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TEST BOOKLET
GENERAL STUDIES

PAPER - II - ANSWER KEY

Test Time Allowed : (02:00PM to 04:00PM) 2 Hours

Maximum Marks : 200

INSTRUCTIONS

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET DOES NOT HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS, ETC. IF SO, GET IT REPLACED. BY A COMPLETE TEST BOOKLET.
2. Please note that it is the candidate's responsibility to encode and fill in the Roll Number and Test Booklet Series A, B, C or D carefully and without any omission or discrepancy at the appropriate places in the OMR Answer Sheet. Any omission/ discrepancy will render the Answer Sheet liable for rejection.
3. You have to enter your Roll Number on the Test Booklet in the Box provided alongside. DO NOT write anything else on the Test Booklet.
4. This Test Booklet contains **80 items** (questions). Each item is printed in **English**. Each item comprises four responses (answers). You will select the response which you want to mark on the Answer Sheet. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose **ONLY ONE** response for each item.
5. You have to mark 'all your responses **ONLY** on the separate Answer Sheet provided. See directions in the Answer Sheet.
6. **All** items carry equal marks.
7. Before you proceed to mark in the Answer Sheet the response to various items in the Test Booklet, you have to fill in some particulars in the Answer Sheet as per instructions sent to you with your Admission Certificate.
8. After you have completed filling in all your responses on the Answer Sheet and the examination has concluded, you should hand over to the Invigilator only the Answer Sheet. You are permitted to take this Test Booklet with you.
9. Sheets for rough work are appended in the Test Booklet at the end.
10. **Penalty for wrong answers :**
THERE WILL BE PENALTY FOR WRONG ANSWERS MARKED BY A CANDIDATE IN ALL THE QUESTIONS.
 - (i) There are four alternatives for the answer to every question. For each question for which a wrong answer is given by the candidate, one-third of the marks assigned to that question will be deducted as penalty.
 - (ii) If a candidate gives more than one answer, it will be treated as a wrong answer even if one of the given answers happens to be correct and there will be same penalty as above to that question.
 - (iii) If a question is left blank, i.e., no answer is given by the candidate, there will be no penalty for that question.

Read the following passages and answer the items that follow the passages. Your answers to these items should be based on the passages only

Passage:1

Taxation plays an essential function in the establishment of a nation, serving as the financial backbone that reinforces a country's infrastructure, healthcare, education, and security. It represents the cornerstone of a government's fiscal strategy, enabling it to fulfill its sovereign duties effectively. Through judicious tax collection and allocation, a nation can expedite socio-economic growth, alleviate inequalities, and create a conducive environment for businesses to flourish. Additionally, taxes support public services that enhance the well-being of citizens and lay the groundwork for future prosperity. Therefore, taxation is not simply a financial contribution but a strategic investment in a nation's future.

1. Which one of the following statements best reflects what is implied by the passage?

- (a) Taxation is solely a financial contribution made by citizens to the government.
- (b) Taxation plays a crucial role in nation-building and facilitates the government in fulfilling its essential functions.**
- (c) Taxation primarily benefits businesses and contributes little to socio-economic growth.
- (d) Taxation is on citizens and should be minimized to promote individual prosperity.

Passage:2

Economic inequality is widespread, to some extent inevitable, and always at the center of debates about how societies should be organized. The unexpected COVID crisis illustrates this clearly. It has shut down large sectors of the economy, depriving many of their livelihood. Yet in many countries, compensatory income support systems were set in place very quickly, demonstrating the great power of societies, through their governments, to alleviate inequality and to avoid social and political catastrophes.

2. Which one of the following statements best reflects the crux of the passage?

- (a) Economic inequality is an inherent and unchangeable aspect of society that cannot be addressed effectively.
- (b) The COVID crisis has highlighted the resilience of societies in implementing swift measures to mitigate economic inequality and prevent social and political crises.**
- (c) Compensatory income support systems have failed to address economic inequality adequately, leading to widespread social and political unrest.
- (d) Societies are powerless in addressing economic inequality, and governments' efforts to alleviate it are often ineffective.

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

1. Economic inequality is a complex issue that requires swift and effective governmental interventions.
2. The COVID crisis has exacerbated economic inequality and made it more difficult for societies to address.

Which of the assumptions given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Passage:3

Since 2011, and especially post-2014, there have been a number of significant economic changes and reforms. However, it is as yet difficult to quantify their impact on growth and productivity, given the above-mentioned constraints on data comparability and also the lack of requisite time lag. One strand that runs through recent reforms is the trend towards formalization and digitization of the economy, which should have a significant impact on productivity and growth. However, formalization also brings with it higher costs, made worse with little action on the simplification of various compliances.

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

1. Recent economic changes and reforms have had a measurable impact on growth and productivity.
2. Formalization and digitization of the economy contribute significantly to productivity and growth.
3. Simplification of compliances is a priority area that needs urgent attention in the context of economic reforms.
4. Economic changes and reforms primarily focus on increasing costs without enhancing productivity.

