

GS FULL LENGTH TEST-04 OBJECTIVE SOLUTION... **ANSWERS**

| | | | | | |
|---------|---------|---------|---------|---------|----------|
| 1. (d) | 18. (d) | 35. (d) | 52. (d) | 69. (a) | 86. (b) |
| 2. (a) | 19. (b) | 36. (c) | 53. (d) | 70. (c) | 87. (a) |
| 3. (c) | 20. (a) | 37. (b) | 54. (c) | 71. (d) | 88. (d) |
| 4. (b) | 21. (d) | 38. (b) | 55. (a) | 72. (b) | 89. (a) |
| 5. (c) | 22. (b) | 39. (b) | 56. (b) | 73. (a) | 90. (a) |
| 6. (a) | 23. (d) | 40. (d) | 57. (a) | 74. (a) | 91. (c) |
| 7. (d) | 24. (a) | 41. (d) | 58. (b) | 75. (a) | 92. (d) |
| 8. (d) | 25. (b) | 42. (d) | 59. (a) | 76. (a) | 93. (a) |
| 9. (c) | 26. (c) | 43. (b) | 60. (c) | 77. (b) | 94. (d) |
| 10. (b) | 27. (a) | 44. (a) | 61. (a) | 78. (b) | 95. (d) |
| 11. (a) | 28. (c) | 45. (c) | 62. (d) | 79. (b) | 96. (c) |
| 12. (a) | 29. (b) | 46. (b) | 63. (d) | 80. (a) | 97. (c) |
| 13. (b) | 30. (a) | 47. (a) | 64. (c) | 81. (d) | 98. (a) |
| 14. (c) | 31. (d) | 48. (b) | 65. (c) | 82. (a) | 99. (b) |
| 15. (d) | 32. (c) | 49. (d) | 66. (a) | 83. (c) | 100. (d) |
| 16. (c) | 33. (b) | 50. (d) | 67. (b) | 84. (d) | |
| 17. (d) | 34. (a) | 51. (b) | 68. (d) | 85. (a) | |

1. (d)

Under Environment (Protection) Act 1986, EIA is now mandatory for 29 categories of developmental activities which involve investment of more than Rs 50 Crores.

2. (a)

It has been launched and implemented by Indian Council of Forestry Research and Education (ICFRE), Dehradun.

ICFRE has signed two Memorandums of Understanding (MoUs) with Kendriya Vidyalaya Sangathan (KVS) and Navodaya Vidyalaya Samiti (NVS) to launch 'Prakriti' programme.

The main objective of Prakriti programme is to provide platform for school children to learn practical skills towards sustainable use of resources.

It also aims to promote awareness about forests and environment and stimulate interest among students of KVS and NVS in maintaining balanced environment. It also seeks to provide students with skills that reflect care and protection towards forests, environment and society.

3. (c)

4. (b)

Correct Matches are:

Convention

1. Ramsar Convention
2. Stockholm convention
3. Kyoto Protocol
4. Earth Summit

Objective

- a. Wetlands
- b. Persistent organic pollutants
- c. Green house gases
- d. Sustainable development

5. (c)

Key points of the IPCC Report

It clearly shows how half degree of warming makes big difference, adversely impacting global population and overall ecosystem through intense heat waves, melting of Arctic, sea level rise, erratic

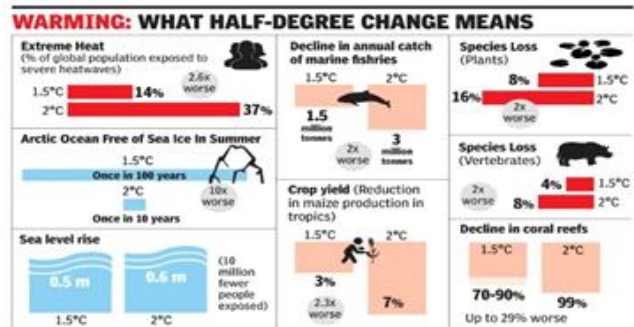
rainfall, reduction of farm yield and vanishing of living species.

