

Topic:- DU\_J18\_MSC\_ME\_TOPIC1

1) **Claim:**  $\lim_{x \rightarrow \infty} \left(1 + \frac{1}{x}\right)^x = 1$

**Proof:**

**Step I:** Let  $f(x) = x^x$  and  $g(x) = 1 + \frac{1}{x}$ . We need to compute the limit of the composition  $\lim_{x \rightarrow \infty} f(g(x))$  and show it is equal to 1.

**Step II:** As  $x$  gets large,  $g(x)$  tends to 1.

**Step III:** Since  $f(x)$  is continuous at 1 and  $f(1) = 1$ ,  $f(g(x))$  tends to 1 as  $x$  gets large. Hence proved.

**[Question ID = 41479]**

1. The proof is incorrect, and the mistake is in Step III. [Option ID = 75911]
2. The proof is incorrect, and the mistake is in Step I. [Option ID = 75909]
3. The proof is incorrect, and the mistake is in Step II. [Option ID = 75910]
4. The proof is correct, and the limit is equal to 1. [Option ID = 75908]

**Correct Answer :-**

- The proof is incorrect, and the mistake is in Step I. [Option ID = 75909]

2) The vision of National Academic Depository (NAD) is

**[Question ID = 53374]**

1. an online application portal. [Option ID = 93484]
2. an initiative to provide an online store house of academic awards. [Option ID = 93485]
3. an initiative to provide an online store house of teaching learning resource material. [Option ID = 93483]
4. an initiative to provide a store house of academic awards [Option ID = 93482]

**Correct Answer :-**

- an initiative to provide an online store house of academic awards. [Option ID = 93485]

3) If  $A=F=\dots=Z$ ,  $B=G=\dots=V$ ,  $E=T=\dots=Y$  and so on, then which of the following set can replace "AEIOU"

**[Question ID = 41475]**

1. PTSTP [Option ID = 75894]
2. FODYB [Option ID = 75893]
3. MJDJA [Option ID = 75892]
4. XVWUY [Option ID = 75895]

**Correct Answer :-**

- PTSTP [Option ID = 75894]

4) Four of the following five are alike in a certain way and so form a group.

1. Thumb 2. Nose 3. Tongue 4. Ear 5. Eye

Which one does not belong to that group?

**[Question ID = 41476]**

1. Thumb [Option ID = 75898]

2. Tongue [Option ID = 75899]
3. Ear [Option ID = 75896]
4. Nose [Option ID = 75897]

**Correct Answer :-**

- Thumb [Option ID = 75898]

- 5) If  $\log_2(a+b) + \log_2(c+d) \geq 4$ , then the minimum value of the expression  $a+b+c+d$  is

**[Question ID = 41422]**

1. 6 [Option ID = 75682]
2. 4 [Option ID = 75681]
3. 2 [Option ID = 75680]
4. 8 [Option ID = 75683]

**Correct Answer :-**

- 8 [Option ID = 75683]

- 6) If the fundamental period of function  $f(x) = \sin x + \cos(\sqrt{4-a^2})x$  is  $4\pi$ , then the possible values of 'a' are

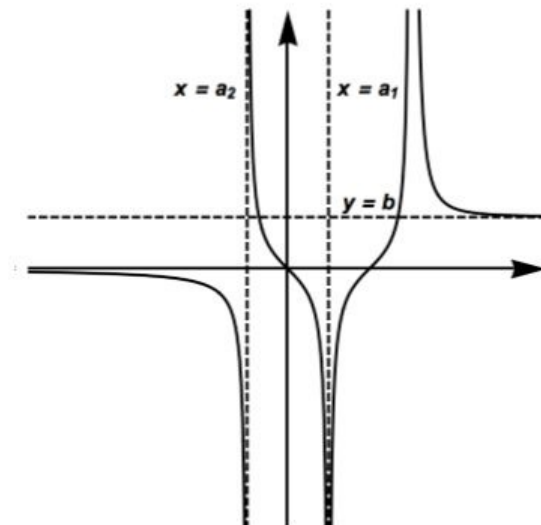
**[Question ID = 41430]**

1.  $\frac{\sqrt{14}}{2}, \frac{\sqrt{7}}{2}$  [Option ID = 75713]
2.  $\frac{\sqrt{15}}{3}, \frac{-\sqrt{7}}{2}$  [Option ID = 75714]
3.  $-\frac{\sqrt{15}}{2}, \frac{\sqrt{7}}{2}$  [Option ID = 75712]
4.  $\frac{\sqrt{7}}{2}, \frac{1}{2}$  [Option ID = 75715]

**Correct Answer :-**

- $-\frac{\sqrt{15}}{2}, \frac{\sqrt{7}}{2}$  [Option ID = 75712]

- 7) The following is the graph of a function  $f(x)$ . The vertical dotted lines are plotted at  $x = a_1$  and  $x = a_2$ . The horizontal dotted line is plotted at  $y = b$



$$\lim_{x \rightarrow \infty} f(x) =$$

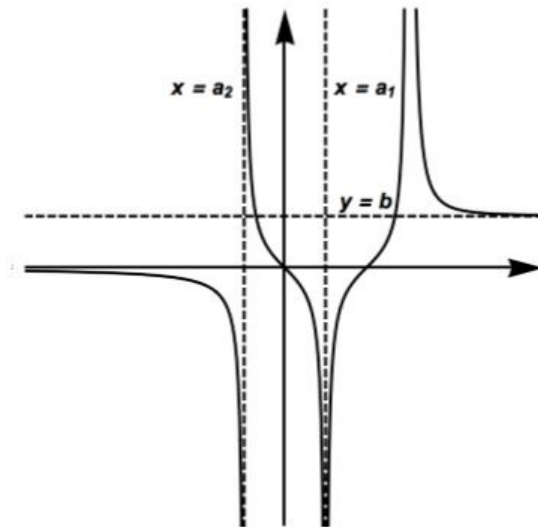
[Question ID = 41392]

1. does not exist [Option ID = 75560]
2.  $b$  [Option ID = 75563]
3.  $-\infty$  [Option ID = 75561]
4.  $0$  [Option ID = 75562]

Correct Answer :-

- $b$  [Option ID = 75563]

- 8) The following is the graph of a function  $f(x)$ . The vertical dotted lines are plotted at  $x = a_1$  and  $x = a_2$ . The horizontal dotted line is plotted at  $y = b$



$$\lim_{x \rightarrow a_2} f(x) =$$

[Question ID = 41390]

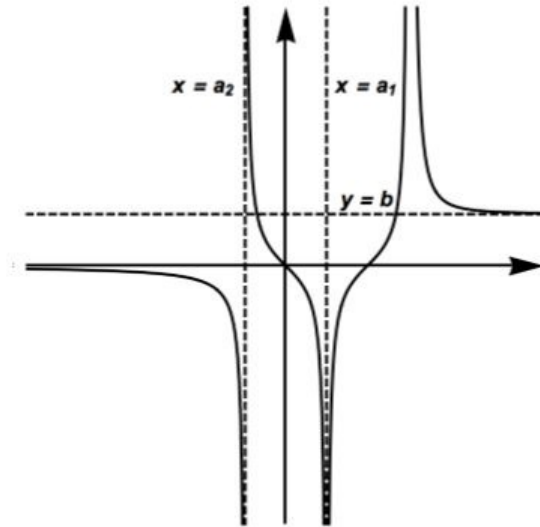
1.  $0$  [Option ID = 75554]
2.  $-\infty$  [Option ID = 75553]
3. does not exist [Option ID = 75555]
4.  $\infty$  [Option ID = 75552]

Correct Answer :-

- does not exist [Option ID = 75555]

9)

The following is the graph of a function  $f(x)$ . The vertical dotted lines are plotted at  $x = a_1$  and  $x = a_2$ . The horizontal dotted line is plotted at  $y = b$



$$\lim_{x \rightarrow -\infty} f(x) =$$

[Question ID = 41391]

