for State R is 1.9 million, then the total population of State R is?

A. 4.5 million

B. 4.85 million

C. 5.35 million

D. 6.25 million

Answer: Option D

Explanation:

Let the total population of State R be x million.

Then, population of State R above poverty line

$= [(100 - 24)\% \text{ of } x]$ million

$= \left(\frac{76}{100} \times x\right)$ million

And so, male population of State R above poverty line

$= \left[\frac{2}{5} \times \left(\frac{76}{100} \times x\right)\right]$ million

But, it is given that male population of State R above poverty line = 1.9 million.

$\therefore \frac{2}{5} \times \left(\frac{76}{100} \times x\right) = 1.9 \Rightarrow x = \frac{5 \times 100 \times 1.9}{76 \times 2} = 6.25.$

$\therefore$ Total population of State R = 6.25 million.

CamScanner

2. What will be the number of females above the poverty line in the State S if it is known that the population of State S is 7 million?

A. 3 million

B. 2.43 million

C. 1.33 million

D. 5.7 million

Answer: Option **B**

Explanation:

Total population of State S = 7 million.

∴ Population above poverty line

= [(100 - 19)% of 7] million

= (81% of 7) million

= 5.67 million.

And so, the number of females above poverty line in State S

$= \left(\frac{3}{7} \times 5.67\right)$ million

= 2.43 million.

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3. What will be the male population above poverty line for State P if the female population below poverty line for State P is 2.1 million?

A. 2.1 million

B. 2.3 million

C. 2.7 million

D. 3.3 million

Answer: Option D

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Explanation:

Female population below poverty line for State P = 2.1 million

Let the male population below poverty line for State P be x million.

Then, $5 : 6 = x : 21 \quad \Rightarrow \quad x = \frac{2.1 \times 5}{6} = 1.75.$

$\therefore$ Population below poverty line for State P = (2.1 + 1.75) million = 3.85 million.

Let the population above poverty line for State P by y million.

Since, 35% of the total population of State P is below poverty line, therefore, 65% of the total population of State P is above poverty line i.e., the ratio of population below poverty line to that above poverty line for State P is 35 : 65.

$\therefore \quad 35 : 65 = 3.85 : y \quad \Rightarrow \quad y = \frac{65 \times 3.85}{35} = 7.15.$

$\therefore$ Population above poverty line for State P = 7.15 million and so, male population above poverty line for State P

$$= \left(\frac{6}{13} \times 7.15\right) \text{ million}$$

$$= 3.3 \text{ million.}$$

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4. If the population of males below poverty line for State Q is 2.4 million and that for State T is 6 million, then the total populations of States Q and T are in the ratio?

A. 1:3

B. 2:5

C. 3:7

D. 4:9

Answer: Option B

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Explanation:

For State Q:

Male population below poverty line = 2.4 million.

Let the female population below poverty line be x million.

Then, $3 : 5 = 2.4 : x \Rightarrow x = \frac{5 \times 2.4}{3} = 4.$

$\therefore$ Total population below poverty line = $(2.4 + 4) = 6.4$ million.

If N_q be the total population of State Q, then,

25% of $N_q = 6.4$ million $\Rightarrow N_q = \left(\frac{6.4 \times 100}{25}\right)$ million $= 25.6$ million.

For State T:

Male population below poverty line = 6 million.

Let the female population below poverty line be y million.

Then, $5 : 3 = 6 : y \Rightarrow y = \frac{3 \times 6}{5} = 3.6.$

$\therefore$ Total population below poverty line = $(6 + 3.6) = 9.6$ million.

If N_t be the total population of State T, then,

15% of $N_t = 9.6$ million $\Rightarrow N_t = \left(\frac{9.6 \times 100}{15}\right)$ million $= 64$ million.

Thus, Required ratio $= \frac{N_q}{N_t} = \frac{25.6}{64} = 0.4 = \frac{2}{5}.$

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ከ9-12 ላላችሁ ተማሪዎች

እንደሚታወቀው ከ2015 ዓ.ም ጀምሮ የዩኒቨርስቲ መግቢያ ፈተና ከ9ኛ-12ኛ ክፍል ያለውን የሚያጠቃልል ነው። ይህም ተማሪዎች ላይ ጫና መፍጠሩ የማይቀር ነው። እኛም ከ2015 ዓ.ም የት/ት ዘመን ጀምሮ በነፃ Mathematics ትምህርትን ከ9ኛ-12ኛ ክፍል ላላችሁ ተማሪዎች Example & Exercise Solution ጨምሮ ቀለል ባለ እና በሚገባችሁ መንገድ ለየት ያሉ YouTube video እያዘጋጀን የምናግዛችሁ መሆኑን ስናሳውቃችሁ በታላቅ አክብሮት ነው።
ከእናንተ የሚጠበቀው በትኩረት መከታተል ብቻ ነው።

🔅 Computation የበዛበት ጊዜ ላይ ስላለን ታሪክ ለመቀየር ለስኬት ዛሬ ጀምራችሁ ተነሱ

🔅 በትኩረት የምትከተሉን ያለምንም ጥርጥር 100% ብቁ ትሆናላችሁ

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Thank You

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