It lists four pathways to curb global warming and through which the 1.5 degree target can be achieved. In each of pathways, global average temperature is projected to overshoot 1.5 degrees Celsius target by some amount before returning to that level before the end of this century.

Each of these pathways is also dependent on some amount of Carbon Dioxide Removal (CDR), a reference to physical removal of stock of CO₂ from atmosphere to reduce its concentrations.

Varying amounts between 100 to 1000 giga-tonnes (billion tonnes) of CO₂ needs to be removed from atmosphere in these four pathways

It refers to climate models that project robust differences in regional climate characteristics between present-day and global warming of 1.5 degrees and between 1.5 and 2 degrees Celsius. These differences include increase in mean temperatures in both land ocean regions, hot extremes in most inhabited regions, heavy precipitation in several regions and probability of drought and precipitation deficits in some regions.



6. (a)

The Government of India has signed Global Environment Facility (GEF) Grant Agreement with the World Bank for Ecosystems Service Improvement Project. The project is entirely be financed by the World Bank out of its GEF Trust Fund.

The Ministry of Environment, Forest and Climate Change will implement the Project in the States of Chhattisgarh and Madhya Pradesh through Indian Council of Forestry Research & Education under the National Mission for Green India.

7. (d)

8. (d)

9. (c)

These are the smallest turtles which are present in largest numbers among all the species of turtles found on earth.

Their habitats are found only in warmer waters of the Pacific, Atlantic and Indian oceans.

Olive Ridleys and the Kemps ridley turtle are famous for their unique mass nesting called Arribada. In this type of nesting, large number of females comes together on the same beach to lay eggs. These turtles are recognized as Vulnerable by the IUCN Red list.

Conservation efforts:

Olive Ridley sea turtle has found place in Schedule-I of Indian Wildlife (Protection) Act, 1972 (amended 1991).

They are protected under the 'Migratory Species Convention' and CITES (Convention of International Trade on Wildlife Flora and Fauna). India is a signatory nation to all these conventions.

Note: Olive Ridley turtles have commenced their arrival in huge numbers at Gahirmatha beach (Odisha) for breeding season.

Gahirmatha beach is known as world's largest nesting site of this species.

10. (b)

The Indian government has established 18 Biosphere Reserves in India which protect larger areas of natural habitat (than a National Park or Animal Sanctuary), and often include one or more National Parks and/or preserves, along buffer zones that are open to some economic uses.

Protection is granted not only to the flora and fauna of the protected region, but also to the human communities who inhabit these regions, and their ways of life. Animals are protected and saved here.

11. (a)

Geosynchronous satellites are located at approximately 35,786 km above the surface of the earth. Geosynchronous orbit can be any shape, circular or elliptical but has a time period of 23 hours 56 min and 4 sec.

12. (a)

The spacecraft was indigenously designed, built and launched by ISRO in record period of less than two years in Rs.450cr. India (ISRO) created space history by becoming first nation in world to successfully launch interplanetary mission spacecraft into Mars orbit in maiden attempt.

ISRO also become first Asian and fourth space agency in world to reach Mars orbit after the Roscosmos of Russia, NASA and European Space Agency.

13. (b)

India became the fourth country to claim the successful testing of Scramjet Engine. Russia was the first country who claimed scramjet flight test in 1991, and later U.S and European Space agency also joined the elite group. This technology has been developed by ISRO.

Scramjet does not have a compressor to compress the air; instead, it uses its high-speed forward motion to compress the air. Therefore scramjet cannot produce efficient thrust unless boosted to high speed.

14. (c)

Data rates of about 10 GBPS or higher can be achieved. This provides better user experience as download and upload speeds are higher. Latency of less than 1 ms can be achieved in 5G.

15. (d)

A major distinction of VR systems are the modes they are interfaced to the users. The modes are categorized into Video Mapping, Immersive System and Tele-presence.

The flight simulator game is an example of Video Mapping. The player flies the plane through a virtual space created in the computer.

The Head-Mounted Display is the ultimate form of VR interface. The designer is totally immersed in the virtual environment of the molecule.

The controlling of the space module is a form of tele-presence. The cameras and sensors on the vehicle gives the operator enough visual and touch senses (and perhaps audio, too) to make him / her feel virtually there.

