DU MCA

Topic:- DU_J18_MCA_Topic01

1) In C language find the odd man out: [Question ID = 4098]

1. while – statement [Option ID = 16392]
2. switch – statement [Option ID = 16391]
3. for – statement [Option ID = 16389]
4. do-while – statement [Option ID = 16390]

Correct Answer :-

- switch – statement [Option ID = 16391]

2) A group of students decided to go on picnic and planned to spend Rs. 6000/-. Four of them did not go on picnic. As a consequence each of the remaining had to contribute Rs. 400/- extra. The number of students who went on picnic are: [Question ID = 4100]

1. 6 [Option ID = 16398]
2. 10 [Option ID = 16397]
3. 8 [Option ID = 16399]
4. 4 [Option ID = 16400]

Correct Answer :-

- 6 [Option ID = 16398]

3) The code of TIGER is VMMMB and the code of DOG is FSM. What is the code of FLY? [Question ID = 4103]

1. HPE [Option ID = 16411]
2. GOD [Option ID = 16409]
3. HOE [Option ID = 16410]
4. GPE [Option ID = 16412]

Correct Answer :-

- HPE [Option ID = 16411]

4) If Laugh is to Joy then Cry is to _____. [Question ID = 4099]

1. Panic [Option ID = 16395]
2. Sorrow [Option ID = 16394]
3. Sad [Option ID = 16393]
4. Tragic [Option ID = 16396]

Correct Answer :-

- Sorrow [Option ID = 16394]

5) The complex numbers z_1, z_2 and origin form an equilateral triangle only if:

[Question ID = 4128]

1. $2z_1 + z_2^2 - z_1 z_2 = 0.$ [Option ID = 16512]
2. $z_1^2 + z_2^2 - z_1 z_2 = 0.$ [Option ID = 16511]
3. $z_1^2 + z_2^2 + 2z_1 z_2 = 0.$ [Option ID = 16509]
4. $z_1^2 + 2z_2^2 - z_1 . z_2 = 0.$ [Option ID = 16510]

Correct Answer :-

- $z_1^2 + z_2^2 - z_1 z_2 = 0.$ [Option ID = 16511]

6) X is 8 years older to Y and 5 years younger to Z. W and Y are twins. The average age of
ward Z is $12\frac{1}{2}$ years. What is the age of W?

[Question ID = 4134]

1. 16   [Option ID = 16534]
2. 19   [Option ID = 16533]
3. 6   [Option ID = 16536]
4. 9   [Option ID = 16535]

Correct Answer :-

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7) In C language which of the following operators have highest precedence?

[Question ID = 4135]

1. [] [Option ID = 16538]
2. ? : [Option ID = 16540]
3. = [Option ID = 16539]
4. & [Option ID = 16537]

Correct Answer :-

- [] [Option ID = 16538]

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8) Let $y(x)$ be a solution of the differential equation $(1 + e^x)y' + ye^x = 1$. If $y(0) = 2$, then $y(-4)$ is equal to:

[Question ID = 4110]

1. $\frac{8e^4}{1+e^4}$ [Option ID = 16438]
2. 1   [Option ID = 16437]
3. 0   [Option ID = 16439]
4. $-\frac{2e^4}{1+e^4}$ [Option ID = 16440]

Correct Answer :-

- 0   [Option ID = 16439]

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9) The minimum value of the function $f(x) = 2|x - 1| + |x - 2|$ is:

[Question ID = 4122]

1. 3   [Option ID = 16486]
2. 1   [Option ID = 16488]
3. 0   [Option ID = 16485]
4. 2   [Option ID = 16487]

Correct Answer :-

- 1   [Option ID = 16488]

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10) . Let $P = \begin{pmatrix} 1 & 0 & 1 \\ 0 & 0 & 0 \\ 1 & 0 & 1 \end{pmatrix}$ and $Q = \begin{pmatrix} 2 & 1 & 1 \\ 1 & 0 & -1 \\ 1 & -1 & 2 \end{pmatrix}$ be two matrices. Then:

[Question ID = 4133]

1. P and Q have not common vector $(1, 0, 1)^T$.   [Option ID = 16529]

P and Q have common vector $(1,0,1)^T$ but corresponding eigenvalues for P and Q are different.

