ALL ANSWERS MUST BE GIVEN ON THE ANSWER SHEET
BY CROSSING THE CORRESPONDING LETTER
English M.C.Q's

No. of Questions: 45 (from 1 to 45)   Time: 45Minutes
Questions on Page Numbers: 1 To 10   Negative markings: **Yes**

Qs 1-10 [Grammar and Vocabulary Section] Select the best option

1. equivocation
A) symbolic description; metaphor
B) scorn; disrespect; disdain
C) purposely misleading statement; prevarication
D) strong ill will; enmity; bitterness; hatred; resentment

2. cognizant
A) without blame or faults
B) profitable; gainful; comprehensible
C) cautious; being sparing in giving; careful; wary
D) aware of; perceptive

3. anchorage
A) travel plan; schedule; course
B) purging or relieving of the body and soul
C) talk one has with oneself
D) something that can be relied on

4. conclave
A) rude person
B) appearance; façade
C) any private meeting or closed assembly
D) ill-tempered person; stingy unpleasant person

5. stupor
A) indirect reference (often literary); hint
B) stunned or bewildered condition; apathy; shock; daze
C) hostility; opposition; conflict
D) outcast; person who is rejected

6. ameliorate
A) to treat with tenderness; to pamper
B) to give in; to yield; to collapse; to surrender
C) to improve; to make better
D) to punish; to discipline; to admonish; to criticize harshly

7. pure essence of anything; epitome
A) juncture
B) quintessence
C) melancholy
D) levee

8. model; typification; embodiment; archetype; exemplar
A) alchemist
B) renegade
C) epitome
D) ingenue

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9. to alleviate; to lessen; to soothe; to soften; to appease
A) preponderate
B) prattle
C) seethe
D) mitigate

10. not frank or candid; deceivingly simple; hypercritical; false; truthful
A) disingenuous
B) commodious
C) incessant
D) malicious

Qs 11- 20 Part or the whole of the given sentence is underlined. Choose the answer choice which is the best version of the underlined part. Select the version which is most effectively expressed - clear and unambiguous as well as correct in grammar.

11. **Perhaps the boldest and most grandiose composition in the history of Indian painting, the blossoming of that nation's classical period cannot be better represented than by the Simhala Avadana frieze.**

A) Perhaps the boldest and most grandiose composition in the history of Indian painting, the blossoming of that nation's classical period cannot be better represented than by the Simhala Avadana frieze.
B) The Simhala Avadana frieze is perhaps the boldest and most grandiose composition in the history of Indian painting, the blossoming of that nation's classical period cannot be better represented than by it.
C) Representing the blossoming of India's classical period better than any other composition, the Simhala Avadana frieze, which in the history of Indian painting is perhaps the boldest and most grandiose composition.
D) The blossoming of India's classical period cannot be better represented than by the Simhala Avadana frieze, perhaps the boldest and most grandiose composition in the history of Indian painting.

12. **Inertia-gravity waves cause characteristic stripy patterns in the clouds in the lower atmosphere but they are disregarded by conventional weather forecasts because they are thought to be too small to interact with larger systems such as warm and cold fronts.**

A) they are disregarded by conventional weather forecasts because they are thought to be too small
B) they are disregarded by conventional weather forecasts because these waves are thought to be too small
C) conventional weather forecasts disregard them because they think they are too small
D) conventional weather forecasts disregard these waves because they are thought to be too small

13. **In archeological terms the university was a latecomer to the town, which was already centuries old by the time we first hear of the establishment of a community of scholars and teachers in the late 12th Century.**

A) which was already centuries old by the time we first hear of the establishment of
B) already centuries old by the time we first hear of its establishment of
C) which was centuries old already when we first hear of the establishment of
D) that was already centuries old by the time we first are hearing of the establishing of

14. The publishers, unwilling to shoulder the entire risk, insisted that the author should pay half the cost of the initial print run of his controversial new book.

A) The publishers, unwilling to shoulder the entire risk, insisted that the author should pay half the cost of the initial print run of his controversial new book.
B) The publishers, unwilling to shoulder the entire risk, insisted that the author should be paying half the cost of the initial print run of the author's controversial new book
C) The publishers, unwilling to shoulder the entire risk, insisted that the author pay half the cost of the initial print run of his controversial new book.
D) Unwilling to shoulder the entire risk, the publishers insisted the author should pay half the cost of the initial print run of his controversial new book.