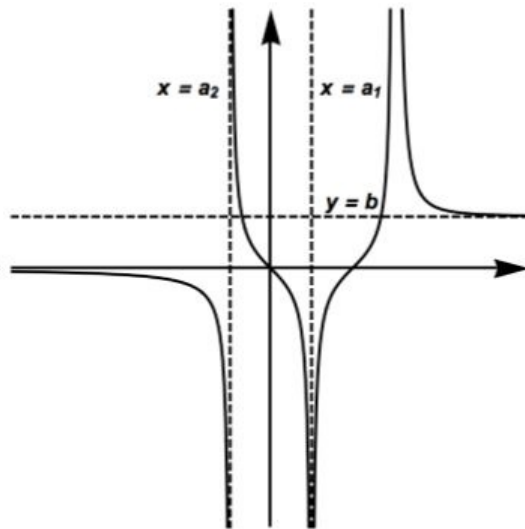
1.  $-\infty$  [Option ID = 75557]
2. does not exist [Option ID = 75556]
3.  $0$  [Option ID = 75558]
4.  $b$  [Option ID = 75559]

**Correct Answer :-**

- $0$  [Option ID = 75558]

10)

The following is the graph of a function  $f(x)$ . The vertical dotted lines are plotted at  $x = a_1$  and  $x = a_2$ . The horizontal dotted line is plotted at  $y = b$



$$Q6) \lim_{x \rightarrow a_1} f(x) =$$

[Question ID = 41389]

1.  $-\infty$  [Option ID = 75549]
2. 0 [Option ID = 75550]
3. does not exist [Option ID = 75551]
4.  $\infty$  [Option ID = 75548]

**Correct Answer :-**

- $\infty$  [Option ID = 75548]

**11)** In a certain code language,  
 '413' means 'Entrepreneurship Need Innovation'  
 '478' means 'Invention Not Innovation'  
 '972' means 'Invention Is Discovery'.  
 Which of the following represent a correct code match?

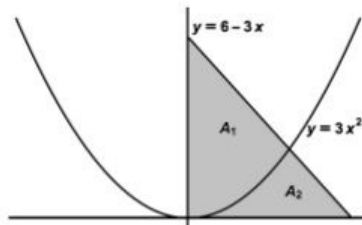
**[Question ID = 41471]**

1. Need - 8, Innovation - 3, Entrepreneurship - 4 [Option ID = 75878]
2. Invention - 7, Discovery - 2, Innovation - 4 [Option ID = 75879]
3. Is-4, Innovation - 9, Entrepreneurship - 3, [Option ID = 75876]
4. Innovation - 4, Invention - 7, Not - 8 [Option ID = 75877]

**Correct Answer :-**

- Innovation - 4, Invention - 7, Not - 8 [Option ID = 75877]

**12)** Consider the region bounded by the  $x$  axis,  $y$  axis and the line  $y = 6 - 3x$ . The parabola  $y = 3x^2$  divides it into two parts,  $A_1$  and  $A_2$ . Then the ratio of  $A_1 : A_2$  is



**[Question ID = 41397]**

1. 1:12 [Option ID = 75581]
2. 7:5 [Option ID = 75580]
3. 6:1 [Option ID = 75582]
4. 2:3 [Option ID = 75583]

**Correct Answer :-**

- 7:5 [Option ID = 75580]

**13)** On Monday evening at sunset, Mathew was looking at a pole in front of him. The shadow of pole fell exactly to his left. To which direction was he facing?

**[Question ID = 41472]**

1. East [Option ID = 75880]
2. North [Option ID = 75881]
3. South [Option ID = 75882]
4. West [Option ID = 75883]

**Correct Answer :-**

- South [Option ID = 75882]

14)  $\int_0^{\pi/4} \ln(1 + \tan x) dx =$

[Question ID = 41399]

1.  $\frac{1}{4}$  [Option ID = 75588]
2.  $\frac{\pi}{4} \ln 2$  [Option ID = 75590]
3.  $\frac{\pi}{4}$  [Option ID = 75589]
4.  $\frac{\pi}{8} \ln 2$  [Option ID = 75591]

Correct Answer :-

- $\frac{\pi}{8} \ln 2$  [Option ID = 75591]

15) Let  $I(n) = \int_1^e x^3 (\log x)^n dx$ , then the value of  $4I(n) + nI(n-1)$  is

[Question ID = 41436]

1.  $e^4$  [Option ID = 75737]
2.  $2$  [Option ID = 75739]
3.  $1$  [Option ID = 75736]
4.  $e^3$  [Option ID = 75738]

Correct Answer :-

- $e^4$  [Option ID = 75737]

16) Points  $P, Q, R$  and  $S$  have position vectors  $7\hat{i} - 4\hat{j} + 7\hat{k}$ ,  $\hat{i} - 6\hat{j} + 10\hat{k}$ ,  $-\hat{i} - 3\hat{j} + 8\hat{k}$  and  $5\hat{i} - \hat{j} + 5\hat{k}$  respectively. Then  $PQRS$  is a

[Question ID = 41403]

1. rectangle [Option ID = 75606]
2. rhombus [Option ID = 75605]
3. parallelogram [Option ID = 75607]
4. square [Option ID = 75604]

Correct Answer :-

- rectangle [Option ID = 75606]

17) Kareena is 40 m South-West of Leena and Meena is 40 m South-East of Leena. If Nagina is standing at mid point of line joining Meena and Kareena, then which of the following statement is correct?

[Question ID = 41474]

1. Nagina is in North of Leena [Option ID = 75891]
2. Nagina is in West of Kareena [Option ID = 75890]
3. Nagina is equidistant from rest of the three [Option ID = 75888]
4. Nagina is in east of Meena [Option ID = 75889]

Correct Answer :-

- Nagina is equidistant from rest of the three [Option ID = 75888]

18) The domain of the function  ${}^{24-x}C_{(3x-1)} + {}^{40-6x}C_{(8x-10)}$  is

[Question ID = 41429]

1.  $\{1, 2\}$  [Option ID = 75711]
2.  $\{1, 2, 3\}$  [Option ID = 75709]
3.  $\{1, 2, 3, 4\}$  [Option ID = 75710]
4.  $\{2, 3\}$  [Option ID = 75708]

Correct Answer :-

- $\{2, 3\}$  [Option ID = 75708]

19) The number of integral values of  $x$  such that  $\sqrt{x^2 + 9x}$  is an integer is

[Question ID = 41409]

1. infinitely many [Option ID = 75631]
2. 1 [Option ID = 75628]
3. 3 [Option ID = 75630]
4. 2 [Option ID = 75629]

Correct Answer :-

- 3 [Option ID = 75630]

20) Q32) The eigenvalues of a matrix  $A$  are 1, 2 & 3 and the eigenvectors are  $[0, 1, 0]^T$ ,  $[1, 1, 0]^T$  and  $[1, -1, 1]^T$ . The matrix  $A$  is given as

[Question ID = 41415]

1.  $\begin{bmatrix} 2 & 0 & -1 \\ 0 & 1 & 0 \\ 0 & 0 & 3 \end{bmatrix}$  [Option ID = 75655]
2.  $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 3 \end{bmatrix}$  [Option ID = 75653]
3.  $\begin{bmatrix} 2 & 1 & -1 \\ -1 & 1 & -1 \\ 1 & 0 & 3 \end{bmatrix}$  [Option ID = 75654]
4.  $\begin{bmatrix} 2 & 0 & 1 \\ -1 & 1 & -1 \\ 0 & 0 & 3 \end{bmatrix}$  [Option ID = 75652]

Correct Answer :-

- $\begin{bmatrix} 2 & 0 & 1 \\ -1 & 1 & -1 \\ 0 & 0 & 3 \end{bmatrix}$  [Option ID = 75652]

21) Consider the function  $f(x) = e^x \cos x$ . The value of  $\log_2 \left( \frac{f^{2018}(x)}{f^{(2)}(x)} \right)$  is  
(Note:  $f^{(n)}(x)$  represents the  $n^{\text{th}}$  derivative of  $f(x)$  with respect to  $x$ )

[Question ID = 41388]

1. 1008 [Option ID = 75545]

2. 512 [Option ID = 75547]
3. 504 [Option ID = 75546]
4. 1009 [Option ID = 75544]

**Correct Answer :-**

- 1008 [Option ID = 75545]

**22)**

If  $x$  is very small in magnitude compared with  $a$  such that  $\left(\frac{a}{a+x}\right)^{1/2} + \left(\frac{a}{a-x}\right)^{1/2} = 2 + k\frac{x^2}{a^2}$ , then the value of  $k$  is

**[Question ID = 41421]**

1.  $\frac{1}{4}$  [Option ID = 75679]
2.  $\frac{1}{2}$  [Option ID = 75676]
3.  $\frac{3}{4}$  [Option ID = 75678]
4.  $\frac{1}{2}$  [Option ID = 75677]

**Correct Answer :-**

- $\frac{3}{4}$  [Option ID = 75678]

**23)**

**Directions for questions 80 – 81:** Two statements are given followed by a conclusion. Assuming the statements are true, answer the questions.