2.   [Option ID = 16532]

3. P and Q have common vector $(1,0,1)^T$ and common eigenvalues 3.   [Option ID = 16531]

4. P and Q have common vector $(1,0,1)^T$ and common eigenvalues 1.   [Option ID = 16530]

Correct Answer :-

P and Q have common vector $(1,0,1)^T$ but corresponding eigenvalues for P and Q are different.

● [Option ID = 16532]

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11) The locus of a point P which moves in $\mathbb{R}^3$ such that 3PA = 2PB, where A(1, 3, 4) and B(1, -2, -1), is a sphere of radius:

[Question ID = 4119]

1. $7\sqrt{2}$ [Option ID = 16473]

2. $4\sqrt{7}$ [Option ID = 16475]

3. $6\sqrt{2}$ [Option ID = 16474]

4. $2\sqrt{6}$ [Option ID = 16476]

Correct Answer :-

● $6\sqrt{2}$ [Option ID = 16474]

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12) The distance of a point on the surface $xyz^2 = 8$ nearest to the origin is:

[Question ID = 4107]

1. 4 [Option ID = 16428]

2. $2\sqrt{2}$ [Option ID = 16425]

3. 8 [Option ID = 16427]

4. $\sqrt{10}$ [Option ID = 16426]

Correct Answer :-

● $2\sqrt{2}$ [Option ID = 16425]

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13) Which one of the following sequence is a convergent sequence:

[Question ID = 4132]

1. $< \sin\frac{n\pi}{3} >$ [Option ID = 16526]

2. $<\cos\frac{n\pi}{3} >$ [Option ID = 16525]

3. $< (-1)^n/n >$ [Option ID = 16528]

4. $< (-1)^n.n >$ [Option ID = 16527]

Correct Answer :-

● $< (-1)^n/n >$ [Option ID = 16528]

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14)

Let R be a ring of 2x2 matrices over integers and A = $\left\{ \begin{bmatrix} a & b \\ 0 & 0 \end{bmatrix}; a, b \in \mathbb{Z} \right\}$ and B = $\left\{ \begin{bmatrix} a & 0 \\ b & 0 \end{bmatrix}; a, b \in \mathbb{Z} \right\}$. Then

[Question ID = 4124]

1. B is left ideal of R and A is right ideal of R.   [Option ID = 16496]

2. B is right ideal of R.   [Option ID = 16494]

3. A is left ideal of R.   [Option ID = 16493]

4. A and B both are left ideals of R.   [Option ID = 16495]

Correct Answer :-

- B is left ideal of R and A is right ideal of R.   [Option ID = 16496]

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15) Let $T : \mathbb{R}^m \to \mathbb{R}^n$ be a subjective (onto) linear transformation. If $T(v) = 0$ has a non-trivial solution in $\mathbb{R}^m$, then which one of the following values is possible for the ordered pair (m, n)?

[Question ID = 4106]

1. $(1, 7)$ [Option ID = 16423]

2. $(7, 6)$ [Option ID = 16422]

3. $(7, 12)$ [Option ID = 16424]

4. $(7, 7)$ [Option ID = 16421]

Correct Answer :-

- $(7, 6)$ [Option ID = 16422]

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16) Let $D = \{(x, y) \mid y \geq 0, 4 \leq x^2 + y^2 \leq 9\}$ then $\iint_D (x + 1) dA$, when expressed in polar coordinates, is equivalent to:

[Question ID = 4113]

1. $\int_0^\pi \int_2^3 (r^2 \cos\theta + 1) dr d\theta$ [Option ID = 16451]

2. $\int_0^\pi \int_4^9 (r^2 \cos\theta + r) dr d\theta$ [Option ID = 16452]

3. $\int_0^\pi \int_2^3 (r^2 \cos\theta + r) dr d\theta$ [Option ID = 16450]

4. $\int_0^{2\pi} \int_4^9 (r^2 \cos\theta + r) dr d\theta$ [Option ID = 16449]

Correct Answer :-

- $\int_0^\pi \int_2^3 (r^2 \cos\theta + r) dr d\theta$ [Option ID = 16450]

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17) The number of homomorphism from the ring of integers $\mathbb{Z}$ to an arbitrary ring R is:

[Question ID = 4126]

1. 2   [Option ID = 16502]

2. 0   [Option ID = 16501]

3. Infinite   [Option ID = 16504]

4. 1   [Option ID = 16503]

Correct Answer :-

- 1   [Option ID = 16503]

18) Let U_1 and U_2 be subspaces of $\mathbb{R}^4$ over the field $\mathbb{R}$ be defined by

$U_1 = \{(x, y, z, w) \mid y + z + w = 0\}$ and $U_2 = \{(x, y, z, w) \mid x + y = 0,\ z = 2w\}$.

