

Participant ID:	
Participant Name:	
Test Center Name:	Abhinav Global School Online Centre
Test Date:	23/09/2018
Test Time:	9:00 AM - 11:00 AM
Subject:	TGT MATHS MALE

Section : Mental Ability

Q.1 जब आप कॉलेज जा रहे हैं तो आप सड़क पर गिरने वाली एक बूढ़ी औरत को देखते हैं। स्थिति से निपटने के लिए अपनाये जाने वाला सबसे अच्छा तरीका क्या है?

Question ID : 16794313924

Ans 1.

उन्हें छोड़ देते हैं और अपने काम को जारी रखते हैं

2. उन्हें घर से बाहर न आने की चेतावनी दें

3.

यदि कोई घाव हो तो उन्हें पर्याप्त प्राथमिक सहायता प्रदान करना और उन्हें घर वापस ले जाना।

4. उनके परिवार के सदस्यों को बुलाए

Q.2 आज सिंधु का जन्मदिन है। आज से एक साल बाद वह अपनी 14वर्ष पहले की उम्र की दोगुनी हो जाएगी। आज सिंधु की उम्र क्या है?

Question ID : 16794313931

Ans 1. 25 वर्ष

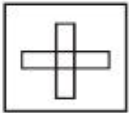
2. 29 वर्ष

3. 24 वर्ष

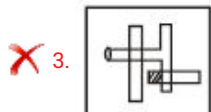
4. 19 वर्ष

Q.3 विकल्पों में से नीचे दिए गए एम्बेडेड चित्र को ढूँढें।

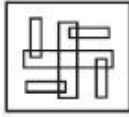
Question ID : 16794313922



Ans



✓ 4.



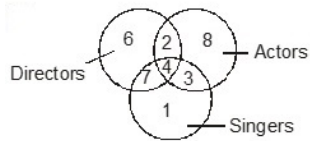
Q.4 Find the odd pair of numerals.

Question ID : 16794313933

- Ans
- ✓ 1. 51-7
 - ✗ 2. 34-6
 - ✗ 3. 79-9
 - ✗ 4. 23-5

Q.5 Study the following carefully and answer the given question.

Question ID : 16794313927

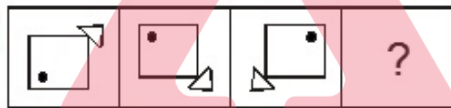


Which region belongs to the directors who are neither actors nor Singers?

- Ans
- ✗ 1. 2
 - ✗ 2. 10
 - ✓ 3. 6
 - ✗ 4. 4

Q.6 Find the next figure in the series:

Question ID : 16794313919



- Ans
- ✗ 1.
 - ✓ 2.
 - ✗ 3.
 - ✗ 4.

Q.7 What will be the missing term in the following series?

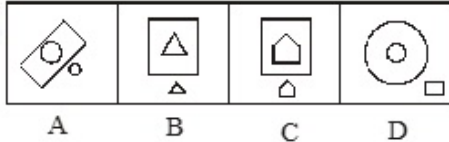
Question ID : 16794313935

B, I, P, ?, D, K

- Ans
- ✗ 1. M
 - ✗ 2. Z
 - ✓ 3. W
 - ✗ 4. O

Q.8 Choose the odd figure in the series:

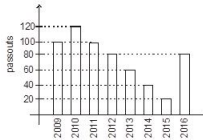
Question ID : 16794313918



- Ans
- 1. B
 - 2. D
 - 3. A
 - 4. C

Q.9 The following bar chart shows information about NTSE pass out percentage for "XYZ" institute for past years. Read the chart carefully and answer the question.

Question ID : 16794313921



What is the ratio of NTSE passouts from 'XYZ' in 2010 & 2013?

- Ans
- 1. 2 : 1
 - 2. 1 : 1
 - 3. 1.5 : 1
 - 4. 2 : 3

Q.10 If P means \times , R means $+$, T means \div and S means $-$, then what is the value of $16T2P7S10R3 = ?$

Question ID : 16794313929

- Ans
- 1. 50
 - 2. 63
 - 3. 49
 - 4. 57

Q.11 Study the following information carefully to answer the question given below.

Question ID : 16794313923

Following are the qualifications and conditions for certain posts in a "XYZ" company. The candidate must:

- a) be an engineering graduate with atleast 70% marks
 - (b) be not less than 21 yrs and not more than 26 years of age as on 01/04/2018
 - c) have passed the written test with at least 60% of marks
 - d) be willing to pay a deposit of ₹ 2.5 lacks, to be refunded on completion of probation & training
- If the candidate is satisfied with (a)-(e) would be referred as Engineer.

However if the candidate is satisfied with all the above except

- (i) at (a) but appeared final semester exam result yet to be declared with 75% average marks up to seventh semester be referred as Project-Engineer
 - (ii) at (a) but has done diploma in engineering with 75% of marks be referred as Asst. Engineer
 - (iii) at (d) be willing to pay ₹1.5 lakhs as security deposit he referred as Engineer-Trainee
 - (iv) at (b) even if age above 26 years age as on 1/4/18 but with 3 years of experience be referred as Senior-Engineer
- Fatima is 28 years now in July 2018. She has completed B-E in information technology with 86% of marks. She has passed written test with 73% of marks. She is willing to pay ₹ 2.5 Lacks of security deposit. She also had an experience of 3 years in the relevant field. For which position she will be referred?

- Ans
- 1. Engineer
 - 2. Senior-engineer
 - 3. Engineer – Trainee
 - 4. Project-Engineer

Q.12 A car wheel is always in _____ shape.

Question ID : 16794313926

- Ans
- 1. Rectangle
 - 2. Square

✓ 3. Circular

✗ 4. Triangular

Q.13 कुत्ता, कुतिया से उसी प्रकार से संबंधित है जिस प्रकार नर मधुमक्खी _____ से संबंधित है।

Question ID : 16794313916

Ans

✓ 1. मधुमक्खी

✗ 2. बिल्ली

✗ 3. बाघ

✗ 4. शेरनी

Q.14 Madhu is sister of Namrata. How is Namrata's brother's mother related to Madhu?

Question ID : 16794313928

Ans

✗ 1. Grand daughter

✓ 2. Mother

✗ 3. Sister

✗ 4. Aunt

Q.15 How the pattern would appear when the transparent sheet is folded at the dotted line?

Question ID : 16794313925

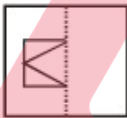


Ans

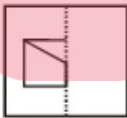
✗ 1.



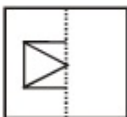
✗ 2.



✗ 3.



✓ 4.



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Q.16 What will be the next term in the following series?

Question ID : 16794313934

4, 9, 17, 35, 69, ?