16. (c)

Block-chain can record crypto-currency transactions and provide a home for documents

such as property deeds, birth records, and smart contracts.

Block-chain is a decentralized, transparent public ledger where individuals can share information without having to trust a third party to verify the information. Multiple people can access copies of the ledger simultaneously, allowing transactions such as contracts to be recorded and verified without a principal authority. nce records are submitted on a block-chain, they are almost impossible to alter, even by the records' owner, providing transactions a high level of security.

17. (d)

GSKV-Mk III is capable of launching four-tonne satellites in the Geosynchronous Transfer Orbit (GTO), and up to eight tonnes in a Low Earth Orbit (LEO), enough to carry a manned module.

This is India's first fully functional rocket to be tested with a cryogenic engine that uses liquid propellants: liquid oxygen and liquid hydrogen.

18. (d)

In cloud computing, every component is online, which exposes potential vulnerabilities.

Downtime is often cited as one of the biggest disadvantages of cloud computing.

Since cloud computing systems are internet-based, service outages are always an unfortunate possibility and can occur for any reason.

19. (b)

G2C concept is used for expressing the relationship between public administration and citizens. The relationship may refer the demand for information from the citizen in any life situation or a transfer of an official document to the citizen.

The abbreviation is usually used to refer to the ICT solution that converts such communication to the electronic form or to describe a solution that simplifies the communication between public administration and citizens (e.g. office website or public service catalog).

20. (a)

Several notorious cases that have received a great deal of media attention in the past few years have led engineers to gain an increased sense of their professional responsibilities.

These cases have led to an awareness of the

importance of ethics within the engineering profession as engineers realize how their technical work has far-reaching impacts on society. The work of engineers can affect public health and safety and can influence business practices and even politics.

21. (d)

Ethical issues can be issues of public safety and may involve bribery, fraud, environmental protection, fairness, honesty in research and testing, and conflicts of interest.

22. (b)

Moral and ethics are part of values as moral values and ethical values. Ethics is conscience based, morals is based on coded or principles.

23. (d)

Professional Ethical Obligations of Engineers

1. Engineers shall be guided in all their relations by the highest standards of honesty and integrity.
2. Engineers shall at all times strive to serve the public interest.
3. Engineers shall avoid all conduct or practice that deceives the public.
4. Engineers shall not, without the consent of all interested parties, promote or arrange for new employment or practice in connection with a specific project for which the engineer has gained particular and specialized knowledge.
5. Engineers shall not be influenced in their professional duties by conflicting interests.
6. Engineers shall not attempt to obtain employment or advancement or professional engagements by untruthfully criticizing other engineers, or by other improper or questionable methods.
7. Engineers shall not attempt to injure, maliciously or falsely, directly or indirectly, the professional reputation, prospects, practice, or employment of other engineers. Engineers who believe others are guilty of unethical or illegal practice shall present such information to the proper authority for action.
8. Engineers shall accept personal responsibility for their professional activities,

provided, however that engineers may seek indemnification for services arising out of their practice for other than gross negligence, where the engineer's interests cannot otherwise be protected.

9. Engineers shall give credit for engineering work to those to whom credit is due, and will recognize the proprietary interests of others.

24. (a)

The Seven Social Sins, as quoted by Mahatma Gandhi in "Young India," 1925 are:

1. Politics without principles
2. Wealth without work
3. Leisure without conscience.
4. Knowledge without character
5. Commerce without morality
6. Science without humanity
7. Worship without sacrifice

25. (b)

The role of ethics in public life has many dimensions. At one end is the expression of high moral values and at the other, the specifics of action for which a public functionary can be held legally accountable. Any framework of ethical behaviour must include the following elements:

- a. Codifying ethical norms and practices.
- b. Disclosing personal interest to avoid conflict between public interest and personal gain.
- c. Creating a mechanism for enforcing the relevant codes.
- d. Providing norms for qualifying and disqualifying a public functionary from office.

26. (c)

Duties of non-maleficence are the duties related to non-injury. It means not to harm or to injure others. It obliges one to do one's utmost to avoid harming others.

Duties of Reparation are the duties related to making up for already happened wrongful acts. These duties apply to bad actions that have previously been undertaken, e.g. redressing wrongs.

