



ACE

Engineering Academy

TEST ID: 612

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ESE- 2019 (Prelims) - Offline Test Series

Test-23

GENERAL STUDIES AND ENGINEERING APTITUDE

FULL LENGTH MOCK TEST- 2 (PAPER- I) SOLUTIONS

01. Ans: (d)

Sol: National institute of standards and technology organises Baldrige quality award in USA.

JUSE organises Deming's prize

EFQM organises European quality award.

BIS organises Rajiv Gandhi Quality award.

02. Ans: (d)

Sol: DMAIC (Define, Measure, Analyse, Improve and Control) is used to improve a process.

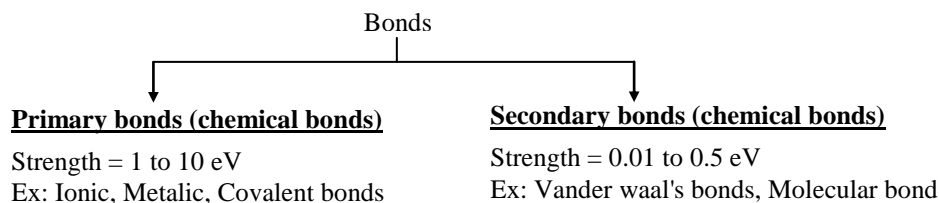
DMADV (Define, Measure, Analyse, Design and Verify) is used to develop a new process.

03. Ans: (c)

Sol: Reluctance $\propto \frac{1}{\text{Permeability}}$

04. Ans: (c)

Sol:





05. Ans: (c)

Sol: For FCC structure

$$4R = \sqrt{2} a$$

$$a = \frac{4R}{\sqrt{2}}$$

$$\text{volume of unit cell} = a^3 = \left(\frac{4R}{\sqrt{2}}\right)^3 = \frac{64R^3}{2\sqrt{2}} = 16\sqrt{2} R^3$$

06. Ans: (c)

Sol: CITES (the Convention on International Trade in Endangered Species) of Wild Fauna and Flora, also known as animals.

It was drafted as a result of a resolution adopted in 1963 at a meeting of members of the International Union for Conservation of Nature (IUCN).

Its aim is to ensure that international trade in specimens of wild animals and plants does not threaten the survival of the species in the wild.

It is administered through United Nations Environment Programme (UNEP). Its secretariat is located in Geneva (Switzerland).

07. Ans: (b)

Sol: Biodiversity conservation is of two types

In-situ → Sanctuaries, National park, Biosphere reserves.

Ex-Situ → Zoological parks, Botanical gardens, seed & gene bank, cryopreservation aquaculture.

Captive breeding is the process of maintaining plants or animals in controlled environments, such as wildlife reserves, zoo's, botanic gardens and other conservation facilities.

08. Ans: (a)

Sol: The National Green Tribunal has been established on 18.10.2010 under the National Green Tribunal Act 2010 for effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources including enforcement of any legal right relating to environment and giving relief and compensation for damages to persons and



property and for matters connected therewith or incidental thereto. It is a specialized body equipped with the necessary expertise to handle environmental disputes involving multidisciplinary issues. The Tribunal shall not be bound by the procedure laid down under the Code of Civil Procedure, 1908, but shall be guided by principles of natural justice. The Tribunal's dedicated jurisdiction in environmental matters shall provide speedy environmental justice and help reduce the burden of litigation in the higher courts. The Tribunal is mandated to make and endeavour for disposal of applications or appeals finally within 6 months of filing of the same. Initially, the NGT is proposed to be set up at five places of sittings and will follow circuit procedure for making itself more accessible. New Delhi is the Principal Place of Sitting of the Tribunal and Bhopal, Pune, Kolkata and Chennai shall be the other four places of sitting of the Tribunal.

09. Ans: (c)

Sol: United Nations Framework Convention on Climate Change:

REDD+ is a climate change mitigation solution being developed by Parties to the United Nations Framework Convention on Climate Change (UNFCCC).

REDD+ Incentivizes developing countries to keep their forests standing by offering results-based payments for actions to reduce or remove forest carbon emissions.

UN-REDD PROGRAMME

The UN-REDD Programme assist countries to develop the capacities needed to meet the UNFCCC'S REDD+ requirements, so that they can qualify to receive results-based payments under the Convention.

The UN-REDD Programme supports nationally-led REDD+ process and promotes the informed and meaningful involvement of all stakeholders, including indigenous peoples and other forest-dependent communities.

