



ANSWERS

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

1. (a)

For 2 years, difference between compound interest and simple interest

$$= P \left(\frac{r}{100} \right)^2$$

$$\therefore P \left(\frac{r}{100} \right)^2 = 200 \quad \dots(i)$$

$$\text{Also } P \times r \times \frac{2}{100} = 3000 \quad \dots(ii)$$

Using (i) / (ii)

$$\begin{aligned} \frac{\frac{r}{100}}{2} &= \frac{1}{15} \\ r &= \frac{2 \times 100}{15} \% \\ &= \frac{40}{3} \% = 13\frac{1}{3} \% \end{aligned}$$

2. (b)

Using the formula,

$$A = W \left(1 - \frac{q}{Q} \right)^n$$

where,

W = initial quantity of milk

Q = initial quantity of mixture

q = quantity that replaced

n = number of times the process is done

Hence,

$$\begin{aligned} A &= 90 \times \left(1 - \frac{9}{90} \right)^2 \\ &= 90 \times (0.9)^2 \\ &= 72.9 \text{ L} \end{aligned}$$

3. (c)

Train	Length	Speed
A	120 m	$270 \times \frac{5}{18} = 75 \text{ m/s}$
B	180 m	$180 \times \frac{5}{18} = 50 \text{ m/s}$

Train B starts and run for 20 sec.

Train B's tail is $(50 \times 20 - 180)$ m ahead of A.
= 820 m

Time taken by A to reach B's tail

$$t = \frac{820}{75 - 50} = \frac{820}{25} = 32.8 \text{ sec}$$

4. (c)

$$\frac{2^{67}}{67} = \frac{(1+1)^{67}}{67}$$

Using Binomial expansion,

$$\frac{(1+1)^{67}}{67} = \frac{{}^{67}C_0(1) + {}^{67}C_1(1) + {}^{67}C_2(1) + \dots + {}^{67}C_{66}(1) + {}^{67}C_{67}(1)}{67}$$

All the terms except 1st (${}^{67}C_0 = 1$) and 67^{th} (${}^{67}C_{67} = 1$) are divisible by 67.

Hence, remainder = $1 + 1 = 2$

5. (a)

As the last digit of 506 is 6, unit digit of two three digit numbers can be (0, 6), (1, 5), (2, 4), (3, 3), (7, 9), (8, 8).

\therefore Last digit of product of these 2 three digit number can be 0, 5, 8, 9, 3, 4.

\therefore 4 digits 1, 2, 6, 7 cannot be the last digit of product of these numbers.

6. (a)

Using Appolloneus theorem,

$$AB^2 + AC^2 = 2(AD^2 + BD^2)$$

$$(7)^2 + (9)^2 = 2[AD^2 + (4)^2]$$

$$AD^2 = 49$$

$$AD = 7 \text{ cm}$$

7. (a)

$$1^{\text{st}} \text{ term} = 3 + 3 \times 0 = 3$$

$$2^{\text{nd}} \text{ term} = 3 + 3 \times 1 = 6$$

$$3^{\text{rd}} \text{ term} = 6 + 3 \times 2 = 12$$

$$4^{\text{th}} \text{ term} = 12 + 3 \times 3 = 21$$

$$5^{\text{th}} \text{ term} = 21 + 3 \times 4 = 33$$

$$6^{\text{th}} \text{ term} = 33 + 3 \times 5 = 48$$

8. (d)

A five digit number is divisible by 3 if the sum of its digits is a multiple of 3.

Sum of six digits

$$\begin{aligned} &= 0 + 1 + 2 + 3 + 4 + 5 \\ &= 15 \end{aligned}$$

Hence, two cases arise

Case I : Use number 1, 2, 3, 4 & 5

Total number of ways = $5! = 120$

Case II : Use 0, 1, 2, 4 & 5

Total number of ways

$$= 4 \times 4 \times 3 \times 2 \times 1 = 96$$

as '0' can not be come at first place.

Total number of ways
 $= 120 + 96$
 $= 216$

9. (a)

Time from 9 a.m. today to 7 p.m. next day is 34 hours.

Clock loses 9 minutes in 2 hours.

It will lose $= \frac{9}{2} \times 34$ minutes in 34 hours
 $= 153$ minutes.

At 7 p.m. next day, it will show

7 pm + 153 minutes
 $= 7$ p.m. + 2 hours + 33 minutes
 $= 9:33$ p.m.

