UPSC

CIVIL SERVICES EXAMINATION (PRELIMS)-CSAT

2019

PAPER 2

Max. Time: 2 Hours   **Max. Marks: 200**

General Instructions

Direction for the following 8 (eight) items: Read the following seven passages and answer the items (1-8) that follow each passage. Your answers to these items should be based on the passages only.

Passage–1

Political theorists no doubt have to take history of injustice, for example, untouchability, seriously. The concept of historical injustice takes note of a variety of historical wrongs that continue into the present in some form or the other and tend to resist repair. Two reasons might account for resistance to repair. One, not only are the roots of injustice buried deep in history, injustice itself constitutes economic structures of exploitation, ideologies of discrimination and modes of representation. Two, the category of historical injustice generally extends across a number of wrongs such as economic deprivation, social discrimination and lack of recognition. This category is complex, not only because of the overlap between a number of wrongs, but because one or the other wrong, generally discrimination, tends to acquire partial autonomy from others. This is borne out by the history of repair in India.

1. **What is the main idea that we can infer from the passage?**
   (a) Untouchability in India has not been taken seriously by political theorists.
   (b) Historical injustice is inevitable in any society and is always beyond repair.
   (c) Social discrimination and deprivation have their roots in bad economies.
   (d) It is difficult, if not impossible, to repair every manifestation of historical injustice.

2. **On the basis of the above passage, the following assumptions have been made:**
   1. Removal of economic discrimination leads to removal of social discrimination.
   2. Democratic polity is the best way to repair historical wrongs.

Which of the above assumptions is/are valid?

(a) 1 only   **(b)** 2 only

(c) Both 1 and 2   **(d)** Neither 1 nor 2

Passage–2

Education plays a great transformatory role in life, particularly so in this rapidly changing and globalizing world. Universities are the custodians of the intellectual capital and promoters of culture and specialized knowledge. Culture is an activity of thought, and receptiveness to beauty and human feelings. A merely well-informed man is only a bore on God's earth. What we should aim at is producing men who possess both culture and expert knowledge. Their expert knowledge will give them a firm ground to start from and their culture will lead them as deep as philosophy and as high as art. Together these will impart meaning to human existence.

3. **On the basis of the above passage, the following assumptions have been made:**

1. A society without well-educated people cannot be transformed into a modern society.

2. Without acquiring culture, a person's education is not complete.

Which of the above assumptions is/are valid ?

(a) 1 only   **(b)** 2 only

(c) Both 1 and 2   **(d)** Neither 1 nor 2

Passage–3

Soil, in which nearly all our food grows, is a living resource that takes years to form. Yet it can vanish in minutes. Each year 75 billion tonnes of fertile soil is lost to erosion. That is alarming — and not just for food producers. Soil can trap huge quantities of carbon dioxide in the form of organic carbon and prevent it from escaping into the atmosphere.

4. **On the basis of the above passage, the following assumptions have been made:**

1. Large-scale soil erosion is a major reason for widespread food insecurity in the world.

2. Soil erosion is mainly anthropogenic.

3. Sustainable management of soils helps in combating climate change.

Which of the above assumptions is/are valid?

(a) 1 and 2 only   **(b)** 3 only

(c) 2 and 3 only   **(d)** 1, 2 and 3

Passage–4

Inequality is visible, even statistically measurable in many instances, but the economic power that drives it is invisible and not measurable. Like the force of gravity, power is the organising principle of inequality, be it of income, or wealth, gender, race, religion and region. Its effects are seen in a pervasive manner in all spheres, but the ways in which economic power pulls and tilts visible economic variables remain invisibly obscure.

5. **On the basis of the above passage, the following assumptions have been made:**

1. Economic power is the only reason for the existence of inequality in a society.

2. Inequality of different kinds, income, wealth, etc. reinforces power.

3. Economic power can be analysed more through its effects than by direct empirical methods.

Which of the above assumptions is/are valid ?

(a) 1 and 2 only   **(b)** 3 only

(c) 1 and 3 only   **(d)** 1, 2 and 3

Passage–5

Climate change may actually benefit some plants by lengthening growing seasons and increasing carbon dioxide. Yet other effects of a warmer world, such as more pests, droughts, and flooding, will be less benign. How will the world, adapt? Researchers project that by 2050, suitable croplands for four commodities — maize, potatoes, rice and wheat — will shift, in some cases pushing farmers to plant new crops. Some farmlands may benefit from warming, but others won't. Climate alone does not dictate yields; political shifts, global demand, and agricultural practices will influence how farms fare in the future.

6. **Which one of the following is the *most logical and rational inference* that can be made from the above passage ?**

(a) Farmers who modernize their methods and diversify their fields will be in an advantageous position in future.

(b) Climate change will adversely affect the crop diversity.

(c) Shifting major crops to new croplands will lead to a great increase in the total area under cultivation and thus an increase in overall agricultural production.

(d) Climate change is the most important factor affecting the agricultural economy in the future.

Passage–6

A bat's wings may look like sheets of skin. But underneath, a bat has the same five fingers as an orangutan or a human, as well as a wrist connected to the same cluster of wrist bones connected to the same long bones of the arm. What can be more curious than that the hand of a man, formed for grasping, that of a mole for digging, the leg of the horse, the paddle of the porpoise, and the wing of the bat, should all be constructed on the same pattern?

7. Which one of the following is the *most logical, scientific and rational inference* that can be made from the above passage?

(a) Different species having similar structure of hands is an example of biodiversity.

(b) Limbs being used by different species for different kinds of work is an example of biodiversity.

(c) Man and the aforementioned animals having similar structure of limbs is an example of coincidence in evolution.

(d) Man and the aforementioned animals have a shared evolutionary history.

Passage–7

Around 56 million years ago, the Atlantic Ocean had not fully opened and animals, perhaps including our primate ancestors, could walk from Asia to North America through Europe and across Greenland. Earth was warmer than it is today, but as the Palaeocene epoch gave way to Eocene, it was about to get much warmer still — rapidly and radically. The cause was a massive geologically sudden release of carbon. During this period called Palaeocene – Eocene Thermal Maximum or PETM, the carbon injected into the atmosphere was roughly the amount that would be injected today if humans burned all the Earth's reserves of coal, oil and natural gas. The PETM lasted for about 1,50,000

years, until the excess carbon was reabsorbed. It brought on drought, floods, insect plagues and a few extinctions. Life on Earth survived — indeed, it prospered — but it was drastically different.

8. Based on the above passage, the following assumptions have been made:

1. Global warming has a bearing on the planet's biological evolution.

2. Separation of land masses causes the release of huge quantities of carbon into the atmosphere.

3. Increased warming of Earth's atmosphere can change the composition of its flora and fauna.

4. The present man-made global warming will finally lead to conditions similar to those which happened 56 million years ago.

Which of the assumptions given above are valid?

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

(c) 1 and 3   (d) 2 and 4

9. The number of times the digit 5, will appear while writing the integers from 1 to 1000 is

(a) 269   (b) 271

(c) 300   (d) 302

10. A solid cube is painted yellow, blue and black such that opposite faces are of same colour. The cube is then cut into 36 cubes of two different sizes such that 32 cubes are small and the other four cubes are big. None of the faces of the bigger cubes is painted blue. How many cubes have only one face painted?

(a) 4   (b) 6

(c) 8   (d) 10

11. A and B are two heavy steel blocks. If B is placed on the top of A, the weight increases by 60%. How much weight will reduce with respect to the total weight of A and B, if B is removed from the top of A?

(a) 60%   (b) 45.5%

(c) 40%   (d) 37.5%

12. Mr. 'X' has three children. The birthday of the first child falls on the 5th Monday of April, that of the second one falls on the 5th

Thursday of November. On which day is the birthday of his third child, which falls on 20th December ?

(a) Monday   (b) Thursday

(c) Saturday   (d) Sunday

13. Consider the following Statements and Conclusions:

Statements:

1. Some rats are cats.

2. Some cats are dogs.

3. No dog is a cow.

Conclusions:

I. No cow is a cat.

II. No dog is a rat.

III. Some cats are rats.

Which of the above conclusions is/are drawn from the statements?

(a) I, II and III   (b) Only I and II

(c) Only III   (d) Only II and III

14. The number of parallelograms that can be formed from a set of four parallel lines intersecting another set of four parallel lines is

(a) 18   (b) 24

(c) 32   (d) 36

15. In a school every student is assigned a unique identification number. A student is a football player if and only if the identification number is divisible by 4, whereas a student is a cricketer if and only if the identification number is divisible by 6. If every number from 1 to 100 is assigned to a student, then how many of them play cricket as well as football?

(a) 4   (b) 8

(c) 10   (d) 12

16. When a runner was crossing the 12 km mark, she was informed that she had completed only 80% of the race. How many kilometres was the runner supposed to run in this event?

(a) 14   (b) 15

(c) 16   (d) 16.5

17. Raju has ₹ 9000 with him and he wants to buy a mobile handset; hut he finds that he has only 75% of the amount required to buy the handset. Therefore, he borrows ₹ 2000 from a friend. Then

(a) Raju still does not have enough amount to buy the handset.

(b) Raju has exactly the same amount as required to buy the handset.

(c) Raju has enough amount to buy the handset and he will have ₹ 500 with him after buying the handset.

(d) Raju has enough amount to buy the handset and he will have ₹ 1000 with him after buying the handset.

18. In 2002, Meenu's age was one-third of the age of Meera, whereas in 2010, Meenu's age was half the age of Meera. What is Meenu's year of birth?

(a) 1992   (b) 1994

(c) 1996   (d) 1998

19. Rakesh and Rajesh together bought 10 balls and 10 rackets. Rakesh spent ₹ 1300 and Rajesh spent ₹ 1500. If each racket costs three times a ball does, then what is the price of a racket?

(a) ₹ 70   (b) ₹ 90

(c) ₹ 210   (d) ₹ 240

20. In a conference, out of a total 100 participants, 70 are Indians. If 60 of the total participants are vegetarian, then which of the following statements is/are correct?

1. At least 30 Indian participants are vegetarian.

2. At least 10 Indian participants are non-vegetarian.

Select the correct answer using the codes given below:

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Direction for the following 8 (eight) items: Read the following six passages and answer the items (21-28) that follow each passage. Your answers to these items should be based on the passages only.

Passage–1

Low-end IoT (Internet of Things) devices are cheap commodity items: addressing security would add to the cost. This class of items is proliferating with new applications; many home appliances, thermostats, security and monitoring devices and

personal convenience devices are part of the IoT. So are fitness trackers, certain medical implants and computer-like devices in automobiles. The IoT is expected to expand exponentially— but new security challenges are daunting.