Which of the above assumptions are valid?

- (a) 1, 2, and 4 only
- (b) 2 and 3 only
- (c) 1 and 2 only
- (d) 1, 2, 3, and 4

5. Which of the following statements best summarizes the essence of the passage?

- (a) Economic reforms post-2014 have led to significant growth and productivity improvements, primarily due to formalization and digitization.
- (b) Recent economic changes and reforms have the potential to impact growth and productivity, although their precise effects are yet to be fully determined due to data constraints and the time lag.
- (c) Economic reforms have focused solely on simplifying compliances, neglecting the broader aspects of formalization and digitization.
- (d) The lack of data comparability and time lag have rendered recent economic reforms ineffective in driving growth and productivity improvements.

Passage:4

In the past decade, the R&D capabilities of the Indian auto industry have increased significantly. Interviews with senior R&D executives bring out the changing nature of R&D in India from adaptive to application engineering and product development. There are, however, no incentives to undertake basic research activities in the Indian auto industry, as there is no market demand for the same. Prior to 2000, R&D intensity was negligible among the Original Equipment Manufacturer (OEM) and component categories, gradually increasing to around 1 per cent of turnover in 2010 and 6 per cent in 2016 among the OEMs.

6. Which one of the following statements best reflects the most logical and rational message conveyed by the author of the passage?
- (a) The Indian auto industry has shown a steady increase in basic research activities due to market demand.
 - (b) R&D intensity among Original Equipment Manufacturer (OEM) and component categories in India has remained constant over the past decade.
 - (c) **The focus of R&D in the Indian auto industry has shifted towards application engineering and product development, driven by changing capabilities.**
 - (d) There are significant incentives in place for basic research activities within the Indian auto industry, leading to a surge in R&D intensity.

Passage:5

Educational institutions serve as luminaries of knowledge, casting light upon the path to advancement and empowerment. In the remote hamlets of India's expansive rural expanse, schools are not mere edifices of bricks and mortar; they stand as the very nucleus of metamorphosis. These bastions of learning impart not only scholarly erudition but also sow the seeds of societal metamorphosis and economic progress. They arm the youth with the instruments to transcend the constraints of their geographical seclusion, cultivating a cohort that is enlightened, adept, and capable of guiding their community towards a more radiant tomorrow. The existence of a school in these isolated villages resembles a fountain of optimism, nurturing intellects and nurturing aspirations, one lesson after another.

7. Which one of the following statements implies the most rational assumption that can be made from the passage?
- (a) Educational institutions in rural areas primarily focus on academic excellence.
 - (b) **Schools in remote villages play a crucial role in societal transformation and economic development.**
 - (c) The geographical seclusion of villages hinders the progress of educational institutions.
 - (d) The existence of schools in isolated villages has no significant impact on the intellectual development of the youth.

Passage:6

Industry has become an essential part of modern society, and waste production is an inevitable outcome of the developmental activities. A material becomes waste when it is discarded without expecting to be compensated for its inherent value. These wastes may pose a potential hazard to the human health or the environment (soil, air, water) when improperly treated, stored, transported or disposed off or managed. Currently in India even though hazardous wastes, emanations and effluents are regulated, solid wastes often are disposed off indiscriminately posing health and environmental risk. In view of this, management of hazardous wastes including their disposal in environment friendly and economically viable way is very important and therefore suggestions are made for developing better strategies.

8. Based on the passage provided, which of the following assumptions can be made regarding waste management in India?

- 1. Hazardous wastes and solid wastes are regulated and managed effectively in India.
 - 2. Developmental activities do not contribute significantly to waste production in modern society.
- (a) Only 1
(b) Only 2
(c) Both 1 and 2
(d) Neither 1 nor 2

9. Which one of the following statements best reflects the main idea conveyed in the passage?

- (a) Waste production is an avoidable consequence of developmental activities.
- (b) Effective waste management strategies are crucial for mitigating health and environmental risks posed by waste disposal.
- (c) Hazardous wastes and solid wastes are not a concern much in India due to strict regulations.
- (d) Developmental activities in modern society have minimal impact on waste generation and disposal.

Passage:7

The National Family Health Survey (NFHS-5) presents a sobering picture of the pervasive violence against women in India. Almost 30% of women between the ages of 18-49 years have experienced physical violence beginning at age 15; 6% reported sexual violence. Evidence indicates that violence and mental health conditions have a reciprocal, cause-and-effect relationship, and both factors significantly heighten the risk of homelessness. In the three decades of working with homeless women with mental health conditions at The Banyan, we have witnessed this recursive interaction between violence against women, homelessness, and mental health almost universally.

10. Based on the information provided in the passage, which of the following conclusions can be drawn?

1. Violence against women in India is a multifaceted issue encompassing both physical and sexual abuse.
2. Mental health conditions among women are solely caused by violence.
3. Homelessness has no impact on women's vulnerability to violence.
4. The National Family Health Survey (NFHS-5) data indicates a significant decline in violence against women in recent years.