Ans

✗ 1. 145

✓ 2. 139

✗ 3. 140

✗ 4. 132

Q.17 Choose the similar figure for given figure series.

Question ID : 16794313917

$\frac{T}{20}$	$\frac{E}{5}$	$\frac{A}{1}$?
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Ans

- 1. $\frac{C}{5}$
- 2. $\frac{D}{6}$
- 3. $\frac{L}{23}$
- 4. $\frac{B}{2}$

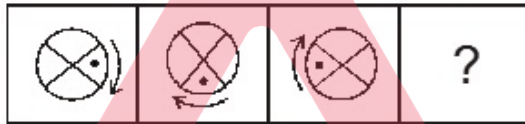
Q.18 Find the odd pair of words.

Question ID : 16794313932

- Ans
- 1. Cricket : Court
 - 2. Skating : Rink
 - 3. Wrestling : Arena
 - 4. Exercise : Gymnasium

Q.19 Find the next figure in the series:

Question ID : 16794313920



Ans

- 1.
- 2.
- 3.
- 4.

Q.20 The number of boys in a class is four times the number of girls. Which one of the following numbers cannot represent the total number of children in the class?

Question ID : 16794313930

- Ans
- 1. 50
 - 2. 45
 - 3. 42
 - 4. 60

Q.1 The National Green Tribunal was established in the year _____.

Question ID : 16794313954

- Ans
- 1. 2011
 - 2. 2010
 - 3. 2008
 - 4. 2009

Q.2 Members of Parliament Local Area Development Scheme (MPLADS) was introduced in the year:

Question ID : 16794313940

- Ans
- 1. 1995
 - 2. 1993
 - 3. 1994
 - 4. 1992

Q.3 What was the focal theme of the 105th Indian Science Congress held in March 2018?

Question ID : 16794313952

- Ans
- 1. Reaching the Unreached Through Science & Technology
 - 2. Science & Technology for Indigenous Development in India
 - 3. Future India : Science & Technology Science & technology for National Development
 - 4. Science & Technology for Human Development

Q.4 भारत में चुनावों के लिए आचार संहिता को नियंत्रित करने वाले मानदंडों का सेट _____ विकसित किया गया था।

Question ID : 16794313939

- Ans
- 1. राजनीतिक दलों की सर्वसम्मति के साथ
 - 2. भारत के बार एसोसिएशन द्वारा
 - 3. भारत की बार काउंसिल द्वारा
 - 4. सुप्रीम कोर्ट के न्यायाधीशों के एक समूह द्वारा

Q.5 _____ व्यापक भू-क्षरण का कारण बनता है।

Question ID : 16794313946

- Ans
- 1. फसल का चक्रिकरण
 - 2. कंटूर टेरेसिंग
 - 3. वायु अवरोधक रोपण
 - 4. अधिक चराई

Q.6 नीचे दिए गए कथनों में से तीन कथन भारतीय प्रतिस्पर्धा आयोग के कर्तव्यों का सही वर्णन करते हैं। असत्य कथन का पता लगाएं।

Question ID : 16794313955

- Ans
- 1. व्यापार की स्वतंत्रता को सीमित करना
 - 2. प्रतिस्पर्धा पर प्रतिकूल प्रभाव डालने वाली प्रथाओं को खत्म करना
 - 3.

प्रतिस्पर्धा को बढ़ावा देना और उसे बनाए रखना

4. उपभोक्ताओं के हितों की रक्षा करना

Q.7 Find out the unit of measurement which is NOT named in the honour of a scientist.

Question ID : 16794313950

- Ans
- 1. ampere
 - 2. farad
 - 3. radian
 - 4. hertz

Q.8 निम्नलिखित राजवंशों में से कौन सा दक्षिण भारत से संबंधित था?

Question ID : 16794313936

- Ans
- 1. सातवाहन
 - 2. सेना
 - 3. मौखरि
 - 4. प्रतिहारस

Q.9 FSDC stands for 'Financial Stability and Development _____.'

Question ID : 16794313949

- Ans
- 1. Corporation
 - 2. Committee
 - 3. Company
 - 4. Council

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Q.10 Three of the following statements in regard to the Gazette of India are correct. Find the incorrect one.

Question ID : 16794313941

- Ans
- 1. Printing of Gazette is outsourced as per rule
 - 2. Controller of Publication is the authorised publisher
 - 3. Authorised legal document of the Government of India
 - 4. Published by the Department of Publication

Q.11 'Lotus' is the state flower of 3 of the following 4 states. Find the odd one out.

Question ID : 16794313945

- Ans
- 1. Karnataka
 - 2. Himachal Pradesh
 - 3. Haryana
 - 4. Jammu and Kashmir

Q.12 Bureau of Indian Standards, measuring the Seismic Zone Intensity on MM scale (Modified Mercalli), grouped the country into _____ seismic zones.

Question ID : 16794313947

- Ans
- 1. 2
 - 2. 4
 - 3. 6
 - 4. 3

Q.13

What is NOT true in regard to Ayushman Bharat Scheme?

Question ID : 16794313938

Ans 1.

sectoral and segmented approach of health service delivery

- 2. creation of Health and Wellness Centres
- 3. vision is 'Healthy India, Prosperous India'
- 4. comprehensive need-based health care service

Q.14 _____ is celebrated as the Micro, Small and Medium-sized Enterprises Day.

Question ID : 16794313948

Ans 1. 24th June

2. 25th June

3. 26th June

4. 27th June

Q.15 Three of the following statements in connection with different formats of cricket matches, played during Indian Cricket team's tour of South Africa in 2018, are correct. Find the incorrect statement.

Question ID : 16794313942

Ans 1. India won the ODI series 4 – 2

2. South Africa won the Test series 2 – 1

3. India won the T20I series 2 – 1

4. The series was held in Jan-Feb 2018

Q.16 In August 2018, which state government took initiative to launch India's first blockchain district?

Question ID : 16794313953

Ans 1. Karnataka

2. Andhra Pradesh

3. Telangana

4. Tamil Nadu

Q.17 Which is the official game of Rajasthan?

Question ID : 16794313943

Ans 1. Kabaddi

2. Basketball

3. Volleyball

4. Hockey

Q.18 India's National Song was a part of Bankimchandra Chatterji's novel _____.

Question ID : 16794313944

Ans 1. Kapalkundala

2. Devi Chaudhurani

3. Durgeshnandini

4. Anand Math

Q.19 दादाभाई नौरोजी द्वारा स्थापित 'ज्ञान प्रसारक मंडली' _____ से संबंधित थी।

Question ID : 16794313937

Ans 1. स्वास्थ्य देखभाल पर शिक्षा

2. गरीब लोगों के लिए निःशुल्क शिक्षा

3. वयस्क पुरुषों की शिक्षा

4. महिलाओं का उत्थान

Q.20 International Bureau of Weights and Measures is located in _____.