21. **Which one of the following statements is the *most logical and rational inference* that can be made from the above passage?**
    (a) Development of enabling technologies in India can be a big boost to its manufacturing sector.
    (b) India is not yet fully ready to adopt IoT in view of the imminent security challenges.
    (c) Life becomes more comfortable with the development of cheap low-end IoT devices.
    (d) As we go digital, we must recognise the huge threat to Internet security from some IoT devices.

Passage–2

With the digital phenomenon restructuring most social sectors, it is little surprise that global trade negotiations are now eyeing the digital area in an attempt to pre-emptively colonise it. Big Data is freely collected or mined from developing countries, and converted into digital intelligence in developed countries. This intelligence begins to control different sectors and extract monopoly rents. A large foreign company providing cab service, for instance, is not a network of cars and drivers; it is digital intelligence about commuting; public transport, roads, traffic, city events, personal behavioural characteristics of commuters and drivers, and so on.

22. **Which one of the following is the *most logical and rational corollary* to the above passage?**
    (a) Globalization is not in the interests of India as it undermines its socio-economic structures.
    (b) India should be careful to protect its digital sovereignty in global trade talks.
    (c) India should charge monopoly rents from multinational companies in exchange for Big Data.
    (d) The loss of Big Data from India, is proportional to the degree/value of its foreign trade.

23. **Which of the following is most definitively implied by the above passage?**
    (a) Big Data is the key resource in the digital space.
    (b) Big economies create Big Data.
    (c) Access to Big Data is the prerogative of developed countries.
    (d) Access to and possession of Big Data is a characteristic of developed countries.

Passage–3

The rural poor across the world, including India; have contributed little to human-induced climate change, yet they are on the frontline in coping with its effects. Farmers can no longer rely on historical averages for rainfall and temperature, and the more frequent and extreme weather events, such as droughts and floods, can spell disaster. And there are new threats, such as sea level rise and the impact of melting glaciers on water supply. How significant are small farms? As many as two billion people worldwide depend on them for their food and livelihood. Small-holder farmers in India produce 41 percent of the country's food grains, and other food items that contribute to local and national food security.

24. **What is the *most logical and rational corollary* to the above passage?**
    (a) Supporting small farmers is an important part of any agenda regarding environmentally sustainable development.
    (b) Poor countries have little role to play in the mitigation of global warming.
    (c) Due to a large number of farmer households, India will not have food security problem in the foreseeable future.
    (d) Only small-holder farmers in India can ensure food security.

25. **The above passage implies that**
    1. There is a potential problem of food insecurity in India.
    2. India will have to strengthen its disaster management capabilities.

    Which of the above assumptions is/are valid?
    (a) 1 only   (b) 2 only
    (c) Both 1 and 2   (d) Neither 1 nor 2

Passage–4

A changing climate, and the eventual efforts of governments (however reluctant) to deal with it, could have a big impact on investors' returns. Companies that produce or use large amounts of fossil fuels will face higher taxes and regulatory burdens. Some energy producers may find it impossible to exploit their known reserves, and be left with "stranded assets" — deposits of oil and coal that have to be left in the ground. Other industries could be affected by the economic damage caused by more extreme weather — storms, floods, heat waves and droughts.

26. On the basis of the above passage, the following assumptions have been made:

1. Governments and companies need to be adequately prepared to face the climate change.
2. Extreme weather events will reduce the economic growth of governments and companies in future.
3. Ignoring climate change is a huge risk for investors.

Which of the above assumptions is/are valid?

(a) 1 and 2 only   (b) 3 only
(c) 1 and 3 only   (d) 1, 2 and 3

Passage–5

Access to schooling for those coming of school age is close to universal, but access to quality exhibits a sharp gradient with socio-economic status. Quotas for the weaker sections in private schools is a provision introduced by the Right of Children to Free and Compulsory Education Act, 2009. The quotas have imposed a debate on issues of social integration and equity in education that private actors had escaped, by and large. The idea of egalitarian education system with equality of opportunity as its primary goal appears to be outside the space that private school principals inhabit. Therefore, the imposition of the quotas has led to resistance, sometimes justified.

27. With reference to the above passage, the following assumptions have been made:

1. Making equality of opportunity a reality is the fundamental goal of the Indian education system.

2. The present Indian school system is unable to provide egalitarian education.
3. Abolition of private schools and establishment of more government schools is the only way to ensure egalitarian education.

Which of the above assumptions is/are valid?

(a) 1 and 2 only   (b) 2 only
(c) 2 and 3 only   (d) 3 only

Passage–6

A majority of the TB infected in India are poor and lack sufficient nutrition, suitable housing and have little understanding of prevention. TB then devastates families, makes the poor poorer, particularly affects women and children, and leads to ostracisation and loss of employment. The truth is that even if TB does not kill them, hunger and poverty will. Another truth is that deep-seated stigma, lack of counselling, expensive treatment and lack of adequate support from providers and family, coupled with torturous side-effects demotivate patients to continue treatment — with disastrous health consequences.

28. Which one of the following is the *most logical, rational and crucial message* conveyed by the above passage?

(a) TB is not a curable disease in Indian circumstances.
(b) Curing TB requires more than diagnosis and medical treatment.
(c) Government's surveillance mechanism is deficient; and poor people have no access to treatment.
(d) India will be free from diseases like TB only when its poverty alleviation programmes are effectively and successfully implemented.

29. A five-storeyed building with floors from I to V is painted using four different colours and only one colour is used to paint a floor.

Consider the following statements:

1. The middle three floors are painted in different colours.
2. The second (II) and the fourth (IV) floors are painted in different colours.
3. The first (I) and the fifth (V) floors are painted red.

To ensure that any two consecutive floors have different colours

(a) Only statement 2 is sufficient

(b) Only statement 3 is sufficient

(c) Statement 1 is not sufficient, but statement 1 along with statement 2 is sufficient

(d) Statement 3 is not sufficient, but statement 3 along with statement 2 is sufficient

30. P, Q and R are three towns. The distance between P and Q is 60 km, whereas the distance between P and R is 80 km. Q is in the West of P and R is in the South of P. What is the distance between Q and R?

(a) 140 km   (b) 130 km

(c) 110 km   (d) 100 km

31. All members of a club went to Mumbai and stayed in a hotel. On the first day, 80% went for shopping and 50% went for sightseeing, whereas 10% took rest in the hotel. Which of the following conclusion(s) can be drawn from the above data?

1. 40% members went for shopping as well as sightseeing.

2. 20% members went for only shopping.

Select the correct answer using the code given below:

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

32. In a school, 60% students play cricket. A student who does not play cricket, plays football. Every football player has got a two-wheeler. Which of the following conclusions *cannot* be drawn from the above data ?

1. 60% of the students do not have two-wheelers.

2. No cricketer has a two-wheeler.

3. Cricket players do not play football.

Select the correct answer using the code given below:

(a) 1 and 2 only   (b) 2 and 3 only

(c) 1 and 3 only   (d) 1, 2 and 3

33. The ratio of a two-digit natural number to a number formed by reversing its digits is 4 : 7. The number of such pairs is

(a) 5   (b) 4

(c) 3   (d) 2

34. In an examination, A has scored 20 marks more than B. If B has scored 5% less marks than A, how much has B scored?

(a) 360   (b) 380

(c) 400   (d) 420

35. Seeta and Geeta go for a swim after a gap of every 2 days and every 3 days respectively. If on 1st January both of them went for a swim together, when will they go together next?

(a) 7th January   (b) 8th January

(c) 12th January   (d) 13th January

36. X, Y and Z are three contestants in a race of 1000 m. Assume that all run with different uniform speeds. X gives Y a start of 40 m and X gives Z a start of 64 m. If Y and Z were to compete in a race of 1000 m, how many metres start will Y give to Z?

(a) 20   (b) 25

(c) 30   (d) 35

37. If x is greater than or equal to 25 and y is less than or equal to 40, then which one of the following is always correct?

(a) x is greater than y

(b) $(y - x)$ is greater than 15

(c) $(y - x)$ is less than or equal to 15

(d) $(x + y)$ is greater than or equal to 65

38. Ena was born 4 years after her parents' marriage. Her mother is three years younger than her father and 24 years older than Ena, who is 13 years old. At what age did Ena's father get married?

(a) 22 years   (b) 23 years

(c) 24 years   (d) 25 years

39. Rakesh had money to buy 8 mobile handsets of a specific company. But the retailer offered very good discount on that particular handset. Rakesh could buy 10 mobile handsets with the amount he had. What was the discount the retailer offered?

(a) 15%   (b) 20%

(c) 25%   (d) 30%

40. The average marks of 100 students are given to be 40. It was found later that marks of one student were 53 which were misread as 83. The corrected mean marks are

(a) 39   (b) 39.7

(c) 40   (d) 40.3

Direction for the following 7 (seven) items: Read the following six passages and answer the items (41-47) that follow each passage. Your answers to these items should be based on the passages only.

Passage–1

What stands in the way of the widespread and careful adoption of 'Genetic Modification (GM)' technology is an 'Intellectual Property Rights' regime that seeks to create private monopolies for such technologies. If GM technology is largely corporate driven, it seeks to maximize profits and that too in the short run. That is why corporations make major investments for herbicide-tolerant and pest-resistant crops. Such properties have only a short window, as soon enough, pests and weeds will evolve to overcome such resistance. This suits the corporations. The National Farmers Commission pointed out that priority must be given in genetic modification to the incorporation of genes that can help impart resistance to drought, salinity and other stresses .

41. Which one of the following is the *most logical, rational and crucial message* conveyed by the above passage?

(a) Public research institutions should take the lead in GM technology and prioritise the technology agenda.

(b) Developing countries should raise this issue in WTO and ensure the abolition of Intellectual Property Rights.

(c) Private corporations should not be allowed to do agribusiness in India, particularly the seed business.

(d) Present Indian circumstances do not favour the cultivation of genetically modified crops.

42. On the basis of the above passage, the following assumptions have been made:

1. The issue of effects of natural calamities on agriculture is not given due consideration by GM technology companies.

2. In the long run, GM technology will not be able to solve agricultural problems arising due to global warming.

Which of the above assumptions is/are valid?

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Passage–2

Most invasive species are neither terribly successful nor very harmful. Britain's invasive plants are not widespread, not spreading especially quickly, and often less of a nuisance than vigorous natives such as bracken. The arrival of new species almost always increases biological diversity in a region; in many cases, a flood of newcomers drives no native species to extinction. One reason is that invaders tend to colonies disturbed habitats like polluted lakes and post-industrial wasteland, where little else lives. They are nature's opportunists.

43. Which one of the following is the *most logical and rational inference* that can be made from the above passage?

(a) Invasive species should be used to rehabilitate desert areas and wastelands of a country.

(b) Laws against the introduction of foreign plants are unnecessary.

(c) Sometimes, the campaigns against foreign plants are pointless.