Choose the correct option:

- (a) 1 and 3 only
- (b) 2 and 4 only
- (c) 1, 2, and 3 only
- (d) 1 and 4 only

11. Which of the following titles most accurately summarizes the central theme discussed in the passage?

- (a) Exploring the Impact of NFHS-5 on Women's Safety in India.
- (b) Understanding the Relationship Between Violence, Homelessness, and Mental Health in Women.
- (c) Analyzing Gender Equality Initiatives and Their Effects on Women's Health.
- (d) Investigating Cultural Factors Influencing Women's Vulnerability to Violence.

Passage:8

The Agni-5 ballistic missile test dubbed the "Divyastra", that was conducted by the Defence Research and Development Organisation (DRDO), is strategically consequential. With a range of over 5,000 kilometres, the Agni-5 is the longest-range missile India has tested so far. But it is not simply its range but, equally, its potency which represents a watershed moment for India's nuclear deterrent. The potency of India's nuclear deterrent is enhanced because this variant is integrated with Multiple Independently Targetable Re-entry Vehicles (MIRVs).

12. Which of the following options accurately encapsulates the primary significance of the Agni-5 ballistic missile test, as discussed in the passage?

- (a) The Agni-5 missile test marks a significant milestone in India's ballistic missile capabilities.
- (b) The test of Agni-5 missile with Multiple Independently Targetable Re-entry Vehicles (MIRVs) showcases India's advancement in nuclear deterrence technology.
- (c) The Agni-5 missile's range of over 5,000 kilometres is a critical aspect that elevates India's strategic position in missile development.
- (d) The integration of MIRVs with the Agni-5 missile signifies a paradigm shift in India's approach to nuclear deterrence and strategic defence.

Passage:9

The India-EFTA Trade and Economic Partnership Agreement (TEPA) is the latest in India's recent Free Trade Agreements (FTAs). As its name suggests, the thrust of the FTA is deeper economic engagement with the EFTA (European Free Trade Association) countries — Switzerland, Norway, Iceland and Liechtenstein. It heralds the westward tilt of India's FTAs, being the first with any European country and the western world. The successful conclusion of an FTA with developed countries including Switzerland and Norway is a significant positive signal to the world, showcasing India's firm commitment to trade liberalisation at a time of rising protectionism across both developed and developing countries.

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

1. The TEPA marks a significant shift in India's focus towards deeper economic engagement with developed European countries.
2. The TEPA is a strategic response to global protectionism and aims to strengthen India's position in international trade.
3. The TEPA overlooks the potential benefits of engaging with developing countries within the European Free Trade Association (EFTA).
4. The successful conclusion of the TEPA reflects India's firm commitment to trade liberalization in the face of rising protectionism.

Which of the above assumptions are valid?

- (a) 1, 2, and 4 only
- (b) 2 and 3 only
- (c) 1 and 2 only
- (d) 1, 2, 3, and 4

14. Which one of the following statements best reflects the crux of the passage about the India-EFTA Trade and Economic Partnership Agreement (TEPA)?

- (a) The TEPA signifies India's shift towards deeper economic engagement with developed European countries, showcasing its commitment to trade liberalization amidst global protectionism.
- (b) The TEPA is a mere formality in India's ongoing trade negotiations with European countries and does not hold significant positive signals for India's trade policies.
- (c) The TEPA primarily focuses on enhancing India's economic ties with developing countries within the European Free Trade Association (EFTA) and overlooks engagements with developed nations.
- (d) The TEPA highlights India's reluctance to engage in free trade agreements with European countries, reflecting a conservative approach towards trade liberalization.

Passage:10

Scientists recently proposed formalising an ‘Anthropocene Epoch’ on the geologic time scale, triggering several debates. The earth’s geological history is divided into multiple epochs depending on their natural character. We are officially currently in the Holocene Epoch, which started around 11,700 years ago. But many scientists believe the Holocene Epoch has ended and the Anthropocene Epoch has started – a period of time characterised by humankind’s large-scale effects on the earth, including climate change and pollution.

15. Which of the following statements best reflects the logical inference from the passage given above regarding the proposal to formalize an ‘Anthropocene Epoch’?

- (a) The proposal to formalize an ‘Anthropocene Epoch’ is widely accepted among scientists due to overwhelming evidence of humankind’s significant impact on the earth’s natural systems.
- (b) The proposal to formalize an ‘Anthropocene Epoch’ has sparked debates among scientists, indicating a lack of consensus regarding the classification of geological time periods.**
- (c) The proposal to formalize an ‘Anthropocene Epoch’ is primarily based on political agendas rather than scientific evidence, leading to scepticism among the scientific community.
- (d) The proposal to formalize an ‘Anthropocene Epoch’ is unanimously rejected by scientists, who argue that the Holocene Epoch remains the most accurate representation of the earth’s geological history.