10. (d)

Number of hours taken by A to complete the work

$= 6 \times 6$
 $= 36$ hours

Number of hours taken by B to complete the work

$= 4 \times 8$
 $= 32$ hours

A and B can together work and complete work in 1 hour

$= \frac{1}{36} + \frac{1}{32}$
 $= \frac{68}{32 \times 36} = \frac{17}{288}$

They can complete the job in $\frac{288}{17}$ hours, if they work 5 hours a day.

Time to complete the job

$= \frac{288}{17 \times 5} = 3.4$ days

11. (c)

12. (d)

13. (b)

14. (a)

15. (a)

Tolerance = U.S.L. - L.S.L.
 $= 25 - 10 = 15$

Capability = $\frac{\text{Tolerance}}{6\sigma}$
 $= \frac{15}{6 \times 5} = \frac{15}{30} = 0.5$

16. (c)

17. (d)

Fault tree analysis can identify possible system reliability at specified design time. It also allows the user to find the potential root causes of single incident through back tracking.

18. (c)

19. (b)

20. (b)

21. (b)

The concept of moral integrity is central to the assessments of character, but it is not one more character trait. Roughly, "moral integrity" is the ethical coherence of a person's life and actions. Honesty and consistency characterized by the absence of hypocrisy or betrayal are part of the notion of moral integrity. People's values may be expected to develop over the course of their life, so moral integrity is not simple persistence in maintaining value commitments.

22. (b)

23. (c)

The area of "knowledge foundation" deals with the importance of identification of the causes of behavior.

24. (d)

25. (c)

26. (d)

27. (a)

Professional duties of an engineer:

He shall hold paramount the safety, health, and welfare of the public.

He shall perform services only in areas of their competence.

He shall issue public statements only in an objective and truthful manner.

He shall act for each employer or client as faithful agents or trustees.

He shall avoid deceptive acts.

He shall conduct themselves honorably, responsibly, ethically, and lawfully so as to enhance the honor, reputation, and usefulness of the profession.

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28. (b)

29. (b)

$$\nabla \bar{v} = 5y \hat{i} + 15y^2 \hat{j} + 6yz \hat{k}$$

$$\text{div}(\bar{v})_{(1,-1,1)} = -5 + 15 - 6 = 4$$

30. (b)

$$f'(x) = \frac{2}{3}(x+27)^{-1/3} \text{ at } P(0, 5)$$

$$= 2$$

$$\text{Slope of normal} = -\frac{1}{m} = -\frac{1}{2}$$

Equation of normal at P (0, 5) is

$$(y-5) = -\frac{1}{2}(x-0)$$

$$x + 2y - 10 = 0$$

31. (c)

32. (b)

We can rearrange

$$\frac{1}{z^2 + 4} = \frac{1}{(z + 2i)(z - 2i)}$$

Also, Poles (0, 2) lies inside $|z - i| = 2$, and Pole (0, -2) lies outside of given circle.

$$\int_c f(z) dz = 2\pi i$$

(Residue of those poles inside c)

$$= 2\pi i \text{ Res } f(2i)$$

$$= 2\pi i \frac{f}{(2i + 2i)}$$

$$= \frac{\pi}{2}$$

33. (b)

Make the equation in standard form

$$\frac{dy}{dx} + \frac{y}{x \log x} = \frac{2}{x}$$

Now, I.F = $e^{\int \frac{1}{x \log x}}$

$$= e^{\log(\log x)}$$

$$= \log x$$

34. (a)

$$PI = \frac{1}{D^2 + 3DD' + 2D'^2}(x+y)$$

$$= \frac{1}{D^2} \left[\frac{1}{1 + 3\left(\frac{D'}{D}\right) + 2\left(\frac{D'}{D}\right)^2} \right] (x+y)$$

$$= \frac{1}{D^2} \left[1 + 3\left(\frac{D'}{D}\right) + 2\left(\frac{D'}{D}\right)^2 \right]^{-1} (x+y)$$

Applying binomial approximation, we have

$$= \frac{1}{D^2} \left[1 - 3\left(\frac{D'}{D}\right) - 2\left(\frac{D'}{D}\right)^2 \right] (x+y)$$

$$= \frac{1}{D^2} [x+y - 3x] = \frac{yx^2}{2} - \frac{x^3}{3}$$

35. (b)

$$x_{n+1} = x_n - \frac{x_n^2 + 3}{2x_n}$$

$$x_{n+1} = \frac{x_n^2 + 3}{2x_n} \text{ starting from } x = 2$$

$$x_1 = \frac{7}{4}; x_2 = \sqrt{3}$$

36. (b)

$$L\{t \cos t\} = \int_0^{\infty} t e^{-st} \cos t dt$$

$$= -\frac{d}{ds} L(\cos t)$$

$$= -\frac{d}{ds} \left(\frac{s}{s^2 + 1} \right) = \frac{s^2 - 1}{(s^2 + 1)^3}$$