27. (a)

Many liberal democratic countries also have provisions for Corporate Social Responsibility (CSR). Furthermore, CSR is does not always leads to loss of company, it helps in creating a good image of company which can further help the company in earning profit. CSR should be done more for social welfare and less for earning profit.

28. (c)

Li-Fi technology delivers internet speeds that are 100 times faster than conventional Wi-Fi.

The inability of light rays to pass through walls and similar structures is seen as a major drawback of this technology; it is an advantage since restriction by walls provides more security to the network and eliminates the risk of the signal leakage to eavesdropping.

29. (b)

Indian Council of Agricultural Research (ICAR) has created a network of 645 Krishi Vigyan Kendras (KVKs) in the country with assistance Directorate of Extension in State Agriculture Universities.

KVKs lay strong emphasis on skill development training of rural youth, farm women and farmers.

They provide latest technological inputs like seeds, planting materials and bio-products.

Objectives: (a) To be a frontline extension in agriculture, and to serve as a single window mechanism for addressing the technology needs of farmers. (b) To demonstrate location specific technologies and build capacity of farmers.

30. (a)

PMGDISHA is expected to make 6 crore rural households digitally literate by March 2019, making it one of the largest digital literacy programmes in the digital literacy programmes in the world.

Age group for this scheme is 14-60 years.

31. (d)

Aadhaar Virtual ID is a 16-digit temporary code that can be used for Aadhaar authentications. User can provide the UIDAI virtual ID instead of your Aadhaar number to agencies and protect your Aadhaar details from being accessed by someone else.

32. (c)

The Cyber Swachhta Kendra, apart from looking after botnets and malware, will also provide some free tools for the citizens of the country for detection and removal of malicious programmes. The free tools would be available in the Cyber Swachhta Kendra Portal. This centre is being operated by the Indian Computer Emergency Response Team (CERT-In).

33. (b)

The Project will interconnect about 15000 Police Stations and additional 5000 offices of supervisory police officers across the country.

It will digitize data related to FIR registration, investigation and charge sheets in all police stations.

It would help in developing a national database of crime and criminals.

The full implementation of the project with all the new components would lead to a Central citizen portal having linkages with State level citizen portals that will provide a number of citizen friendly services.

34. (a)

The Union Ministry of Labour and Employment launched Platform for Effective Enforcement for No Child Labour (PENCIL) Portal at National Conference on Child Labour.

The PENCIL portal is an electronic platform that aims at involving Centre, State, district, Governments, civil society and general public in achieving the target of child labour free society.

35. (d)

SUVIDHA

It is an affordable sanitary napkin launched to ensure 'Swachhta, Swasthya and Suvidha' for the underprivileged Women of India.

It has been manufactured by Bureau of Pharma Public Sector Undertaking of India.

Objective: To ensure achievement of government's vision of Affordable and Quality Healthcare for All.

The Sanitary Pad is 100% biodegradable as a special additive has been added which makes it biodegradable when reacted with Oxygen after use.

It has been launched on World Women's Day and is currently available at 3200 Janaushudhi Kendras.

36. (c)

ANTYODAYA ANNA YOJANA

Objective: To target poorest of poor population and provide them relief from hunger.

It covers 2.5 crore households covering 38% of the BPL families covered under Targeted Public Distribution System within the States.

It provides them food grains at a highly subsidized rate of Rs.1/ per kg coarse grains, Rs.2/ per kg for wheat and Rs. 3/ per kg for rice.

It is part of NFSA (National Food Security Act) and the households under AAY are entitled to 35 Kg of food grains per household per month

The States/UTs are required to bear the distribution cost, including margin to dealers and retailers as well as the transportation cost.

37. (b)

JANANI SHISHU SURAKSHA KARYAKRAM

This scheme has been launched by the Ministry of Health and Family Welfare.

Objective: (a) To mitigate the problem of out of pocket expenses which prevent institutional attendance of pregnant women (b) To provide better health facilities for pregnant women and sick neonates.

Its beneficiaries are pregnant women who access Government health facilities for their delivery.