16. If the ratio of volumes of two hemispheres is $64 : 343$, then what will be the ratio of their total surface area?

- (a) $49 : 16$
- (b) $7 : 16$
- (c) $16 : 7$
- (d) None of the above**

17. A wire is bent to form a square of side 22 cm. If the wire is rebent to form a circle, then its radius will be:

- (a) 22 cm
- (b) 14 cm**
- (c) 11 cm
- (d) 7 cm

18. The perimeter of a rhombus is 148 cm, and one of its diagonals is 24 cm. The area (in cm^2) of the rhombus is:

- (a) 875
- (b) 700
- (c) 840**
- (d) 770

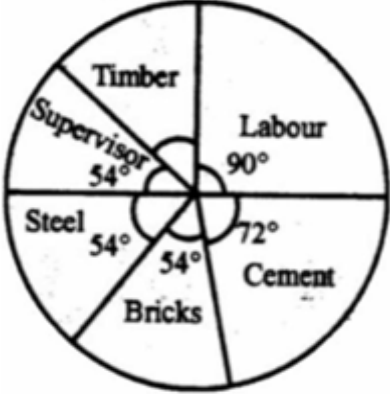
19. Find the length of the longest pole that can be placed in an indoor stadium 24 metre long, 18 metre wide and 16 metre high

- (a) 30 metres
- (b) 25 metres
- (c) 34 metres**
- (d) $\sqrt{580}$ metres

20. A cuboid of dimension $24 \text{ cm} \times 9 \text{ cm} \times 8 \text{ cm}$ is melted and smaller cubes are of side 3 cm is formed. Find how many such cubes can be formed.

- (a) 27
- (b) 64**
- (c) 54
- (d) 32

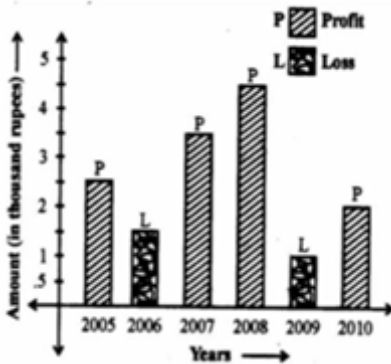
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21. The areas of three adjacent faces of a cuboid are x , y , z . If the volume is V , then V^2 will be equal to
- xy/z
 - yz/x^2
 - x^2y^2/z^2
 - xyz**
22. Find the perimeter and area of an isosceles triangle whose equal sides are 5 cm and height is 4 cm.
- 12 sq.cm**
 - 18 sq.cm
 - 21 sq.cm
 - 7 sq.cm
23. A rectangular piece of dimension 22 cm x 7 cm is used to make a circle of the largest possible radius. Find the area of the circle formed.
- 38.5 sq.cm**
 - 30 sq.cm
 - 15.5 sq.cm
 - 22 sq.cm
24. A pizza is to be divided into 8 identical pieces. What would be the angle subtended by each piece at the center of the circle?
- 180°
 - 135°
 - 90°
 - 45°**
25. A man walked diagonally across a square lot. Approximately, what was the percent saved by not walking along the edges?
- 20
 - 24
 - 30**
 - 33
26. What is the least number of squares tiles required to pave the floor of a room 15 m 17 cm long and 9 m 2 cm broad?
- 814**
 - 820
 - 840
 - 844
- Direction (27-31). The following pie chart cost of constructing one house. The total cost was Rs. 6 lakhs.
- 
27. The amount spent on cement is
- Rs.2,00,000
 - Rs.1,60,000
 - Rs.1,20,000**
 - Rs.1,00,000
28. The amount spent on labour exceeds the amount spent on steel by
- 5% of the total cost
 - 10% of the total cost**
 - 12% of the total cost
 - 15% of the total cost
29. The amount spent on cement, steel and supervision is what percent of the total cost of construction?
- 40%
 - 45%
 - 50%**
 - 55%

30. The amount spent on labour exceeds the amount spent on supervision by
- (a) Rs.2,00,000
 - (b) Rs.16,000
 - (c) Rs.1,20,000
 - (d) Rs.60,000**

31. The amount spent on Timber is
- (a) Rs.60,000**
 - (b) Rs.90,000
 - (c) Rs.1,20,000
 - (d) Rs.36,000

Direction (32-35). The following about the 'unit', Thousand/lakhs.