Putting the value of s = 3, we get,

$$\int_0^{\infty} t e^{-3t} \cos t dt = \frac{8}{1000} = 0.008$$

37. (b)

$$\begin{vmatrix} 1-\lambda & 0 & -1 \\ 2 & 1-\lambda & -1 \\ 2 & 3 & 2-\lambda \end{vmatrix} = 0$$

$$\Rightarrow (1-\lambda)[\lambda^2 - 3\lambda + 2 + 3] + 0 - 1[6 - 2 + 2\lambda] = 0$$

$$\Rightarrow \lambda^2 - 3\lambda + 5 - \lambda^3 + 3\lambda^2 - 5\lambda - 4 - 2\lambda = 0$$

$$\Rightarrow \lambda^3 - 4\lambda^2 + 10\lambda - 1 = 0$$

From Cayley-Hamilton theorem, R must satisfy its characteristic equation.

$$\therefore R^3 - 4R^2 + 10R - I = 0$$

38. (a)

If two variables are independent

$$E[xy] = [E(x) \cdot E(y)] \text{ i.e. } \text{Cov}(x, y) = 0$$

\therefore r(\text{correlation coefficient})

$$r = \frac{\text{Cov}(x, y)}{\sqrt{\text{var}(x)} \sqrt{\text{var}(y)}} = 0$$

39. (b) A Work Breakdown Structure dictionary is a document that provides a detailed information about each element in WBS including work packages and control accounts.
40. (d) According to PMBOK Guide, "the project charter is an official document that formally authorise a project or a phase and document initial requirements which satisfy the stakeholder's needs and expectations.
41. (d)
42. (a) The Critical Path Method is an algorithm for scheduling a set of project activities. The CPM calculates the longest path of planned activities to logical end points or to the end of the project and the earliest and latest that each activity can start and finish without making the project longer.
43. (a) Projects with high uncertainty are likely to be especially difficult to define.
44. (d) Project status report can be an input to risk management. However, when completing risk management for the first time you don't have the project status report.
45. (b) Project is a temporary endeavour undertaken to create a unique product, service or result. Although portfolio management decides the priority of the projects but it does not supervise the individual project.
46. (d) A project can be part of a program but a program cannot be a part of a project. Portfolio Management has a bigger scope and objective than program management.
47. (d) Delphi Method is a group, process and aim at achieving a consensus or opinion of the members.
48. (d)
49. (a)
50. (c) The Integrated Child Development Service (ICDS) Scheme providing for supplementary nutrition, immunization and pre-school

education to the children is a popular flagship programme of the government. It is one of the world's largest programs providing for an integrated package of services for the holistic development of the child. ICDS is a centrally sponsored scheme implemented by state governments and union territories.

The prime objectives are to improve the nutritional and health status of children in the age-group 0-6 years; to lay the foundation for proper psychological, physical and social development of the child; to reduce the incidence of mortality, morbidity, malnutrition and school dropout; to achieve effective co-ordination of policy and implementation amongst the various departments to promote child development; and to enhance the capability of the mother to look after the normal health and nutritional needs of the child through proper nutrition and health education.

The chief beneficiaries are children in the age group of 0-6 years, pregnant women and lactating mothers. The ICDS Scheme offers a package of six services that are supplementary nutrition, pre-school non-formal education, nutrition and health education, immunization, health check-up and referral services.

51. (c)

INS Viraat

INS Viraat, the second aircraft carrier in the Indian naval fleet is soon to be decommissioned. INS Vikrant is India's first aircraft carrier.

INS Viraat is the second centaur class aircraft carrier in service.

Earlier known as HMS Hermes, it served Royal Navy of UK from 1950 to 1980 and later re-commissioned in Indian Navy in 1987.

It holds the Guinness Record for being the oldest-serving warship.

It played a pivotal role in the Indian peacekeeping operations in Sri Lanka and the 1999 Kargil War.

It also took part in major operations like Op. Parakram –a India Pakistan in the LOC and Op. Pawan by IPKF to take control of Jaffna from the LTTE as part of the Indo-Sri Lankan accord.

The latest deployment of Viraat was in the International Fleet Review (IFR-2016) at Visakhapatnam.