Statement I: Blueberries cost more than strawberries.  
 Statement II: Blueberries cost less than raspberries.  
 Conclusion: Raspberries cost more than strawberries and blueberries.

**[Question ID = 41463]**

1. The conclusion follows from Statement II only. [Option ID = 75846]
2. The conclusion follows from both Statement I and Statement II. [Option ID = 75844]
3. The conclusion follows from Statement I only. [Option ID = 75845]
4. The conclusion follows from neither Statement I nor Statement II. [Option ID = 75847]

**Correct Answer :-**

- The conclusion follows from both Statement I and Statement II. [Option ID = 75844]

**24)**

**Directions for questions 80 – 81:** Two statements are given followed by a conclusion. Assuming the statements are true, answer the questions.

Statement I: All the trees in the park are flowering trees.  
 Statement II: Some of the trees in the park are dogwoods.  
 Conclusion: All dogwoods in the park are flowering trees.

**[Question ID = 41464]**

1. The conclusion follows from Statement II only. [Option ID = 75850]
2. The conclusion follows from Statement I only. [Option ID = 75849]



3. The conclusion follows from neither Statement I nor Statement II. [Option ID = 75851]  
 4. The conclusion follows from both Statement I and Statement II. [Option ID = 75848]

**Correct Answer :-**

- The conclusion follows from both Statement I and Statement II. [Option ID = 75848]

25) Consider a continuous function  $f(x)$  defined by

$$f(x) = \begin{cases} \text{rational} & , -5 < x < 5, x \neq 0 \\ 2 & , x = 0 \end{cases}$$

Then the value of the integral  $\int_{-5}^5 f(x) dx =$

**[Question ID = 41400]**

1. 5 [Option ID = 75594]
2. 20 [Option ID = 75595]
3. 10 [Option ID = 75593]
4. 2 [Option ID = 75592]

**Correct Answer :-**

- 20 [Option ID = 75595]

26) *ICT in Education* stands for :

**[Question ID = 41456]**

1. Intra Common Terminology related to concepts of education [Option ID = 75817]
2. International Communication and Technology [Option ID = 75818]
3. Inter Connected Terminals to create virtual learning platform [Option ID = 75816]
4. Information and Communication Technology [Option ID = 75819]

**Correct Answer :-**

- Information and Communication Technology [Option ID = 75819]

27) Interval of all possible values of  $a$  such that the lines  $x + y = |a|$  and  $ax - y = 196$  intersect in the first quadrant is

**[Question ID = 41401]**

1.  $(-196, -14) \cup (14, \infty)$  [Option ID = 75596]
2.  $(14, \infty)$  [Option ID = 75599]
3.  $(-14, -1) \cup (14, \infty)$  [Option ID = 75597]
4.  $(-\infty, -14) \cup (14, \infty)$  [Option ID = 75598]

**Correct Answer :-**

- $(14, \infty)$  [Option ID = 75599]

28) NAEP, a national level educational initiative, refers to:

**[Question ID = 41446]**

1. National Assessment and Education Program [Option ID = 75777]
2. National Audit of Education Programs [Option ID = 75779]
3. National Assessment and Evaluation Policy [Option ID = 75778]

4. National Adult Education Program [Option ID = 75776]

**Correct Answer :-**

- National Adult Education Program [Option ID = 75776]

29) The curve described parametrically by  $x = t^2 + t, y = t^2 - t$  is

**[Question ID = 41396]**

1. parabola [Option ID = 75578]
2. pair of straight lines [Option ID = 75579]
3. ellipse [Option ID = 75576]
4. hyperbola [Option ID = 75577]

**Correct Answer :-**

- parabola [Option ID = 75578]

30) Which of the following sequence will be formed from word "Earthquake" when letters are arranged in alphabetic order and only odd-placed letters are chosen?

**[Question ID = 41469]**

1. AEKRU [Option ID = 75869]
2. AEHQT [Option ID = 75871]
3. AEHTU [Option ID = 75868]
4. AEKRT [Option ID = 75870]

**Correct Answer :-**

- AEHQT [Option ID = 75871]

31) If  $x^p y^q = (x + y)^{p+q}$ , then the statement that is correct is

**[Question ID = 41395]**

1.  $\frac{dy}{dx}$  is dependent on  $q$  but independent of  $p$ . [Option ID = 75575]
2.  $\frac{dy}{dx}$  is dependent on  $p$  but independent of  $q$ . [Option ID = 75574]
3.  $\frac{dy}{dx}$  is independent of both  $p$  and  $q$ . [Option ID = 75573]
4.  $\frac{dy}{dx}$  is dependent on both  $p$  and  $q$ . [Option ID = 75572]

**Correct Answer :-**

- $\frac{dy}{dx}$  is independent of both  $p$  and  $q$ . [Option ID = 75573]

32) Which of the following institutions are NOT empowered to grant degrees under the UGC Act, 1956?

**[Question ID = 41452]**

1. A university / institution established by a linguistic minority. [Option ID = 75802]
2. A university established by an Act of Parliament. [Option ID = 75800]
3. An institution which is a deemed to be University. [Option ID = 75803]
4. A university established by an Act of Legislature. [Option ID = 75801]

**Correct Answer :-**

- A university / institution established by a linguistic minority. [Option ID = 75802]

**33) Who is the author of the famous storybook 'Alice's Adventures in Wonderland'?**

**[Question ID = 41465]**

1. Rudyard Kipling [Option ID = 75852]
2. Lewis Carroll [Option ID = 75854]
3. H G Wells [Option ID = 75855]
4. John Keats [Option ID = 75853]

**Correct Answer :-**

- Lewis Carroll [Option ID = 75854]

**34) Q87). Which of the following is a correct fact about the appearance of numbers on writing count from 1 to 100?**

**[Question ID = 41470]**

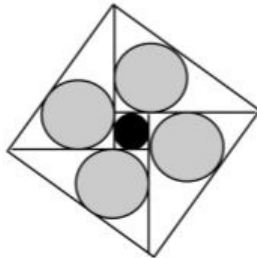
1. All odd numbers except 1 appears 21 times. [Option ID = 75873]
2. Number 1 appears maximum number of times. [Option ID = 75874]
3. All even number appears 22 times. [Option ID = 75872]
4. All numbers appear equal number of times. [Option ID = 75875]

**Correct Answer :-**

- Number 1 appears maximum number of times. [Option ID = 75874]

**35)**

The black circle has a radius of length 1. The four gray circles each have a radius of length 2. The length of the side of the large, outer square is



**[Question ID = 41404]**

1. 8 [Option ID = 75608]
2. 10 [Option ID = 75610]
3. 12 [Option ID = 75611]
4. 9 [Option ID = 75609]

**Correct Answer :-**

- 10 [Option ID = 75610]

**36)**

The value of the parameter  $\alpha$ , for which the function  $f(x) = 1 + \alpha x$ ,  $\alpha \neq 0$  is inverse of itself, is

**[Question ID = 41428]**

1. -1 [Option ID = 75705]
2. 2 [Option ID = 75707]
3. -2 [Option ID = 75704]
4. 1 [Option ID = 75706]

**Correct Answer :-**

- -1 [Option ID = 75705]

**37)** In NITI Aayog, NITI stands for

**[Question ID = 41460]**

1. National Institution for Transforming India [Option ID = 75832]
2. New institutions for Transforming India [Option ID = 75834]
3. National Institute of Technical India [Option ID = 75835]
4. National Institute for Transforming India [Option ID = 75833]

**Correct Answer :-**

- National Institution for Transforming India [Option ID = 75832]

**38)** What is Maitre-2?

**[Question ID = 41466]**

1. Helicopter [Option ID = 75859]
2. Flight [Option ID = 75858]
3. Bus [Option ID = 75857]
4. Train [Option ID = 75856]

**Correct Answer :-**

- Bus [Option ID = 75857]

**39)** Let  $\{s_1, s_2, s_3, s_4\}$  be four distinct points in the cartesian plane such that the distance between any two points is atleast 1. Define the average distance between any two points as

$$A = \frac{1}{6} \sum_{\substack{s_i, s_j \\ i < j}} \text{dist}(s_i, s_j)$$

Then the value of  $M = \min_{s_1, s_2, s_3, s_4 \in \mathbb{R}^2} A$  is

**[Question ID = 41405]**

1.  $\frac{1}{\sqrt{3}}$  [Option ID = 75614]
2. 1 [Option ID = 75612]
3.  $\frac{5+\sqrt{3}}{6}$  [Option ID = 75613]
4.  $\frac{1}{2\sqrt{3}}$  [Option ID = 75615]