32. The amount of maximum profit as seen from the diagram is
- (a) 2 thousand rupees
 - (b) 1.5 thousand rupees
 - (c) 1 thousand rupees
 - (d) 4.5 thousand rupees**
33. The amount of total loss incurred during 2005-2010 is
- (a) 3 thousand rupees
 - (b) 2.5 thousand rupees**
 - (c) 1.5 thousand rupees
 - (d) 2 thousand rupees
34. The ratio of the maximum profit earned to the minimum loss suffered is
- (a) 4 : 3
 - (b) 3 : 4
 - (c) 9 : 2**
 - (d) 2 : 9

35. If the loss is x% of the profit for the years under study, then x is
- (a) 15
 - (b) 25
 - (c) 20**
 - (d) 19

Direction (36-40). The following table gives the sales of batteries manufactured by company over the years. Study the table and answer the question that follows:

Number of Different Types of Batteries Sold by A Company Over the Years (NUMBERS IN THOUSAND)

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

36. The total sales of all the seven years are the maximum for which battery?
- (a) 4AH
 - (b) 7AH
 - (c) 32AH**
 - (d) 35AH
37. What is the difference in the number of 35AH batteries sold in 1993 and 1997?
- (a) 24000
 - (b) 28000
 - (c) 35000
 - (d) 39000**

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

- (a) 1994
- (b) 1995
- (c) 1996
- (d) 1998**

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

- (a) 4AH
- (b) 7AH**
- (c) 32AH
- (d) 35AH

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

- (a) 28%
- (b) 31%
- (c) 33%
- (d) 34%**

Directions (41 – 45): Study the following questions and choose the correct answer.

State-wise production of different crops for the year 1993-94 (in million tonnes)

State	Rice	Wheat	Pulses
U.P.	7.18	15.97	2.76
W.B.	8.09	0.81	0.35
M.P.	3.67	3.72	2.32
Maharashtra	1.94	0.86	1.11
Haryana	1.36	4.42	0.36
All India	58.64	44.23	12.2

41. W.B. produces approximately what percent of the total rice produced in India?

- (a) 12.2%
- (b) 13.5%**
- (c) 18%
- (d) 15%

42. The amount of wheat produced by U.P. is more than the amount of wheat produced by the other four states listed in the table, by

- (a) 6.97 m tonnes
- (b) 6.16 m tonnes**
- (c) 5.52 m tonnes
- (d) 5.89 m tonnes

43. What percentage of the total wheat production was produced by states other than those who are not given in the table?

- (a) 38%
- (b) 42%**
- (c) 48%
- (d) 58%

44. U.P. produced approximately what percent of the all-India production of all the three crops taken together?

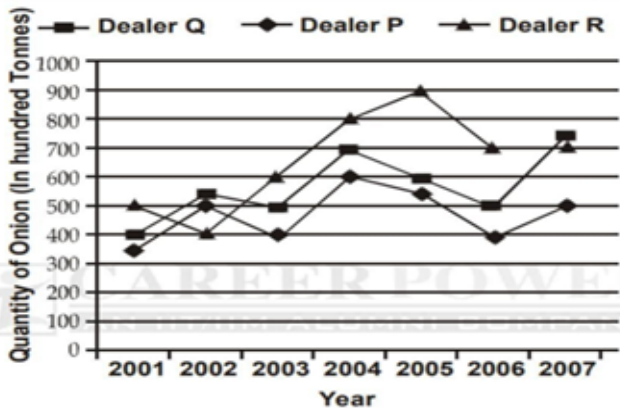
- (a) 27.75%
- (b) 26.2%
- (c) 24.18%
- (d) 22.52%**

45. Which of the following statements is true?

- (a) U.P. was the top producer of all three crops.**
- (b) M.P. ranked third in the production of all three crops.
- (c) Maharashtra was the lowest producer of rice.
- (d) Haryana was the lowest producer of wheat.

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Directions (46 – 50): Study the following graph carefully to answer the questions:
Quantity of Onion (in hundred tonnes)
Purchased by three Dealers over the year



46. The percentage rise in the purchase of onions from the previous year was the maximum during which year for dealer Q?

- (a) 2003
- (b) 2004
- (c) 2005
- (d) 2007

47. What is the average purchase of Onions by dealer Q for all the years? (in hundred tones rounded off to two digits after decimal)

- (a) 571.42
- (b) 667.14
- (c) 766.67
- (d) 756.57

48. Total Onions purchased by dealer P for all the years is approximately what percent of the total onions purchased by dealer Q for all the years?

- (a) 128
- (b) 139
- (c) 68
- (d) 82.5

49. What is the percent increase in the purchase of onions from dealer R from 2003 to 2007?

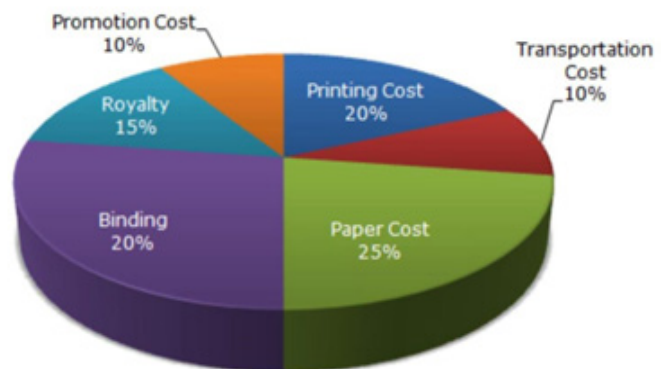
- (a) 150
- (b) 133.33
- (c) 33.33
- (d) None of these

50. What is the ratio of the total quantity of onions purchased by all three dealers in 2002 to that in 2004?

- (a) 51 : 29
- (b) 9 : 40
- (c) 29 : 51
- (d) 29 : 42

Directions (51 – 54): The following pie-chart shows the percentage distribution of the expenditure incurred in publishing a book. Study the pie-chart and the answer the questions based on it.