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52. (c)

Zero Defect, Zero Effect Scheme

The scheme has been launched specifically for MSME sector.

ZED Scheme aims to rate and handhold all MSMEs to deliver top quality products using clean technology.

The main objective of ZED (Zero Effect, Zero Defect) scheme is to reduce the bad effect of products on environment.

It will have sector-specific parameters for each industry.

53. (d)

Deposit Scheme for Female Child:

The Government of India has notified a small deposit scheme for the girl child to provide for her higher education and marriage. The 'Sukanya Samridhi' prescribes opening of a deposit account with post offices in the name of a girl child by her biological parent or legal guardian.

The account can be opened in the name of a girl child at the time of her birth till she attains the age of 10. A girl child who attains the age of 10 years a year prior to the commencement of new scheme will also be allowed to open an account.

The minimum deposit amount is Rs. 1, 000/- every year in multiples of Rs. 100 every year. If the minimum amount is not deposited, there will be fine Rs. 50 for every year of default. A maximum of Rs. 1.5 lakh can be deposited in one financial year.

The deposit is to be made for 14 years from date of opening of account, which will be operated by the parents or legal guardian till the girl child attains the age of 10 years from the date of opening of account.

However, one can withdraw half of the balance (at the end of preceding financial year) for her higher education and marriage, but only after the girl attains the age of 18 years.

The account will be closed if the girl marries before the maturity period. One girl is allowed only one account and parents can open such an account for a maximum to two girl's children.

54. (d)

The main artery of BCIM is the 2,800-km, Kolkata-Dhaka- Mandalay- Kunming corridor

which is nearly ready. A stretch of less than 200 km, from Kalewa to Monywa in Myanmar, needs to be upgraded as an all-weather road.

The second is the segment between Silchar in Assam and Imphal in Manipur, which India is upgrading. At present, this route is problematic because it enters a small portion of Arunachal Pradesh over which India and China have a territorial dispute. Besides, a part of this stretch is insurgency-prone.

55. (b)

G20 :

The Group of Twenty (G20) is the central forum for international cooperation on financial and economic issues. The G20 countries account for more than four-fifths of gross world product and three-quarters of global trade, and are home to almost two-thirds of the world's population. Its decisions are influential and help to bring about reform at national and multinational levels.

Members :

The G20 comprises 19 countries plus the EU. These countries are Argentina, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Mexico, Russia, Saudi Arabia, South Africa, South Korea, Turkey, the United Kingdom (UK) and the United States of America (US).

Issues discussed in G20 :

The G20 heads of state and government traditionally focus on issues concerning global economic growth, international trade and financial market regulation. They endeavour in particular to strengthen the global financial system and to improve the supervision and regulation of financial market participants, including what is known as the shadow banking system. The aim is to ensure that no financial market, financial market participant or financial product remains unsupervised.

Furthermore, the G20 constantly addresses ways to achieve strong, sustainable and balanced global economic growth and to boost employment.

56. (c)

The proposal for a National Health Rights Act comes after a debate on whether India should pass a Bill to make health a fundamental right as was done for education. "Many industrialised nations have laws that do so.

Many of the developing nations that have made significant progress towards universal health coverage, such as Brazil and Thailand

It will replace National Health Policy, 2002 which aims at equity, narrowing the gap between states, organizing urban primary care structure, decentralized mental health services and imparting preventive health education.

57. (b)

THE MEGA DEAL
Worth Rs. 60,000 crore, (7.8 billion Euros), Rafale is one of the biggest defence deals India has ever signed

India and France are expected to sign the agreement for purchase of 36 Rafale fighters on Friday in presence of the Defence Ministers of both the countries

Rafale is a strategic weapon in the hands of the IAF due to its beyond visual range Meteor air-to-air missile, with a range in excess of 150 km

KEY QUESTIONS

- A very expensive acquisition
- Will further add to the logistics challenge for the Air Force, which operates several kinds of Russian and NATO fighters
- Given the high cost, more Rafale fighters may not be acquired
- Air Force has a need for at least 42 fighter squadrons; it now has only 33

Average fighter would cost over Rs 1,600 crore, three times a Sukhoi-30 fighter

SERVICE SUPPORT

- France will carry out performance-based logistics support — at all times, at least 75 per cent fighters will be airworthy

75%

• With Rafale's BVR air-to-air missile, IAF can hit targets inside Pakistan from India's territory

• Rafale deal comes with a net saving of nearly 750 million Euros compared with the one struck during the previous government, which was scrapped by the NDA, besides a 50 per cent offset clause

58. (d)

59. (d)

Any practice that affects the equilibrium of an aquatic environment may alter the temperature of that environment and subsequently cause thermal pollution.