**Correct Answer :-**

- $\frac{5+\sqrt{3}}{6}$  [Option ID = 75613]

**40)** The main objective of a class test is to:

**[Question ID = 41442]**

1. differentiate the students on the learners on the basis of test results. [Option ID = 75762]
2. help weak students. [Option ID = 75763]

3. evaluate students' progress of learning. [Option ID = 75760]
4. revise the content taught in the class. [Option ID = 75761]

**Correct Answer :-**

- evaluate students' progress of learning. [Option ID = 75760]

41) The largest number for which  $X^{X^{\dots}}$  is a finite number is

**[Question ID = 41437]**

1. 1 [Option ID = 75740]
2.  $\sqrt[3]{3}$  [Option ID = 75742]
3.  $\sqrt{2}$  [Option ID = 75741]
4.  $e^{\frac{1}{e}}$  [Option ID = 75743]

**Correct Answer :-**

- $e^{\frac{1}{e}}$  [Option ID = 75743]

42) The most appropriate meaning of learning is

**[Question ID = 41462]**

1. modification of behavior [Option ID = 75841]
2. personal adjustment [Option ID = 75842]  
acquisition of skills
3. [Option ID = 75843]
4. accumulation of knowledge [Option ID = 75840]

**Correct Answer :-**

- modification of behavior [Option ID = 75841]

43) Based on admission test process, arrange the words given below in a meaningful sequence.

- (i) Registration (ii) Merit List (iii) Entrance Test  
(iv) Advertisement (v) Fee deposition

**[Question ID = 41467]**

1. iv, i, iii, ii, v [Option ID = 75862]
2. iv, i, v, iii, ii [Option ID = 75861]
3. i, iii, v, ii, iv [Option ID = 75863]
4. i, iv, iii, v, ii [Option ID = 75860]

**Correct Answer :-**

- iv, i, v, iii, ii [Option ID = 75861]

44) Satellite channel of IGNOU that broadcasts academic programs on Technical Education in distance mode is known as:

**[Question ID = 41457]**

1. Gyan Technology Channel [Option ID = 75823]
2. Gyandarshan Technology Channel [Option ID = 75822]
3. Rajrishi Technology Channel [Option ID = 75820]
4. Eklavya Technology Channel [Option ID = 75821]

**Correct Answer :-**

- Eklavya Technology Channel [Option ID = 75821]

45) Ms. Seema, a fifth grade math teacher, wants to develop calculation skills among her students. The most suitable method for her is:

**[Question ID = 41450]**

1. learning by doing [Option ID = 75793]
2. discussion [Option ID = 75794]
3. lecture [Option ID = 75795]
4. demonstration [Option ID = 75792]

**Correct Answer :-**

- learning by doing [Option ID = 75793]

46) Which of the following is NOT TRUE about Startups?

**[Question ID = 41455]**

1. Start-ups have high rates of failure. [Option ID = 75813]
2. Indian government started a Startup India program in 2016. [Option ID = 75814]  
Only students can open a startup company.
3. [Option ID = 75815]  
A startup is usually a company designed to effectively develop and validate a
4. scalable business model. [Option ID = 75812]

**Correct Answer :-**

- Only students can open a startup company. [Option ID = 75815]

47) The mean age of a combined group of men and women is 25 years. If mean age of men is 26 years and that of women is 21 years, then the percentages of men & women in the group are

**[Question ID = 41432]**

1. 20, 80 [Option ID = 75722]
2. 30, 70 [Option ID = 75723]
3. 80, 20 [Option ID = 75721]
4. 60, 40 [Option ID = 75720]

**Correct Answer :-**

- 80, 20 [Option ID = 75721]

48) *Questioning*, as a skill in teaching is most useful in

**[Question ID = 41461]**

1. making students disciplined. [Option ID = 75838]
2. memorizing the facts by students. [Option ID = 75837]
3. preparing students for examination. [Option ID = 75839]
4. ensuring students' active participation in learning. [Option ID = 75836]

**Correct Answer :-**

- ensuring students' active participation in learning. [Option ID = 75836]

49)

Let  $f(x) = \begin{cases} x^{n-1} \sin \frac{1}{x} & x \neq 0 \\ 0 & x = 0 \end{cases}$ , where  $n$  is a whole number. The function is

differentiable at all points if  $n =$

[Question ID = 41387]

1. 3 [Option ID = 75543]
2. 1 [Option ID = 75541]
3. 0 [Option ID = 75540]
4. 2 [Option ID = 75542]

Correct Answer :-

- 3 [Option ID = 75543]

50)

$$\lim_{x \rightarrow 2} \frac{\sqrt{1 - \cos 2(x-2)}}{x-2}$$

[Question ID = 41434]

1. exists and is equal to  $\sqrt{2}$ . [Option ID = 75728]
2. exists and is equal to  $-\sqrt{2}$ . [Option ID = 75729]
3. does not exist because the function is not defined at  $x = 2$ . [Option ID = 75730]
4. does not exist because the left hand limit is not equal to the right hand limit. [Option ID = 75731]

Correct Answer :-

- does not exist because the left hand limit is not equal to the right hand limit. [Option ID = 75731]

51)

$$\left( \int_1^{\sqrt{e}} (x \ln x) dx \right)^{-1} =$$

[Question ID = 41398]

1.  $\frac{1}{4}$  [Option ID = 75584]
2.  $\frac{4}{(1+e)}$  [Option ID = 75587]
3.  $(e+1)/4$  [Option ID = 75586]
4. 4 [Option ID = 75585]

Correct Answer :-

- 4 [Option ID = 75585]

52)

Q41) If

$$f_r(\alpha) = \left( \cos \frac{\alpha}{r^2} + i \sin \frac{\alpha}{r^2} \right) \times \left( \cos \frac{2\alpha}{r^2} + i \sin \frac{2\alpha}{r^2} \right) \dots \left( \cos \frac{\alpha}{r} + i \sin \frac{\alpha}{r} \right), \text{ then } \lim_{n \rightarrow \infty} f_n(\pi)$$

equals

[Question ID = 41424]

1.  $-i$  [Option ID = 75691]
2.  $i$  [Option ID = 75690]
3. 1 [Option ID = 75689]
4.  $-1$  [Option ID = 75688]

Correct Answer :-

- $i$  [Option ID = 75690]

- 53) Which of the following pair will not be in the sequence  
 ..... -28, -24, -20, -16, .... ?

[Question ID = 41478]

1. 1308 & -9828 [Option ID = 75907]
2. 9862 & -3266 [Option ID = 75906]
3. 7296 & -6780 [Option ID = 75905]
4. 4616 & -9224 [Option ID = 75904]

Correct Answer :-

- 9862 & -3266 [Option ID = 75906]

- 54) For some positive integer  $n$ , let  $y_n(x) = e^x \times e^{x^2} \times e^{x^3} \dots \times e^{x^n}$ . Then

$$\lim_{n \rightarrow \infty} \frac{d}{dx} (y_n(x)) \Big|_{x=\frac{1}{2}} \text{ is}$$

[Question ID = 41435]

1.  $4e$  [Option ID = 75735]
2.  $3e$  [Option ID = 75734]
3.  $2e$  [Option ID = 75733]
4.  $e$  [Option ID = 75732]

Correct Answer :-

- $4e$  [Option ID = 75735]

- 55) Q64) The diagram below shows a farm land which is fenced all around by poles. Distance between two consecutive poles is 20 meters, except the two poles which are placed diagonally. Which of the following statements is best approximation of the  $P$ , Perimeter of the farm land?



[Question ID = 41447]

1.  $P > 430$  [Option ID = 75782]
2.  $P = 420$  [Option ID = 75783]
3.  $P = 422$  [Option ID = 75780]
4.  $P > 420$  [Option ID = 75781]

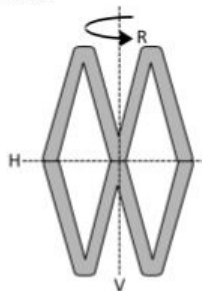
Correct Answer :-

- $P > 420$  [Option ID = 75781]

56)



The given figure has four symmetries – Identity ( $I$ ), reflection about a vertical line ( $V$ ), reflection about a horizontal line ( $H$ ) and rotation of  $180^\circ$  about the center ( $R$ ).