Various Expenditures (in percentage) Incurred in Publishing a Book



51. If the difference between the two expenditures are represented by 18° in the pie-chart, then these expenditures possibly are

- (a) Binding Cost and Promotion Cost
- (b) Paper Cost and Royalty
- (c) Binding Cost and Printing Cost
- (d) Paper Cost and Printing Cost

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52. For an edition of 12,500 copies, the amount of Royalty paid by the publisher is Rs. 2,81,250. What should be the selling price of the book if the publisher desires a profit of 5%?
- (a) Rs. 152.50
(b) **Rs. 157.50**
(c) Rs. 162.50
(d) Rs. 167.50
53. If for an edition of the book, the cost of paper is Rs. 56250, then find the promotion cost for this edition.
- (a) Rs. 20,000
(b) **Rs. 22,500**
(c) Rs. 25,500
(d) Rs. 28,125
54. Which two expenditures together have central angle of 108° ?
- (a) **Binding Cost and Transportation Cost**
(b) Printing Cost and Paper Cost
(c) Royalty and Promotion Cost
(d) Binding Cost and Paper Cost
55. In a shower, 5 cm of rain falls. The volume of water that falls on 1.5 hectares of ground is:
- (a) 75 cu. m
(b) **750 cu. m**
(c) 7500 cu. m
(d) 75000 cu. m
56. 66 cubic centimetres of silver is drawn into a wire 1 mm in diameter. The length of the wire in metres will be:
- (a) **84**
(b) 90
(c) 168
(d) 336
57. The curved surface area of a cylindrical pillar is 264 m^2 and its volume is 924 m^3 . Find the ratio of its diameter to its height.
- (a) 3 : 7
(b) **7 : 3**
(c) 6 : 7
(d) 7 : 6
58. The slant height of a right circular cone is 10 m and its height is 8 m. Find the area of its curved surface.
- (a) 30 m^2
(b) 40 m^2
(c) **60 m^2**
(d) 80 m^2
59. A metallic sheet is of rectangular shape with dimensions 48 m x 36 m. From each of its corners, a square is cut off so as to make an open box. If the length of the square is 8 m, the volume of the box (in m^3) is:
- (a) 4830
(b) **5120**
(c) 6420
(d) 8960
60. If the surface area of the sphere is 616 cm^2 and the radius of the sphere is equal to the radius of the cylinder. If the height of the cylinder is 12 cm, then what is the curved surface area of the cylinder?
- (a) **528 cm^2**
(b) 548 cm^2
(c) 538 cm^2
(d) 518 cm^2

61. Question: In which year was Rahul born?

Statements:

1. Rahul at present is 25 years younger to his mother.
2. Rahul's brother, who was born in 1964, is 35 years younger to his mother.

- (a) 1 alone is sufficient while 2 alone is not sufficient
 (b) 2 alone is sufficient while 1 alone is not sufficient
 (c) Either 1 or 2 is sufficient
 (d) Both 1 and 2 are sufficient

62. Poles, each of the same weight?

Statements:

1. One-fourth of the weight of each pole is 5 kg.
2. The total weight of three poles is 20 kilograms more than the total weight of two poles.

- (a) 1 alone is sufficient while 2 alone is not sufficient
 (b) 2 alone is sufficient while 1 alone is not sufficient
 (c) Either 1 or 2 is sufficient
 (d) Neither 1 nor 2 is sufficient

63. Question: How many children does M have?

Statements:

1. H is the only daughter of X who is wife of M.
2. K and J are brothers of M.

- (a) 1 alone is sufficient while 2 alone is not sufficient
 (b) 2 alone is sufficient while 1 alone is not sufficient
 (c) Either 1 or 2 is sufficient
 (d) Neither 1 nor 2 is sufficient

64. Question: What is the code for 'sky' in the code language?

Statements:

1. In the code language, 'sky is clear' is written as 'de ra fa'.
2. In the same code language, 'make it clear' is written as 'de ga jo'.