15. A teacher at the school acknowledged that, despite government sponsored endeavors to improve classroom performance, an extraordinary high percentage of their students fail to gain admission to higher education.

A) an extraordinary high percentage of their students fail to gain admission to higher education
B) an extraordinarily high percentage of its students fail to gain admission to higher education
C) an extraordinary high percentage of its students fails to gain admission to higher education
D) the percentage of their students failing to gain admission to higher education is extraordinarily high

16. A course of cognitive behavior therapy can be as effective, if not more so, than drug therapy and without the side effects, in helping the elderly to overcome insomnia.

A) as effective, if not more so, than drug therapy and without the side effects, in helping the elderly to overcome insomnia
B) more effective than drug therapy and without the side effects, in helping the elderly to overcome insomnia
C) at least as effective in helping the elderly overcome insomnia as drug therapy, and is without the side effects of drug treatment
D) at least as effective as drug therapy in helping the elderly to overcome insomnia without side effects

17. It is usual for scientists and social scientists to abandon their theories only if another more attractive theory comes along and not when they have been proved incorrect.

A) their theories only if another more attractive theory comes along and not when they have been proved incorrect
B) a theory not because it has been proved incorrect, but because another more attractive theory comes along
C) their theories not when they have been proved incorrect, but because other more attractive theories come along
D) a theory only when other more attractive ones come along, rather than when they are proved wrong

18. The public's widespread interest in the life of ancient Egyptians and their general curiosity about extraterrestrial life has generated considerable interest in science fiction.

A) ancient Egyptians and their general curiosity about extraterrestrial life has
B) ancient Egyptians and they are generally curious about extraterrestrial life which has
C) ancient Egyptians, as well as their general curiosity about extraterrestrial life, have
D) ancient Egyptians, as well as its general curiosity about extraterrestrial life, has

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19. **This week's bingo session will have <u>an even greater amount of winners</u> than won last week.**

A) an even greater amount of winners
B) an ever larger amount of winners
C) an amount of people even winners
D) an even greater number of winners

20. **The significant number of overtime and weekend hours accumulated by many employees in order to compensate for overly optimistic deadlines <u>lend validity to the observation that many of the firm's top managers still pine for the era of the six-day work week.</u>**

A) lend validity to the observation that many of the firm's top managers still pine for the era of the six-day work week
B) lends validity to the observation of many of the firm's top managers' still pining for the era of the six-day work week
C) lend it validity to observe that many of the firm's top managers still pine for the era of the six-day work week
D) lends validity to the observation that many of the firm's top managers still pine for the era of the six-day work week

Qs 21-30 Each reading comprehension passage in this section is followed by questions based on the content of the reading passage. Read the passage carefully and chose the best answer to each question. The questions are to be answered on the basis of what is stated or implied in the passage

<u>Passage 1</u>

Disequilibrium at the interface of water and air is a factor on which the transfer of heat and water vapor from the ocean to the air depends. The air within about a millimeter of the water is almost saturated with water vapor and the temperature of the air is close to that of the surface water. Irrespective of how small these differences might be, they are crucial, and the disequilibrium is maintained by air near the surface mixing with air higher up, which is typically appreciably cooler and lower in water vapor content. The turbulence, which takes its energy from the wind mixes the air. As the speed of wind increases, so does the turbulence, and consequently the rate of heat and moisture transfer. We can arrive at a detailed understanding of this phenomenon after further study. The transfer of momentum from wind to water, which occurs when waves are formed is an interacting-and complicated phenomenon. When waves are made by the wind, it transfers important amounts of energy-energy, which is consequently not available for the production of turbulence.