Question ID : 16794313951

Ans 1. Finland

2. France

3. Switzerland

4. Norway

Section : Arithmetic Ability

Q.1 Two pipes A and B can fill an empty tank in 8 hours and 12 hours respectively, whereas pipe C can empty a full tank in 6 hours. When the tank is empty, pipes A and B are opened and, after 2 hours, pipe C is also opened. In how many hours the tank will be filled completely?

Question ID : 16794313972

Ans 1. 12

2. 16

3. 14

4. 18

Q.2 The sides of a triangle are 30 cm, 28 cm and 26 cm respectively. What is the length of its longest altitude (correct to one decimal place)?

Question ID : 16794313967

Ans 1. 16.4 cm

2. 25.8 cm

3. 24 cm

4. 22.4 cm

Q.3 The HCF of two numbers is 36 and their sum is 1260. If both are 3-digit numbers, then how many such pairs of numbers are possible?

Question ID : 16794313958

Ans 1. 5

2. 7

3. 4

4. 10

Q.4 What is the compound interest on ₹ 4800 for 30 months, if the interest is compounded annually at the rate of 8% per annum (rounded to the nearest integer)?

Question ID : 16794313966

Ans 1. ₹ 960

2. ₹ 1023

3. ₹ 1032

4. ₹ 1021

Q.5 Two articles A and B are sold for ₹ 1888 and ₹ 1440 respectively. On A a profit of 18% is earned, whereas on B a loss of 10% is incurred. What is the overall profit percentage?

Question ID : 16794313963

Ans 1. 8%

2. 4%

3. 5%

4. 6%

Q.6 The ratio of boys and girls in a school is 5 : 7. If, in the next session, 250 boys and 450 girls join the school, the ratio of boys and girls becomes 2 : 3. How many girls are in the school now?

Question ID : 16794313961

- Ans
- 1. 1200
 - 2. 1500
 - 3. 1000
 - 4. 1600

Q.7 एक नाव $3\frac{1}{2}$ घंटों में धारा के प्रतिकूल 12 km और धारा की ओर 15 km जा सकती है। यह 2 घंटे में धारा के प्रतिकूल 9 km और धारा की ओर 5 km भी जा सकती है। स्थिर पानी में नाव की गति km/h क्या है?

Question ID : 16794313970

- Ans
- 1. 8.5
 - 2. 8
 - 3. 9.5
 - 4. 9

Q.8 The value $\left[\frac{35 + (5 \times 9) \div 8 + 4}{(-2\frac{2}{3} + 3\frac{1}{4}) \div 2} \right] \div 6$ is equal to:

Question ID : 16794313957

- Ans
- 1. 3
 - 2. 2
 - 3. 5
 - 4. 4

Q.9 A sum of money becomes 120% of itself in 3 years. In how many years will it become 150% of itself?

Question ID : 16794313965

- Ans
- 1. $\frac{17}{2}$
 - 2. 7
 - 3. $\frac{15}{2}$
 - 4. 5

Q.10 A person spends 75% of his income. If his income is increased by 20%, he increases his expenditure by 20%. What is the percentage increase in his savings?

Question ID : 16794313964

- Ans
- 1. 20%
 - 2. 16%
 - 3. 5%
 - 4. 10%

Q.11 The efficiencies of A, B and C are in the ratio 2 : 3 : 4. They together can complete a piece of work in 6 days. In how many days A alone can complete that same piece of work?

Question ID : 16794313971

- Ans
- 1. 30
 - 2. 27
 - 3. 24
 - 4. 25

Q.12 Three numbers are in the ratio 3 : 5 : 9. If their LCM is 810, what is their HCF?

Question ID : 16794313959

- Ans
- 1. 6

- 2. 12
- 3. 15
- 4. 18

Q.13 The height and radius of the base of a cylinder are both increased by 10%. What is the percentage increase in its volume?

Question ID : 16794313968

- Ans**
- 1. 20%
 - 2. 21%
 - 3. 33.1%
 - 4. 33.3%

Q.14 If the length of a rectangle is decreased by 10%, by what percentage should its breadth be increased so that its area is increased by 10%?

Question ID : 16794313962

- Ans**
- 1. $\frac{230}{11}\%$
 - 2. 20%
 - 3. $\frac{200}{9}\%$
 - 4. $\frac{200}{7}\%$

Q.15 The value of $\frac{(1.5)^3 - (4.7)^3 + (3.2)^3 + 4.5 \times 4.7 \times 3.2}{(15)^2 + (47)^2 - (32)^2 + 1.5 \times 4.7 + 4.7 \times 3.2 - 3.2 \times 1.5}$ is equal to:

Question ID : 16794313956

- Ans**
- 1. 10
 - 2. 0.1
 - 3. 0.001
 - 4. 0

Q.16 Two trains of lengths 275 m and 175 m are running on parallel tracks in the same direction. The faster train overtakes the slower train in 54 seconds. If the speed of the slower is 40 km/h, what is the speed of the faster train?

Question ID : 16794313969

- Ans**
- 1. 9 km/h
 - 2. 60 km/h
 - 3. 70 km/h
 - 4. 75 km/h

Q.17 If $(x + y) : (x - y) = 4 : 1$, then $(x^3 + y^3) : (x^3 - y^3)$ is equal to:

Question ID : 16794313960

- Ans**
- 1. 76 : 49
 - 2. 72 : 47
 - 3. 63 : 8
 - 4. 64 : 1

Comprehension:

Direction: The following table gives the number of boys and girls studying in different streams in an Engineering college. Read the table and answer the following questions.

Stream	ME	CIVIL	C.S.	E.C.	IT	Electrical
Boys	800	1300	800	900	700	400
Girls	300	750	1300	1400	850	500

SubQuestion No : 18

Q.1
8 What is the percentage of girls studying in the college?

Question ID : 16794313974

- Ans
- 1. 49%
 - 2. 48.5%
 - 3. 48%
 - 4. 49.5%

Comprehension:

Direction: The following table gives the number of boys and girls studying in different streams in an Engineering college. Read the table and answer the following questions.

Stream	ME	CIVIL	C.S.	E.C.	IT	Electrical
Boys	800	1300	800	900	700	400
Girls	300	750	1300	1400	850	500

SubQuestion No : 19

Q.1
9 In which stream, percentage of girls is highest?

Question ID : 16794313976

- Ans
- 1. C.S.
 - 2. IT
 - 3. E.C.
 - 4. Electrical

Comprehension:

Direction: The following table gives the number of boys and girls studying in different streams in an Engineering college. Read the table and answer the following questions.