Under this scheme, pregnant women are entitled for free drugs and consumables, free diagnostics, free blood whenever required, and free diet up to 3 days for normal delivery and 7 days for c-section in public institutions (entitlement based approach)

It also provides free transport from home to institution and supplements the cash assistance given to a pregnant woman under Janani Suraksha Yojana. It has no component for cash assistance within itself.

38. (b)

Dancing in pair is BCS theory applied for superconductor. The opposite spin electron with equal velocities are treated as dancing couple or cooper pair.

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- 39. (b)
- 40. (d)
- 41. (d)
- 42. (d)
- 43. (b)
- 44. (a)
- 45. (c)
- 46. (b)
- 47. (a)
- 48. (b)
- 49. (d)
- 50. (d)
- 51. (b)
- 52. (d)
- 53. (d)
- 54. (c)
- 55. (a)
- 56. (b)

Let the number of men in the group be x .

Job = 10 \times man days.

The total number of man days = 1 + 2 + 3 + $x = [x(x+1)]/2$

Given, $[x(x+1)]/2 = 10x$

Thus, $x = 19$. Hence (b)

- 57. (a)

In one leap, the tiger covers 3m and in one minute it covers = $12 \times 3 = 36m$

In one leap deer covers 2 mts and in one minute it covers = $16 \times 2 = 32 m$.

In 4 minutes the tiger covers 144 mts. The deer is now $200 - 144 = 56$ mts away. Now, the relative speed of tiger w.r.t . deer is $36 - 32 = 4m/min$. Time required to catch = $56/4 = 14$ minutes. Total time taken is $14 + 4 = 18$ minutes. Hence, (a)

- 58. (b)

The number of 10 rupee notes and 20 rupee notes is not given while it is given that there are four 50 rupees notes. As there are four 50 rupees notes,

so one monkey would get 2 notes and others 1 each to minimize the total number of notes. Now, total money with 1 monkey is Rs 100 while others have Rs 50 each. So if we give them 2 notes of Rs 20 and 1 note of Rs 10 each, then it makes Rs 100 to the other two also. Thus, Rs 50 notes is 4, Rs 20 notes will be 4, Rs 10 notes will be 2, which makes total notes as 10. Hence, (b)

- 59. (a)

They ring 11 times in a minute. But, since they start ringing together, so they ring 10 times together after start. Now, they will ring together after start after the L.C.M of the respective time, i.e. LCM ($x, 2x, 3x$) = $6x$ seconds. That is after every $6x$ seconds they ring together. Now, in 1 minute they will ring $60/6x$ times. Thus, $\frac{60}{6x} = 10$ or, $x = 1$. Hence, (a)

- 60. (c)

The shopkeeper gives a discount of 10 % when 5 articles are bought and a discount of 12.5% when 8 articles are bought.

Given the profit is the same.

$$\Rightarrow 5(0.9MP - CP) = 8(0.875 MP - CP)$$

$$\Rightarrow 4.5 MP - 5 CP = 7 MP - 8 CP$$

$$\Rightarrow 3 CP = 2.5 MP \Rightarrow \frac{MP}{CP} = \frac{6}{5}$$

Hence, (c)

- 61. (a)

Let the cost price be Rs 100, then he purchases at Rs 85 and sells at Rs 120. Thus, profit is $120 - 85 = 35$ and the dealer's cost price is Rs 85. (note that product CP is 100 but dealer gets if for

Rs 85 only). So, profit percentage = $\frac{35}{85} \times 100\%$ 42% approx. hence, (a)

- 62. (d)

In compound interest, if money triples in 4 years then in next four years it would again triple. So, 1200 would triple to 3600 as the amount. However, the principal would be 400 as 400 triples to 1200. So, compound interest is $3600 - 400 = 3200$. Hence, (d)

- 63. (d)

It is given that reduction in speed is directly

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proportional to weight (in kg), i.e. $R \propto \sqrt{W}$. Thus,

$$\frac{R_1}{\sqrt{W_1}} = \frac{R_2}{\sqrt{W_2}}$$

Now, in first case when speed is

21 kmph : Reduction in speed = 30- 21= 9, weight =25kgs. In the second case, when speed is 12 kmph: Reduction in speed = 30-12 =18, weight =

?. Substituting, $\frac{9}{\sqrt{25}} = \frac{18}{\sqrt{W_2}} \Rightarrow W_2 = 100$ kgs.