(d) Foreign plants should be used to increase the biodiversity of a country.

Passage–3

Diarrhoeal deaths among Indian children are mostly due to food and water contamination. Use of contaminated groundwater and unsafe chemicals in agriculture, poor hygiene in storage and handling of food items to food cooked and distributed in unhygienic surroundings; there are myriad factors that need regulation and monitoring. People need to have awareness of adulteration and ways of complaining to the relevant authorities. Surveillance of food-borne diseases involves a number of government agencies and entails a good training of inspection staff. Considering the proportion of the urban population that depends on street food for its daily meals, investing in training and education of street vendors is of great significance.

44. On the basis of the above passage, the following assumptions have been made:

1. Food safety is a complex issue that calls for a multipronged solution.

2. Great investments need to be made in developing the manpower for surveillance and training.

3. India needs to make sufficient legislation for governing food processing industry.

Which of the above assumptions is/are valid?

(a) 1 and 2 only   (b) 3 only

(c) 1 and 3 only   (d) 1, 2 and 3

Passage–4

The interests of working and poor people have historically been neglected in the planning of our cities. Our cities are increasingly intolerant, unsafe and unlivable places for large numbers of citizens and yet we continue to plan via the old ways — the static Development Plan — that draws exclusively from technical expertise, distanced from people's live experiences and needs, and actively excluding large number of people, places, activities and practices that are an integral part of the city.

45. The passage seems to argue

(a) against the monopoly of builders and the interests of elite groups.

(b) against the need for global and smart cities.

(c) in favour of planning cities mainly for working class and poor people.

(d) in favour of participation of peoples' groups in city planning.

Passage–5

A vast majority of Indians are poor, with barely 10 percent employed in the organised sector. We are being convinced that vigorous economic growth is generating substantial employment. But this is not so. When our economy was growing at 3 percent per year, employment in the organised sector was growing at 2 percent per year. As the economy began to grow at 7-8 percent per year, the rate of growth of employment in the organised sector actually declined to 1 percent per year.

46. The above passage seems to imply that

1. most of modern economic growth is based on technological progress.

2. much of modern Indian economy does not nurture sufficient symbiotic relationship with labour-intensive, natural resource-based livelihoods.

3. service sector in India is not very labour-intensive.

4. literate rural population is not willing to enter organised sector.

Which of the statements given above are correct?

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

(c) 1, 2 and 3 only   (d) 1, 2, 3 and 4

Passage–6

India has banking correspondents, who help bring people in the hinterland into the banking fold. For them to succeed, banks cannot crimp on costs. They also cannot afford to ignore investing in financial education and literacy. Banking correspondents are way too small to be viewed as a systemic risk. Yet India's banking regulator has restricted them to serving only one bank, perhaps to prevent arbitrage. Efforts at banking outreach may succeed only if there are better incentives at work for such last-mile workers and also those providers who ensure not just basic, bank accounts but also products, such as accident and life insurance and micro pension schemes.

47. Which one of the following is the *most logical, rational and crucial inference* that can be derived from the above passage?

(a) Efforts to bring people in India's hinterland into the banking system are not successful.

(b) For meaningful financial inclusion, India's banking system needs more number of banking correspondents and other such last-mile workers.

(c) Meaningful financial inclusion in India requires that banking correspondents have diverse skills.

(d) Better banking outreach would be impossible unless each banking correspondent is allowed to serve a number of banks.

48. What is X in the sequence?

132, 129, 124, 117, 106, 93, X

(a) 74   (b) 75

(c) 76   (d) 77

49. A wall clock moves 10 minutes fast in every 24 hours. The clock was set right to show the correct time at 8:00 a.m. on Monday. When the dock shows the time 6:00 p.m. on Wednesday, what is the correct time?

(a) 5:36 p.m.   (b) 5:30 p.m.

(c) 5:24 p.m.   (d) 5:18 p.m.

50. If the numerator and denominator of a proper fraction are increased by the same positive quantity which is greater than zero, the resulting fraction is
   (a) always less than the original fraction
   (b) always greater than the original fraction
   (c) always equal to the original fraction
   (d) such that nothing can be claimed definitely

51. What is X in the sequence?
   4, 196, 16, 144, 36, 100, 64, X
   (a) 48   (b) 64
   (c) 125   (d) 256

52. In a group of 15 people; 7 can read French, 8 can read English while 3 of them can read neither of these two languages. The number of people who can read exactly one language is
   (a) 10   (b) 9
   (c) 5   (d) 4

53. A printer numbers the pages of a book starting with 1 and uses 3089 digits in all. How many pages does the book have?
   (a) 1040   (b) 1048
   (c) 1049   (d) 1050

54. Consider the following sequence that follows some arrangement:
   c_accaa_aa_bc_b
   The letters that appear in the gaps are
   (a) abba   (b) cbbb
   (c) bbbb   (d) cccc

55. A family has two children along with their parents. The average of the weights of the children and their mother is 50 kg. The average of the weights of the children and their father is 52 kg. If the weight of the father is 60 kg, then what is the weight of the mother?
   (a) 48 kg   (b) 50 kg
   (c) 52 kg   (d) 54 kg

56. Suppose you have sufficient amount of rupee currency in three denominations: ₹ 1, ₹ 10 and ₹ 50. In how many different ways can you pay a bill of ₹ 107?
   (a) 16   (b) 17
   (c) 18   (d) 19

57. 'A' started from his house and walked 20 m towards East, where his friend 'B' joined him. They together walked 10 m in the same direction. Then 'A' turned left while 'B' turned right and travelled 2 m and 8 m respectively. Again 'B' turned' left to travel 4 m followed by 5 m to his right to reach his office. 'A' turned right and travelled 12 m to reach his office. What is the shortest distance between the two offices?
   (a) 15 m   (b) 17 m
   (c) 19 m   (d) 20 m

58. Consider two statements S1 arid S2 followed by a question:
   S1: p and q both are prime numbers.
   S2: $p + q$ is an odd integer.
   Question: Is pq an odd integer?
   Which one of the following is correct?
   (a) S1 alone is sufficient to answer the question
   (b) S2 alone is sufficient to answer the question
   (c) Both S1 and S2 taken together are not sufficient to answer the question
   (d) Both S1 and S2 are necessary to answer the question

59. Which year has the same calendar as that of 2009?
   (a) 2018   (b) 2017
   (c) 2016   (d) 2015

60. Number 136 is added to 5B7 and the sum obtained is 7A3, where A and B are integers. It is given that 7A3 is exactly divisible by 3. The only possible value of B is
   (a) 2   (b) 5
   (c) 7   (d) 8

Direction for the following 7 (seven) items: Read the following five passages and answer the items (61-67) that follow each passage. Your answers to these items should be based on the passages only.

Passage–1

India's economic footprint, given its population, still remains small compared to the US, the European Union or China. It has much to learn from other economies, yet must implement solutions that fit its unique circumstances. India especially needs an effective long-term regulatory system based on

collaboration rather than the current top-down approach. Regulations seek desirable outcomes yet are repeatedly used as political tools to push one agenda or another. Often, regulations fail to consider impacts on jobs and economic growth — or less restrictive alternatives. Regulations may be used to protect local markets at the expense of more widely shared prosperity in the future. Additionally, regulations inevitably result in numerous unintended consequences. In today's hyper competitive global economy, regulations need to be viewed as "weapons" that seek cost-justified social and environmental benefits while improving the economic well-being of most citizens.

61. Which one of the following is the *most logical, rational and crucial inference* that can be derived from the above passage?

(a) A better regulatory system will help India achieve the size of economy appropriate to its population.

(b) In a competitive global economy, India must use regulations strategically.

(c) Regulations in India do not favour its integration with today's hyper, competitive global economy.

(d) Job creation and economic growth should be dominant considerations in developing India's regulatory system.

62. On the basis of the above passage, the following assumptions have been made:

In today's global economy,

1. regulations are not effectively used to protect local markets.

2. social and environmental concerns are generally ignored by the governments across the world while implementing the regulations.

Which of the above assumptions is/are valid?

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Passage–2

In a study, scientists compared the microbiomes of poorly nourished and well-nourished infants and young children. Gut microbes were isolated from faecal samples of malnourished and healthy children. The microbiome was "immature" and less diverse in malnourished children compared to the better developed "mature" microbiome found in healthy children of the same age. According to some studies, the chemical composition of mother's milk has shown the presence of a modified sugar (sialylated oligosaccharides). This is not utilized by the baby for its own nutrition. However, the bacteria constituting the infant's microbiome thrive on this sugar which serves as their food. Malnourished mothers have low levels of this sugar in their milk. Consequently, the microbiomes of their infants fail to mature. That in turn, leads to malnourished babies.

63. Which one of the following is the *most logical, rational and crucial inference* that can be derived from the above passage?

(a) If malnourished condition in children is caused by gut bacteria, it cannot be treated.

(b) The guts of malnourished babies should be inoculated with mature microbiomes.

(c) Babies of malnourished mothers should be fed with dairy milk fortified with sialylated oligosaccharides instead of mother's milk.

(d) Research on benign effects of gut bacteria on nutrition has policy implications.

64. On the basis of the above passage, the following assumptions have been made:

1. Processed probiotic foods are a solution to treat the children suffering from malnutrition due to immature gut bacteria composition.

2. The babies of malnourished mothers generally tend to be malnourished. Which of the above assumptions is/are valid?

(a) 1 only   (b) 2 only

(c) Both 1 and 2   (d) Neither 1 nor 2

Passage–3

Temperatures have risen nearly five times as rapidly on the Western Antarctic Peninsula than the global average over the past five decades. Researchers have now found that melting glaciers are causing a loss of species diversity among benthos in the coastal waters off the Antarctic Peninsula, impacting an entire seafloor ecosystem. They believe increased levels of suspended sediment in water to be the cause of the dwindling biodiversity in the coastal region.

65. On the basis of the above passage, the following assumptions have been made:

1. Regions of glaciers warm faster than other regions due to global warming.

2. Global warming can lead to seafloor sedimentation in some areas.

3. Melting glaciers can reduce marine biodiversity in some areas.

Which of the above assumptions is/are valid?

(a) 1 and 2 only   (b) 3 only

(c) 2 and 3 only   (d) 1, 2 and 3

Passage–4

A research team examined a long-term owl roost. Owls prey on small mammals and the excreted remains of those meals that accumulated over the time, provide us an insight into the composition and structure of small mammals over the past millennia. The research suggested that when file Earth went through a period of, rapid warming about 13,000 years ago, the small mammal community was stable and resilient. But, from the last quarter of the nineteenth century, human-made changes to the environment had caused an enormous drop in biomass and energy flow. This dramatic decline in energy flow means modern ecosystems are not adapting as easily as they did in the past:

66. On the basis of the above passage, the following assumptions have been made:

1. Global warming is a frequently occurring natural phenomenon.

2. The impending global warming will not adversely affect small mammals.

3. Humans are responsible for the loss of the Earth's natural resilience.

Which of the above assumptions is/are valid?