Stream	ME	CIVIL	C.S.	E.C.	IT	Electrical
Boys	800	1300	800	900	700	400
Girls	300	750	1300	1400	850	500

SubQuestion No : 20

Q.2
0 What is the percentage if students studying in the stream C.S. to the total students?

Question ID : 16794313975

- Ans
- 1. 21%
 - 2. 22.5%

~~X~~ 3. 21.5%

~~X~~ 4. 22%

Section : General English

Q.1 "Who has taken my book?" said Krish. The correct reported speech form of this sentence is:

Question ID : 16794313982

Krish _____

- Ans
- ~~X~~ 1. said who took my book.
 - ~~X~~ 2. asked whether who took his book.
 - ✓ 3. asked who had taken his book.
 - ~~X~~ 4. asked if someone has taken his book.

Q.2 Which sentence makes most grammatical sense?

Question ID : 16794313979

- Ans
- ~~X~~ 1.
Despite the rush, Ali decided to go to the mall but purchase clothes.
 - ✓ 2.
Despite the rush, Ali decided to go to the mall and purchase clothes.
 - ~~X~~ 3.
Despite the rush, Ali decided to go to the mall or purchase clothes.
 - ~~X~~ 4.
Despite the rush, Ali decided to go to the mall though purchase clothes.

Q.3 Provide the appropriate antonym for the underlined word in the below sentence.

Question ID : 16794313988

Shravan talks about gloomy things.

- Ans
- ~~X~~ 1. Rough
 - ~~X~~ 2. Intricate
 - ✓ 3. Cheerful
 - ~~X~~ 4. Caring

Q.4 One of the options below is a complete sentence. Identify it.

Question ID : 16794313977

- Ans
- ~~X~~ 1. Now and then.
 - ✓ 2. The artist painted a masterpiece.
 - ~~X~~ 3. The car in the park.
 - ~~X~~ 4. Once in a blue moon.

Q.5 Provide the appropriate synonym for the underlined word in the below sentence.

Question ID : 16794313985

He was found in a deserted island.

- Ans
- ~~X~~ 1. Habit
 - ✓ 2. Uninhabited
 - ~~X~~ 3. Reacted
 - ~~X~~ 4. Violet

Q.6

Choose a suitable ending for the below sentence:

Question ID : 16794313978

The coach did his best; however, _____

- Ans
- 1. the team could do well.
 - 2. the team couldn't perform well.
 - 3. the team performed well.
 - 4. the team couldn't well.

Q.7 Provide the appropriate antonym for the underlined word in the below sentence.

Question ID : 16794313987

The tragic ending of the movie was not appreciated by the audience.

- Ans
- 1. Comic
 - 2. Humid
 - 3. Intense
 - 4. Suspense

Q.8 Fill in the blank with the most appropriate option.

Question ID : 16794313990

The boy did not have any friend _____ Aakash.

- Ans
- 1. beside
 - 2. besides
 - 3. from
 - 4. along

Q.9 Provide the appropriate synonym for the underlined word in the below sentence.

Question ID : 16794313984

He is an ardent supporter of Liverpool.

- Ans
- 1. Arrogant
 - 2. Devoted
 - 3. Impossible
 - 4. Strength

Q.10 Fill in the blank with the most appropriate option.

Question ID : 16794313989

My cat rushed _____ the road.

- Ans
- 1. of
 - 2. besides
 - 3. into
 - 4. across

Q.11 Provide the appropriate synonym for the underlined word in the below sentence.

Question ID : 16794313986

My colleagues threw a surprise party for me.

- Ans
- 1. Close-knit
 - 2. Class mates

3. Boss

4. Companions

Q.12 Fill in the blank with the most appropriate option.

Question ID : 16794313981

He likes _____ his school teachers once in a while.

Ans 1. to meeting

2. meeting

3. meet

4. to be meeting

Q.13 Fill in the blank with the most appropriate option.

Question ID : 16794313991

_____ he heads the team, he is accountable for their performance.

Ans 1. Despite

2. Consequently

3. Because

4. But

Q.14 Provide the appropriate question tag for the below question:

Question ID : 16794313983

She works at the CCI club _____

Ans 1. should she?

2. does she?

3. mustn't she?

4. doesn't she?

Q.15 Fill in the blank with the most appropriate option.

Question ID : 16794313980

Mark _____ at Titan since 2008.

Ans 1. work

2. must working

3. worked

4. has been working

Comprehension:

Read the following passage and answer the questions that follow.

A recent application filed as a second appeal under the Right to Information (RTI) Act by an activist has revealed that the Central Railway's catering department purchased certain food items to stock their warehouses at several times the maximum retail price.

After railway authorities failed to share information on purchase of food items sought in his RTI application, activist Ajay Bose filed a first appeal. The response to this revealed that each kg of Amul curd was purchased at an eye-watering ₹9,720. Mr. Bose filed his query after learning that the catering department was running at a huge loss.

"I filed the application in July 2016, but didn't get a reply from Central Railway. It appeared they wanted to cover something up. I filed an appeal and the appellate authority show caused the railways asking them to provide details sought by me within 15 days. Despite this, there was no reply even after several months," Mr. Bose told The Hindu.

SubQuestion No : 16

Q.1
6 The Appellate Authority asked the Railways to respond within:

Question ID : 16794313996

- Ans
- ✓ 1. 15 days
 - ✗ 2. 15 hours
 - ✗ 3. 5 days
 - ✗ 4. 15 minutes

Comprehension:

Read the following passage and answer the questions that follow.

A recent application filed as a second appeal under the Right to Information (RTI) Act by an activist has revealed that the Central Railway's catering department purchased certain food items to stock their warehouses at several times the maximum retail price.

After railway authorities failed to share information on purchase of food items sought in his RTI application, activist Ajay Bose filed a first appeal. The response to this revealed that each kg of Amul curd was purchased at an eye-watering ₹9,720. Mr. Bose filed his query after learning that the catering department was running at a huge loss.

"I filed the application in July 2016, but didn't get a reply from Central Railway. It appeared they wanted to cover something up. I filed an appeal and the appellate authority show caused the railways asking them to provide details sought by me within 15 days. Despite this, there was no reply even after several months," Mr. Bose told The Hindu.

SubQuestion No : 17

Q.1
7 The word 'query' as used in the passage means:

Question ID : 16794313994

- Ans
- 1. critic
 - 2. answer
 - 3. solution
 - 4. question

Comprehension:

Read the following passage and answer the questions that follow.

A recent application filed as a second appeal under the Right to Information (RTI) Act by an activist has revealed that the Central Railway's catering department purchased certain food items to stock their warehouses at several times the maximum retail price.

After railway authorities failed to share information on purchase of food items sought in his RTI application, activist Ajay Bose filed a first appeal. The response to this revealed that each kg of Amul curd was purchased at an eye-watering ₹9,720. Mr. Bose filed his query after learning that the catering department was running at a huge loss.