21. **This passage principally intends to:**

A) resolve a controversy
B) attempt a description of a phenomenon
C) sketch a theory
D) reinforce certain research findings

22.**The wind over the ocean usually does which of the following according to the given passage?**

I. Leads to cool, dry air coming in proximity with the ocean surface.
II. Maintains a steady rate of heat and moisture transfer between the ocean and the air.
III. Results in frequent changes in the ocean surface temperature.
A) I only   B) II only   C) I and II only   D) II and III only

23. According to the author the present knowledge regarding heat and moisture transfer from the ocean to air as

A) revolutionary
B) inconsequential
C) outdated
D) incomplete

24. According to the given passage, in case the wind was to decrease until there was no wind at all, which of the following would occur?
A) The air, which is closest to the ocean surface would get saturated with water vapor.
B) The water would be cooler than the air closest to the ocean surface.
C) There would be a decrease in the amount of moisture in the air closest to the ocean surface.
D) There would be an increase in the rate of heat and moisture transfer.

Passage 2

In contrast to traditional analyses of minority business, the sociological analysis contends that minority business ownership is a group-level phenomenon, in that it is largely dependent upon social-group resources for its development. Specifically, this analysis indicates that support networks play a critical role in starting and maintaining minority business enterprises by providing owners with a range of assistance, from the informal encouragement of family members and friends to dependable sources of labor and clientele from the owner's ethnic group. Such self-help networks, which encourage and support ethnic minority entrepreneurs, consist of "primary" institutions, those closest to the individual in shaping his or her behavior and beliefs. They are characterized by the face-to-face association and cooperation of persons united by ties of mutual concern. They form an intermediate social level between the individual and larger "secondary" institutions based on impersonal relationships. Primary institutions comprising the support network include kinship, peer, and neighborhood or community subgroups.

A major function of self-help networks is financial support. Most scholars agree that minority business owners have depended primarily on family funds and ethnic community resources for investment capital. Personal savings have been accumulated, often through frugal living habits that require sacrifices by the entire family and are thus a product of long-term family financial behavior. Additional loans and gifts from relatives, forthcoming because of group obligation rather than narrow investment calculation, have supplemented personal savings. Individual entrepreneurs do not necessarily rely on their kin because they cannot obtain financial backing from commercial resources. They may actually avoid banks because they assume that commercial institutions either cannot comprehend the special needs of minority enterprise or charge unreasonably high interest rates.

Within the larger ethnic community, rotating credit associations have been used to raise capital. These associations are informal clubs of friends and other trusted members of the ethnic group who make regular contributions to a fund that is given to each contributor in rotation. One author estimates that 40 percent of New York Chinatown firms established during 1900-1950 utilized such associations as their initial source of capital. However, recent immigrants and third or fourth generations of older groups now employ rotating credit associations only occasionally to raise investment funds. Some groups, like Black Americans, found other means of financial support for their entrepreneurial efforts. The first Black-operated banks were created in the late nineteenth century as depositories for dues collected from fraternal or lodge groups, which themselves had sprung from Black churches. Black banks made limited investments in other Black enterprises. Irish immigrants in American cities organized many building and loan associations to provide capital

for home construction and purchase. They, in turn, provided work for many Irish home-building contractor firms. Other ethnic and minority groups followed similar practices in founding ethnic-directed financial institutions.

25. **Based on the information in the passage, it would be LEAST likely for which of the following persons to be part of a self-help network?**

   A) The entrepreneur's childhood friend
   B) The entrepreneur's aunt
   C) The entrepreneur's neighbor
   D) The entrepreneur's banker

26. **Which of the following illustrates the working of a self-help support network, as such networks are described in the passage?**

   A) A public high school offers courses in book-keeping and accounting as part of its open-enrollment adult education program.
   B) The local government in a small city sets up a program that helps teen-agers find summer jobs.
   C) A major commercial bank offers low-interest loans to experienced individuals who hope to establish their own businesses.
   D) A neighborhood-based fraternal organization develops a program of on-the-job training for its members and their friends.

27. **Which of the following can be inferred from the passage about rotating credit associations?**

   A) They were developed exclusively by Chinese immigrants.
   B) They accounted for a significant portion of the investment capital used by Chinese immigrants in New York in the early twentieth century.
   C) Third-generation members of an immigrant group who started businesses in the 1920's would have been unlikely to rely on them.
   D) They were frequently joint endeavors by members of two or three different ethnic groups.