(a) 1 and 2 only   (b) 3 only

(c) 2 and 3 only   (d) 1, 2 and 3

Passage–5

Food varieties extinction is happening all over the world — and it is happening fast. For example, of the 7,000 apple varieties that were grown during the nineteenth century, fewer than a hundred remain. In the Philippines, thousands of varieties of rice once thrived; now only up to a hundred are grown there. In China, 90 percent of the wheat varieties cultivated just a century ago have disappeared. Farmers in the past painstakingly bred and developed crops well suited to the peculiarities of their local climate and environment. In the recent past, our heavy dependence on a few high yielding varieties and technology-driven production and distribution of food is causing the dwindling of diversity in food crops. If some mutating crop disease or future climate change decimates the few crop plants we have come to depend on to feed our growing population, we might desperately need some of those varieties we have let go extinct.

67. On the basis of the above passage, the following assumptions have been made:

1. Humans have been the main reason for the large scale extinction of plant species.

2. Consumption of food mainly from locally cultivated crops ensures crop diversity.

3. The present style of production, and distribution of food will finally lead to the problem of food scarcity in the near future.

4. Our food security may depend on our ability to preserve the locally cultivated varieties of crops.

Which of the above assumptions are valid?

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

(c) 2 and 3   (d) 1 and 4

68. If every alternative letter of the English alphabet from B onwards (including B) is written in lower case (small letters) and the remaining letters are capitalized, then how is the first month of the second half of the year written?

(a) JuLY   (b) jULy

(c) jUly   (d) jUlY

69. Sunita cuts a sheet of paper into three pieces. Length of first piece is equal to the average of the three single digit odd prime numbers. Length of the second piece is equal to that of the first plus one-third the length of the third. The third piece is as long as the other two pieces together. The length of the original sheet of paper is

(a) 13 units   (b) 15 units

(c) 16 units   (d) 30 units

70. In the sequence 1, 5, 7, 3, 5, 7, 4, 3, 5, 7, how many such 5s are there which are not immediately preceded by 3 but are immediately followed by 7?

    (a) 1   (b) 2
    (c) 3   (d) None

71. A joint family consists of seven members A, B, C, D, E, F and G with three females. G is a widow and sister-in-law of D's tether F. B and D are siblings and A is daughter of B. C is cousin of B. Who is E?

    1. Wife of F
    2. Grandmother of A
    3. Aunt of C

    Select the correct answer using the code given below:

    (a) 1 and 2 only   (b) 2 and 3 only
    (c) 1 and 3 only   (d) 1, 2 and 3

72. Each face of a cube can be painted in black or white colours. In how many different ways can the cube be painted?

    (a) 9   (b) 10
    (c) 11   (d) 12

73. How many triplets (x, y, z) satisfy the equation x + y + z = 6, where x, y and z are natural numbers?

    (a) 4   (b) 5
    (c) 9   (d) 10

74. If $ means 'divided by'; @ means 'multiplied by'; # means 'minus', then the value of 10#5@1$5 is

    (a) 0   (b) 1
    (c) 2   (d) 9

75. An 8-digit number 4252746B leaves remainder 0 when divided by 3. How many values of B are possible?

    (a) 2   (b) 3
    (c) 4   (d) 6

Direction for the following 3 (three) items: Read the following information and answer the three items (76-78) that follow:

Six students A, B, C, D, E and F appeared in several tests. Either C or F scores the highest. Whenever C scores the highest, then E scores the least. Whenever F scores the highest, B scores the least.

In all the tests they got different marks; D scores higher than A, but they are close competitors; A scores higher than B; C scores higher than A.

76. If F stands second in the ranking, then the position of B is

    (a) Third   (b) Fourth
    (c) Fifth   (d) Sixth

77. If B scores the least, the rank of C will be

    (a) Second   (b) Third
    (c) Fourth   (d) Second or third

78. If E is ranked third, then which one of the following is correct?

    (a) E gets more marks than C
    (b) C gets more marks than E
    (c) A is ranked fourth
    (d) D is ranked fifth

Directions for the following 2 (two) items Read the following statements S_1 and S_2 and answer the two items (79-80) that follow:

S_1 : Twice the weight of Sohan is less than the weight of Mohan or that of Rohan.

S_2 : Twice the weight of Rohan is greater than the weight of Mohan or that of Sohan.

79. Which one of the following statements is correct?

    (a) Weight of Mohan is greatest
    (b) Weight of Sohan is greatest
    (c) Weight of Rohan is greatest
    (d) 'Whose weight is greatest' cannot be determined

80. Which one of the following statements is correct?

    (a) Weight of Mohan is least
    (b) Weight of Sohan is least
    (c) Weight of Rohan is least
    (d) 'Whose weight is least' cannot be determined

OMR SHEET

Darken the circle for each question.

Q.No.	Response	Q.No.	Response	Q.No.	Response	Q.No.	Response
1.	ⓐ ⓑ ⓒ ⓓ	21.	ⓐ ⓑ ⓒ ⓓ	41.	ⓐ ⓑ ⓒ ⓓ	61.	ⓐ ⓑ ⓒ ⓓ
2.	ⓐ ⓑ ⓒ ⓓ	22.	ⓐ ⓑ ⓒ ⓓ	42.	ⓐ ⓑ ⓒ ⓓ	62.	ⓐ ⓑ ⓒ ⓓ
3.	ⓐ ⓑ ⓒ ⓓ	23.	ⓐ ⓑ ⓒ ⓓ	43.	ⓐ ⓑ ⓒ ⓓ	63.	ⓐ ⓑ ⓒ ⓓ
4.	ⓐ ⓑ ⓒ ⓓ	24.	ⓐ ⓑ ⓒ ⓓ	44.	ⓐ ⓑ ⓒ ⓓ	64.	ⓐ ⓑ ⓒ ⓓ
5.	ⓐ ⓑ ⓒ ⓓ	25.	ⓐ ⓑ ⓒ ⓓ	45.	ⓐ ⓑ ⓒ ⓓ	65.	ⓐ ⓑ ⓒ ⓓ
6.	ⓐ ⓑ ⓒ ⓓ	26.	ⓐ ⓑ ⓒ ⓓ	46.	ⓐ ⓑ ⓒ ⓓ	66.	ⓐ ⓑ ⓒ ⓓ
7.	ⓐ ⓑ ⓒ ⓓ	27.	ⓐ ⓑ ⓒ ⓓ	47.	ⓐ ⓑ ⓒ ⓓ	67.	ⓐ ⓑ ⓒ ⓓ
8.	ⓐ ⓑ ⓒ ⓓ	28.	ⓐ ⓑ ⓒ ⓓ	48.	ⓐ ⓑ ⓒ ⓓ	68.	ⓐ ⓑ ⓒ ⓓ
9.	ⓐ ⓑ ⓒ ⓓ	29.	ⓐ ⓑ ⓒ ⓓ	49.	ⓐ ⓑ ⓒ ⓓ	69.	ⓐ ⓑ ⓒ ⓓ
10.	ⓐ ⓑ ⓒ ⓓ	30.	ⓐ ⓑ ⓒ ⓓ	50.	ⓐ ⓑ ⓒ ⓓ	70.	ⓐ ⓑ ⓒ ⓓ
11.	ⓐ ⓑ ⓒ ⓓ	31.	ⓐ ⓑ ⓒ ⓓ	51.	ⓐ ⓑ ⓒ ⓓ	71.	ⓐ ⓑ ⓒ ⓓ
12.	ⓐ ⓑ ⓒ ⓓ	32.	ⓐ ⓑ ⓒ ⓓ	52.	ⓐ ⓑ ⓒ ⓓ	72.	ⓐ ⓑ ⓒ ⓓ
13.	ⓐ ⓑ ⓒ ⓓ	33.	ⓐ ⓑ ⓒ ⓓ	53.	ⓐ ⓑ ⓒ ⓓ	73.	ⓐ ⓑ ⓒ ⓓ
14.	ⓐ ⓑ ⓒ ⓓ	34.	ⓐ ⓑ ⓒ ⓓ	54.	ⓐ ⓑ ⓒ ⓓ	74.	ⓐ ⓑ ⓒ ⓓ
15.	ⓐ ⓑ ⓒ ⓓ	35.	ⓐ ⓑ ⓒ ⓓ	55.	ⓐ ⓑ ⓒ ⓓ	75.	ⓐ ⓑ ⓒ ⓓ
16.	ⓐ ⓑ ⓒ ⓓ	36.	ⓐ ⓑ ⓒ ⓓ	56.	ⓐ ⓑ ⓒ ⓓ	76.	ⓐ ⓑ ⓒ ⓓ
17.	ⓐ ⓑ ⓒ ⓓ	37.	ⓐ ⓑ ⓒ ⓓ	57.	ⓐ ⓑ ⓒ ⓓ	77.	ⓐ ⓑ ⓒ ⓓ
18.	ⓐ ⓑ ⓒ ⓓ	38.	ⓐ ⓑ ⓒ ⓓ	58.	ⓐ ⓑ ⓒ ⓓ	78.	ⓐ ⓑ ⓒ ⓓ
19.	ⓐ ⓑ ⓒ ⓓ	39.	ⓐ ⓑ ⓒ ⓓ	59.	ⓐ ⓑ ⓒ ⓓ	79.	ⓐ ⓑ ⓒ ⓓ
20.	ⓐ ⓑ ⓒ ⓓ	40.	ⓐ ⓑ ⓒ ⓓ	60.	ⓐ ⓑ ⓒ ⓓ	80.	ⓐ ⓑ ⓒ ⓓ

ANSWERS WITH EXPLANATION

1. Option (d) is correct.

The history of injustice is deep-rooted in India. This system of injustice is a mix of discriminatory ideologies, the economic structure of exploitation and lack of recognition. Mode of representation like caste, religion or gender also creates injustice. The author is hinting that the injustice that started in past continues to date due to its amalgamation with Indian ethos. It is not difficult to repair every manifestation of historical injustice. For example, women reservations and minorities reservation can lead to repair injustice done to these groups in past but the attitude of all people cannot be changed.

2. Option (d) is correct.

Economic and social injustice are present in society. But the passage does not establish any link between economic and social discrimination. It does not say that one leads to the other or vice versa. Hence, Statement 1 is fictitious and not an assumption based on the passage.

Statement 2 is also not correct. The efficiency of the democratic form of governance is not discussed in the passage. It is out of context.

3. Option (b) is correct.

According to the passage, education is the custodian of culture. The author has compared education with information collection. He puts the argument that only education is not enough but cultural knowledge is also required. The role of expert knowledge gained by education coupled with cultural knowledge has the potential to make the existence of a human being meaningful. So, these two skills are complementary to each other. Statement 2 can be correct assumptions on this basis.