Then $\dim(U_1 \cap U_2)$ is:

[Question ID = 4115]

1. 2   [Option ID = 16458]
2. 3   [Option ID = 16459]
3. 4   [Option ID = 16460]
4. 1   [Option ID = 16457]

Correct Answer :-

- 1   [Option ID = 16457]

19) Let $<S_n>$ be a sequence defined by $S_1 = 1,\ S_{n+1} = \frac{3+2S_n}{2+S_n}, n \geq 1$. Then $<S_n>$ is:

[Question ID = 4130]

1. Convergent sequence and converges to $\frac{3}{2}$.   [Option ID = 16519]
2. Oscillate sequence.   [Option ID = 16517]
3. Convergent sequence and converges to $\sqrt{3}$.   [Option ID = 16520]
4. Divergent sequence.   [Option ID = 16518]

Correct Answer :-

- Convergent sequence and converges to $\sqrt{3}$.   [Option ID = 16520]

20) If $\begin{pmatrix} 1 \\ 2 \\ 3 \end{pmatrix}$ is an eigenvector of the matrix A = $\begin{pmatrix} 4 & 1 & 2 \\ p & 2 & 1 \\ 14 & -4 & 10 \end{pmatrix}$, then p is equal to:

[Question ID = 4116]

1. 17   [Option ID = 16463]
2. 31   [Option ID = 16461]
3. 19   [Option ID = 16462]
4. 16   [Option ID = 16464]

Correct Answer :-

- 17   [Option ID = 16463]

21) Which one of the set of vectors is linearly independent?

[Question ID = 4127]

1. (1, 2, 3, 4), (0, 1, -1, 2), (1, 5, 1, 8), (3, 7, 8, 14)   [Option ID = 16508]
2. (1, -1, 2, 0), (3, 0, 0, 1), (2, 1, -1, 0), (1, -1, 2, 0)   [Option ID = 16505]
3. (1, 1, 2), (-3, 1, 0), (1, -1, 1), (1, 2, -3)   [Option ID = 16506]
4. (1, 0, 0), (1, 1, 1), (1, 2, 3)   [Option ID = 16507]

Correct Answer :-

- (1, 0, 0), (1, 1, 1), (1, 2, 3)   [Option ID = 16507]

22)

. the matrix $\begin{pmatrix} 1 & 1 & 3 \\ 5 & 2 & 6 \\ -2 & -1 & -3 \end{pmatrix}$ is:

[Question ID = 4125]

1. An involuntary. [Option ID = 16497]
2. Nilpotent. [Option ID = 16498]
3. An idempotent. [Option ID = 16499]
4. Skew-symmetric. [Option ID = 16500]

Correct Answer :-

- Nilpotent. [Option ID = 16498]

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23) If m and n are the orders of permutations $\sigma = (4, 5)\,(2, 3, 7)$ and $\tau = (1, 4)\,(3, 7, 5, 8)$, respectively, in the group S_8, then the ordered pair (m, n) is equal to:

[Question ID = 4118]

1. $(3, 4)$ [Option ID = 16472]
2. $(6, 4)$ [Option ID = 16469]
3. $(6, 2)$ [Option ID = 16471]
4. $(4, 6)$ [Option ID = 16470]

Correct Answer :-

- $(6, 4)$ [Option ID = 16469]

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24) On a certain day, a scientist had 1 kg of a radioactive substance X at 12:00 noon. The substance follows an exponential decay. If only 64 gm of the substance remained after 6 hours, then the amount (in gm) of substance X at 4:00 pm on the same day is:

[Question ID = 4105]

1. 80 [Option ID = 16417]
2. 120 [Option ID = 16418]
3. 160 [Option ID = 16419]
4. 200 [Option ID = 16420]