10. Ans: (a)

Sol: The Kartarpur corridor involves a road link for Sikh pilgrims to visit the famous Kartarpur Sahib Gurdwara in Pakistan, which is around three-four km from the International Border. The 16th century Gurdwara Darbar Sahib Kartarpur on the banks of the river Ravi is important for Sikhs as Guru Nanak Dev, their main guru, spent 18 years here. For decades, Sikh devotees have been



demanding that India and Pakistan collaborate to build a corridor linking it with the Dera Baba Nanak in Gurdaspur district. Former prime minister Atal Bihari Vajpayee had first suggested the corridor when he took the bus trip to Lahore in 1999.

11. Ans : (c)

12. Ans: (a)

13. Ans: (b)

14. Ans: (c)

Sol: Days remaining after 60 days work = $120 - 60 = 60$ days

Work remaining = $360 \text{ m} - 120 \text{ m} = 240 \text{ m}$

| Men | Days | Work |
|-----|------|------|
| 30 | 60 | 120 |
| x | 60 | 240 |

$$\text{Men required} = 30 \times \frac{60}{60} \times \frac{240}{120} = 60 \text{ men}$$

\therefore Additional men required = $60 - 30 = 30$ men

15. Ans: (d)

Sol: Let $y = \frac{x-7}{x^2+5x-36} > 0$

$$\Rightarrow y = \frac{(x-7)}{(x+9)(x-4)} > 0$$

From the given option,

(i) if we substitute $x = -12$, $y < 0$

(ii) if we substitute $x = 9$, $y > 0$

(iii) if we substitute $x = -9$, y is not defined

(iv) if we substitute $x = -8$, $y > 0$

\therefore x can be 9 or -8

as -8 is the least out of the 2 values



16. Ans: (b)

$$\text{Sol: Let } X^{\frac{1}{P}} = \left\{ \frac{4^{p+\frac{1}{4}} \times \sqrt{2 \times 2^p}}{2 \times \sqrt{2^{-p}}} \right\}^{1/p}$$

Write all the terms in terms of base 2

$$\text{Then } (2)^{2p+\frac{1}{2}} \times 2^{\frac{1}{2}} \times 2^{\frac{P}{2}} \times 2^{-1} \times 2^{\frac{P}{2}} = X$$

$$= 2^{2p+\frac{1}{2}+\frac{1}{2}+\frac{P}{2}-1+\frac{P}{2}} = 2^{3p} = (2^3)^p \text{ or } 8^p$$

$$X = 8^p$$

$$X^{\frac{1}{P}} = 8^{\frac{P}{P}} = 8$$

17. Ans: (a)

$$\text{Sol: } (81 \times 2) \div 3 = 54$$

$$(54 \times 2) \div 3 = 36$$

$$(36 \times 2) \div 3 = 24$$

$$(24 \times 2) \div 3 = 16$$

18. Ans: (a)

$$\text{Sol: Relative speed (sum) of the trains} = \frac{420}{6} = 70 \text{ km/h}$$

$$\therefore \text{Speed of the slower train} = \frac{70-10}{2} = 30 \text{ km/h}$$

19. Ans: (c)

Sol: Let the total sum be ₹ 100.

$$\text{Then total interest on ₹ 100} = 40 \times 15\% + 30 \times 10\% + 30 \times 18\%$$

$$= 6 + 3 + 5.4 = 14.4 = 14.4\%$$



20. Ans: (c)

Sol: Digital Signature is a method where we are protecting the documents with the help of encryption and decryption.

It provides a property such as integrity, non forgeable and non repudiation while elasticity and scalability related with cloud computing.

21. Ans: (d)

Sol: Whenever multiple users have irregulated access to a single line, there is a danger of signals overlapping and destroying each other, ethernet provides solutions in this. This is having standard IEEE 802.3 not IEEE 802.11 which is used in wifi.

It uses 48-bit representation to communicate between different devices.

22. Ans: (a)

Sol: Statement (1) is definition of digiSevak while statement (2) is objective of DigiShala.

23. Ans: (b)

24. Ans: (d)

Sol: The line which is equidistance from a plane is said to be parallel to it. The line which is parallel to two perpendicular planes will be perpendicular to other perpendicular plane to the earlier planes.

25. Ans: (a)

Sol: Free float is a permissible delay without affecting succeeding activity.