Hence, (d)

64. (c)

Let say there were 100 students each getting 1 chocolate i.e. 100 chocolates in all. Now, after increase total students = 150, total chocolates = 180. Thus, chocolate per student = 180/150 = 1.2 i.e. increase of 20% Hence, (c)

65. (c)

Let say there were 'x' snakes in the beginning. As, only 12.5% of 32 = 4 are able to survive and also because the mother snake herself dies so : $x \times 4 \times 4 \times 4 \times 4 \times 4 \times 4 = 12288$, then $x = 3$ i.e. there were 3 snakes in the beginning. Hence, (c)

66. (a)

67. (b)

68. (d)

69. (a)

70. (c)

71. (d)

72. (b)

73. (a)

74. (a)

75. (a)

76. (a)

The number of cusps in epicycloid is given by k

$$= \frac{R}{r}$$

where R is the radius of directing circle

and 'r' is the radius of generating circle. 'k' represents the number of cusps.

Here k = 8

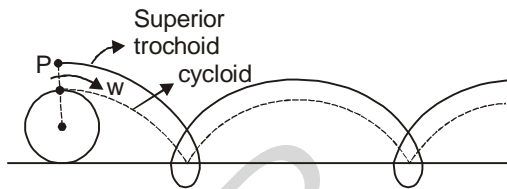
Hence the ratio will be '8'

\Rightarrow 'a' is the correct answer.

77. (b)

The scale used for measuring in two systems of units is comparative scale.

78. (b)



Hence the curve traced by point 'p' will be superior trochoid.

79. (b)

Embodiment Design is a process where the structured development of the design concepts takes place. It is in this phase that decisions are made on strength, material selection, size shape and spatial compatibility. Embodiment design is concerned with three major tasks – product architecture, configuration design, and parametric design.

1. Product architecture: It is concerned with dividing the overall design system into small subsystems and modules. It is in this step we decide how the physical components of the design are to be arranged in order to combine them to carry out the functional duties of the design.
2. Configuration design: In this process we determine what all features are required in the various parts / components and how these features are to be arranged in space relative to each other.
3. Parametric design: It starts with information from the configuration design process and aims to establish the exact dimensions and tolerances of the product. Also, final decisions on the material and manufacturing processes are done if it has not been fixed in the previous process. One of the important aspects of parametric designs is to examine if the design is robust or not.

80. (a)

Forging is the process by which a metallic part is deformed to a final shape with the application of pressure and with or without the application of

heat.

81. (d)

82. (a)

83. (c)

84. (d)

Quantitative methods are suitable for short range forecasting while Delphi method is a qualitative method.

85. (a)

Total Float = LFT- EST -activity time duration = 37-8-11 = 18 weeks

86. (b)

87. (a)

88. (d)

$$\left(\frac{30 + 22x}{60}\right) \times 200 = \left(2 + \frac{5x}{60}\right) \times 800$$

$$\Rightarrow 30 + 22x = (120 + 5x) \times 4$$

$$\Rightarrow 30 + 22x = 480 + 20x$$

$$\Rightarrow 2x = 450$$

$$\Rightarrow x = 225$$

89. (a)

90. (a)

91. (c)

92. (d)

93. (a)

94. (d)

During the process of planning, the various activities involved in the project, their sequence and their logical inter-relationships are established.

95. (d)

E-governance allows direct participation using ICT to involve multi-stakeholders in decision making and in making government open and accountable.

96. (c)

For example, designing a process that releases a known toxic, but unregulated, substance into the environment is probably unethical, although it is legal.

For example, there might be substances that were once thought to be harmful, but have now been shown to be safe, that you wish to incorporate into a product. If the law has not caught up with the latest scientific findings, it might be illegal to release these substances into the environment, even though there is no ethical problem in doing so.

97. (c)

Many of the personal ethics principle are applicable to ethical situation that occur in business and engineering, example conflict of interest etc.

98. (a)

99. (b)

100. (d)