Correct Answer :-

- 160 [Option ID = 16419]

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25) The volume of the solid obtained by rotating the region bounded by the lines $x = 0$, $x = 2$, and $y = 0$, and the curve $y = 1 + \frac{x^2}{4}$, about the y-axis is:

[Question ID = 4120]

1. 12π [Option ID = 16477]
2. 4π [Option ID = 16480]
3. 8π [Option ID = 16478]
4. 6π [Option ID = 16479]

Correct Answer :-

- 6π [Option ID = 16479]

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26)

Using 2's complement number system perform the indicated operation:

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    00100011
 -  00100110
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The result of the operation is:

[Question ID = 4137]

1. 00000011 [Option ID = 16548]
2. 01001001 [Option ID = 16545]
3. 11111101 [Option ID = 16547]
4. 01001010 [Option ID = 16546]

Correct Answer :-

- 11111101 [Option ID = 16547]

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27) The volume lying inside the cylinder $x^2 + y^2 = 25$ and between the planes $z = 2$ and

$x + z = 8$ is:

[Question ID = 4121]

1. 50π [Option ID = 16484]
2. 75π [Option ID = 16483]
3. 150π [Option ID = 16482]
4. 175π [Option ID = 16481]

Correct Answer :-

- 150π [Option ID = 16482]

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28)
. The radius of convergence of the series $\frac{1}{2}x + \frac{1.3}{2.5}x^2 + \frac{1.3.5}{2.5.8}x^3 + \cdots$ is:

[Question ID = 4131]

1. 0 [Option ID = 16521]
2. $\frac{5}{2}$ [Option ID = 16524]
3. $\frac{3}{2}$ [Option ID = 16523]
4. 1 [Option ID = 16522]

Correct Answer :-

- $\frac{3}{2}$ [Option ID = 16523]

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29) Consider two improper integrals $I_1 = \int_0^2 \frac{dx}{(2-x)^{1/2}}$ and $I_2 = \int_0^2 \frac{dx}{(4-x^2)^{3/2}}$. Then:

[Question ID = 4112]

1. Both I_1 and I_2 are divergent. [Option ID = 16447]
2. Both I_1 and I_2 are convergent. [Option ID = 16448]
3. I_1 is divergent and I_2 is convergent. [Option ID = 16446]
4. I_1 is convergent and I_2 is divergent. [Option ID = 16445]

Correct Answer :-

- I_1 is convergent and I_2 is divergent. [Option ID = 16445]

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30) Let A be a 3 x 3 matrix with trace 10. if $(1, 2, 1)^T$ and $(1, 1, 0)^T$ are eigenvectors with same eigenvalue 7 of A, then the determinant of A is:

[Question ID = 4123]

1. -196 [Option ID = 16489]
2. 196 [Option ID = 16490]
3. 98 [Option ID = 16492]
4. -49 [Option ID = 16491]

Correct Answer :-

- -196 [Option ID = 16489]

31) The coefficient of $(x - 8)^2$ in the Taylor's series expansion of the function $f(x) = x^{1/3}$ about $x = 8$ is:

[Question ID = 4109]

1. $-\dfrac{1}{288}$ [Option ID = 16433]
2. $\dfrac{1}{96}$ [Option ID = 16435]
3. $-\dfrac{1}{144}$ [Option ID = 16436]
4. $-\dfrac{1}{32}$ [Option ID = 16434]

Correct Answer :-

- $-\dfrac{1}{144}$ [Option ID = 16436]

32) Let f be differentiable on an interval I and f' be bounded on I. Then:

[Question ID = 4129]

1. f is continuous but not uniformly continuous. [Option ID = 16513]
2. f is not continuous. [Option ID = 16516]
3. f is uniformly continuous on I. [Option ID = 16514]
4. Neither f is continuous on I nor f is uniformly continuous on I. [Option ID = 16515]

Correct Answer :-

- f is uniformly continuous on I. [Option ID = 16514]

33) Let $f(x) = \begin{cases} xe^{-x^2}, & |x| \le 1, \\ e^{-1}, & |x| > 1, \end{cases}$ Then

[Question ID = 4138]