26. Ans: (a)

27. Ans: (b)



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28. Ans: (d)

Sol: Inventory carrying (holding) costs are the costs associated with holding inventory.

- Obsolescence
- Inventory shrinkage
- Storage costs
- Handling costs
- Insurance costs
- Taxes
- Interest charges
- Opportunity cost

29. Ans: (b)

Sol: A professional, for a successful profession needs to be with integrity, honesty as well as transparency.

30. Ans: (d)

Sol: Regulations should be minimal and simple

31. Ans: (b)

Sol: The Auxiliary equation is

$$D^2 - 2D + 1 = 0$$

$$\Rightarrow (D - 1)^2 = 0$$

$$\Rightarrow D = 1, 1$$

The general solution is

$$f(x) = (C_1 + C_2x)e^x \dots\dots\dots (1)$$

Given: $f(0) = 1, (1) \Rightarrow 1 = C_1$

$$f(1) = 0, (1) \Rightarrow 0 = (C_1 + C_2)e$$

$$\Rightarrow 0 = (1 + C_2)e$$

$$\Rightarrow C_2 = -1$$



∴ The solution is $f(x) = (1 - x)e^x$

$$f(0.5) = (1 - 0.5)e^{0.5} = 0.5e^{0.5}$$

$$f(0.5) = 0.825$$

32. Ans: (b)

Sol: $\cos 2x, \sin 2x$ are linearly independent solutions hence the roots of auxiliary equation are $m = \pm 2i$.

$$\Rightarrow m^2 + 4 = 0$$

\Rightarrow The differential equation is $\frac{d^2 y}{dx^2} + 4y = 0$

33. Ans: (b)

Sol: Given $(D^2 + 2D + 5)y = 0$

The Auxiliary equation is

$$D^2 + 2D + 5 = 0$$

$$\Rightarrow D = -1 \pm 2i$$

The solution is

$$y = (c_1 \cos 2x + c_2 \sin 2x) e^{-x}$$

$$\Rightarrow \frac{dy}{dx} = -e^{-x} [c_1 \cos 2x + c_2 \sin 2x] + e^{-x} [-2c_1 \sin 2x + c_2 2 \cos 2x]$$

$$y(0) = 1 \Rightarrow 1 = c_1$$

$$\left(\frac{dy}{dx} \right)_{x=\pi/4} = 0$$

$$\Rightarrow 0 = -e^{-\pi/4} [c_2 + 0] + e^{-\pi/4} [0 - 2c_1]$$

$$\Rightarrow c_2 = -2c_1$$

∴ The solution is

$$y = e^{-x} [\cos 2x - 2 \sin 2x]$$



34. Ans: (c)

Sol: Given $I = \int_C \frac{1}{z^2+1} dz$ where C is $|z-i|=1$

The integrand function $\frac{1}{z^2+1}$ has singular points at $z = \pm i$.

But only $z = i$ lies inside C .

\therefore By Cauchy's Integral Formula, we have

$$\begin{aligned} I &= \int_C \frac{1}{z^2+1} dz \\ &= \int_C \frac{1}{(z+i)(z-i)} dz \\ \Rightarrow I &= \int_C \frac{\left(\frac{1}{z+i}\right)}{z-i} dz = 2\pi i \left(\frac{1}{z+i}\right)_{z=i} \\ \therefore I &= 2\pi i \left(\frac{1}{i+i}\right) = \pi \end{aligned}$$

35. Ans: (b)

Sol: Vectors are linearly dependent if $\det(A) = 0$.

$$\begin{vmatrix} 1 & x & 3 \\ 2 & 6 & 4 \\ 1 & x & 2 \end{vmatrix} = 0$$

$$\Rightarrow (12 - 4x) - x(4 - 4) + 3(2x - 6) = 0$$

$$\Rightarrow 12 - 4x + 6x - 18 = 0$$

$$\Rightarrow 2x - 6 = 0$$

$$\therefore x = 3$$



36. Ans: (a)

Sol: Let, $V_1 = 60$ km/hr

$$\text{Then, } D = S \times T = 60 \times \frac{1}{2} = 30\text{km}$$

$$\text{Case 2: Distance in 1}^{\text{st}} 10 \text{ min} = S \times T = 60 \times \frac{1}{6} = 10\text{km}$$

i.e. Remaining 20 km covered in 30 min

$$\therefore \text{Speed for remaining distance} = \frac{D}{T} = \frac{20}{\left(\frac{1}{2}\right)} = 40 \text{ km / hr}$$

i.e. $V_2 = 40$ km/hr

$$\begin{aligned} \text{Average speed} &= \frac{\text{total distance}}{\text{total time}} \\ &= \frac{30 \text{ km}}{(10 + 5 + 30) \text{ min or } \left(\frac{3}{4}\right) \text{ hr}} = 40 \text{ km / hr} \end{aligned}$$

Required ratio = 40:40 or 1:1

37. Ans: (d)

Sol: Since 11, 7, 5 & 3 are prime numbers; their powers must be multiples of 3.