28. **The passage best supports which of the following statements?**

   A) A minority entrepreneur who had no assistance from family members would not be able to start a business.
   B) Self-help networks have been effective in helping entrepreneurs primarily in the last 50 years.
   C) Minority groups have developed a range of alternatives to standard financing of business ventures.
   D) The financial institutions founded by various ethnic groups owe their success to their unique formal organization.

29. **Which of the following best describes the organization of the second paragraph?**

   A) An argument is delineated, followed by a counter-argument.
   B) An assertion is made and several examples are provided to illustrate it.
   C) A situation is described and its historical background is then outlined.
   D) An example of a phenomenon is given and is then used as a basis for general conclusions.

30. It can be inferred from the passage that traditional analyses of minority business would be LEAST likely to do which of the following?

A) Examine businesses primarily in their social contexts
B) Focus on current, rather than historical, examples of business enterprises
C) Stress common experiences of individual entrepreneurs in starting businesses
D) Focus on the maintenance of businesses, rather than means of starting them

Qs 31-35 Each sentence has one or two blanks, each blank indicating that something has been omitted. Beneath the sentence are five words. Choose the word or set of words for each blank that best fits the meaning of the sentence as a whole

31. In keeping with his own _____ in international diplomacy, Churchill proposed a personal meeting of heads of government, but the effort was doomed to failure, as the temper of the times was _____ .

A) ideas - pluralistic
B) predilections - inimical
C) aversions - hostile
D) impulses – amicable

32. The author presumably believes that all businessmen are _____, for her main characters, whatever qualities they may lack, are virtual paragons of _____.

A) clever . . . ingenuity
B) covetous . . . greed
C) virtuous . . . deceit
D) successful . . . ambition

33. By the mid-1700s, when it began a concerted effort to prevent famine and plague, the French government had fully realized that the success of its state building projects ------- the welfare of its people, particularly the labor-providing lower class.

A) threatened
B) depended on
C) promoted
D) should supersede

34. In this biography we are given a glimpse of the young man _____ pursuing the path of the poet despite _____ and rejection slips.

A) doggedly - disappointment
B) tirelessly – encouragement
C) sporadically - awards
D) successfully - acclaim

35. Through the 19th Century, the classics of Western Civilization were considered to be the _____ of wisdom and culture, and an _____ person - by definition - knew them well.

A) foundation - average
B) epitome - uneducated
C) cornerstone - obtuse
D) repository - educated

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Qs 36- 45 Read the passages carefully and chose the best answer to each question. This portion is meant to test your reasoning skills

Below is an excerpt from a letter that was sent by the chairman of a corporation to the stockholders.

A number of charges have been raised against me, some serious, some trivial. Individuals seeking to control the corporation for their own purposes have demanded my resignation. Remember that no court of law in any state has found me guilty of any criminal offense whatsoever. In the American tradition, as you know, an individual is considered innocent until proven guilty. Furthermore, as the corporation's unbroken six-year record of growth will show, my conduct of my official duties as chairman has only helped enhance the success of the corporation, and so benefited every stockholder.

36. Which of the following can be properly inferred from the excerpt?

A) The chairman believes that all those who have demanded his resignation are motivated by desire to control the corporation for their own purposes.
B) Any misdeeds that the chairman may have committed were motivated by his desire to enhance the success of the corporation.
C) The chairman is innocent of any criminal offense.
D) The corporation has expanded steadily over the past six years.

37. In the years since the city of London imposed strict air-pollution regulations on local industry, the number of bird species seen in and around London has increased dramatically. Similar air-pollution rules should be imposed in other major cities.

Each of the following is an assumption made in the argument above EXCEPT:

A) In most major cities, air-pollution problems are caused almost entirely by local industry.
B) Air-pollution regulations on industry have a significant impact on the quality of the air.
C) The air-pollution problems of other major cities are basically similar to those once suffered by London.
D) An increase in the number of bird species in and around a city is desirable.

Questions 38-39 are based on the following:

In an experiment, two different types of recorded music were played for neonates in adjacent nurseries in a hospital. In nursery A, classical music was played; in nursery B, rock music was played. After two weeks, it was found that the babies in nursery A cried less, suffered fewer minor ailments, and gained more weight than did the babies in nursery B.

38. In evaluating the validity of the conclusion suggested by the experiment above, it would be most important to know which of the following?