1. $f'(1) = 0$ [Option ID = 16551]
2. $f'(-1) = 0$ [Option ID = 16552]
3. f is not differentiable at $x = 1$ and $x = -1$. [Option ID = 16549]
4. $f'(0) = 0$ [Option ID = 16550]

Correct Answer :-

- f is not differentiable at $x = 1$ and $x = -1$. [Option ID = 16549]

34) Let $S = \{(x,y) \mid 0 \leq x \leq 1, 0 \leq y \leq 1\}$. Then the value of $\oint_S (xy\hat{\imath} + yz\hat{\jmath} + xz\hat{k})d\vec{r}$ is equal to:

[Question ID = 4108]

1. $-\frac{1}{2}$ [Option ID = 16430]

2. $\frac{1}{3}$ [Option ID = 16432]

3. $-\frac{1}{3}$ [Option ID = 16431]

4. $\frac{1}{2}$ [Option ID = 16429]

Correct Answer :-

- $-\frac{1}{2}$ [Option ID = 16430]

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35) The power series $\sum_{n=2}^{\infty} \frac{(x-4)^n}{n \, ln^2 \, n}$ is:

[Question ID = 4111]

1. convergent in $(3, 5)$.   [Option ID = 16441]

2. divergent when x=3.   [Option ID = 16442]

3. divergent in $(3, 5)$.   [Option ID = 16443]

4. convergent in $(0, 1)$.   [Option ID = 16444]

Correct Answer :-

- convergent in $(3, 5)$.   [Option ID = 16441]

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36) If $x = u + \frac{v}{2}$ and $y = \frac{v}{2}$ and D is the region bounded by $x^2 - 2xy + 5y^2 = 1$, then the value of $\iint_D 2dA$, is:

[Question ID = 4114]

1. 2π [Option ID = 16456]

2. 2 [Option ID = 16454]

3. 1 [Option ID = 16453]

4. π [Option ID = 16455]

Correct Answer :-

- π [Option ID = 16455]

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37) Let $\mathcal{R}$ be the ring of real-valued continuous functions on closed interval [0, 1]. If $M = \{f \in \mathcal{R} \mid f\left(\frac{1}{\sqrt{2}}\right) = 0\}$, then M is a:

[Question ID = 4117]

1. neither maximal nor prime ideal   [Option ID = 16467]

2. both maximal and prime ideal   [Option ID = 16468]

3. maximal ideal but not a prime ideal   [Option ID = 16465]

4. prime ideal but not a maximal ideal   [Option ID = 16466]

Correct Answer :

- both maximal and prime ideal [Option ID = 16468]

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38) The expression a > 6 || a < 7 && a != 10 is evaluated as:

[Question ID = 4136]

1. $a > 6 \;||\; a < 7 \;\&\&\; (a \;!= 10)$ [Option ID = 16542]
2. $a > 6 \;||\; (a < 7 \;\&\&\; a \;!= 10)$ [Option ID = 16544]
3. $(a > 6 \;||\; a < 7) \;\&\&\; a \;!= 10$ [Option ID = 16543]
4. $(a > 6 \;||\; a < 7 \;\&\&\; a \;!= 10)$ [Option ID = 16541]

Correct Answer :-

- $a > 6 \;||\; a < 7 \;\&\&\; (a \;!= 10)$ [Option ID = 16542]

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39) Find the ODD man out:
4 - 16 − 256,
5 - 25 − 625,
7 − 49 − 343,
8 − 64 − 4096. [Question ID = 4101]

1. 5 - 25 − 625. [Option ID = 16403]
2. 8 − 64 − 4096 [Option ID = 16401]
3. 7 − 49 − 343. [Option ID = 16402]
4. 4 - 16 − 256. [Option ID = 16404]

Correct Answer :-

- 7 − 49 − 343. [Option ID = 16402]

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40) The next term in the series: 4, 14, 45, 139, ? is: [Question ID = 4102]

1. 517 [Option ID = 16405]
2. 522 [Option ID = 16407]
3. 422 [Option ID = 16408]
4. 417 [Option ID = 16406]

Correct Answer :-

- 422 [Option ID = 16408]