"I filed the application in July 2016, but didn't get a reply from Central Railway. It appeared they wanted to cover something up. I filed an appeal and the appellate authority show caused the railways asking them to provide details sought by me within 15 days. Despite this, there was no reply even after several months," Mr. Bose told The Hindu.

SubQuestion No : 18

Q.1
8 The above article conveys a clear case of:

Question ID : 16794313993

- Ans
- 1. Communication
 - 2. Unity
 - 3. Corruption
 - 4. Airline Companies

Comprehension:

Read the following passage and answer the questions that follow.

A recent application filed as a second appeal under the Right to Information (RTI) Act by an activist has revealed that the Central Railway's catering department purchased certain food items to stock their warehouses at several times the maximum retail price.

After railway authorities failed to share information on purchase of food items sought in his RTI application, activist Ajay Bose filed a first appeal. The response to this revealed that each kg of Amul curd was purchased at an eye-watering ₹9,720. Mr. Bose filed his query after learning that the catering department was running at a huge loss.

“I filed the application in July 2016, but didn't get a reply from Central Railway. It appeared they wanted to cover something up. I filed an appeal and the appellate authority show caused the railways asking them to provide details sought by me within 15 days. Despite this, there was no reply even after several months,” Mr. Bose told The Hindu.

SubQuestion No : 19

Q.1 The phrase, 'cover up' means:

- Ans
- 1. To conceal
 - 2. To discover
 - 3. To dissolve
 - 4. To disclose

Question ID : 16794313997

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Comprehension:

Read the following passage and answer the questions that follow.

A recent application filed as a second appeal under the Right to Information (RTI) Act by an activist has revealed that the Central Railway's catering department purchased certain food items to stock their warehouses at several times the maximum retail price.

After railway authorities failed to share information on purchase of food items sought in his RTI application, activist Ajay Bose filed a first appeal. The response to this revealed that each kg of Amul curd was purchased at an eye-watering ₹9,720. Mr. Bose filed his query after learning that the catering department was running at a huge loss.

“I filed the application in July 2016, but didn't get a reply from Central Railway. It appeared they wanted to cover something up. I filed an appeal and the appellate authority show caused the railways asking them to provide details sought by me within 15 days. Despite this, there was no reply even after several months,” Mr. Bose told The Hindu.

SubQuestion No : 20

Q.2
0 The activist filed a first appeal because:

Question ID : 16794313995

Ans 1. He was angry with RTI

2. He was happy

3. It was a prank

4.

Railway authorities failed to share information with him

Section : General Hindi

Q.1 'तत्सम' शब्द चुनिए:

Question ID : 16794314008

Ans 1. घर

2. छात्र

3. दोस्त

4. भाई

Q.2 'प्रतीक्षा' शब्द में उपसर्ग है:

Question ID : 16794314005

Ans 1. प्रती

2. प्र

3. प्रा

4. प्रति

Q.3 निम्नलिखित में से 'सकर्मक वाच्य' वाला वाक्य है:

Question ID : 16794314014

Ans 1. माता जी पाठ पढ़ाती हैं।

2. लड़के हँस रहे हैं।

3. यहाँ नहीं सोया जाएगा।

4. गरीबों को वस्त्र दिए गए।

Q.4 'मुँह में राम बगल में छुरी'। कहावत का किस अर्थ में प्रयोग होता है?

Question ID : 16794314016

Ans 1. शक्ति हीन होने पर भी घमंड न जाना

2. दूर की चीज़ें अच्छी लगना

3. देखने में सज्जन, हृदय से कपटी

4. भक्ति करना ईश्वर दर्शन हेतु

Q.5 'यह पुस्तक मोहन को दे दो।' वाक्य में रेखांकित अंश में कारक है:

Question ID : 16794314002

Ans 1. कर्म

✓ 2. संप्रदान

✗ 3. कर्ता

✗ 4. करण

Q.6 'आपने मौलिक बात कही है।' वाक्य में विशेषण पद है:

Question ID : 16794314007

Ans ✓ 1. मौलिक

✗ 2. कही है

✗ 3. बात

✗ 4. आपने

Q.7 'मोक्ष की इच्छा'। वाक्यांश के लिए एक शब्द है:

Question ID : 16794314010

Ans ✗ 1. जिगीषा

✓ 2. मुमुक्षा

✗ 3. बुभुक्षा

✗ 4. मुमूर्षा

Q.8 'अल्पप्राण' वर्ण होता है, प्रत्येक वर्ग का:

Question ID : 16794313998

Ans ✗ 1. पहला चौथा तीसरा

✗ 2. चौथा पाँचवां पहला

✓ 3. पहला तीसरा पाँचवां

✗ 4. पहला दूसरा पाँचवां

Q.9 'आदमी' शब्द का बहुवचन (अविभक्तिक) रूप होगा:

Question ID : 16794314013

Ans ✓ 1. आदमी

✗ 2. आदमियों

✗ 3. आदमीयो!

✗ 4. आदमियाँ

Q.10 'वृक्ष' का पर्यायवाची नहीं है:

Question ID : 16794314012

Ans ✗ 1. तरु

✗ 2. द्रुम

✗ 3. पेड़

✓ 4. कानन

Q.11 'लालकमल' शब्द में समास है:

Question ID : 16794314004

- Ans
- 1. कर्मधारय
 - 2. द्विगु
 - 3. तत्पुरुष
 - 4. अव्ययीभाव

Q.12 'तल्लीन' शब्द बना है:

Question ID : 16794314003

- Ans
- 1. त + ल्लीन से
 - 2. तत् + लीन से
 - 3. तद् + लीन से
 - 4. तल + लीन से

Q.13 अशुद्ध शब्द कौन-सा है?

Question ID : 16794314000

- Ans
- 1. सुजनता
 - 2. विद्वानता
 - 3. सफलता
 - 4. महानता

Q.14 कौन-सा वाक्य गलत है?

Question ID : 16794314017

- Ans
- 1. अब आप जा सकते हैं।
 - 2. मैं किताब पढ़कर ही उठूँगा।
 - 3. मुझे भी कुछ तो बता ही दो।
 - 4. तुम तुम्हारा काम करो।

Q.15 'सरसराहट' शब्द में प्रत्यय है:

Question ID : 16794314006

- Ans
- 1. ट
 - 2. हट
 - 3. राहट
 - 4. आहट

Q.16 'इ, च, श, य' वर्णों का उच्चारण स्थान है:

Question ID : 16794313999

- Ans
- 1. कंठ
 - 2. तालु
 - 3. ओष्ठ
 - 4. मूर्धा

Q.17 बताइए 'तद्भव' शब्द कौन-सा है?