A) The musical preferences of the parents of the two groups of newborns
B) Whether the newborns in both nurseries were equally healthy and happy at the start of the experiment
C) Whether loud rock music can damage the hearing of newborns
D) What the average weight of the neonates was before and after the experiment

39 Which of the following additional experimental data would support the hypothesis that classical music is beneficial to the development of newborn?

A) The neonates in a nursery where no music was played fared better than those in nursery B.
B) Nursery A contained 15 percent more premature babies than nursery B.
C) The newborns in nursery A cried less, suffered fewer minor ailments, and gained more weight than did newborns in a nursery with no music.
D) The music played in nursery A was louder than that played in nursery B.

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40. The ancient city of Cephesa was not buried by an eruption of Mt. Amnos in A.D. 310, as some believe. The eruption in the year 310 damaged the city, but it did not destroy it. Cephesa survived for another century before it finally met its destruction in another eruption around A.D. 415.

Which of the following, if true, would most strengthen the author's claim that the city of Cephesa was not buried by the eruption of Mt. Amnos in A.D. 310?

A) The city of Cephesa is mentioned in a historical work known to have been written in A.D. 400.
B) Coins bearing the image of an emperor who lived around A.D. 410 have been discovered in the ruins of Cephesa, which were preserved by the cinders and ashes that buried the city.
C) Geological evidence shows that the eruption of Mt. Amnos in A.D. 415 deposited a 10-foot-thick layer of lava on the city of Cephesa.
D) Artworks from the city of Cephesa have been found in the ruins of another city known to have been destroyed in A.D. 420.

41. June is taller than Kristin.

Letty is taller than Maria.

Maria is shorter than Nancy.

Kristin and Nancy are exactly the same height.

If the information above is true, which of the following must also be true?

A) Letty is taller than Nancy.
B) Letty is taller than June.
C) Kristin is shorter than Letty.
D) June is taller than Maria.

42. Current farm policy is institutionalized penalization of consumers. It increases food prices for middle- and low-income families and costs the taxpayer billions of dollars a year.

Which of the following statements, if true, would provide support for the author's claims above?

I. Farm subsidies amount to roughly $20 billion a year in federal payouts and $12 billion more in higher food prices.

II. According to a study by the Department of Agriculture, each $1 of benefits provided to farmers for ethanol production costs consumers and taxpayers $4.

III. The average full-time farmers have an average net worth of over $300,000.

A) I only
B) II only
C) III only
D) I and II only

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43.Reva: Using extraneous incentives to get teenagers to change their attitude toward school and schoolwork won't work. Take the program in West Virginia, for instance, where they tried to reduce their dropout rate by revoking the driving licenses of kids who left school. The program failed miserably.

Anne: It's true that the West Virginia program failed, but many schools have devised incentive programs that have been very successful in improving attendance and reducing discipline problems.

According to Anne, the weak point in Reva's claim is that it

A) fails to consider the possibility that the majority of potential dropouts in West Virginia do not have driving licenses

B) doesn't provide any exact figures for the dropout rate in West Virginia before and during the program

C) ignores a substantial body of evidence showing that parents and employers have been using extrinsic incentives with positive results for years

D) is based on a single example, the incentive program in West Virginia, which may not be typical

44. In many surveys, European consumers have expressed a willingness to spend up to 10 percent more for products that are ecologically sound. Encouraged by such surveys, Bleach-O Corporation promoted a new laundry detergent, Bleach-O Green, as safer for the environment. Bleach-O Green cost 5 percent more than typical detergents. After one year, Bleach-O Green had failed to capture a significant share of the detergent market and was withdrawn from sale.

Which of the following questions is LEAST likely to be relevant in determining the reasons for the failure of Bleach-O Green?

A) How effective as a detergent was Bleach-O Green?

B) How many other detergents on the market were promoted as safe for the environment?

C) How much more did Bleach-O Green cost to manufacture than ordinary detergents?

D) To what extent did consumers accept the validity of Bleach-O Green advertised and promoted to consumers?

45. Ronald: According to my analysis of the national economy, housing prices should not increase during the next six months unless interest rates drop significantly.

Mark: I disagree. One year ago, when interest rates last fell significantly, housing prices did not increase at all.