- (a) 1 alone is sufficient while 2 alone is not sufficient
 (b) 2 alone is sufficient while 1 alone is not sufficient
 (c) Either 1 or 2 is sufficient
 (d) Neither 1 nor 2 is sufficient

65. Question: How is J related to P?

Statements:

1. M is brother of P and T is sister of P.
2. P's mother is married to J's husband who has one son and two daughters.

- (a) 1 alone is sufficient while 2 alone is not sufficient
 (b) 2 alone is sufficient while 1 alone is not sufficient
 (c) Either 1 or 2 is sufficient
 (d) Neither 1 nor 2 is sufficient

66. Who is the tallest among the brothers A, B, C, D?

Statement 1: C is shorter than only B

Statement 2: D is taller than only A

- (a) Statement 1 alone is sufficient
 (b) Statement 2 alone is sufficient
 (c) Both statement 1 and statement 2 together are sufficient
 (d) Both statement 1 and statement 2 even together are not sufficient

67. What is the value of 'x'?

Statement 1: $x^2 + x - 6 = 0$

Statement 2: $x \geq 0$

- (a) Statement 1 alone is sufficient
- (b) Statement 2 alone is sufficient
- (c) Both statement 1 and statement 2 together are sufficient**
- (d) Both statement 1 and statement 2 even together are not sufficient

68. What is the sum of the ages of John and Peter?

Statement 1: John is 5 years older than Peter.

Statement 2: The average of their ages is 25.

- (a) Statement 1 alone is sufficient
- (b) Statement 2 alone is sufficient
- (c) Both statement 1 and statement 2 together are sufficient**
- (d) Both statement 1 and statement 2 even together are not sufficient

69. How many bricks of length 6" and width 4" are required to build a rectangle wall?

Statement I: The wall is 1/10th of its height thick.

Statement II: The wall is 10" high and 20" long.

- (a) 1
- (b) 2
- (c) 3
- (d) 4**

70. The cost of carpeting a room 15m long with a carpet 75cm wide at 30paise per meter is Rs. 36. Find the width of the room.

- (a) 6m**
- (b) 8m
- (c) 10m
- (d) 9m

Read the following passages and answer the items that follow the passages. Your answers to these items should be based on the passages only

Passage:1

Enhancing water availability with respect to quantity and quality and blue and green water is vital since water is more than just a basic human right. Water is also an instrument of peace-building and enhances the overall quality of life. Promoting sustainable agricultural production, ensuring water security and maintaining environmental integrity are increasingly becoming important issues. This can only be possible by adopting different resource conservation measures in general and rainwater harvesting and ensuring roof top rainwater harvesting in particular. Rain water harvesting (RWH) enables resilience against water scarcity and drought by augmenting recharge and aiding irrigation. The optimum use of surface water by large-scale RWH structures, conjunctive use with groundwater and safe reuse of waste water are the only viable solutions to boost and maintain the current level of food grain production.

71. Based on the paragraph provided, the following assumptions have been made:

1. Implementing rainwater harvesting (RWH) measures is essential for addressing water scarcity and promoting sustainable agricultural production.
2. The promotion of rainwater harvesting (RWH) is primarily driven by economic considerations.

Which of the assumptions given above is/are correct?

- (a) Only 1
- (b) Only 2
- (c) Both 1 and 2**
- (d) Neither 1 nor 2

72. Which one of the following statements best reflects the crux of the paragraph about rainwater harvesting (RWH) and water resource conservation?

- (a) Rainwater harvesting (RWH) is a cost-effective solution primarily aimed at increasing agricultural productivity.
- (b) Rainwater harvesting (RWH) is a crucial strategy for water resource management, sustainability, and agricultural resilience.**
- (c) Rainwater harvesting (RWH) is a limited approach that cannot effectively address water scarcity or boost food grain production.
- (d) Rainwater harvesting (RWH) is an outdated method with minimal impact on water availability and agricultural practices.

Passage: 2

Two key motives for the large-scale adoption of nuclear power as the base load energy source are technology and finance. Recent developments in nuclear technology including Small Modular Reactors (SMR), radiation proofing in existing plants, and extended fuel cycles, have the potential to substantially mitigate nuclear-related risks. Signifying the destigmatisation of nuclear energy is the entry of technology startups in the otherwise government-run industry. The role of technical advancements in reducing carbon emissions is highlighted by an IAEA study, which predicts that while existing technologies will play a significant role, by 2050, half of carbon reductions will come from technologies currently in the prototype stage.

73. Based on the paragraph provided, the following assumptions have been made:

1. Technical advancements in nuclear power can substantially mitigate nuclear-related risks.
2. The large-scale adoption of nuclear power is primarily driven by financial considerations.
3. Technology startups entering the nuclear energy industry indicate a destigmatization of nuclear energy.
4. Existing technologies play a significant role in reducing carbon emissions, but half of the reductions by 2050 will come from technologies currently in the prototype stage.

Which of the above assumptions are valid?

- (a) 1, 2, and 4 only**
- (b) 2 and 3 only
- (c) 1 and 2 only
- (d) 1, 2, 3, and 4

74. Which of the following statements best summarizes the essence of the paragraph about nuclear power and technical advancements?