Statement 1 is also not correct as it seems irrelevant in the ongoing discussion. The passage says that a person with an education is a burden if he is not having cultural values.

4. Option (b) is correct.

Statement 1 does not find support in the passage. It goes with the argument that erosion of fertile soil in billions of tonnes can lead to food scarcity and food insecurity in the world is irrelevant statement.

Anthropogenic effects are those that have their origin in human activities, as opposed to those originating in natural environments without human influences.

The last sentence of the passage highlights the ability of soils to hold carbon dioxide and not let it loose in the atmosphere to increase the temperature of the earth that amounts to climate change.

Only three statement is a true assumption and relevant in the context.

5. Option (b) is correct.

It is explicitly mentioned in the passage that economic power is the organizing principle of inequality in a society. It is the underlying invisible force that divides society into different strata of economic prosperity. But, it is not a sole reason for the existence of inequality in a society. Statement 1 is the incorrect assumption.

Statement 2 is the opposite of the message conveyed in the passage. It is the economic power that reinforces and defines inequality of different kinds of income, wealth, gender, race, and religion not vice-versa.

Economic inequality is derived from the invisible economic power, it is not measurable statistically always, but it is more evident in its effects in society. Statement 3 is a valid assumption as it relates to the content of the passage.

So, out of the given three statements, only 3 is valid assumption. Option (b) is the correct answer.

6. Option (a) is correct.

Climate change is not the only factor that will dictate the terms for the agricultural economy in near future. Farming will be affected by the shift in political power and change in global demand. Hence, statement (d) seems to be in contradiction with the projection done in the passage.

Shifting of four major crops -rice, maize, wheat and potatoes to new croplands is discussed but the effect of this shift on the production rate is not detailed in the passage. Hence, statement (b) does not seem to fit as an inference here.

The author has mentioned that some crops would have also had the positive effects of climate change. The first line of the passage is a hint towards it. So, it is wrong to infer from the passage that crop diversity will be affected as nothing is mentioned regarding this in the passage.

Only option (a) is a logical inference based on the passage as it is mentioned that 'farming practices' will also play their role in deciding the success in agriculture in the future. The role of shifting farms for diversification is also going to benefit the early movers.

7. **Option (d) is correct.**

The basic structure of the hands of human beings has similarities with the hands of some animals. The limb might be used for different purposes by these animals but the underlying construction is similar. It can be inferred from here that we have a common history of evolution. Option (d) is a correct inference.

Convergent evolution is discussed in the passage not the common evolution by coincidence which seems very unlikely and irrational.

Biodiversity is the biological variety and variability of life on Earth. Biodiversity is a measure of variation at the genetic, species, and ecosystem levels. It is not discussed in the passage. Biodiversity is about division but the passage is about the common evolution.

8. **Option (c) is correct.**

To answer this question, we need to understand the meaning of the words 'Palaeocene epoch' and 'Eocene'. This will increase our understanding of the passage.

Palaeocene epoch was the first major worldwide division of rocks and time of the Paleogene Period, spanned the interval between 66 million and 56 million years ago. The Palaeocene epoch was followed by the Eocene epoch. The Eocene epoch saw the replacement of older mammalian orders by modern ones.

As mentioned in the last part of the passage, life did not remain the same after the rapid and radical warming of the planet during PETM. Life on the earth means flora and fauna on the earth. Flora refers to all plant life and fauna refers to all animal life. Statement 3 seems to be logical and coherent with the passage.

The planet's biological evolution as an effect of climate change can be understood in the first statement where the example of the opening of the Atlantic Ocean is given and also from the last line of the passage where the change in the quality of life on the planet is discussed. Statement 1 is rational and hence, it is a correct inference.

Statement 4 is a far-fetched result that might be true but it cannot be validated from the passage.

We cannot establish any link between the separated landmasses and the release of excessive carbon in the atmosphere in the passage. So, Statement 2 is not correct.

9. **Option (c) is correct.**

To find the total number(s) of digit 5 appearing from 1 to 1000, we will divide all the numbers from 1 to 1000 in cases and count the number of digit 5.

Case 1: From 0 – 9 (single digit numbers)

5 will appear 1 time only.

Case 2: From 10 – 99 (two digits numbers)

5 appears at the unit place and ten's place.

Total numbers having 5 at unit place = 9 (15, 25, ..., 95)

Total numbers having 5 at ten's place = 10 (50, 51, ..., 59)

5 will appear 19 times from 10 – 99.

Cases 3: From 100 – 999 (three digits numbers)

5 appears at unit place, ten's place and hundred place

Total numbers having 5 at unit place

= 9 × 10 = 90 [105, 115, ..., 195, ..., 985, 995]

Total numbers having 5 at ten's place

= 9 × 10 = 90 [150, 151, ..., 159, ..., 950, 951, ..., 959]

Total numbers having 5 at hundred place

= 100 (500, 501, 502, ..., 599]
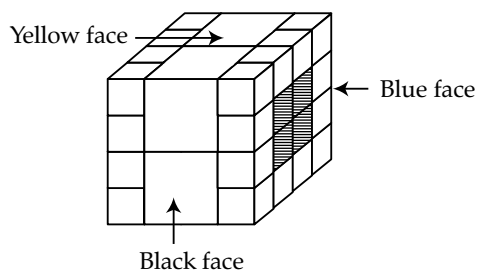
5 will appear 280 times from 100 – 999

Case 4: 1000 (4 digits number) 5 is not appearing in 1000.

Total number of times 5 is appearing from 1 – 1000

= 1 + 19 + 280 = 300.

10. **Option (c) is correct.**

We need to divide solid cube in 36 parts having two sizes (32 smaller and 4 bigger cubes).

Bigger cubes should not come at the blue faces. This can be done only when bigger cubes is cut at middle and 32 smaller cubes at corners.

Yellow face ——
Blue face ←
Black face

We can cut the solid cube in the way showing in the adjacent cube which have 16 cubes each at both blue faces and 4 bigger cubes at middle.

Total number of cubes having only one face painted (shaded in the figure) = 4 + 4 = 8

(4 cubes each at both blue faces)

11. **Option (d) is correct.**

Given two boxes A and B

Let the weight of box A be 100 kg.

and weight of box B be x kg.

Since B is placed on box A.

Total weight $=$ (100 + x) kg

According to the question,

$$\frac{(100 + 60)}{100} \times 100 = 100 + x$$

[Weight of box A is/was increased by 60%]

$\Rightarrow$ $160 = 100 + x$

$\Rightarrow$ $x = 60\,kg$

$\therefore$ Total weight of the boxes = 100 + 60

= 160 kg

When box B is removed from the top of box A, percentage of weight reduced

$$= \frac{60}{160} \times 100 = \frac{600}{16} = 37.5\%$$

12. **Option (b) is correct.**

Given that, the birthday of second child of Mr. X falls on 5th Thursday of November.

We know that November has 30 days

$30 = 7 \times 4 + 2$, *i.e.*, 4 weeks and 2 odd days.

To have 5 Thursday in November. Thursday must fall on 29th or 30th.

Case 1: If 29th November is Thursday, then 20th December is also Thursday. As, there is gap of

21 days (3 weeks) between both dates.
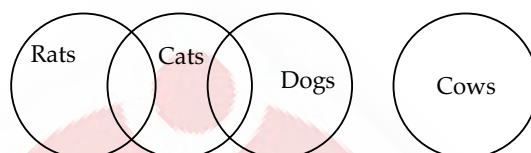
Case 2: If 30th November is Thursday, then the gap between 30th November and 20th December is equal to 20 days (2 weeks + 6 odd days).

Now, 6th day from Thursday is Wednesday. So, 20th December is Wednesday.

But on observing the given options we can conclude that 20th December is Thursday.

13. **Option (c) is correct.**

To solve the type of problems, we make Venn-diagrams.

Rats   Cats   Dogs   Cows

On the basis of given statements, we have drawn the above diagram.

Conclusion 1: There is no information for cows and cats. So, we cannot say that no cow is a cat.
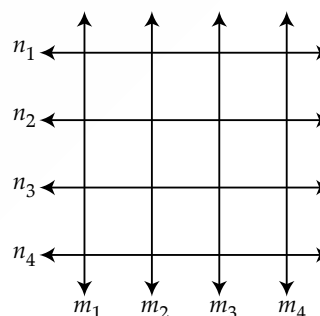
Conclusion 2: There is no relationship given for dogs and rats. So we cannot say anything about dogs and rats.

Conclusion 3: It is clear from diagram that some cats are also dogs.

So, only conclusion 3 follows.

14. **Option (d) is correct.**

Given that, four parallel lines intersected by another four parallel lines.

n_1
n_2
n_3
n_4
m_1 m_2 m_3 m_4

To get a parallelogram, we need to select two lines from m_1, m_2, m_3 and m_4 and two lines from n_1, n_2, n_3 and n_4.

Number of parallelogram $= {}^4C_2 \times {}^4C_2$

$$= \frac{4!}{2! \times 2!} \times \frac{4!}{2! \times 2!}$$

$$= 6 \times 6 = 36$$

15. Option (b) is correct.

According to question,

Number assigned to football player is divided by 4 and cricket player is divisible by 6.

∴ Number assigned to student, playing both games will be divisible by both 4 and 6.

LCM of 4 and 6 = 12, which is divisible by both 4 and 6.

Factors of 12 from 1 to 100 are 12, 24, 36, 48 60, 72, 84, 96.

∴ 8 players are there, who play both games.

16. Option (b) is correct.

According to question,

80% of race-distance = 12 km

$$\Rightarrow \frac{80}{100} \times \text{race - distance} = 12$$

$$\Rightarrow \text{race-distance} = \frac{12 \times 100}{80} = 15$$

So, runner needs to run 15 km in this event.

17. Option (a) is correct.

Let price of mobile phone = ₹ x

$$\therefore 75\% \text{ of } x = 9000$$

$$\Rightarrow \frac{75}{100} \times x = 9000$$

$$\Rightarrow x = ₹ 12000$$

He needs ₹ 3000 more to buy it. But, he borrows ₹ 2000 from a friend. He still does not have enough money to buy phone.

18. Option (b) is correct.

In 2002, let Meenu's age = x years

So, Meera's age = $3x$ years

In 2010 (8 years after)

Meenu's age = $x + 8$ year

Meera's age = $3x + 8$ years

According to question,

$$\Rightarrow x + 8 = \frac{3x + 8}{2}$$

$$\Rightarrow 2x + 16 = 3x + 8$$

$$\Rightarrow x = 8$$

Meenu's year of birth is 2002 – 8, *i.e.*, 1994.