It can be inferred from the conversation above that Mark has interpreted Ronald's statement to mean that

A) housing prices will rise only if interest rates fall

B) if interest rates fall, housing prices must rise

C) interest rates and housing prices tend to rise and fall together

D) interest rates are the only significant economic factor affecting housing prices

(Stop.   Before turning the next page, wait for the invigilator's Signal.)

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Mathematics M.C.Q's

No. of Questions: 50 (from 46 to 95)   Time: 75Minutes
Questions on Page Numbers: 11 To 19   Negative markings: **Yes**

Q46 A fair sided die labeled 1 to 6 is tossed twice. What is the probability the sum of the 2 throws is a prime number?

A) $\dfrac{13}{36}$

B) $\dfrac{14}{36}$

C) $\dfrac{15}{36}$

D) None of these

Q47 On the xy-coordinate plane, all of the following xy-coordinate points lie on the circumference of a circle whose radius is 10 and whose center lies at the point (10, 10) except:

A) (20, 10)

B) (10, 20)

C) (20, 20)

D) (2, 4)

Q48 In a certain parallelogram, the degree measure of one interior angle exceeds that of another interior angle by 60. What is the degree measure of the larger angle?

A) 160

B) 140

C) 120

D) None of these

Q49 A bag contains five blue and three red balls. Two balls are selected from the bag at random, without the replacement. Find the probability that both selected balls is of same color

A) $\dfrac{5}{14}$

B) $\dfrac{13}{28}$

C) $\dfrac{3}{28}$

D) None of these

Q50 Which of the following equations has a root in common with $x^2 + 6x - 7 = 0$?

A) $x^2 + 6x - 5 = 0$

B) $x^2 + 6x + 7 = 0$

C) $x^2 - 6x + 5 = 0$

D) $x^2 - 6x - 7 = 0$

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Q51 Thirteen million rupees are shared among Ali, Baber and Maria. Baber received twice as much as Ali. Maria received one million more than Ali. The amount received by Baber is

A)   2 million rupees

B)   3 million rupees

C)   6 million rupees

D)   4 million rupees

Q52 How many numbers in the set $\{-7, -3, -2, -1, 0, 3, 4, 6\}$ satisfy the conditions $|x + 4| > 5$ and $|x - 3| \leq 6$?

A)   2

B)   3

C)   4

D)   5

Q53 All of the following could be the lengths of the sides of a right-angled triangle, except

A)   3, 4, 5

B)   6, 7, 8

C)   5, 12, 13

D)   11, 60, 61

Q54 In a set of four numbers, the average of first two numbers is 50, the average of the last two numbers is 80, and the average of the middle two numbers is 100. What is the average of the first and last number?

A)   60

B)   45

C)   30

D)   15

Q55. Five years back, a father was 30 years older than his son. At present the father is 6 times as old as the son. How old will the father be four years from now?

A)   30 years

B)   40 years

C)   45 years

D)   20 years

Q56 If $x^2 - 4 \leq 5$ and $x^2 - x - 12 \geq 0$, then x lies in the interval / set

A) $(-3, 3)$

B) $(4, 5)$

C) $\{-3\}$

D) $\{3\}$

Q57 It is known that $x^2 - 11x + 4C = 0$ has two distinct roots. It is also known that one factor is $(x - C)$ and C is greater than zero. The larger root of the quadratic equation is

A)   4   B)   7   C)   11   D)   None of these

13

Q58 The width of a rectangle is 2 cm smaller than its length and its area is 99 cm^2. The perimeter of the rectangle is

A)   60

B)   50

C)   40

D)   None of these

Q59 Consider the function, $f(x) = \begin{cases} 5|x| + 6, & if\ x > 0 \\ -5|x| - 6, & if\ x \le 0 \end{cases}$. Evaluate $f(-x)$ if $x = 10$.

A)   −54

B)   56

C)   −56

D)   44

Q60 Suppose the population of a country is 5.2×10^8. And there are 7.8×10^7 adults. What fraction of the whole population are children?

A) $\dfrac{11}{20}$

B) $\dfrac{13}{20}$

C) $\dfrac{17}{20}$

D) $\dfrac{19}{20}$

Q61 A street vendor only sells two types of newspapers. One for 12 rupees and the other for 15 rupees. If on a certain day he has managed to collect 2712 rupees from the customers, then how many papers did he sell at rupees 15?