Topic:- DU_J18_MCA_Topic02

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1) Like so much else in the world's largest democracy, household finance in India is unique. There is, for example, a strong tendency to keep wealth in physical assets – gold and property. Levels of pension wealth are worrying low, as is take-up of all types of insurance, even in areas which are prone to natural disasters. When emergency expenditures are necessary, for example, for health reasons, there are high levels of reliance on unsecured debt from non-institutional sources.
Why are these issues important?
For one, we are sitting on a demographic time-bomb. The number of Indians over the age of 60 has hit an all-time high, with the most recent figures showing that this demographic comprises 8.6 percent of the population, with a climbing age dependency ratio (currently at 14.2 percent). We can expect this elderly cohort to grow rapidly in coming years. Indians have traditionally shunned pension plans in favor of traditional arrangements in which the younger generation takes care of their elders. But these traditional structures are under increasing pressure, putting families in a potentially vulnerable position.
For another, the lack of widespread insurance can see the victims of tragic or unfortunate circumstances forced into unregulated emergency borrowing, often from non-institutional sources, at potentially punitive rates. The steps in the recent budget towards universal health insurance are a welcome step (if implemented appropriately), consistent with the recommendations of our committee, but there is much more to be done here.
A third issue is that we have a tendency to invest heavily in physical assets such as gold and property. Steps to encourage the financialisation of savings are therefore critical. Viewed in this light, the introduction of the long-term capital gains tax is a step backwards, especially given how responsive Indians are to tax incentives.

Mark the statement that is NOT true:

[Question ID = 4145]

1. Indians, as a rule, like to invest heavily in physical assets such as gold and property. [Option ID = 16580]
2. In case of emergency, people like to depend on unsecured debt from noninstitutional sources. [Option ID = 16577]

3. Only in areas prone to natural disasters do people take up all types of insurance. [Option ID = 16578]

4. The numbers of elderly people is growing rapidly. [Option ID = 16579]

Correct Answer :-

- Only in areas prone to natural disasters do people take up all types of insurance. [Option ID = 16578]

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2)   Like so much else in the world's largest democracy, household finance in India is unique. There is, for example, a strong tendency to keep wealth in physical assets – gold and property. Levels of pension wealth are worrying low, as is take-up of all types of insurance, even in areas which are prone to natural disasters. When emergency expenditures are necessary, for example, for health reasons, there are high levels of reliance on unsecured debt from non-institutional sources.

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'Indians have traditionally shunned pension plans in favor of traditional arrangements.' What does 'traditional arrangements' mean?

[Question ID = 4143]

1. Trusting your children to take care of you in your old age. [Option ID = 16571]
2. Cash at home [Option ID = 16569]
3. All types of insurance. [Option ID = 16572]
4. Loans from non-institutional sources. [Option ID = 16570]

Correct Answer :-

- Trusting your children to take care of you in your old age. [Option ID = 16571]

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3)   Like so much else in the world's largest democracy, household finance in India is unique. There is, for example, a strong tendency to keep wealth in physical assets – gold and property. Levels of pension wealth are worrying low, as is take-up of all types of insurance, even in areas which are prone to natural disasters. When emergency expenditures are necessary, for example, for health reasons, there are high levels of reliance on unsecured debt from non-institutional sources.

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Why does the author say 'the introduction of the long-term capital gains tax is a step backwards'?

[Question ID = 4146]

1. People in India are averse to paying taxes. [Option ID = 16582]
2. All of these [Option ID = 16584]
3. Government instruments of investment will become less attractive for people. [Option ID = 16583]
4. It could make people put more faith in traditional avenues of investment. [Option ID = 16581]

Correct Answer :-

- All of these [Option ID = 16584]

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4)   Like so much else in the world's largest democracy, household finance in India is unique. There is, for example, a strong tendency to keep wealth in physical assets – gold and property. Levels of pension wealth are worrying low, as is take-up of all types of insurance, even in areas which are prone to natural disasters. When emergency expenditures are necessary, for example, for health reasons, there are

high levels of reliance on unsecured debt from non-institutional sources.