Question ID : 16794314009

- Ans
- 1. माता
 - 2. मित्र
 - 3. भाई
 - 4. सखा

Q.18 'मोहन चला गया है।' यह वाक्य किस काल का है?

Question ID : 16794314001

- Ans
- 1. पूर्ण भूत
 - 2. आसन्न भूत
 - 3. अपूर्ण भूत
 - 4. संदिग्ध भूत

Q.19 'नौ दो ग्यारह होना' मुहावरे का अर्थ है:

Question ID : 16794314015

- Ans
- 1. भाग जाना
 - 2. दौड़ जाना
 - 3. छिप जाना
 - 4. हाथ पकड़ना

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Q.20 'लौकिक' शब्द का विलोम होता है:

Question ID : 16794314011

- Ans
- 1. पारलौकिकता
 - 2. लोकजन्य
 - 3. आलौकिक
 - 4. अलौकिक

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Section : Subject Related

Q.1 Consider four sets of vectors A, B, C and D in \mathbb{R}^3 . Out of these sets of vectors, one set is linearly dependent in \mathbb{R}^3 . Identify this linearly dependent set.

Question ID : 16794314031

- Ans
- 1. $B = \{[1, 0, 0], [0, 1, 1], [1, 0, 1]\}$
 - 2. $A = \{[1, 1, 1], [1, 1, 0], [1, 0, 0]\}$
 - 3. $D = \{[1, 1, 1], [0, 1, 1], [2, 0, 1]\}$
 - 4. $C = \{[1, 1, 3], [0, 2, 1], [0, 0, 0]\}$

Q.2 Let $n > 1$ be fixed and a, b, c, d be arbitrary integers. If $a \equiv b \pmod{n}$ and $c \equiv d \pmod{n}$, then:

Question ID : 16794314018

- Ans
- 1. $a + c \not\equiv b + d \pmod{n}$ and $ac \not\equiv bd \pmod{n}$
 - 2.

$$a + c \not\equiv b + d \pmod{n} \text{ but } ac \equiv bd \pmod{n}$$

✓ 3.

$$a + c \equiv b + d \pmod{n} \text{ and } ac \equiv bd \pmod{n}$$

✗ 4.

$$a + c \equiv b + d \pmod{n} \text{ but } ac \not\equiv bd \pmod{n}$$

Q.3 Let A be a nonsingular diagonalizable matrix of order 3 with eigenvalues $\lambda_1, \lambda_2, \lambda_3$. Then A^{-1} is diagonalizable if:

Question ID : 16794314030

Ans ✓ 1. $\lambda_1 = 2, \lambda_2 = 1, \lambda_3 = 3$

✗ 2. $\lambda_1 = 1, \lambda_2 = 2, \lambda_3 = 0$

✗ 3. $\lambda_1 = 0, \lambda_2 = 0, \lambda_3 = 0$

✗ 4. $\lambda_1 = 2, \lambda_2 = 0, \lambda_3 = 0$

Q.4 If $27! \equiv x \pmod{29}$, then the value of x is:

Question ID : 16794314023

Ans ✓ 1. 1

✗ 2. 0

✗ 3. 27

✗ 4. -1

Q.5 Consider a nonhomogeneous system of 5 linear equations in 4 variables, such that there is at least one variable with a non-zero coefficient in each equation. Then the possible smallest and largest ranks for the corresponding augmented matrix are:

Question ID : 16794314032

Ans ✓ 1. Smallest = 1, Largest = 5

✗ 2. Smallest = 2, Largest = 5

✗ 3. Smallest = 1, Largest = 4

✗ 4. Smallest = 2, Largest = 4

Q.6 The units digit of 3^{100} is:

Question ID : 16794314025

Ans ✗ 1. 0

✓ 2. 1

✗ 3. 2

✗ 4. 3

Q.7 Which of the given statements is true?

Question ID : 16794314027

Ans ✗ 1. Every square matrix is diagonalizable.

✗ 2.

The sum of diagonalizable matrices is also diagonalizable.

✗ 3.

The product of diagonalizable matrices is also diagonalizable.

✓ 4.

If A is a diagonalizable matrix, then A^T is diagonalizable.

Q.8 Identify a subspace of 2 out of four given options:

Question ID : 16794314029

Ans ✗ 1.

A line in 2 passing through the points (0, 1) and (-1, 0).

2.

A line in 2 passing through the points (0,-1) and (-1, 0).

3.

A line in 2 passing through the points (1, 3) and (-1, -3).

4.

A line in 2 passing through the points (0,-1) and (1, 0).

Q.9 Consider the subset:

$S = \{(3, 1, -1), [2, 2, -1], [-5, -2, 2], [1, 3, 1]\}$ of \mathbb{R}^3 . If A is the matrix having columns as vectors of set S, then:

Question ID : 16794314026

Ans 1.

the set S is linearly dependent and the matrix A has rank 3.

2.

the set S is linearly dependent and the matrix A has rank 2.

3.

the set S is linearly independent and the matrix A has rank 3.

4.

the set S is linearly independent and the matrix A has rank 2.

Q.10 The real values of x satisfying the inequality:

Question ID : 16794314036

$x^{(\log_{10} x)^2 - 3 \log_{10} x + 1} > 1000$ are:

Ans 1. $x > 100$

2. $x > 1000$

3. $x > 1$

4. $x > 10$

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Q.11 The system of linear congruences:

Question ID : 16794314021

$$x \equiv 1 \pmod{5}$$

$$x \equiv 3 \pmod{3}$$

$$x \equiv 2 \pmod{7}$$

Ans 1.

has a simultaneous solution, which is not unique modulo 105.

2. has no simultaneous solution.

3.

has a simultaneous solution, which is unique modulo 105.

4.

cannot be solved by Chinese Remainder theorem.

Q.12 For any real $x \neq 0$, which of the inequality is true?

Question ID : 16794314037

Ans

1. $\left|x + \frac{1}{x}\right| < 0$

2. $\left|\frac{1+x^2}{2x}\right| < 1$

3. $\left|x + \frac{1}{x}\right| < 2$

4. $\left|x + \frac{1}{x}\right| \geq 2$

Q.13 The number of positive divisors of $8 \times 81 \times 125$ is:

Question ID : 16794314019

Ans 1. 20

2. 80

3. 16

4. 100

Q.14 Consider the linear congruence $6x \equiv 3 \pmod{9}$. Then the incongruent solutions modulo 9 of this congruence are:

Question ID : 16794314020

Ans 1. 0, 3, 6

2. no solution

3. 2, 5, 8

4. 1, 4, 7

Q.15 If a_1, a_2, \dots, a_n and b_1, b_2, \dots, b_n are non-negative real numbers such that $a_1 > b_1, a_2 > b_2, \dots, a_n > b_n$, then:

Question ID : 16794314035

Ans 1.