Source of Thermal Pollution :

Volcanic eruption or geothermal activities below the ocean

Heated waste water produces from coal based power plant, textile paper and pulp industry.

Deforestation and decreasing tree coverage

Soil erosion

60. (c)

India signed Global Environment Facility (GEF) Grant agreement with the World Bank for "Ecosystems Service Improvement Project.

61. (c)

Recently, Supreme Court imposed a ban on the use of antimony, lithium, mercury, arsenic and lead in the manufacture of firecrackers to prevent air pollution.

62. (b)

Kigali agreement to amend the Montreal Protocol [2016]:

Aim : To phase out Hydrofluorocarbons (HFCs), a family of potent greenhouse gases by the late 2040s.

It will be binding on countries from 2019.

63. (c)

Global Partnership on Wildlife Conservation and Crime Prevention for sustainable development" program also known as Global Wildlife Program (GWP) was launched in response to increasing crime against animals in natural habitat.

64. (d)

Important Components of NWAP 2017-2031: Strengthening and promoting the integrated management of wildlife and their habitats

Adaptation to climate change and promoting integrated sustainable management of aquatic biodiversity in India.

Promoting eco-tourism, nature education and participatory management

Strengthening wildlife research and monitoring of development of human resources in wildlife conservation

Enabling policies and resources for conservation of wildlife in India

65. (a)

The UNFCCC Climate Change Conference (COP23) was held in Bonn, Germany and was presided over by Government of Fiji.

It concluded with countries putting in place a roadmap for 'Talanoa Dialogue', a year-long process to assess countries' progress on climate actions.

The Conference also made progress on framing rules for implementing 2015 Paris Agreement on climate change and brought rich nations on board on their pre-2020 commitments as demanded by developing nations.

66. (d)

The amount of carbon dioxide in the earth's atmosphere grew at record rate in 2016 to a level not seen for millions of years.

According to the UN, this will result in a 20-metre rise in sea levels and adding 3 degrees to temperatures.

67. (c)

PRAGATI is unique integrating and interactive platform. The platform is aimed at addressing

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common man's grievances, and simultaneously monitoring and reviewing important programmes and projects of the Government of India as well as projects flagged by State Governments.

PRAGATI platform uniquely bundles three latest technologies: Digital data management, video-conferencing and geo-spatial technology.

68. (a)

Bharat QR Code

The QR code has been developed by National Payment Corporation of India (NPCI).

It is a common QR code built for ease of payments.

It is a standard that will support Visa, Master card and Rupay cards for wider acceptance.

It will enable the merchants to accept digital payments without the Point of Sale (PoS) swiping machine.

It will allow customers of any bank to use their Smartphone app to make payment using their debit card.

QR code is a two dimensional machine readable code made up of black and white squares.

It used for storing URLs or other information. These can be read by camera of a Smartphone.

It can handle all types of data, such as numeric and alphabetic, Kanji, Kana, Hiragana, symbols, binary, and control codes.

QR Codes can be used for printed matters such as fliers and name cards, payment system, business purposes and in logistics operations.

69. (d)

The vision of Digital India Program (DIP) centers around the following three Key areas:

1. Infrastructure as a utility to every citizen.
2. Governance and services on demand;
3. Digital empowerment of citizens

DIP has also identified nine pillars that are essential for achieving the three key areas. These pillars are:

1. Broadband Highways
2. Universal Access to Mobile connectivity
3. Public Internet Access Programme

4. E-Governance
5. eKranti-electronic delivery of services
6. Information for all
7. Electronics Manufacturing
8. IT based jobs
9. Early Harvest Programmes which include e-greetings and provisions for biometric attendance in the government offices.

70. (b)

Key Features:

GAGAN works by augmenting and relaying data from GPS satellites with the help of two augmentation satellites and 15 earth-based reference stations.

The process corrects any anomalies in the position data and gives accurate routes, landing guidance and time saving information to the pilots.

GAGAN also fills a vital gap between EU's European Geostationary Navigation Overlay Service (EGNOS) and Japan's Multi-functional Satellite Augmentation System (MSAS) coverage areas.

The system utilizes the satellite-based wide area augmentation system (SBAS) technology which has been developed by Raytheon.

GAGAN has been jointly developed by the Indian Space Research Organisation (ISRO) and Airports Authority of India (AAI).