Then, $p = 2$, so that $p + 7$ is div by 3.

$q = 2$, so that $q - 2$ is zero, and 7^{q-2} becomes 1.

$r = 2$, so that $r + 1$ is div by 3

$s = 3$, so that it is div by 3

$$\therefore \text{min. value of } (p + q + r + s) = 2 + 2 + 2 + 3 = 9$$

Hint: Elevens are 9, fives are 3, threes are 3

\therefore The given number is a perfect cube.



38. Ans: (b)

Sol: The given expression

$$\begin{aligned} &= 4(x^2+4-4x) + 4(y^2+9-6y) - 2(x^2+9-6x) \\ &= 2x^2-4x+4y^2-24y+34 \\ &= 2(x^2-2x+1) + 4(y^2-6y+9)+34-2-36 \\ &= 2(x-1)^2 + 4(y-3)^2 - 4 \end{aligned}$$

As the least value of any perfect square is zero,

$$2(x-1)^2 + 4(y-3)^2 - 4 = 2(0) + 4(0) - 4 = -4$$

∴ least value of the given expression is -4

39. Ans: (d)

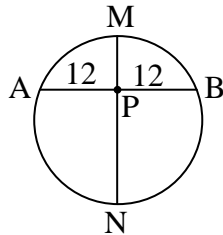
Sol: $-100 + (-95) + (-90) + \dots + (90) + (95) + (100) + (105) + (110) + (115) + (120)$

All the terms from -100 to +100 will get cancelled

$$\therefore \text{sum of the series} = 105 + 110 + 115 + 120 = 450$$

40. Ans: (b)

Sol:



Perpendicular bisector divides the chord into 2 equal parts.

Since the 2 chords AB and MN intersect at P inside the circle, we have

$$AP \times BP = PM \times NP$$

$$\text{i.e. } 12 \times 12 = 8 \times NP$$

$$\therefore PN = 18 \text{ cm}$$

41. Ans: (c)

Sol: A major benefit of the cultural pattern is predictability. A surprise is a shock to this predictability which may disturb peace.



42. Ans: (d)

Sol: If there is a significant deviation from the plan, it has to be modified or scrapped.

43. Ans: (b)

Sol: Reliability is related to mean time between failures (MTBF), otherwise probability is a meaningless number for time oriented products.

44. Ans: (b)

Sol: Reliability program spans full product life cycle i.e., cradle to grave. Quantification also helps to refine certain traditional design tasks like stress analysis.

45. Ans: (a)

Sol: The philosophy of 5S is good workplace prevents defects and accidents. It also involves elimination of time wasted in searching for tools and documentation.

46. Ans: (c)

Sol: In a stainless steel alloy minimum chromium is 11% and nickel is 8%.

47. Ans: (c)

Sol: Hyper-eutectoid steel contain 0.8%C to 2.1%C.

48. Ans: (c)

Sol: Invar is an alloy of 36% of nickel and 64% of Fe.

It is used in objects that require high dimension stability because of low coefficient of thermal expansion.

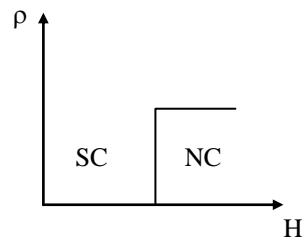
49. Ans: (b)

Sol: Super conductor is a perfect conductor with zero resistivity and infinite conductivity below a particular critical temperature.

In type-I super conductor, sudden loss of superconductivity takes place with only two states.



The maximum magnetic flux density is varying from 0.1 to 1 tesla.



50. Ans: (c)

51. Ans: (b)

Sol: Speciation is generally a function of time and environmental stability, so if conditions are too harsh, it is difficult for the species to survive and adapt. This results in decrease in biodiversity towards the poles.