$a_1 + a_2 + \dots + a_n > b_1 + b_2 + \dots + b_n$ and $a_1 a_2 \dots a_n > b_1 b_2 \dots b_n$

2.

$a_1 + a_2 + \dots + a_n < b_1 + b_2 + \dots + b_n$ and $a_1 a_2 \dots a_n < b_1 b_2 \dots b_n$

3.

$a_1 a_2 \dots a_n > b_1 b_2 \dots b_n$ but $a_1 + a_2 + \dots + a_n < b_1 + b_2 + \dots + b_n$

4.

$a_1 + a_2 + \dots + a_n > b_1 + b_2 + \dots + b_n$ but $a_1 a_2 \dots a_n < b_1 b_2 \dots b_n$

Q.16 If $x (\neq 1)$ is any real number, then $x^3 + 1 > x^2 + x$ if:

Question ID : 16794314034

Ans 1. $x > -1$

2. Inequality doesn't hold for any real x .

3. $x = -1$

4. $x < -1$

Q.17 If W is a nonempty subset of real vector space \mathbb{R}^3 using the same operations, then W is a subspace of \mathbb{R}^3 if and only if:

Question ID : 16794314028

Ans 1.

W is not closed under scalar multiplication but closed under vector addition in \mathbb{R}^3

2.

W is closed under vector addition and scalar multiplication in \mathbb{R}^3

3.

W is not closed under vector addition but closed under scalar multiplication in \mathbb{R}^3

~~X~~ 4.

W is neither closed under vector addition nor closed under scalar multiplication in 3

Q.18 A transformation $T: 2 \rightarrow 2$ first reflects points through the vertical axis (x_2 - axis) and then reflects points through the line $x_2 = x_1$. Then the standard matrix of T is:

Question ID : 16794314033

Ans

~~X~~ 1. $\begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix}$

~~X~~ 2. $\begin{bmatrix} -1 & 0 \\ 0 & 1 \end{bmatrix}$

~~X~~ 3. $\begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}$

✓ 4. $\begin{bmatrix} 0 & 1 \\ -1 & 0 \end{bmatrix}$

Q.19 If a is any integer and $a^3 \equiv x \pmod{9}$, then the possible values of x are:

Question ID : 16794314024

Ans

~~X~~ 1. 5, 6, 7

✓ 2. 0, 1, 8

~~X~~ 3. 3, 5, 7

~~X~~ 4. 2, 4, 6

Q.20 If p and q are distinct primes with $a^p \equiv a \pmod{q}$ and $a^q \equiv a \pmod{p}$, then:

Question ID : 16794314022

Ans

~~X~~ 1. $a^{pq} \equiv -a \pmod{pq}$

✓ 2. $a^{pq} \equiv a \pmod{pq}$

~~X~~ 3. $a^{pq} \equiv 0 \pmod{pq}$

~~X~~ 4. $a^{pq} \equiv 1 \pmod{pq}$

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Section : Subject Related

Q.1 The general solution of recurrence relation

Question ID : 16794314052

$a_r - 5a_{r-1} + 6a_{r-2} = 4^r, r \geq 2$ is:

Ans

~~X~~ 1.

$A_1 \cdot 2^r + A_2 \cdot 3^r - \frac{1}{8} \cdot 4^r$, where A_1 and A_2 are arbitrary constants.

~~X~~ 2.

$A_1 \cdot 5^r + A_2 \cdot 6^r + 8 \cdot 4^r$, where A_1 and A_2 are arbitrary constants.

✓ 3.

$A_1 \cdot 2^r + A_2 \cdot 3^r + 8 \cdot 4^r$, where A_1 and A_2 are arbitrary constants.

~~X~~ 4.

$A_1 \cdot 2^r + A_2 \cdot 4^r + \frac{1}{8} \cdot 3^r$, where A_1 and A_2 are arbitrary constants.

Q.2 If the point $P(x,y)$ is equidistant from the points $A(a+b, b-a)$ and $B(a-b, a+b)$, then:

Question ID : 16794314048

Ans

~~X~~ 1. $x = ay$

~~X~~ 2. $y = bx$

~~3.~~ $ax = by$

✓ 4. $bx = ay$

Q.3 In the expansion of $(5^{\frac{1}{3}} + 2^{\frac{1}{7}})^{21}$, the sum of all rational terms is:

Question ID : 16794314053

Ans ~~1.~~ 78117

✓ 2. 78133

~~3.~~ 78149

~~4.~~ 78125

Q.4 Two candidates attempted the problem, $x^2 + px + q = 0$. One started with a wrong value of p and got the roots -1 and -9 , whereas the other started with an incorrect value of q and got the roots 2 and 8 . Find the correct roots.

Question ID : 16794314039

Ans ~~1.~~ 9 and -2

~~2.~~ 8 and -9

~~3.~~ -1 and 2

✓ 4. 1 and 9

Q.5 If there are m arithmetic progressions with the first term of each being unity and common differences as $1, 2, 3, \dots, m$ respectively, then the sum of their n^{th} terms is:

Question ID : 16794314054

Ans ~~1.~~ $\frac{n}{2} [mn + m - n + 1]$

~~2.~~ $\frac{m}{2} [mn + m - n + 1]$

~~3.~~ $\frac{n}{2} [mn - m + n + 1]$

✓ 4. $\frac{m}{2} [mn - m + n + 1]$

Q.6 If $A(6, 3)$, $B(-3, 5)$, $C(4, -2)$ and $D(x, 3x)$ are four points with $\frac{\text{Area}(\triangle DBC)}{\text{Area}(\triangle ABC)} = \frac{3}{2}$, then the value of x is:

Question ID : 16794314045

Ans ~~1.~~ $\frac{23}{8}$

~~2.~~ $\frac{177}{56}$

~~3.~~ $\frac{173}{56}$

✓ 4. $\frac{25}{8}$

Q.7 Consider three quadratic equations, $x^2 + ax + bc = 0$, $x^2 + bx + ca = 0$, $x^2 + cx + ab = 0$. If each pair of these equations has a common root, then the sum and product of these common roots are:

Question ID : 16794314040

Ans ~~1.~~ Sum = $\frac{-(a+b+c)}{2}$, Product = $a^2 b^2 c^2$

✓ 2. Sum = $\frac{-(a+b+c)}{2}$, Product = abc

~~3.~~ Sum = $\frac{a+b+c}{2}$, Product = $a^2 b^2 c^2$

~~4.~~ Sum = $\frac{a+b+c}{2}$, Product = $2abc$

Q.8 If a_1, a_2, b_1, b_2 are non-zero real numbers, then which of the inequalities is true?