71. (c)

e-Biz Mission Mode Project

An online e-biz Mission Mode Project under the National e-Governance Plan has been conceptualized by the DIPP.

The project aims to create an ecosystem by making all business and investment related regulatory services across Central, state and local governments available on a single portal. The project has been designed on a PPP model, and the concessionaire has been awarded the project for a period of 10 years.

The first 3 years of the term would be the pilot phase, while the remaining 7 years will be the expansion phase, wherein the project will be expanded to cover the whole country.

The e-Biz portal currently provides 20 Central government services pertaining to pre-registration, registration and filing services.

72. (b)

E-Pathshala has been developed by NCERT for showcasing and disseminating all educational e-resources including textbooks, audio, video, periodicals and a variety of other print and non-print materials through website and mobile app.

The platform addresses the dual challenge of reaching out to a diverse clientele and bridging the digital divide (geographical, socio-cultural and linguistic), offering comparable quality of e-contents and ensuring its free access at every time and every place.

73. (a)

It provides mobile access to parents of students of Government and Government aided schools. It is presently under implementation through National Informatics Centre Services Inc.

The objective of this project is to provide services based on School Management Systems to Students, Parents and Communities.

It includes School Profile Management, Student Profile Management, Employee Information, Student Attendance, Leave Management, Report Cards, Curriculum Tracking Custom, SMS Alerts for Parents / Administrators on student & teacher attendance.

74. (d)

Chandrayaan 2, India's second mission to the Moon, is an advanced version of the previous Chandrayaan-1 mission. It consists of an Orbiter, Lander and Rover configuration.

It is planned to be launched as a composite stack into the Earth Parking Orbit (EPO) of 170 X 18,500 km by GSLV-Mk II.

In 2010, it was agreed that Russian Space Agency ROSCOSMOS would be responsible for lunar Lander and ISRO will be responsible for Orbiter and Rover as well as Launch by GSLV.

Later, due to a shift in the programmatic alignment of this mission, it was decided that the Lunar Lander development would be done by ISRO and Chandrayaan-2 will be totally an Indian mission.

75. (c)

Web Based School GIS application is an initiative of the Department of School Education

and Literacy, Ministry of Human Resources Department, Government of India for seamless visualization of school locations across the country.

In this application, base map services like street maps, and high resolution satellite images are available for better understanding of the topography/ terrain of the location.

This web service application comprises of administrative boundaries up to village level and location information up to habitation level along with basic GIS functionalities and measurement tools which will help to improve the quality of planning and better utilization of resources available under the Sarva Shiksha Abhiyan (SSA) and Rashtriya Madhyamik Shiksha Abhiyan (RMSA).

76. (b)

Following are the advantages of E-Governance:

Speed : Technology makes communication speedier.

Cost Reduction : Internet and Phones makes communication cheaper saving valuable money for the Government.

Transparency : Use of ICT makes governing profess transparent. All the information of the Government would be made available on the internet. The citizens can see the information whenever they want to see.

Accountability : Once the governing process is made transparent the Government is automatically made accountable.

Convenience : E-Government brings public services to citizens on their schedule and their venue.

Improved Customer Service : E-Government allows to redeploy resources from back-end processing to the front line of customer service.

Increased access to information : E-Government improves the accessibility of government information to citizens allowing and helps in empowerment of citizens

77. (a)

78. (c)

When auxiliary plane is set parallel to TV, θ can be found.

79. (b)

To obtain the TL of a line, auxiliary plane is set parallel to FV or TV.

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80. (a) Since auxiliary plane is parallel to the edge view, so the auxiliary view obtained gives the true shape of the plane. Hence statement I is correct.
- To obtain θ_p , a line is drawn parallel to XY line in the final TV. Hence statement II is false.
81. (c) For a hexagonal prism inclined at 30° to HP and 60° to UP, its base will make 60° with the HP.
82. (d) All the options are correct that is none is wrong statement.
83. (c)
84. (b)
85. (c)
86. (d)
87. (a)
88. (c)
89. (c)
90. (c)

91. (a)
92. (a)
93. (d) FMEA is an easy to use and yet powerful proactive engineering quality method that helps to identify and counter weak points in the early conception phase of products and processes.
94. (b)
95. (b) Wild-Life photographer captured a rare 'white tiger' with pale skin colour has been spotted for the first time in the Nilgiris.
- Tiger was whitish with golden brown patches and not seems to be albino.
96. (c) The high carbon dioxide concentration is due to combination of human activities and EL Nino Event.
97. (c)
98. (a)
99. (d)
100. (a)

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