52. Ans: (d)

53. Ans: (d)

54. Ans: (a)

55. Ans: (b)

56. Ans: (c)

Sol: A centralized electronic platform for processing interest subvention on bank loans to beneficiaries under Deendayal Antyodaya Yojana – National Urban Livelihoods Mission (DAY-NULM) named “PAiSA – Portal for Affordable Credit and Interest Subvention Access”, was launched here today. The web platform has been designed and developed by Allahabad Bank which is the Nodal bank.

57. Ans: (d)

Sol: NOFN is a telecom infrastructure provider setup by GOI under telecom department for the establishment management and operation to provide 100 mbps connectivity to all 2,50,000 gram panchayats in the country.



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58. Ans: (d)

Sol:

- Volunteer computing is where user is contributing his own processor/memory for some research. For example: SETI @ home.
- Super computer uses parallel computing where it divides its problem into multiple problems and executes parallelly.
- Distributed computing where problem is distributed among many processor's and memory.

59. Ans: (c)

Sol: Statement (1): Micro processing is made for electronic digital systems, that performs various tasks in computer.

Statement (2): Statement (2) is definition of multimedia.

60. Ans: (b)

Sol: There are two types of modes that processor executes. One is called user mode, other system mode, when user provides some input and CPU reacts on it then its comes under user mode.

So, option (a) is incorrect.

When CPU reacts on input given by OS then it comes under system mode hence option (b) is correct.

Simplex mode, it allows one way sending and receiving traffic, not related to working of CPU.

Hence, option (c) is incorrect.

61. Ans: (c)

Sol: According to it act 2000 and section 66D.

62. Ans: (d)

Sol: Statements 1 and 2 are correct:

Performance codes are stated in terms of specific requirements that are expected to be achieved.

The approach of achieving the performance codes are not specified (which implies that the creativity of the designer is at use).



Example As per ISO 9001:2015 Quality Standard Systems:

Section 4.4

“The organization shall establish, implement, maintain and continually improve a quality management system”

This means that organization shall design and establish a process which will be maintained, implemented to continually improve the condition of the organization.

Statement 3 is correct:

Prescriptive and specification Codes for example Standard Drill Sizes, Standard shaft sizes, these specifications are provided as per standards like ISO, BIS etc. They leave no discretion to the designer.

63. Ans: (d)

Sol: In terms of Product Quality in customer perspective, the following are the eight dimensions of quality considered:

1. **Performance** (Will the product do the intended job?)
2. **Reliability** (How often does the product fail?)
3. **Durability** (How long does the product last?)
4. **Serviceability** (How easy is it to repair the product?)
5. **Aesthetics** (What does the product look like?)
6. **Features** (What does the product do?)
7. **Perceived Quality** (What is the reputation of the company or its product?)
8. **Conformance to Standards** (Is the product made exactly as the designer intended?)

64. Ans: (c)

Sol:

- Design Testing is performed in Embodiment Design
- Make or Buy Decisions are performed during Detail Design
- Design sketches are built and used during conceptual design
- Drawings are released for manufacture after detail design



65. Ans: (b)

Sol: Helix is the curve that is generated by a point which moves around the surface of a right circular cylinder and at the same time advances in the axial direction at a speed which bears a constant ratio to the speed of rotation. Hence Statement is incorrect.

An oblique hyperbola will have the angle between its asymptote less than 90° . Hence statement II is slow

66. Ans: (c)

Sol: Ellipse is the curve traced by a moving point in such a manner that the sum of its moving point distance from two fixed points is always constant and is equal to major axis.

67. Ans: (d)

Sol: The eigen values of A are 1 and 2

The eigen vector for $\lambda = 1$ are given by $(A-I) X = 0$

$$\begin{bmatrix} 0 & 2 & 3 \\ 0 & 1 & 3 \\ 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix}$$

$$\Rightarrow z = 0 \text{ and } y = 0$$

\therefore The eigen vectors for $\lambda = 1$ is of the form $X_1 = C_1 [1 \ 0 \ 0]$. For $\lambda = 2$, the eigen vectors of A are given by $[A - 2I] X = 0$

$$\Rightarrow \begin{bmatrix} -1 & 2 & 3 \\ 0 & 0 & 3 \\ 0 & 0 & 0 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix}$$

$$\Rightarrow -x + 2y = 0$$

The eigen vectors for $\lambda = 2$ are of the form $X_2 = C_2 [2 \ 1 \ 0]$

If we choose $C_2 = \frac{1}{2}$, then $(1, \frac{1}{2}, 0)$ is an eigen vector.