- (a) Technical advancements in nuclear power primarily aim to increase profits without considering safety risks.
- (b) Nuclear power adoption is driven by technological and financial factors, with recent advancements helping mitigate risks and reduce carbon emissions.**
- (c) The nuclear energy industry is exclusively government-run and does not welcome technology startups.
- (d) Existing nuclear technologies are outdated and contribute minimally to reducing carbon emissions.

Passage: 3

Steeped in abject poverty and food scarcity at the time of Independence, India had to lay the foundations of a vigorous industry, which would catapult us into the future, and simultaneously ensure that the most basic necessities of our citizens were met. Exacerbating our woes was the fact that the major bulk of our populace subsisted solely on agriculture and animal husbandry, thus making their modernisation vital. Establishing a host of agricultural universities soon after Independence, we embarked on the quest to modernise our farming and livestock rearing practices, hoping to retrieve them from the depths of antiquity.

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

1. India's focus on modernizing agriculture and animal husbandry after Independence was solely driven by economic motives.
2. The establishment of agricultural universities after Independence was a strategic move to address food scarcity and poverty in India.

Which of the assumptions given above is/are correct?

- (a) Only 1
- (b) Only 2
- (c) Both 1 and 2**
- (d) Neither 1 nor 2

76. Which one of the following statements best reflects the crux of the passage?

- (a) India's agricultural universities were established primarily to promote traditional farming practices.
- (b) The modernization of agriculture and animal husbandry in post-Independence India aimed to address economic challenges and improve living standards.**
- (c) India's agricultural sector has remained stagnant since Independence, leading to persistent food scarcity and poverty.
- (d) India's focus on modernization after Independence neglected the basic needs of its citizens, leading to increased poverty levels.

Passage: 4

Hydropower cooperation is the bedrock of India's relations with Bhutan. Several cooperative hydro projects have been completed and commissioned by the two governments which supply clean electricity to India and provide Thimphu with a stream of revenue due to which it has graduated out of the Least Developed Country status. The delayed Punatsangchhu-II hydropower project is expected to be completed in 2024 — yet another successful example of the government-to-government model of cooperation in hydropower.

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

1. Hydropower cooperation between India and Bhutan primarily benefits Bhutan economically.
2. Completion of cooperative hydropower projects has no impact on India's electricity supply.

Which of the assumptions given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

78. Which one of the following statements best reflects the crux of the passage?

- (a) Hydropower cooperation between India and Bhutan has led to increased geopolitical tensions.
- (b) The completion of cooperative hydropower projects signifies successful government-to-government cooperation and mutual benefits.
- (c) Bhutan's graduation from Least Developed Country status is solely due to internal economic reforms.
- (d) The Punatsangchhu-II hydropower project is an example of India's dominance in the region.

Passage: 5

The Environment Ministry has introduced rules that make it harder for makers of disposable plastic ware to label such products as 'biodegradable', introducing a stipulation that they must not leave any microplastics behind. Biodegradable plastic and compostable plastic are projected as the two broad kinds of technological fixes to India's burgeoning problem of plastic waste pollution. Biodegradable plastic involves plastic goods being treated before they are sold. Compostable plastics, on the other hand, do degrade but require industrial or large municipal waste management facilities to do so.

79. Which one of the following statements best reflects what is implied by the passage?
- (a) The Environment Ministry's rules aim to promote the use of biodegradable plastic over compostable plastic.
 - (b) Biodegradable plastic is more environmentally friendly than compostable plastic due to its easier degradation process.
 - (c) Both biodegradable and compostable plastics are viable solutions to India's plastic waste pollution issue, albeit with different requirements for degradation.**
 - (d) Compostable plastics are more effective in reducing microplastic pollution compared to biodegradable plastics, according to the passage.

Passage: 6

The message of World Kidney Day is, kidney disease is common, harmful and treatable. The platform by the Ministry of Health in Tamil Nadu — Makkalai Thedi Maruthuvam — is a great initiative for detection of both non-communicable (NCD) and communicable disease such as Tuberculosis and other chronic infections which can have an impact on kidney functions. With all these initiatives the future looks bright for kidney disease patients in India. The WKD will definitely accelerate the knowledge base every year and will help platform common people.

80. Which one of the following statements best reflects the most logical and rational message conveyed by the author of the passage?
- (a) The message of World Kidney Day emphasizes the prevalence of kidney disease and the importance of early detection through initiatives like Makkalai Thedi Maruthuvam.
 - (b) Makkalai Thedi Maruthuvam primarily focuses on communicable diseases such as Tuberculosis rather than non-communicable diseases like kidney disease.
 - (c) The passage suggests that initiatives like World Kidney Day and Makkalai Thedi Maruthuvam are ineffective in improving healthcare outcomes for kidney disease patients in India.
 - (d) The future is promising for kidney disease patients in India due to initiatives like World Kidney Day and Makkalai Thedi Maruthuvam, which aim to increase awareness and facilitate early detection.**

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