The multiplication table for the symmetries of the figure is

*	$I$	$H$	$V$	$R$
$I$	$I$	$H$	$V$	$R$
$H$	$H$	$a$	$b$	$c$
$V$	$V$	$l$	$m$	$n$
$R$	$R$	$x$	$y$	$z$

The inverse of the element  $R$  is

[Question ID = 41412]

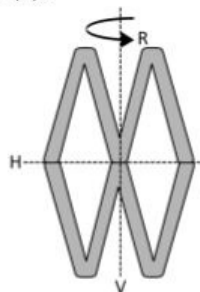
1.  $H$  [Option ID = 75641]
2.  $V$  [Option ID = 75642]
3.  $R$  [Option ID = 75643]
4.  $I$  [Option ID = 75640]

Correct Answer :-

- $R$  [Option ID = 75643]

57)

The given figure has four symmetries – Identity ( $I$ ), reflection about a vertical line ( $V$ ), reflection about a horizontal line ( $H$ ) and rotation of  $180^\circ$  about the center ( $R$ ).



The multiplication table for the symmetries of the figure is

*	$I$	$H$	$V$	$R$
$I$	$I$	$H$	$V$	$R$
$H$	$H$	$a$	$b$	$c$
$V$	$V$	$l$	$m$	$n$
$R$	$R$	$x$	$y$	$z$

The composition  $H*V =$

[Question ID = 41410]

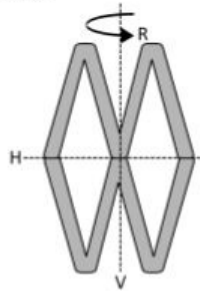
1.  $I$  [Option ID = 75632]
2.  $V$  [Option ID = 75634]
3.  $H$  [Option ID = 75633]
4.  $R$  [Option ID = 75635]

**Correct Answer :-**

- $R$  [Option ID = 75635]

**58)**

The given figure has four symmetries – Identity ( $I$ ), reflection about a vertical line ( $V$ ), reflection about a horizontal line ( $H$ ) and rotation of  $180^\circ$  about the center ( $R$ ).



The multiplication table for the symmetries of the figure is

*	$I$	$H$	$V$	$R$
$I$	$I$	$H$	$V$	$R$
$H$	$H$	$a$	$b$	$c$
$V$	$V$	$l$	$m$	$n$
$R$	$R$	$x$	$y$	$z$

The transformation  $H * V * \underbrace{(R * V)}_{21 \text{ times}} * H * V =$

**[Question ID = 41413]**

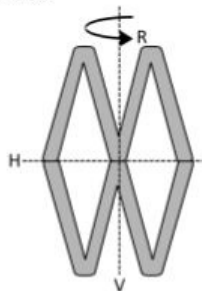
1.  $H$  [Option ID = 75645]
2.  $R$  [Option ID = 75647]
3.  $I$  [Option ID = 75644]
4.  $V$  [Option ID = 75646]

**Correct Answer :-**

- $H$  [Option ID = 75645]

**59)**

The given figure has four symmetries – Identity ( $I$ ), reflection about a vertical line ( $V$ ), reflection about a horizontal line ( $H$ ) and rotation of  $180^\circ$  about the center ( $R$ ).



The multiplication table for the symmetries of the figure is

*	$I$	$H$	$V$	$R$
$I$	$I$	$H$	$V$	$R$
$H$	$H$	$a$	$b$	$c$
$V$	$V$	$l$	$m$	$n$
$R$	$R$	$x$	$y$	$z$

Q28) The composition  $H*V*R =$

[Question ID = 41411]

1.  $R$  [Option ID = 75639]
2.  $I$  [Option ID = 75636]
3.  $V$  [Option ID = 75638]
4.  $H$  [Option ID = 75637]

Correct Answer :-

- $I$  [Option ID = 75636]

60) Q33) Consider the sequence  $\frac{1}{1}, \frac{2}{1}, \frac{1}{2}, \frac{3}{1}, \frac{2}{2}, \frac{1}{3}, \frac{4}{1}, \frac{3}{2}, \frac{2}{3}, \frac{1}{4}, \dots$ . If the  $n^{\text{th}}$  term of the series is  $\frac{3}{15}$  then  $n$  is

[Question ID = 41416]

1. 108 [Option ID = 75656]
2. 151 [Option ID = 75659]
3. 121 [Option ID = 75657]
4. 119 [Option ID = 75658]

Correct Answer :-

- 151 [Option ID = 75659]

61) One of the important objectives of SWYAM is to:

[Question ID = 41453]

1. prepare teaching and learning material. [Option ID = 75805]
2. conduct examination. [Option ID = 75807]
3. provide the best teaching learning resources to all. [Option ID = 75804]
4. develop the content. [Option ID = 75806]

Correct Answer :-

• provide the best teaching learning resources to all. [Option ID = 75804]

62) The sequence  $\{a_n\}$  satisfies  $\left(\frac{2n+1}{2n-1}\right)^{a_n} = e^2$ . Then  $\lim_{n \rightarrow \infty} \frac{2a_n}{n+1}$  is

[Question ID = 41417]

- 1 [Option ID = 75661]
- 2 [Option ID = 75660]
- 0.5 [Option ID = 75663]
- 4 [Option ID = 75662]

Correct Answer :-

- 4 [Option ID = 75662]

63) *Samagra Nai Talim* was given by:

[Question ID = 41444]

1. Rabindranath Tagore [Option ID = 75768]
2. Swami Vivekananda [Option ID = 75770]
3. Mahatma Gandhi [Option ID = 75769]
4. J. Krishnamurthy [Option ID = 75771]

Correct Answer :-

- Mahatma Gandhi [Option ID = 75769]

64)

A fair coin is flipped 10 times. The probability that the last two flips will result in head, given that the first eight flips were head is

[Question ID = 41406]

1.  $\frac{1}{2^{10}}$  [Option ID = 75616]
- $\frac{1}{2^8}$  [Option ID = 75619]
- $\frac{1}{2^6}$  [Option ID = 75618]
- $\frac{1}{2^2}$  [Option ID = 75617]

Correct Answer :-

- $\frac{1}{2^2}$  [Option ID = 75617]

65)

Consider the differential equation  $y^2 \frac{dy}{dx} = x^2$

Which of the following expressions might represent the complete set of solutions to  $y^2 \frac{dy}{dx} = x^2$ ? ( $C$  is any arbitrary constant)

[Question ID = 41393]

1.  $y = \sqrt[3]{x^3 + 1} + C$  [Option ID = 75564]
2.  $y = \sqrt[3]{x^3 + C}$  [Option ID = 75565]
3.  $y = \sqrt{x^3 + C}$  [Option ID = 75567]
4.  $y = Cx$  [Option ID = 75566]

Correct Answer :-

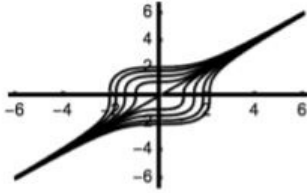
•  $y = \sqrt[3]{x^3 + C}$

[Option ID = 75565]

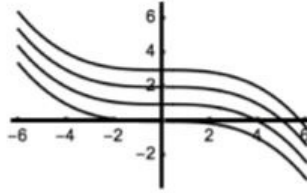
66)

Consider the differential equation  $y^2 \frac{dy}{dx} = x^2$

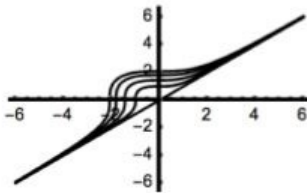
The graph of the solution of the given differential equation is



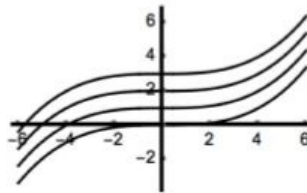
GRAPH I



GRAPH II



GRAPH III



GRAPH IV

[Question ID = 41394]

1. GRAPH I [Option ID = 75568]
2. GRAPH IV [Option ID = 75571]
3. GRAPH III [Option ID = 75570]
4. GRAPH II [Option ID = 75569]

**Correct Answer :-**

- GRAPH I [Option ID = 75568]

67) Q85) If South-East is referred as LOKESH, North-East is referred as NEERAJ, North-West is referred as PANKAJ and South-West is referred as RASHID then East, West, North and South are respectively referred as