A)   170

B)   150

C)   130

D)   None of these

Q62 The domain of the function $f(x) = \dfrac{1}{x^2 + 7x - 8}$ consists of all real numbers except

A)   1 and 8

B)   −1 and 8

C)   1 and −8

D)   −1 and −8

Q63 The cubic polynomial $(x + 1000)(x^2 - x - 42) = 0$ has

A)   only one real root

B)   only two distinct real roots

C)   one real root and two complex roots

D)   three distinct roots which are real

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Q64 Suppose the fifth term of an arithmetic progression is 20 and the eighth term of the same arithmetic progression is 110. What is the sum of the first three terms of the arithmetic progression?

A)   −120

B)   130

C)   −210

D)   310

Q65 A toy store regularly sells all stock at a discount of 20 percent to 40 percent. If an additional 25 percent were deducted from the discount price during a special sale, what would be the lowest possible price of a toy costing Rs 1600 before any discount?

A)   Rs 880

B)   Rs 560

C)   Rs 960

D)   Rs 720

Q66 The salaries of three professors are in the ratio 7:8:9. If the highest salary is 450,000 rupees, then the mean salary will be

A)   500,000 rupees

B)   400,000 rupees

C)   350,000 rupees

D)   None of these

Q67 Solve the inequality $3(x + 4) > 4x$

A) $x < -12$

B) $x > -12$

C) $x < 12$

D) $x > 12$

Q68 If the price of CNG increases by 20% and Rizwana intend to spend only 5% more on CNG, by how much % should she reduce the quantity of CNG she buys?

A)   0.125%

B)   12.5%

C)   33.33%

D)   None of these

Q69 All possible values of an integer variable x satisfying the conditions below are:

$$3x + 9 < 14 \text{ and } 1 - x \leq 3$$

A)   1, 2, 3, 4

B)   −2, −3, −4, −5

C)   −2, −1, 0, 1

D)   None of these

Q70 What is the maximum percentage discount that a merchant can offer on her Marked Price so that she ends up selling at no profit or loss, if she had initially marked her goods up by 60%?

A)   60.0%

B)   37.5%

C)   67.5%

D)   None of these

Q71 If the mean of numbers 34, x, 40, 68 and 108 is 70, then what is the mean of $100 - x$, 200, $500 - 2x$, $100 + x$ and x?

A)   100

B)   200

C)   160

D)   None of these

Q72 How many positive integral divisors does the number 60 have?

A)   4

B)   8

C)   12

D)   16

Q73 A solid cuboid measures 4 cm by 8 cm by 16 cm. A cube has the same volume as the cuboid. Find the Length of an edge of the cube

A)   4 cm

B)   8 cm

C)   16 cm

D)   None of these

Q74 All of the following statements are true, except

A)   There are 32 subsets in the set $\{u, v, w, x, y\}$

B)   If A is a subset of B, then $A \cap B = B$

C)   If $A = \{1, 2, 3, 4\}$ and $B = \{4, 3, 2, 1\}$, then $A = B$

D)   If A and B are any two sets, then $(A - B) \cap B$ = empty set

Q75 If $\dfrac{t^n}{\sqrt{t}} = \dfrac{t^{\sqrt{n}}}{t^{-5.5}}$, then value of n is

A)   3

B)   6

C)   9

D)   None of these

Q76 Let us consider the eight real numbers, 2.4, 2.9, 2.9, 2.9, 3, 3.2, 3.2, 3.5. The mean and standard deviation of these 8 numbers are 3 and 0.3 respectively. What percent of the 8 numbers are within 1 standard deviation of the mean?

A)   85%   B)   80%   C)   75%   D)   70%

Q77. For what value of 'k' will the pair of equations $4x - 3y = 12$ and $x + ky = 20$ have no solution?

A)   0.75

B) $- 0.75$

C)   1.75

D)   None of these

Q78 If $10^{62} - 99$ is written as an integer in base 10 notation, what is the sum of the digits in that integer?

A)   741

B)   641

C)   541

D)   None of these

Q79 Suppose the fourth term of a geometric progression is 4 and the eleventh term of the same geometric progression is 512. What is the sum of the first five terms of the geometric progression?