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An apt title for the passage could be:

[Question ID = 4144]

1. Traditional ways of saving in India. [Option ID = 16575]
2. Management of household finances in India [Option ID = 16574]
3. Problems of old people. [Option ID = 16573]
4. The demographic time-bomb. [Option ID = 16576]

Correct Answer :-

- Management of household finances in India [Option ID = 16574]

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5) Like so much else in the world's largest democracy, household finance in India is unique. There is, for example, a strong tendency to keep wealth in physical assets – gold and property. Levels of pension wealth are worrying low, as is take-up of all types of insurance, even in areas which are prone to natural disasters. When emergency expenditures are necessary, for example, for health reasons, there are high levels of reliance on unsecured debt from non-institutional sources.

Why are these issues important?

For one, we are sitting on a demographic time-bomb. The number of Indians over the age of 60 has hit an all-time high, with the most recent figures showing that this demographic comprises 8.6 percent of the population, with a climbing age dependency ratio (currently at 14.2 percent). We can expect this elderly cohort to grow rapidly in coming years. Indians have traditionally shunned pension plans in favor of traditional arrangements in which the younger generation takes care of their elders. But these traditional structures are under increasing pressure, putting families in a potentially vulnerable position.

For another, the lack of widespread insurance can see the victims of tragic or unfortunate circumstances forced into unregulated emergency borrowing, often from non-institutional sources, at potentially punitive rates. The steps in the recent budget towards universal health insurance are a welcome step (if implemented appropriately), consistent with the recommendations of our committee, but there is much more to be done here.

A third issue is that we have a tendency to invest heavily in physical assets such as gold and property. Steps to encourage the financialisation of savings are therefore critical. Viewed in this light, the introduction of the long-term capital gains tax is a step backwards, especially given how responsive Indians are to tax incentives.

How is household finance in India unique?

[Question ID = 53407]

1. Prone to disasters, Indians like to keep ready cash with them. [Option ID = 93613]
2. Unlike others, Indians keep wealth in physical assets – gold and property. [Option ID = 93616]
3. They do not trust any type of insurance. [Option ID = 93614]
4. They believe in traditional ways of savings. [Option ID = 93615]

Correct Answer :-

- Unlike others, Indians keep wealth in physical assets – gold and property. [Option ID = 93616]

Topic:- DU_J18_MCA_Topic03

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1) It may rain once a decade or less in South America's Atacama Desert, but tiny bacteria and microorganisms survive there, hinting at the possibility of similar life on Mars, researchers said Monday.

The desert, which spans parts of Chile and Peru, is the driest non-polar desert on Earth and may contain the environment most like that of the Red Planet, said the report in the 'Proceedings of the National Academy of Sciences'.

Lead researchers Dirk Schulze-Makuch, a professor and planetary scientist at the Technical University of Berlin, and colleagues took a trip to the desert in 2015 to learn more about what kind of life might exist there. Then, unexpectedly, it rained. Scientists detected an explosion of biological activity in the soil, and scooped up samples. Genomic analyses helped identify the several apparently indigenous species of microbial life – most bacteria – that had somehow adapted to live in the harsh environment by lying dormant for years, the re-animating and reproducing once it rained.

"In the past, researchers have found dying organisms near the surface and remnants of DNA, but this is really the first time that anyone has been able to identify a persistent form of live living in the soil of the Atacama Desert," Schulze-Makuch said. "We believe these

microbial communities can lie dormant for thousands of years in conditions very similar to what you would find on a planet like Mars a come back to life when it rains."

Scientist returned to the Atacama in 2016 and 2017 and discovered that the same microbial communities in the soil were gradually reverting to their dormant state. Since Mars has oceans and lakes billions of years ago, researchers say early life forms may have thrived there, too.

The central idea of the passage can be summed up in the statement:

[Question ID = 4150]

1. Study of microbial life on Atacama Desert and on the Mars. [Option ID = 16598]
2. Looking for life on the Mars millions of years ago. [Option ID = 16600]
3. Microbial life in Atacama holds clue to possible life on the Mars. [Option ID = 16597]
4. Research on life on the Mars. [Option ID = 16599]

Correct Answer :-

- Microbial life in Atacama holds clue to possible life on the Mars. [Option ID = 16597]

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2) It may rain once a decade or less in South America's Atacama Desert, but tiny bacteria and microorganisms survive there, hinting at the possibility of similar life on Mars, researchers said Monday.