[Question ID = 41468]

1. SAHIL, QADIR, OMPAL, MANOJ [Option ID = 75864]
2. MANOJ, OMPAL, QADIR, SAHIL [Option ID = 75867]
3. OMPAL, MANOJ, SAHIL, QADIR [Option ID = 75866]
4. QADIR, SAHIL, MANOJ, OMPAL, [Option ID = 75865]

**Correct Answer :-**

- MANOJ, OMPAL, QADIR, SAHIL [Option ID = 75867]

68)

A fair coin is tossed. If the result is a head, a pair of fair dice is rolled and the number obtained by adding the numbers on the two faces is noted. If the result is a tail, a card from a well shuffled pack of 11 cards numbered 2, 3, 4, ..., 12 is picked up and the number on the card is noted. The probability that the noted numbers is 7 or 8 is

[Question ID = 41433]

1. 195/792 [Option ID = 75725]

2. 193/792 [Option ID = 75724]
3. 190/792 [Option ID = 75727]
4. 191/792 [Option ID = 75726]

**Correct Answer :-**

- 193/792 [Option ID = 75724]

**69)** The accreditation process by National Assessment and Accreditation Council (NAAC) differs from that of National Board of Accreditation (NBA) in terms of:

**[Question ID = 41454]**

1. disciplines covered by both being the same, there is duplication of efforts. [Option ID = 75808]  
once get accredited by NBA or NAAC, the institution is free from renewal of
2. grading, which is not a progressive decision. [Option ID = 75810]  
accreditation amounts to approval of minimum standards in the quality of
3. education in the institution concerned. [Option ID = 75811]  
one has institutional grading approach and the other has program grading
4. approach. [Option ID = 75809]

**Correct Answer :-**

- accreditation amounts to approval of minimum standards in the quality of education in the institution concerned. [Option ID = 75811]

**70)** The idea of Man-Making Education is proposed by:

**[Question ID = 41445]**

1. J. Krishnamurthy [Option ID = 75773]
2. Plato [Option ID = 75775]
3. Swami Vivekananda [Option ID = 75774]
4. Rabindranath Tagore [Option ID = 75772]

**Correct Answer :-**

- Swami Vivekananda [Option ID = 75774]

**71)** Theory of Multiple Intelligence was given by:

**[Question ID = 41448]**

1. Raymond Moore [Option ID = 75784]
2. Jean Piaget [Option ID = 75786]
3. Howard Gardner [Option ID = 75787]
4. John Locke [Option ID = 75785]

**Correct Answer :-**

- Howard Gardner [Option ID = 75787]

**72)** Summative Evaluation takes place:

**[Question ID = 41458]**

1. in the beginning of the lesson [Option ID = 75824]
2. at regular intervals [Option ID = 75826]
3. during the development of lesson [Option ID = 75825]
4. at the end of the lesson [Option ID = 75827]

**Correct Answer :-**

- at the end of the lesson [Option ID = 75827]

73) Q35) If  $\alpha$  and  $\beta$  are the roots of the  $8x^2 - 3x + 27 = 0$ , then the value of  $\left[ \left( \frac{\alpha^2}{\beta} \right)^{1/3} + \left( \frac{\beta^2}{\alpha} \right)^{1/3} \right]$  is

[Question ID = 41418]

1.  $1/3$  [Option ID = 75664]
2.  $1/4$  [Option ID = 75665]
3.  $1/5$  [Option ID = 75666]
4.  $1/6$  [Option ID = 75667]

Correct Answer :-

- $1/4$  [Option ID = 75665]

74) If signs + & - and numbers 3 & 6 are interchanged then which of the following will yield different result from others?

[Question ID = 41477]

1.  $12-6+3 = 12+3-6=9$  [Option ID = 75901]
2.  $6-12+3 = 3+12-6=9$  [Option ID = 75902]
3.  $3+6-12 = 6-3+12=15$  [Option ID = 75900]
4.  $12+6-3 = 12-6+3=9$  [Option ID = 75903]

Correct Answer :-

- $3+6-12 = 6-3+12=15$  [Option ID = 75900]

75) "Cloud" in information technology means

[Question ID = 41451]

1. free email provider's group [Option ID = 75799]
2. group of internet proving companies [Option ID = 75796]
3. free software provider's group [Option ID = 75798]
4. delivery of computing services over the internet [Option ID = 75797]

Correct Answer :-

- delivery of computing services over the internet [Option ID = 75797]

76) One of the mandate of All India Council of Technical Education is to:

[Question ID = 41441]

1. to conduct seminal research in the field of technical education. [Option ID = 75759]
2. setup technical institutes in the country. [Option ID = 75756]
3. plan and coordinate development of technical education system in the country. [Option ID = 75758]
4. conduct appointments of staff in technical institutes. [Option ID = 75757]

Correct Answer :-

- plan and coordinate development of technical education system in the country. [Option ID = 75758]

77) Let  $M$  be the set of all  $2 \times 2$  matrices with entries from the set  $R$  of real numbers. Then the function  $f: M \rightarrow R$  defined by  $f(A) = |A|$  for every  $A \in M$ , is

[Question ID = 41431]

1. onto but not one-one [Option ID = 75719]
2. one-one but not onto [Option ID = 75718]
3. neither one-one nor onto [Option ID = 75717]
4. one-one and onto [Option ID = 75716]

Correct Answer :-

- onto but not one-one [Option ID = 75719]

78) A disease test is advertised as being 99% accurate. If 1% of all people have this disease and you test positive, the probability that you actually have the disease is

[Question ID = 41407]

1. 99% [Option ID = 75621]
2. 1% [Option ID = 75620]
3. 50% [Option ID = 75622]
4. 0.1% [Option ID = 75623]

Correct Answer :-

- 50% [Option ID = 75622]

79) Education 2030 agenda laid down by UNESCO refers to:

[Question ID = 41438]

1. Education for all movement [Option ID = 75745]
2. Right to Education [Option ID = 75746]
3. Sustainable development goals [Option ID = 75744]
4. World declaration on education for all [Option ID = 75747]

Correct Answer :-

- Sustainable development goals [Option ID = 75744]

80) A wooden slab of dimensions 150 x 60 x 36 is to be cut to obtain solid cubes of dimensions 5 x 5 x 5. The number of smaller cubes that can be formed is

[Question ID = 41408]

1. 1296 [Option ID = 75626]
2. 2520 [Option ID = 75625]
3. 2592 [Option ID = 75624]
4. 3600 [Option ID = 75627]

Correct Answer :-

- 2520 [Option ID = 75625]

81) The length, breadth and height of a cuboid are the roots of the polynomial  $p(x) = x^3 - 45x^2 + 1348x - 3360$ . If  $A$  and  $V$  are the surface area and the volume of the cuboid respectively then the value of  $2A - V$  is

[Question ID = 41384]

1. 2012 [Option ID = 75528]
2. 2032 [Option ID = 75531]
3. -2012 [Option ID = 75530]
4. -664 [Option ID = 75529]



**Correct Answer :-**

- 2032 [Option ID = 75531]

**82)** Q31) Let  $V$  be an vector space, and let  $W$  be a subset of  $V$ . What does it mean when we say that  $W$  is closed under addition?