A)   62

B)   31

C)   15.5

D)   7.75

Q80 From a group of 5 girls and 4 boys, 7 children are to be randomly selected. What is the probability that 4 girls will be selected?

A) $\dfrac{4}{9}$

B) $\dfrac{3}{5}$

C) $\dfrac{5}{9}$

D)   None of these

Q81 In an examination, each student in a group scores either 8, 12, 16 or 20 marks. The number of students scoring each mark is shown in the table below. If the median mark is 12, then the largest possible size of the group will be:

Mark	8	12	16	20
Number of students	10	20	x	10

A)   49

B)   59

C)   69

D)   None of these

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Q82 If $x + y = \alpha - \beta$ and $x - y = \alpha + \beta$, then $x^2 - y^2$ is

A) $\alpha^2 + \beta^2$

B) $\alpha^2 - \beta^2$

C) $2\alpha\beta$

D) None of these

Q83 If $3x + 2y = 1$ and $2x + 3y = 4$, then x must be

A) 1

B) 2

C) 3

D) $1 - y$

Q84 A circle is tangent to both axes. If the distance from the origin to the centre of the circle is r, what is the diameter of the circle?

A) $\dfrac{r}{\sqrt{2}}$

B) $\sqrt{2}\, r$

C) $2\, r$

D) r

Q85 What is the % change in the area of a rectangle when its length increases by 20% and its width decreases by 15%?

A) 0%

B) 2% increase

C) 2% decrease

D) 1% increase

Q86 In the xy-coordinate system, if (α, β) and $(\alpha + \gamma, \beta - 3)$ are two points on the line defined by $x + 3y = 12$, then $\gamma =$

A) 8

B) 9

C) 10

D) None of these

Q87 Humera wants to put up fencing around three sides of her rectangular yard and leave a side of 34 feet unfenced. If the yard has an area of 680 square feet, how many feet of fencing does she need?

A) 40

B) 68

C) 74

D) 88

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Q88 How many 3-digit numbers satisfy the following conditions: The left digit is different from zero and the right digit is different from the middle digit

A)   810

B)   576

C)   648

D)   672

Q89 Which of the following data suffices to find the area of a right angled triangle?

I) Magnitude of any two angles of the triangle.

II) Length of any two sides of the triangle.

III) Length of all three sides of the triangle.

A) I only.

B) II only.

C) III only.

D) I and III only.

Q90 In order to find the slope of the tangent line to the curve y = f(x) at the point (a, b), which of the following is required?

I) The equation of the line tangent to the curve at (a, b).

II) The algebraic expression for f(x).

III) Values of a and b.

A) I only.

B) I and II only.

C) II only.

D) II and III only.

Q91 Which of the following options are true if $\sqrt{x}$ is an integer?

I) x^2 is an integer.

II) x^2 is a real number.

III) x^2 is an irrational number.

A) I only.

B) II only.

C) I and III only.

D) I and II only.

Q92 Which of the following geometrical entities in two-dimensional space, can be represented by ax + by + c = 0, depending on the coefficients a, b, and c?

I) A straight line.

II) Two straight lines passing through the origin.

III) A point.

A) I only.   B) I and II only.   C) II and III only.   D) I and III only.

Q93 Which of the following statements may be correct for $|x + 2|$?

I) $|x + 2| = -(x + 2)$, when $x < 2$.

II) $|x + 2| = (x + 2)$, when $x \geq 2$.

III) $|x + 2| = (x + 2)$, for all real values of x.

A) I only.

B) II only.

C) I and II only.

D) II and III only.

Q94 If x is defined as $\{x < \frac{1}{2}\} \cap \{x > -\frac{1}{2}\}$, then which of the following is not a value of x?

I) 0.

II) 1.

III) $\frac{1}{2}$

A) I only.

B) I and III only.

C) II only.

D) II and III only.

Q95 If the sum of the interior angles of a regular polygon measures up to 1440 degrees, how many sides does the polygon have?

A)   7 sides

B)   8 sides

C)   9 sides

D)   10 sides

This is the end of Part 1 and Part 2. Please, wait for the Part 3 (two essay questions).