The desert, which spans parts of Chile and Peru, is the driest non-polar desert on Earth and may contain the environment most like that of the Red Planet, said the report in the 'Proceedings of the National Academy of Sciences'.

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"In the past, researchers have found dying organisms near the surface and remnants of DNA, but this is really the first time that anyone has been able to identify a persistent form of live living in the soil of the Atacama Desert," Schulze-Makuch said. "We believe these microbial communities can lie dormant for thousands of years in conditions very similar to what you would find on a planet like Mars a come back to life when it rains."

Scientist returned to the Atacama in 2016 and 2017 and discovered that the same microbial communities in the soil were gradually reverting to their dormant state. Since Mars has oceans and lakes billions of years ago, researchers say early life forms may have thrived there, too.

What conclusion did the research team arrive at on the basis of their findings?

[Question ID = 4152]

1. Indigenous species of microbial life had somehow adapted to live in the harsh environment of the Atacama Desert by lying dormant for years. [Option ID = 16605]
2. The findings proved that early life form like that in the Atacama Desert thrived on the Mars, too. [Option ID = 16607]
3. The Atacama Desert and the Mars had similar environments and life forms. [Option ID = 16606]
4. If microorganisms could survive in the dry Atacama Desert, perhaps similar life could survive on the Mars, too. [Option ID = 16608]

Correct Answer :-

- If microorganisms could survive in the dry Atacama Desert, perhaps similar life could survive on the Mars, too. [Option ID = 16608]

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3) It may rain once a decade or less in South America's Atacama Desert, but tiny bacteria and microorganisms survive there, hinting at the possibility of similar life on Mars, researchers said Monday.

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"In the past, researchers have found dying organisms near the surface and remnants of DNA, but this is really the first time that anyone has been able to identify a persistent form of live living in the soil of the Atacama Desert," Schulze-Makuch said. "We believe these microbial communities can lie dormant for thousands of years in conditions very similar to what you would find on a planet like Mars a come back to life when it rains."

Scientist returned to the Atacama in 2016 and 2017 and discovered that the same microbial communities in the soil were gradually reverting to their dormant state. Since Mars has oceans and lakes billions of years ago, researchers say early life forms may have thrived there, too.

What basic similarity did the research team find between the Atacama Desert and the Mars surface?

[Question ID = 4149]

1. Both had very dry deserts. [Option ID = 16593]
2. All of these [Option ID = 16596]

3. Environment that once existed on Mars was similar to that in Atacama Desert today. [Option ID = 16594]
4. Microbial life could thrive for thousands of years in identical conditions in Atacama Desert and on Mars. [Option ID = 16595]

Correct Answer :-

- Microbial life could thrive for thousands of years in identical conditions in Atacama Desert and on Mars. [Option ID = 16595]

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4) It may rain once a decade or less in South America's Atacama Desert, but tiny bacteria and microorganisms survive there, hinting at the possibility of similar life on Mars, researchers said Monday.
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Scientist returned to the Atacama in 2016 and 2017 and discovered that the same microbial communities in the soil were gradually reverting to their dormant state. Since Mars has oceans and lakes billions of years ago, researchers say early life forms may have thrived there, too.

Mark the statement that is NOT true:

[Question ID = 4151]

1. Bacteria had somehow adapted to live in the harsh environment in Atacama by lying dormant for years. [Option ID = 16603]
2. Tiny microorganisms that survive in Atacama Desert hint at the possibility of similar life on Mars [Option ID = 16601]
3. This research team was the first to identify a persistent form of life living in the soil of the Atacama Desert. [Option ID = 16604]
4. Research on Atacama microbes has proved that similar life forms exist on the Mars [Option ID = 16602]

Correct Answer :-

- Research on Atacama microbes has proved that similar life forms exist on the Mars [Option ID = 16602]

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Why did the scientists choose South America's Atacama Desert for research?

[Question ID = 53409]

1. It contained bacteria that could survive the longest without water on Earth. [Option ID = 93624]
2. It is a region where it rains once a decade or less. [Option ID = 93622]
3. It is the driest non-polar desert on Earth. [Option ID = 93621]
4. They surmised that its environment was most like that of the Red Planet. [Option ID = 93623]

Correct Answer :-

- They surmised that its environment was most like that of the Red Planet. [Option ID = 93623]