19. Option (c) is correct.

Let cost of a ball = ₹ x

∴ Cost of a racket = ₹ $3x$

Cost of 10 balls and 10 rackets = $10x + 30x$
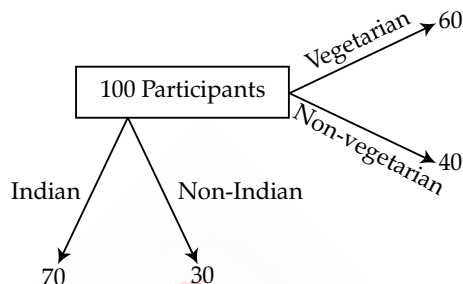
Now, $10x + 30x = 1300 + 1500$

$$\Rightarrow 40x = 2800$$

$$\Rightarrow x = 70$$

∴ Cost of racket = 70 × 3 = ₹ 210.

20. Option (c) is correct.

According to question,

Case 1: Let all 30 non-Indian are vegetarian, then rest 30 vegetarian must be Indian.

Case 2: Let all 30 non-Indian are non-vegetarian, then rest 10 non-vegetarian must be Indian.

In this way, both statements 1 and 2 are correct.

21. Option (d) is correct.

In India, low-end IoT devices are ubiquitous and proliferating at a great pace nowadays. They are highly convenient and comfort-oriented but they bring a concern with them – the concern of digital threat to internet security. The purpose of the author seems to make us cautious about the risk associated with the use of IoT devices.

Option (b) contradicts the content of the passage. The passage has mentioned that the IoT are present in India and their presence will increase in future. So, it is wrong to infer that India is not ready for IoT.

Option (c) cannot be linked with the passage hence; it is not the correct inference.

Option (a) is out of the context as the role or the impact on the manufacturing is not discussed in the passage.

Based on the above discussion, only option (d) is the best and logical inference.

22. Option (b) is correct.

The author in a sense is warning against the new form of colonisation. This comes with fierce global trade negotiations related to digital trades. The role of data is important here. As the data of India is going into the hands of foreign companies, and they are using it for creating intelligent business solutions for the Indian public rooted in their inherent interests, India

must be careful to protect its sovereignty in a digital world.

Statement (b) is the correct option. The passage is not against globalisation or it does not suggest monopoly rents from MNCs for big data. So, other options are very weak alternatives as they fail to provide the rationale and logical corollary.

23. **Option (a) is correct.**

Statement (a) is the correct implication. The passage is concentrated on telling the importance of big data in the digital trade world. A company can run a network of cabs just based on the intelligence transformation of data of its customers in business models. The author says that big data can attack the sovereignty of nations through the route of digital space.

Option (b) is not supported by the passage.

Option (c) is fictitious and out of the scope of the passage.

Option (d) is incorrect as any special rights of developed countries are not even hinted at in the passage. In digital space, data is not the prerogative of any country.

24. **Option (a) is correct.**

This question can best be answered by the elimination method. Analyse all the options one by one and eliminate the most illogical ones first.

The use of 'only' in option (d) makes it incorrect, the role of other mid-size and large farms cannot be ignored. According to the passage, 41% of the food grains are provided by the small farms while the rest can be assumed to be supplied by the other bigger farms or imports.

The food security problem of India and the role of farming households to mitigate it is not the topic of discussion of the passage. Hence, option (c) is not the logical corollary.

Option (b) is also out of the context. It diverts the discussion to a sudden intrusion of the role of poor countries in reducing global warming.

Option (a) seems to be most logical and relevant to highlight the need to support the small farmers as they are critical in ensuring the food supply along with sustainable development. The author is focused in his writing on detailing the role of small farmers in national food security.

25. **Option (c) is correct.**

The passage starts with a warning on climate change that can cause potential disasters like floods and droughts. These natural calamities can bring the problem of insufficient food in India. Statement 1 is correct in raising this concern.

Statement 2 is in coherence with the passage. India shall raise the disaster management capabilities to face the challenges created by the change in the climate.

26. **Option (c) is correct.**

Statement 1 is validated by the last line of the passage. It says that there can be a potential threat of floods, droughts and other calamities rooted in rapid climate change. Frequent calamities will reduce economic growth.

Economic growth is not directly linked with companies and countries. Statement 2 looks like an invalid assumption.

With climate change, the fossil fuel producers will not be allowed to extract more fuel out of their natural beds, hence their economies will be highly impacted. Investors investing in these resources and their related businesses shall remain cautious to venture out into the risky propositions. Statement 3 is a valid assumption.

27. **Option (b) is correct.**

Statement 1 is not validated by the intent shown in the passage.

Despite the provision of free and compulsory education for all and fixing the number of seats for students from the weaker section in private schools, the principals are reluctant to give admissions to them. This attitude is failing the objective of an egalitarian education system.

Statement 3 is a far-fetched judgement not based on the facts presented in the passage. It is not an assumption.

28. **Option (b) is correct.**

Statement in option (a) cannot be as certained from the passage. It seems that TB can be cured with proper and early treatment. Though the passage mentions that the treatment is expensive.

Option (b) is logical and rational. The author notes that TB can be cured with proper

counselling and proper medical treatment of a patient. He has also emphasised the role of family support and freedom from social stigma.

Option (c) and (d) are out of the scope of the passage. The main idea is the central or most important idea in a paragraph or passage. It states the purpose and sets the direction of the paragraph or passage. These statements are not even explicitly discussed in the passage hence, they cannot be the central idea of the passage.

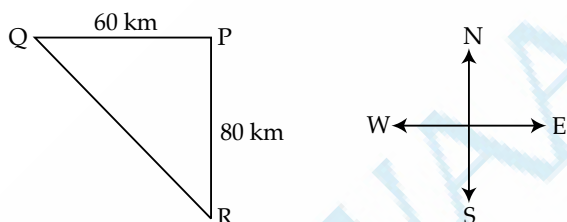**29. Option (b) is correct.**

We have to ensure that no two consecutive floors have different colours.

1. If middle three floors *i.e.* II, III and IV are painted differently, then I and II or IV and V can have same colour.

2. If II and IV floors coloured differently, then I and II or II and III or III and IV or IV and V can have same colour.

3. If I and V is coloured red (same colour) then rest 3 floors must be of 3 different colours.

Only statement 3 ensure that no two consecutive floors have same colour.

30. Option (d) is correct.

According to question, we make a direction diagram,

$\because$ QP $\perp$ PR, using Pythagoras theorem,

QR^2 = QP^2 + PR^2 = 60^2 + 80^2 = 3600 + 6400

$\Rightarrow$ QR = $\sqrt{10000}$ = 100

So, distance between Q and R is 100 km.

31. Option (a) is correct.

Let there be 100 members in the club.

Number of members went for shopping,

$$n(A) = \frac{80}{100} \times 100 = 80$$

Number of members went for sight seeing,
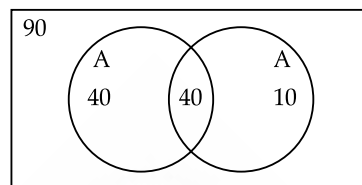
$$n(B) = \frac{50}{100} \times 100 = 50$$

Number of members took rest,

$$n(C) = \frac{10}{100} \times 100 = 10$$

Number of members went outside

$$= n(A \cup B) = 100 - 10 = 90$$

$\because$ $n(A \cap B) = n(A) + n(B) - n(A \cup B)$

$$= 80 + 50 - 90 = 40$$

As per diagram and calculation, we can say that 40% members went for both shopping and sight seeing.

40% members went only for shopping.

32. Option (d) is correct.

Let's analyse each statement:

Statement 1: Every football player got two-wheeler does not mean that 60% of students do not have two-wheeler.

Statement 2: Nowhere, it is given that no cricketer has a two-wheeler.

Statement 3: Information is saying that a student who does not play cricket, plays football. It does not imply that all cricketer do not play football. So, no statement can be drawn from given information.

33. Option (b) is correct.

Let ten's place digit of number be x.

and one's place digit of number be y.

$\therefore$ Two digit number = $10x + y$

Number after reversing the digits = $10y + x$

According to question,

$\therefore$ $\dfrac{10x + y}{10y + x} = \dfrac{4}{7}$

$\Rightarrow$ $70x + 7y = 40y + 4x$

$\Rightarrow$ $66x = 33y$

$\Rightarrow$ $2x = y$

Putting, $x = 1, 2, 3, 4$

We get, $y = 2, 4, 6, 8$

$\therefore$ Numbers can be (12, 21), (24, 42), (36, 63) or (48, 84) (4 such pairs)

34. Option (b) is correct.

Let score of B = x

$\therefore$ Score of A = $x + 20$

B's score = 5% less than A

$\Rightarrow \qquad x = \dfrac{95}{100} \times (x + 20)$

$\Rightarrow \qquad 100x = 95x + 1900$

$\Rightarrow \qquad 5x = 1900$

$\Rightarrow \qquad x = 380$

B's score = 380

35. Option (d) is correct.

According to question,

Seeta takes gap of 2 days. So, she swims on every 3rd day.

Also, Geeta takes gap of 3 days. So, she swims on every 4th day.

They will swim together after (L.C.M. of 3 and 4) days *i.e.* 12 days.

So, they will swim on (Ist Jan. + 12) 13th January.
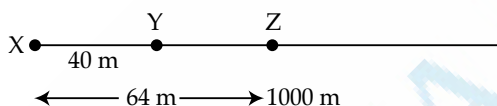
36. Option (b) is correct.

X gives Y, 40 m start

$\Rightarrow$ Y starts race 40 m ahead of X

X gives Z, 64 m start

$\Rightarrow$ Z starts race 64 m ahead of X

We can say that in a race of 960 m (1000 – 40), Y gives start of 24 m to Z.

$\therefore$ In race of 1000 m, Y gives a start to

$$Z = \dfrac{24}{960} \times 1000 = 25 \text{ m}$$

37. Option (c) is correct.

Given that, $x \geq 25$ and $y \leq 40$

Let $x = 25$ and $y = 40$

$y - x = 40 - 25 = 15$

So, x is not greater than y and $y - x$ is not greater is not greater than 15.

Since, maximum possible value for $y = 40$

and minimum possible value for $x = 25$

$\Rightarrow y - x$ is always less than or equal to 15.

38. Option (b) is correct.

According to question,

Ena's present age = 13 years

$\therefore$ Her Mother's present age = 13 + 24

$\qquad\qquad\qquad\qquad$ = 37 years

and her Father's present age = 37 + 3 = 40 years

Her parents got married before (13 + 4) 17 years

So, her Father's age at the time of marriage

$\qquad\qquad\qquad\qquad$ = 40 – 17 = 23 years

39. Option (b) is correct.

Let cost of 1 mobile before discount = ₹ 100

So, Rakesh has money = 8 × ₹100 = ₹ 800

Shopkeeper gave discount of x%

S.P. of 1 mobile = $\dfrac{(100 - x)}{100} \times 100$ = ₹ $(100 - x)$

Now Rakesh can buy 10 mobiles with ₹ 800

$\therefore \qquad 10(100 - x) = 800$

$\Rightarrow \qquad 1000 - 10x = 800$

$\Rightarrow \qquad 10x = 200$

$\Rightarrow \qquad x = \dfrac{200}{10} = 20$

Shopkeeper gave 20% discount.