\therefore Option (d) is not correct.



68. Ans: (b)

Sol: $3 P(X = 2) = 2 P(X = 1)$

$$\Rightarrow 3 \frac{e^{-\lambda} \lambda^2}{2!} = 2 \left(\frac{e^{-\lambda} \lambda}{1!} \right)$$

$$\Rightarrow 3\lambda = 4$$

$$\Rightarrow \lambda = \frac{4}{3}$$

$$P(X = 0) = e^{-\lambda} = e^{-\frac{4}{3}} = 0.264$$

69. Ans: (d)

Sol: The region of integration is first quadrant of xy-plane

Put $x = r \cos\theta$ and $y = r \sin\theta$

The given integral becomes

$$I = \int_{y=0}^{\infty} \int_{x=0}^{\infty} e^{-x^2} e^{-y^2} dx dy$$

$$= \int_0^{\frac{\pi}{2}} \left(\int_0^{\infty} e^{-r^2} r dr \right) d\theta$$

where r is Jacobian of transformation

$$= \int_0^{\frac{\pi}{2}} \frac{\pi}{2} d\theta = \frac{\pi}{4}$$

70. Ans: (c)

Sol: Given $f(x) = x - e^{-x} = 0$

$$\Rightarrow f'(x) = 1 + e^{-x}$$

Newton – Raphson formula is

$$\begin{aligned} x_{n+1} &= x_n - \frac{f(x_n)}{f'(x_n)} = x_n - \frac{(x_n - e^{-x_n})}{(1 + e^{-x_n})} = \frac{x_n + x_n e^{-x_n} - x_n + e^{-x_n}}{(1 + e^{-x_n})} \\ &= \frac{e^{-x_n} (1 + x_n)}{(1 + e^{-x_n})} \end{aligned}$$



71. Ans: (c)

Sol: $f(z) = |z|^2 + i\bar{z} + 1$

$$= (x^2 + y^2) + i(x - iy) + 1$$

$$u + iv = (x^2 + y^2 + y + 1) + ix$$

Let $u = x^2 + y^2 + y + 1$ and $v = x$

$$u_x = 2x \qquad v_x = 1$$

$$u_y = 2y + 1 \qquad v_y = 0$$

At $z = -i = (0, -1)$

i) C-R equations satisfied $u_x = v_y$ and $u_y = -v_x$

ii) u_x, u_y, v_x, v_y are continuous at $(0, -1)$

$\therefore f(z)$ is differentiable at $z = -i$

Hence, option (c) is correct.

72. Ans: (c)

73. Ans: (b)

74. Ans: (c)

75. Ans: (d)

76. Ans: (c)

Sol: Patents have geographical limitations and hence need not be fulfilling the option (c).

77. Ans: (d)

78. Ans: (a)

79. Ans: (c)

Sol: The purpose and objective any professional and all the codes of ethics is protection of public or society.

80. Ans: (d)

81. Ans: (a)

82. Ans: (d)



83. Ans: (d)

Sol: Reducing acceptance number makes customer stringent which reduces consumer risk.

84. Ans: (b)

Sol: Gray castiron material is used in machine beds because of high damping capacity due to presence of graphite flakes.

Castiron do not posseses lubricating properties.

85. Ans: (a)

Sol:

- The majority of tropospheric ozone formation occurs when nitrogen oxides (NO_x), carbon monoxide(CO) and volatile organic compounds (VOCs), such as xylene, react in the atmosphere in the presence of sunlight.
- NO_x and VOCs are called ozone precursors.
- Motor vehicle exhaust, industrial emissions and chemical solvents are the major anthropogenic source of these chemicals.

86. Ans: (a)

Sol: Prime Minister Narendra Modi laid the foundation stone for City Gas Distribution (CGD) projects across 129 districts to boost availability of gas supply for half of the country's population in 26 states and Union Territories.

The project would cover 65 Geographical Areas (GAs). Natural gas is superior fuel as compared with coal and other liquid fuels, as it is environment friendly, safer and cheaper fuel. It can be supplied through pipelines and hence, there is no need to store cylinders in kitchen and thus saves space. Natural Gas in the form of CNG is 60 per cent cheaper as compared to petrol and 45 per cent cheaper as compared to diesel.