**[Question ID = 41414]**

1. Whenever  $x$  and  $y$  are in  $W$ , then  $x + y$  is in  $W$ . [Option ID = 75650]
2. Whenever  $x$  and  $y$  are in  $W$ , then  $x + y$  is in  $V$ . [Option ID = 75649]
3. Whenever  $x$  and  $y$  are in  $V$ , then  $x + y$  is in  $W$ . [Option ID = 75651]
4. If  $x + y$  is in  $W$ , then  $x$  and  $y$  are in  $W$ . [Option ID = 75648]

**Correct Answer :-**

- Whenever  $x$  and  $y$  are in  $W$ , then  $x + y$  is in  $W$ . [Option ID = 75650]

**83)**

Let  $f(x + y) = f(x) + f(y)$  for all real values of  $x$  and  $y$ . If  $f'(0) = 3$  and  $f'(5) = 6$ , then the value of  $f(5)$  is

**[Question ID = 41386]**

1. 3 [Option ID = 75539]
2. 9 [Option ID = 75538]
3. 18 [Option ID = 75536]
4. 2 [Option ID = 75537]

**Correct Answer :-**

- 2 [Option ID = 75537]

**84)** Which among the following statement is true?

**[Question ID = 41440]**

1. Polynomial is an algebraic expression in one variable. [Option ID = 75754]  
A polynomial is an equation with one or more than one variables.
2. [Option ID = 75755]
3. Every polynomial is an algebraic expression. [Option ID = 75753]
4. Every polynomial is a function. [Option ID = 75752]

**Correct Answer :-**

- Every polynomial is an algebraic expression. [Option ID = 75753]

**85)**

If  $a_i > 0$  for  $i = 1, 2, \dots, n$  and  $a_1 a_2 \dots a_n = 1$ , then the minimum value of  $(2 + a_1)(2 + a_2) \dots (2 + a_n)$  is

**[Question ID = 41425]**

1.  $2^{n/2}$  [Option ID = 75692]
2.  $2^{2n}$  [Option ID = 75694]
3.  $3^n$  [Option ID = 75695]
4.  $2^{3n/2}$  [Option ID = 75693]

**Correct Answer :-**

- $3^n$  [Option ID = 75695]

**86)** National Curriculum Framework 2005, emphasized the shift from:

[Question ID = 41449]

1. teacher dominated classroom to learner centered classroom. [Option ID = 75788]
2. board examination to no-fail policy. [Option ID = 75789]  
conventional training program for teachers to short term training program for
3. teachers. [Option ID = 75791]
4. textbook based teaching to resource based teaching. [Option ID = 75790]

Correct Answer :-

- teacher dominated classroom to learner centered classroom. [Option ID = 75788]

87) One of the important mandate of Rehabilitation Council of India (RCI) is to:

[Question ID = 41439]

1. to appoint special educators in schools. [Option ID = 75748]
2. set up special schools for children with disabilities. [Option ID = 75750]
3. provide counseling services to people with behavioral problems. [Option ID = 75751]
4. regulate and monitor services given to persons with disabilities. [Option ID = 75749]

Correct Answer :-

- regulate and monitor services given to persons with disabilities. [Option ID = 75749]

88) *SUPW* in school curriculum is meant for:

[Question ID = 41443]

1. school-university partnership for community work. [Option ID = 75766]
2. socially utilized and productive work. [Option ID = 75764]
3. scientific use of produced work. [Option ID = 75765]  
socially useful and productive work.
4. [Option ID = 75767]

Correct Answer :-

- socially useful and productive work. [Option ID = 75767]

89)

Q37) Let  $f(x)$  be a quadratic expression which is positive for all real  $x$ . If  $g(x) = f(x) - f'(x) + f''(x)$  then for any real  $x$

[Question ID = 41420]

1.  $g(x) = 0$  has real roots. [Option ID = 75673]
2.  $g(x) > 0$  [Option ID = 75672]
3.  $g(x) \leq 0$  [Option ID = 75674]
4.  $g(x) < 0$  [Option ID = 75675]

Correct Answer :-

- $g(x) > 0$  [Option ID = 75672]

90)

$F$  and  $F'$  are the foci of an ellipse  $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$  and  $A$  and  $A'$  are the end points of the major axis.  $P$  is any point on the ellipse. If the area of the triangle  $APA'$  is twice the area of the triangle  $FPF'$  and the perimeter of triangle  $FPF'$  is 66. then the value of  $a^2 + b^2$  is

[Question ID = 41402]

1. 847 [Option ID = 75601]
2. 849 [Option ID = 75602]

3. 845 [Option ID = 75600]  
 4. 851 [Option ID = 75603]

**Correct Answer :-**

- 847 [Option ID = 75601]

**91)** If  $F = 12$  and  $FAT = 54$ , then  $FATAFAT$  will be equal to

**[Question ID = 41473]**

1. 130 [Option ID = 75887]  
 2. 120 [Option ID = 75886]  
 3. 100 [Option ID = 75884]  
 4. 110 [Option ID = 75885]

**Correct Answer :-**

- 110 [Option ID = 75885]

**92)**

**Directions for questions 43 – 44:** Let  $f: [2, \infty) \rightarrow [1, \infty)$  defined by  $f(x) = 2^{x^4 - 4x^2}$  and  $g: \left[\frac{\pi}{2}, \pi\right] \rightarrow A$  defined by  $g(x) = \frac{\sin x + 4}{\sin x - 2}$  be two invertible functions.

The set  $A$  is equal to

**[Question ID = 41427]**

1.  $[-5, -2]$  [Option ID = 75700]  
 2.  $[-5, 2]$  [Option ID = 75702]  
 3.  $[2, 5]$  [Option ID = 75701]  
 4.  $[-3, -2]$  [Option ID = 75703]

**Correct Answer :-**

- $[-5, -2]$  [Option ID = 75700]

**93)**

**Directions for questions 43 – 44:** Let  $f: [2, \infty) \rightarrow [1, \infty)$  defined by  $f(x) = 2^{x^4 - 4x^2}$  and  $g: \left[\frac{\pi}{2}, \pi\right] \rightarrow A$  defined by  $g(x) = \frac{\sin x + 4}{\sin x - 2}$  be two invertible functions.

$f^{-1}(x)$  is equal to

**[Question ID = 41426]**

1.  $\sqrt{2 - \sqrt{4 + \log_2 x}}$  [Option ID = 75698]  
 2.  $\sqrt{2 - \sqrt{4 - \log_2 x}}$  [Option ID = 75699]  
 3.  $\sqrt{2 + \sqrt{4 + \log_2 x}}$  [Option ID = 75697]  
 4.  $\sqrt{2 + \sqrt{4 - \log_2 x}}$  [Option ID = 75696]

**Correct Answer :-**

- $\sqrt{2 + \sqrt{4 + \log_2 x}}$  [Option ID = 75697]

94)

Q36) If  $\alpha, \beta$  are roots of  $375x^2 - 25x - 2 = 0$  and  $s_n = \alpha^n + \beta^n$ , then  $\lim_{n \rightarrow \infty} \sum_{r=1}^n s_r$  is

[Question ID = 41419]

1. 29/358 [Option ID = 75670]
2. 7/116 [Option ID = 75668]
3. 12 [Option ID = 75671]
4. 1/12 [Option ID = 75669]

Correct Answer :-

- 1/12 [Option ID = 75669]

95)

Q40) If  $|z_1| = |z_2| = |z_3| = 1$  and  $z_1 + z_2 + z_3 = \sqrt{2} + i$ , then the complex numbers  $\overline{z_2 z_3} + \overline{z_3 z_1} + \overline{z_1 z_2}$  is

[Question ID = 41423]

1. purely imaginary [Option ID = 75685]
2. positive real number [Option ID = 75686]
3. purely real [Option ID = 75684]
4. negative real number [Option ID = 75687]

Correct Answer :-

- purely imaginary [Option ID = 75685]

Topic:- DU\_J18\_MSC\_ME\_TOPIC2

1) Read the following passage and answer the questions.

As we engage in the act of envisioning the role of the teacher and the shape of teacher education unfolding in the coming years, it would do us well to take note of the movement of ideas, globally, that have led to current thinking on teacher education. While the search for a philosophy of teacher education that satisfies the needs of our times continues, we seem to be converging on certain broad principles that should inform the enterprise. First, our thinking on teacher education is integrative and eclectic. It is free from the hold of 'schools' of philosophy and psychology. Teacher education is not to be construed as a prescriptive endeavour; it has to be open and flexible. The emphasis has to be on changing contexts and the objective should be to empower the teacher to relate himself/herself to them. Second, modern teacher education functions under a global canvas created by the concepts of 'learning society', 'learning to learn' and 'inclusive education'. The concern is to make teacher education liberal, humanistic and responsive to the demands of inclusive education. The emphasis in teaching has to shift from didactic communication to non-didactic and dialogical explorations. Third, modern pedagogy derives its inspiration more from sociological and anthropological insights on education. There is increasing recognition of the worth and potential of social context as a source for rejuvenating teaching and learning. Multi-cultural education and teaching for diversity are the needs of contemporary times. Fourth, the existence of a diversity of learning spaces and curriculum sites (farm, workplace, home, community and media), apart from the classroom has to be made visible. Accordingly, the diversity of learning styles that children exhibit and learning contexts in which teachers have to function - oversized classrooms, language, ethnic child, social diversities, children suffering disadvantages of different kinds have also to be appreciated. Lastly, it has to be stressed that the so called knowledge base of teacher education has to be understood in terms of its tentative and fluid nature. This makes reflective practice the central aim of teacher education.