40. Option (b) is correct.

Average marks of 100 students = 40

Total marks scored by 100 students

= 40 × 100 = 4000

53 was read as 83

Corrected marks of all 100 students

= 4000 – 83 + 53 = 3970

Correct average score = $\dfrac{3970}{100} = 39.7$

41. Option (a) is correct.

Intellectual property rights are critical to saving the spirit of innovation. Without the protection of ideas, businesses and individuals cannot reap the benefits of their inventions. Sometimes, as mentioned in the passage, they can be used to disadvantage of public for vested interests but it does not mean that they shall be banned by World Trade Organisation. Option (b) is not correct. It does not find support from the passage as well.

Option (c) suggests an extreme step. This is not the intent of the author in the passage. Though

private operators want to maximise their profits they bring multiple benefits like new technology and finances in the agribusiness.

The passage discusses the adoption and evolution by the pests and weeds but it does not say that the climate of India is adverse for Genetically Modified crops. Moreover, GM crops can improve the quality of crops as demanded by the farmers in the last sentence of the passage. So, option (d) is also incorrect.

Option (a) is the most logical and rationale statement that aligns with the intent of the author in the passage. It is duly supported by the last line of the passage.

42. **Option (a) is correct.**

The passage states that it is beneficial for the companies to patent a pest-resistant technology and then move on to other technology without passing the benefit to the general farmers. The issue of the effects of natural calamities on agriculture is not given due consideration by GM technology companies. As with the advent of new pests and weed their chances of making a profit increase.

Statement 1 is correct.

Statement 2 says that in the long run, GM technology will not be able to solve agricultural problems arising due to global warming. The passage is silent on the effects of global warming on GM crops.

So, it cannot be verified from the passage. Statement 2 can be discarded.

43. **Option (c) is correct.**

From the passage we get that, most invasive species are neither terribly successful nor very harmful . Hence the campaigns against foreign plants are pointless. This is the correct inference based on the facts presented in the passage.

Option (b) is illogical and absurd in making a law against the spread of plants.

Option (a) is not supported by the passage.

Option (d) is incorrect as the capacity of invasive species to increase the biodiversity of a country is not discussed in the passage.

44. **Option (a) is correct.**

The author has discussed the problems related

to the consumption of contaminated food. He has suggested several measures to tackle the problems. These measures include increasing awareness in public, training of inspection staff and education of street vendors. Food safety is a complex problem that calls for a multipronged solution. Hence, statement 1 is correct.

Statement 2 is also correct as it is a stated fact in the passage which vows for increasing the surveillance for foodborne diseases and hence, the investments for this purpose.

It is mentioned that there are authorities available to address the issue of adulteration and contamination but people do not know how to approach them. So, statement 3 is not correct in the context.

45. **Option (d) is correct.**

The passage reveals that most of the cities are planned without considering the interests of the poor and middle-class people. The only concern for city planners is the technical feasibility and expertise. A progressive city cannot be planned on a static development plan. It needs the involvement of its citizens involving the poor and working class. Option (d) is the most logical argument presented by the author in the passage.

The monopoly of builders and interests of the rich class is not discussed in the passage. Option (a) is incorrect and out of the context. In the same way, global and smart cities are out of the scope of the passage. Hence, option (b) cannot be a valid argument based on the passage.

As discussed above, the author is in favour of including the interests of all the citizens, not only the poor and working class. A good town planner shall consider all the activities based on life experiences and practices. Hence, option (c) is not an appropriate argument.

46. **Option (c) is correct.**

Ideally, economic growth should uplift the employment rate. But this is not the case in India. The economic growth rate has increased in recent years along with the unemployment rate. It can be inferred that the use of technology has

driven this economic boost. Low cost-efficient modern technology has the potential to perform multiple and complex functions to obviate the need for manpower. Hence, statement 1 is true.

Statement 2 also seems to be in coherence with the facts presented in the passage that the organised sector has a symbiotic relationship with the economic growth but the unorganised sector that is mostly based on the natural resource-based livelihoods is divorced from the economic growth rate of the whole country.

Statement 3 is also true, as service sector in India is not very labour intensive.

Statement 4 is fanciful and out of the context.

47. Option (c) is correct.

The purpose of the author of the passage is to describe the role of banking correspondents in enhancing the reach of banking and insurance systems to every nook and corner of the nation. These last miles workers have their contacts in the deep geographical pockets of the country. If they can provide several options for banking and insurance offered by different banks to the prospective customers, the aim to increase the banking fold in the hinterland of the country will be met. The only most logical, rational and crucial inference that can be derived from the above passage is that the meaningful financial inclusion in India requires banking correspondents that have diverse skills.

Option (a) is out of context. Option (b) seems to be true but not the central point of the passage. Option (c) is the supporting statement and the main idea of the author in the passage.

48. Option (c) is correct.

132 , 129 , 124 , 117 , 106 , 93

−3   −5   −7   −11   −13

As, we can observe that prime numbers are being subtracted from previous terms to get next term

$93 - 17 = 76 = x$.

49. Option (a) is correct.

It is given that wall clock is 10 minutes fast in every 24 hours.

Actual time will be 24 hour and 10 minutes

$$= \left(24 + \frac{10}{60}\right)H = \frac{145}{6}H$$

So, $\frac{145}{6}$ hours of fast clock

= 24 hour of a correct clock.

Total hours from 8 : 00 am Monday to 6 : 00 pm Wednesday = 58 hours

By unitary method,

1 hour of fast clock

$= 24 \times \frac{6}{145}$ hour of correct clock

58 hours of fast clock

$= 58 \times 24 \times \frac{6}{45} = 57\frac{3}{5}$ hour of correct clock

or 57 hour 36 minutes.

57 hour and 36 minutes from 8 : 00 am on Monday will be 5 : 36 pm on Wednesday.

50. Option (b) is correct.

We know that numerator of a proper fraction is less than the denominator.

i.e. In $\frac{x}{y}$ (proper fraction)

$\Rightarrow x < y$

When we add a positive number "*a*" to its numerator and denominator, then new fraction is always greater than original fraction.

$$\frac{x}{y} < \frac{x + a}{y + a}$$

Example: $\frac{1}{2} = 0.5$, $\frac{1+1}{2+1} = \frac{2}{3} = 0.66$

$\Rightarrow \frac{1}{2} < \frac{2}{3}$

$\frac{5}{8} = 0.625$, $\frac{5+2}{8+2} = \frac{7}{10} = 0.7$

$\Rightarrow \frac{5}{8} < \frac{7}{10}$

So, we can conclude that option (b) is correct.

51. Option (b) is correct.

Given numbers are perfect squares.

4, 196, 16, 144, 36, 100, 64, X

It can be written as

2^2, (14^2), 4^2, (12^2), 6^2, (10^2), 8^2, (X)

Its clear from the pattern that $X = 8^2 = 64$.

52. Option (b) is correct.

Given that, 7 people can read French and 8 can read English.

Number of people can read French, $n(F) = 7$

Number of people can read English, $n(E) = 8$

Also, out of 15 people, 3 cannot read neither of the two languages *i.e.*, $n(F \cup E) = 15 - 3 = 12$

We know that, $n(F \cup E) = n(F) + n(E) - n(F \cap E)$

$\Rightarrow \qquad\qquad 12 = 7 + 8 - n(F \cap E)$

$\Rightarrow \qquad\quad n(F \cap E) = 15 - 12 = 3$

So, 3 people can read both languages

$\therefore$ Number of people who can read exactly one language

$= n(F) - n(F \cap E) + n(E) - n(F \cap E)$

$= 7 - 3 + 8 - 3 = 9$

53. Option (c) is correct.

Digits needed to print pages (1 to 9) $= 1 \times 9 = 9$

Digits needed to print pages (10 to 99)

$= 2 \times 90 = 180$

Digits needed to print pages (100 to 999)

$= 3 \times 900 = 2700$

Total number of digits used upto page 999

$= 2700 + 180 + 9 = 2889$

Remaining digits $= 3089 - 2889 = 200$

200 digts will be used to print 4 digit numbers (999 onwards)

Number of such pages $= \dfrac{200}{4} = 50$

Number of pages in book $= 999 + 50 = 1049$.

54. Option (b) is correct.

Sequence has 15 letters, so we can make group of 3 or 5 letters.

By making group of 5 letters (as group of 3 letters is not making any pattern of latters).

$c - acc \mid aa - aa \mid - bc - b$

If we put option (b) in blanks, we get

$c \; \underline{c} \; acc \mid aa \; \underline{b} \; aa \mid \underline{b} \; bc \; \underline{b} \; b$.

55. Option (d) is correct.

Let weight of 2 children $= x$ kg

and weight of mother $= y$ kg

Weight of father $= 60$ kg

Average weight of 2 children and mother = 50 kg

i.e., $\qquad \dfrac{x + y}{3} = 50$

$\qquad\qquad x = 150 - y \qquad\qquad$ ...(i)

Average weight of 2 children and father = 52 kg

i.e. $\qquad \dfrac{x + 60}{3} = 52$

$\Rightarrow \qquad \dfrac{150 - y + 60}{3} = 52 \qquad$ [Using (i)]

$\qquad\qquad 210 - y = 156$

$\qquad\qquad\quad y = 210 - 156 = 54$

Weight of mother $= 54$ kg.

56. Option (c) is correct.

Given that we have sufficient amount of notes of ₹ 1, ₹ 50 and ₹ 100.

Case 1: If we use only ₹ 1 notes

There is only 1 possibility, when we use 107 notes of ₹ 1.

Case 2: If we use only ₹ 1 and ₹ 10 notes.

No. of ₹ 10 notes	No. of ₹ 1 notes
10	7
9	17
8	27
7	37
6	47
5	57
4	67
3	77
2	87
1	97

We have 10 such possibilities.

Case 3: If we use denominations.

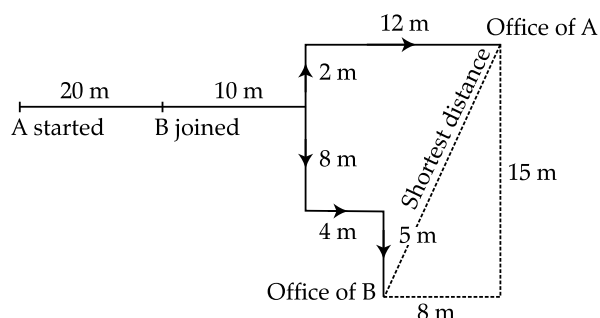| No. of ₹ 50 notes	No. of ₹ 10 notes	No. of ₹ 1 notes
2	–	7
1	5	7
1	4	17
1	3	27
1	2	37
1	1	47
1	0	57

We will have 7 such possibilities.