87. Ans: (c)

Sol: IP addressing is required when two devices are communicating in a network but it is not physical address while it is logical address and it comes with two versions IPv4-32 bit representation while IPv6-128 bit representation.



88. Ans: (b)

89. Ans: (b)

90. Ans: (b)

Sol: Accepting other cultures and traditions, religions is a skill that need to be learnt through the value system called non-violence. Traditional family system collapses when degeneration of values takes place. This gives way for small families called nuclear families.

91. Ans: (d)

Sol: Judiciary should be independent of either political system or bureaucracy if governance is to work with transparency. Judiciary is a neutral agency and watchdog on the proper functionality of executive and bureaucracy.

92. Ans: (a)

Sol: Ferrimagnetic material (Ferrites) are compounds of ceramics. The ceramic are formed ionic bonds and there no valence electrons in it so they processes high resistivity.

Ferromagnetic materials are metals with large valence electrons and its resistivity is very low.

93. Ans: (b)

Sol: Both the assertion and reason are correct statements but the later is not the correct explanation of the former. The basic planning for environment includes ‘conservation of organisms and resources’ as the most valuable component. Development can be complementary to conservation, only when it is sustainable.

94. Ans: (a)

Sol: Both A and R are correct and R is the correct explanation of A. Organic farming depends on on-farm resources, using alternative sources like usage of no chemical pesticides and fertilizers, on-farm particles which do not depend on fossil fuels consumption.



95. Ans: (c)

Sol: The 2018 Nobel Prize in Economic Sciences in Memory of Alfred Nobel is awarded to William D. Nordhaus "for integrating climate change into long-run macroeconomic analysis" and Paul M. Romer "for integrating technological innovations into long-run macroeconomic analysis."

96. Ans: (a)

Sol: Safety Factor is de-rating of an existing design based on deterministic approach. Application of factor of safety increases the reliability and durability of the product. **(Statement-1 is true)**. Safety Factor is applied on product design to take care of:

- In accurate calculations on models
- Limitations of knowledge
- Variation of strength of materials

Incomplete Knowledge of the working environment **(Statement 2 is True and correct explanation of statement-1)**.

97. Ans: (b)

98. Ans: (d)

99. Ans: (a)

Sol: Increasing the sample size can make the customer prediction better. Therefore, sampling errors will be less.

100. Ans: (c)

Sol: If the customer increases acceptance number, customer becomes lenient and therefore consumers risk increases.



CONGRATULATIONS TO OUR ESE - 2018 TOP RANKERS

| | | | | | |
|---|---|--|--|---|--|
| AIR 1  SHASHANK E&T | AIR 1  CHIRAG JHA EE | AIR 1  VINAY PRAKASH CE | AIR 1  AMAN JAIN ME | | |
| AIR 2  CHERUKURI SAIDEEP E&T | AIR 2  SHADAR AHMAD EE | AIR 2  PUNIT SINGH CE | AIR 2  CHIRAG SINGLA ME | AIR 3  RAMESH KAMULLA E&T | AIR 3  SRIJAN VARMA EE |
| AIR 3  PRAVEEN KUMAR CE | AIR 3  MAYUR PATIL ME | AIR 4  JAPJIT SINGH E&T | AIR 4  ANKIT GARG EE | AIR 4  AMIT KUMAR ME | AIR 5  NARENDRA KUMAR E&T |
| AIR 5  KARTHIK KOTTURU EE | AIR 5  RISHABH DUTT CE | AIR 5  VITTHAL PANDEY ME | AIR 6  KUMUD JINDAL E&T | AIR 6  RATIPALLI NAGESWAR EE | AIR 7  KARTIHEYA DUTTA E&T |
| AIR 7  TENCHAND DESHWAL EE | AIR 7  ROHIT KUMAR CE | AIR 8  SURYASH GAUTAM E&T | AIR 8  RAVI TEJA MANNE EE | AIR 8  VIJAYA NANDAN CE | AIR 8  ROHIT BANSAL ME |
| AIR 9  SHANAVAS CP E&T | AIR 9  SOUVIK DEB ROY EE | AIR 9  ROOPESH MITTAL CE | AIR 10  PRATHAMESH E&T | AIR 10  MILAN KRISHNA EE | AIR 10  SRICHAND POONIYA CE |

TOTAL SELECTIONS
in Top 10

34

E&T TOP 10
10

EE TOP 10
10

CE TOP 10
8

ME TOP 10
6

and many more...