Modern Teacher Education is based on the concepts of

[Question ID = 41482]

1. diversity of learning spaces and curriculum site [Option ID = 75923]
2. learning society, learning to learn and inclusive education [Option ID = 75922]
3. reflective practices [Option ID = 75920]
4. sociological and anthropological insights [Option ID = 75921]

Correct Answer :-

- learning society, learning to learn and inclusive education [Option ID = 75922]

2)

Read the following passage and answer the questions.

As we engage in the act of envisioning the role of the teacher and the shape of teacher education unfolding in the coming years, it would do us well to take note of the movement of ideas, globally, that have led to current thinking on teacher education. While the search for a philosophy of teacher education that satisfies the needs of our times continues, we seem to be converging on certain broad principles that should inform the enterprise. First, our thinking on teacher education is integrative and eclectic. It is free from the hold of 'schools' of philosophy and psychology. Teacher education is not to be construed as a prescriptive endeavour; it has to be open and flexible. The emphasis has to be on changing contexts and the objective should be to empower the teacher to relate himself/herself to them. Second, modern teacher education functions under a global canvas created by the concepts of 'learning society', 'learning to learn' and 'inclusive education'. The concern is to make teacher education liberal, humanistic and responsive to the demands of inclusive education. The emphasis in teaching has to shift from didactic communication to non-didactic and dialogical explorations. Third, modern pedagogy derives its inspiration more from sociological and anthropological insights on education. There is increasing recognition of the worth and potential of social context as a source for rejuvenating teaching and learning. Multi-cultural education and teaching for diversity are the needs of contemporary times. Fourth, the existence of a diversity of learning spaces and curriculum sites (farm, workplace, home, community and media), apart from the classroom has to be made visible. Accordingly, the diversity of learning styles that children exhibit and learning contexts in which teachers have to function - oversized classrooms, language, ethnic child, social diversities, children suffering disadvantages of different kinds have also to be appreciated. Lastly, it has to be stressed that the so called knowledge base of teacher education has to be understood in terms of its tentative and fluid nature. This makes reflective practice the central aim of teacher education.

Modern pedagogy recognizes the

[Question ID = 41483]

1. need of diverse classroom [Option ID = 75927]
2. importance of reflective teaching [Option ID = 75925]
3. significance of over-sized classroom [Option ID = 75926]
4. potential of social contexts in active process of teaching- learning [Option ID = 75924]

Correct Answer :-

- potential of social contexts in active process of teaching- learning [Option ID = 75924]

3) Read the following passage and answer the questions.

As we engage in the act of envisioning the role of the teacher and the shape of teacher education unfolding in the coming years, it would do us well to take note of the movement of ideas, globally, that have led to current thinking on teacher education. While the search for a philosophy of teacher education that satisfies the needs of our times continues, we seem to be converging on certain broad principles that should inform the enterprise. First, our thinking on teacher education is integrative and eclectic. It is free from the hold of 'schools' of philosophy and psychology. Teacher education is not to be construed as a prescriptive endeavour; it has to be open and flexible. The emphasis has to be on changing contexts and the objective should be to empower the teacher to relate himself/herself to them. Second, modern teacher education functions under a global canvas created by the concepts of 'learning society', 'learning to learn' and 'inclusive education'. The concern is to make teacher education liberal, humanistic and responsive to the demands of inclusive education. The emphasis in teaching has to shift from didactic communication to non-didactic and dialogical explorations. Third, modern pedagogy derives its inspiration more from sociological and anthropological insights on education. There is increasing recognition of the worth and potential of social context as a source for rejuvenating teaching and learning. Multi-cultural education and teaching for diversity are the needs of contemporary times. Fourth, the existence of a diversity of learning spaces and curriculum sites (farm, workplace, home, community and media), apart from the classroom has to be made visible. Accordingly, the diversity of learning styles that children exhibit and learning contexts in which teachers have to function - oversized classrooms, language, ethnic child, social diversities, children suffering disadvantages of different kinds have also to be appreciated. Lastly, it has to be stressed that the so called knowledge base of teacher education has to be understood in terms of its tentative and fluid nature. This makes reflective practice the central aim of teacher education.

According to the passage, *our thinking on teacher education is eclectic* because

[Question ID = 41484]

1. it is based on sociological and humanistic approach. [Option ID = 75931]
2. it is based on ideas, theories and doctrines from broad and diverse perspectives. [Option ID = 75930]
3. it is based on field practices. [Option ID = 75929]
4. it is based on global perspectives. [Option ID = 75928]

Correct Answer :-

- it is based on ideas, theories and doctrines from broad and diverse perspectives. [Option ID = 75930]

4) Read the following passage and answer the questions.

As we engage in the act of envisioning the role of the teacher and the shape of teacher education unfolding in the coming years, it would do us well to take note of the movement of ideas, globally, that have led to current thinking on teacher education. While the search for a philosophy of teacher education that satisfies the needs of our times continues, we seem to be converging on certain broad principles that should inform the enterprise. First, our thinking on teacher education is integrative and eclectic. It is free from the hold of 'schools' of philosophy and psychology. Teacher education is not to be construed as a prescriptive endeavour; it has to be open and flexible. The emphasis has to be on changing contexts and the objective should be to empower the teacher to relate himself/herself to them. Second,

modern teacher education functions under a global canvas created by the concepts of 'learning society', 'learning to learn' and 'inclusive education'. The concern is to make teacher education liberal, humanistic and responsive to the demands of inclusive education. The emphasis in teaching has to shift from didactic communication to non-didactic and dialogical explorations. Third, modern pedagogy derives its inspiration more from sociological and anthropological insights on education. There is increasing recognition of the worth and potential of social context as a source for rejuvenating teaching and learning. Multi-cultural education and teaching for diversity are the needs of contemporary times. Fourth, the existence of a diversity of learning spaces and curriculum sites (farm, workplace, home, community and media), apart from the classroom has to be made visible. Accordingly, the diversity of learning styles that children exhibit and learning contexts in which teachers have to function - oversized classrooms, language, ethnic child, social diversities, children suffering disadvantages of different kinds have also to be appreciated. Lastly, it has to be stressed that the so called knowledge base of teacher education has to be understood in terms of its tentative and fluid nature. This makes reflective practice the central aim of teacher education.

The most close synonym of endeavour is:

[Question ID = 41485]

1. pursuit [Option ID = 75932]
2. task [Option ID = 75934]
3. effort [Option ID = 75933]
4. struggle [Option ID = 75935]

Correct Answer :-

- pursuit [Option ID = 75932]

5) Read the following passage and answer the questions.

As we engage in the act of envisioning the role of the teacher and the shape of teacher education unfolding in the coming years, it would do us well to take note of the movement of ideas, globally, that have led to current thinking on teacher education. While the search for a philosophy of teacher education that satisfies the needs of our times continues, we seem to be converging on certain broad principles that should inform the enterprise. First, our thinking on teacher education is integrative and eclectic. It is free from the hold of 'schools' of philosophy and psychology. Teacher education is not to be construed as a prescriptive endeavour; it has to be open and flexible. The emphasis has to be on changing contexts and the objective should be to empower the teacher to relate himself/herself to them. Second, modern teacher education functions under a global canvas created by the concepts of 'learning society', 'learning to learn' and 'inclusive education'. The concern is to make teacher education liberal, humanistic and responsive to the demands of inclusive education. The emphasis in teaching has to shift from didactic communication to non-didactic and dialogical explorations. Third, modern pedagogy derives its inspiration more from sociological and anthropological insights on education. There is increasing recognition of the worth and potential of social context as a source for rejuvenating teaching and learning. Multi-cultural education and teaching for diversity are the needs of contemporary times. Fourth, the existence of a diversity of learning spaces and curriculum sites (farm, workplace, home, community and media), apart from the classroom has to be made visible. Accordingly, the diversity of learning styles that children exhibit and learning contexts in which teachers have to function - oversized classrooms, language, ethnic child, social diversities, children suffering disadvantages of different kinds have also to be appreciated. Lastly, it has to be stressed that the so called knowledge base of teacher education has to be understood in terms of its tentative and fluid nature. This makes *reflective practice* the central aim of teacher education.

The above passage:

[Question ID = 41481]

1. emphasizes flexible and open education [Option ID = 75916]
2. comments on the status of teacher education [Option ID = 75917]
3. stresses the need of open and flexible teacher education [Option ID = 75918]
4. global teacher education programs [Option ID = 75919]

Correct Answer :-

- stresses the need of open and flexible teacher education [Option ID = 75918]