So, total number of possible ways

$= 1 + 10 + 7 = 18$ ways to pay ₹ 107.

57. Option (b) is correct.

As per given information the diagram is

Using pythagoras theorem,

Shortest distance between their offices

$$= \sqrt{15^2 + 8^2}$$
$$= \sqrt{225 + 64} = \sqrt{289} = 17 \text{ m}$$

58. Option (b) is correct.

Check, S_2: $p + q$ is an odd integer.

Sum of two numbers can only be odd integer if one is even and other is odd integer. In this case, their product = even × odd = even

So, we can conclude that pq is not odd integer.

S_2 alone is sufficient to answer the question.

59. Option (d) is correct.

To match calender of two different years, the number of odd days between them must be 7 or multiple of 7.

We know that, ordinary year has 1 odd day and Leap year has 2 odd days.

Year	Odd days
2009	1
2010	1
2011	1
2012	2
2013	1
2014	1
Total	7 odd days

So, 2015 has same calender as of 2009

(We will reject rest of years as odd days between 2009 and other 3 years are not multiple of 7).

60. Option (d) is correct.

It is given

```
                    11 (carry forward)
   136                136
 +  5B7      i.e.    + 5B7
 ─────              ─────
   7A3                7A3
```

So, $1 + 3 + B = 10 + A$

$$B - A = 6$$

If,   A = 0 then B = 6

         A = 1 then B = 7

         A = 2 then B = 8

         A = 3 then B = 9

Also, $7 + A + 3$ is divisible by 3

Out of 0, 1, 2, 3, A must be 2

$\Rightarrow$ B = 8

```
   136
 + 587
 ─────
   723  ──→ divisible by 3
```

So, B = 8.

61. Option (a) is correct.

The author in the passage asserts that a regulation system is in place in India. But there are some short comings in it. Politicians use it for their vested interests. It does not address the factors like job creation and economic growth. Regulations are required in a competitive global economy. However, the regulation system shall focus on bringing social and economic benefits to the general public.

In a nutshell, the author is demanding a better regulation system that suits Indian size is required.

Statement (b) is the best answer for the most crucial message. Other options are correct but they are just the supporting statements that justify the demand of the author for a competent regulatory system.

62. Option (d) is correct.

The passage gives the message that, In a competitive global economy, India must use regulations strategically. It needs a collaborative system of regulations aimed at prosperity instead of protecting local markets at its expense. Hence, option (d) is correct. Here both statement (1) and (2) are incorrect.

63. **Option (d) is correct.**

The passage compares a healthy child with a malnourished child. It refers to a study done by scientists to find the reason for the malnutrition of some children. The study was based on analysing the microbiomes of both types of children. It was found that the milk from a malnourished mother lacks a special type of sugar 'sialylated oligosaccharides'. However, research on the benign effects of gut bacteria can form the basis of government policies on food and nutrition. Option (d) provides a prospective alternative for the same.

Other options are distant from the actual point of discussion in the passage. They can be easily discarded for the answer choices. Policy implications or treatment of guts are not even mentioned by the author. Option (b) seems impractical and gives a vague solution.

64. **Option (b) is correct.**

The malnourishment in the babies is directly linked with the malnourishment in the mothers. The milk of malnourished mothers fails to provide healthy sugar to their children. Hence, microbiomes cannot develop in these children and they become malnourished. Statement 2 is correct.

Probiotics are live yeasts and good bacteria that live in the body and are good for the digestive system. One can take probiotics as supplements or get them through food. But, this can not provide a potential solution to the problem of malnutrition in children.

Only statement 2 is correct.

65. **Option (c) is correct.**

Statement 1 is supported by the first sentence of the passage which clearly states that the difference in the rate of warming in the Antarctic region is five times more than the other regions. But, rate of warmness of regions of glaciers are not faster than many other regions . Hence, statement 1 is incorrect.

In the middle part of the passage, sedimentation of the sea bed has been presented as a cause for decreasing biodiversity in the region. Hence, statement 2 is also a correct assumption. For the same reason, statement 3 is also relevant in the discussion.

66. **Option (b) is correct.**

It is not that global warming has been a frequent phenomenon on earth. The passage is talking about something that had happened 13000 years ago. On basis of this, we cannot assume that global warming is a recurring event.

The passage contradicts the information given in statement 2. It says that human-induced environmental changes will make adaption difficult for the same mammals that did easily during the early rapid warming of the planet thousands of years ago.

Hence, statement 2 is not a correct answer.

Statement 3 captures the gist of the passage. The author in the passage intends to show the adverse impacts of human intervention on the environment and even the once resilient mammals.

67. **Option (d) is correct.**

The author is concerned about shrinking food variety. Human beings have become dependent on a limited number of food varieties. While a large number of varieties of crops were available in past, the technology has made us concentrate on only high yielding varieties. Over-dependence on these limited number of varieties is dangerous as some disease or human-induced climate change can render these varieties useless. Then we have to move back to our locally cultivated varieties of crops that are nearing extinction. Based on this discussion, Statement 2 and Statement 4 find relevance in the above discussion.

Statement 1 is not a suitable assumption as it contradicts the content of the passage.

Statement 3 is not correct as the distribution of food is not discussed in the passage.

68. **Option (d) is correct.**

According to given condition, starting from A, odd place alphabet is in upper case and even place alphabet is in lower case.

i.e. AbCd ....
   1 2 3 4

J U L Y will be written as jUlY.

10 21 12 25

69. Option (d) is correct.

Prime numbers of single digits are 3, 5, 7

their average $= \dfrac{3 + 5 + 7}{3} = 5$

Length of first piece = 5 units

Let length of second piece = x units

$\therefore$ Length of third piece = $5 + x$ units

According to given condition,

$$x = 5 + \frac{5 + x}{3}$$

$$\Rightarrow \qquad x = \frac{15 + 5 + x}{3}$$

$$\Rightarrow \qquad 3x = 20 + x$$

$$\Rightarrow \qquad 2x = 20$$

$$\Rightarrow \qquad x = 10 \text{ units}$$
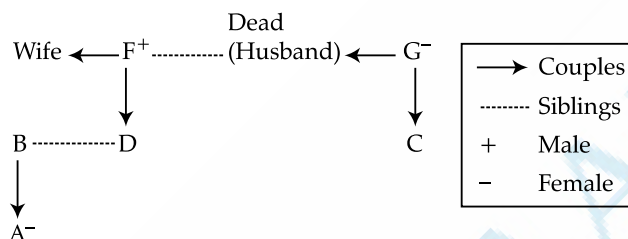
Length of original paper = 5 + 10 + (10 + 5)

= 30 units.

70. Option (a) is correct.

1, ⑤, 7, 3, 5, 7, 4, 3, 5, 7

In the sequence, there is only one 5 that is not preceded immediately by 3.

71. Option (d) is correct.

According to given information, E must be wife of F.

Hence, she is grandmother of A and aunt of C.

72. Option (b) is correct.

Since, cube has 6 faces, we can pant its faces as following:

Case 1: When all faces painted black. One way

Case 2: When five faces painted black and one face painted white.

It can be done by One way only.

Case 3: When four faces are black and two are white. It can be done in Two ways.

Case 4: When 3 faces are black and three are white. This can be done in Two ways.

Case 5: When 2 faces are black and four are white. It can be done in Two ways.

Case 6: When one face is black and five faces are white.

There are One such way.

Case 7: When all faces painted white.

It can be done in One way.

Total possible ways are 1 + 1 + 2 + 2 + 2 + 1 + 1 = 10.

73. Option (d) is correct.

The possible triplets are:

x	y	z	$x + y + z = 6$
1	1	4	(1, 1, 4)
1	2	3	(1, 2, 3)
1	3	2	(1, 3, 2)
1	4	1	(1, 4, 1)
2	1	3	(2, 1, 3)
2	2	2	(2, 2, 2)
2	3	1	(2, 3, 1)
3	1	2	(3, 1, 2)
3	2	1	(3, 2, 1)
4	1	1	(4, 1, 1)

There are 10 triplets of x, y, z.

74. Option (d) is correct.

According to question,

$\$ \to \div \qquad @ \to \times \qquad \# \to -$

$10 \# 5 @ 1 \$ 5$

$\Rightarrow 10 - 5 \times 1 \div 5$

$= 10 - 5 \div 5 = 10 - 1 = 9.$

75. Option (c) is correct.

Given that,

4252746B ÷ 3 gives remainder 0.

$\therefore$ 4252746B is divisible by 3. So, its sum of digit is also divisible by 3.

4 + 2 + 5 + 2 + 7 + 4 + 6 + B = 30 + B

To make 30 + B divisible by 3, B can be 0, 3, 6 or 9.

There can be four values of B.

For solutions 76, 77 and 78 (Puzzle)

Given conditions are:

(i) Total six students are there, A, B, C, D E and F.

(ii) Either C or F scores highest.

(iii) Whenever C scores highest, then E scores the least.

(iv) Whenever F scores highest, then B scores least.

(v) All students got different marks.

(vi) D scores higher than A, they are close competitors.

(vii) A's score > B's score

(viii) C's score > A's score.

76. Option (c) is correct.

When F stand second, then C is first and E is last

$$\boxed{C} > \boxed{F} > \underline{D} > \underline{A} > \underline{B} > \boxed{E}$$

Boxes are fixed by given condition in question, rest blanks we can fill by above 8 conditions.

77. Option (d) is correct.

When B score least, then F is first

Case 1: $\boxed{F} > \underline{C} > \underline{D/E} > \underline{D/E} > \underline{A} > \boxed{B}$

Case 2: $\boxed{F} > \underline{D/E} > \underline{C} > \underline{D/E} > \underline{A} > \boxed{B}$

In both cases C can take 2nd or 3rd place.

78. Option (b) is correct.

E is ranked 3rd, it means E is not last. So, F is first and B is last.

$$\boxed{F} > \underline{C} > \boxed{E} > \underline{D} > \underline{A} > \boxed{B}$$

For solutions 79 and 80

Let weight of Sohan, Mohan and Rohan are S, M and R respectively.

∴ By given condition

$2S < M \Rightarrow S < M$

$2S < R \Rightarrow S < R$

79. Option (d) is correct.

∵ S has lowest weight

But we have no information to compare weights of M and R.

We have not necessary information to decide person with highest weight.

80. Option (b) is correct.

We can clearly decide that Sohan has least weight.