Question ID : 16794314038

Ans 1. $(a_1^2 + a_2^2)(b_1^2 + b_2^2) < (a_1b_1 + a_2b_2)^2$

2. $(a_1^2 + a_2^2)(b_1^2 + b_2^2) \geq (a_1b_1 + a_2b_2)^3$

3.

$$a_1b_1 + a_2b_2 \leq \sqrt{a_1^2b_1^2 + a_1^2b_2^2 + a_2^2b_1^2 + a_2^2b_2^2}$$

4. $a_1^2 + a_2^2 \geq (a_1b_1 + a_2b_2)^2 (b_1^2 + b_2^2)$

Q.9 Consider the quadratic equation $ax^2 + bx + c = 0$, where $a, b, c \in \mathbb{C}$. Which of the following statements is true for this equation?

Question ID : 16794314043

Ans 1. Roots will not exist.

2.

Roots will be complex and exist in conjugate pair.

3.

Roots will be complex and need not be in conjugate pair.

4. Roots will be complex and equal.

Q.10 The sum of n terms of four arithmetical progressions are S_1, S_2, S_3 and S_4 , with the first term of each as 2 and the common differences as 1, 3, 5 and 7 respectively. Then:

Question ID : 16794314055

Ans 1. $S_4 + S_3 = S_1 + S_2$

2. $S_4 + S_2 = S_1 + S_3$

3. $S_4 + S_1 + S_2 = 2S_3$

4. $S_4 + S_1 = S_2 + S_3$

Q.11 To prove anything with the pigeon-hole principle, we must have:

Question ID : 16794314049

Ans 1. more pigeons than holes

2. same number of pigeons and holes

3. less pigeons than holes

4. either pigeons or holes

Q.12 The ends of one diagonal of a parallelogram are the points $(-6, 2)$ and $(2, -4)$. Third vertex is the point $(5, 2)$. Then the coordinates of the fourth vertex are:

Question ID : 16794314044

Ans 1. $(-9, -4)$

2. $(9, -4)$

3. $(9, 4)$

4. $(-9, 4)$

Q.13 If $f(x)$ is a periodic function and α is a positive real number such that $f(x + 2\alpha) + f(x) = 0$ for all $x \in \mathbb{R}$, then the period of $f(x)$ is:

Question ID : 16794314057

Ans 1. 4α

2. 2α

3. α

4. $\frac{\alpha}{2}$

Q.14 The distance of the highest point on the graph of the function $y = \sqrt{3}\cos x + \sin x$ from the x-axis is:

Question ID : 16794314056

Ans

1. $\frac{1}{2}$

2. $\frac{\sqrt{3}}{2}$

3. $\frac{2}{\sqrt{3}}$

4. 2

Q.15 If (a, b) , (x_1, y_1) and (x_2, y_2) are the vertices of a triangle such that the x-coordinates a, x_1, x_2 are in geometric progression with common ratio r and the y-coordinates b, y_1, y_2 are also in geometric progression with common ratio s , then the area of the triangle is:

Question ID : 16794314046

Ans

1. $\frac{1}{2}ab(r-1)(s-1)(s-r)$

2. $ab(r-1)(s-1)(s-r)$

3. $\frac{1}{2}ab(r-1)(s-1)(s+r)$

4. $ab(r-1)(s-1)(s+r)$

Q.16 Roots of the quadratic equation $x^2 - 2ix + 3 = 0$ are:

Question ID : 16794314042

Ans

1. $3i, -i$

2. $3i, i$

3. $\pm 3i$

4. $-3i, -i$

Q.17 How many cards must be picked from a standard pack of 52 cards to surely get 2 cards of the same suit? (Club, Diamond, Heart and Spade are the suits.)

Question ID : 16794314050

Ans

1. 4

2. 5

3. 2

4. 3

Q.18 Among any group of 11 integers, the number of integers with the same remainder when they are divided by 10 is:

Question ID : 16794314051

Ans

1. atleast 2

2. atleast 5

3. atmost 5

4. exactly 3

Q.19 $A_1(x_1, y_1)$, $A_2(x_2, y_2)$, $A_3(x_3, y_3)$ and $A_4(x_4, y_4)$ are 4 points. P_1 divides A_1A_2 in the ratio 1 : 1, P_2 divides P_1A_3 in the ratio 1 : 2, P_3 divides P_2A_4 in the ratio 1 : 3. Then the coordinates of P_3 are:

Question ID : 16794314047

Ans

1. $\left(\frac{x_1 + x_2 + x_3 + x_4}{4}, \frac{y_1 + y_2 + y_3 + y_4}{4}\right)$

2. $\left(\frac{x_2 + x_4}{2}, \frac{y_2 + y_4}{2}\right)$

3. $\left(\frac{x_1 + x_2 + x_3}{3}, \frac{y_1 + y_2 + y_3}{3}\right)$

4. $\left(\frac{x_1 + x_3}{2}, \frac{y_1 + y_3}{2}\right)$

Q.20 If $a, b, c \in \mathbb{R}^+$ and are in arithmetic progression, then the roots of the quadratic equation $ax^2 + bx + c = 0$ are imaginary for:

Question ID : 16794314041

Ans

1. $\left|\frac{c}{a} - 7\right| < 3\sqrt{2}$

2. $\left|\frac{c}{a} - 7\right| \geq 4\sqrt{3}$

3. $\left|\frac{c}{a} - 7\right| > 3\sqrt{2}$

4. $\left|\frac{c}{a} - 7\right| < 4\sqrt{3}$

Section : Subject Related

Q.1 Which of the following equations is a linear equation in two variables?

Question ID : 16794314063

1. $(x - 1)(y + 2) = 0$

2. $2x - 3y + 7 = 0$

3. $7x - 3y + 2z = 0$

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

Q.2

The function $f(x) = \begin{cases} \frac{|x|}{3x^2 - 5x}, & x \neq 0 \\ 0, & x = 0 \end{cases}$

Question ID : 16794314059

is not continuous at $x=0$, because

1. $\lim_{x \rightarrow 0} f(x) \neq f(0)$

2. $\lim_{x \rightarrow 0^-} f(x)$ does not exist

3. $\lim_{x \rightarrow 0} f(x)$ does not exist

4. $\lim_{x \rightarrow 0^+} f(x)$ does not exist

Q.3 A pair of linear equations in two variables x and y

Question ID : 16794314068

$$b_1x + c_1y = a_1, c_2x + a_2y = b_2$$

has infinite number of possible solutions if:

Ans

✗ 1. $\frac{a_1}{a_2} = \frac{b_1}{b_2} = \frac{c_1}{c_2}$

✗ 2. $\frac{a_1}{b_2} \neq \frac{b_1}{c_2}$

✗ 3. $\frac{b_1}{c_2} = \frac{c_1}{a_2} \neq \frac{a_1}{b_2}$

✓ 4. $\frac{a_1}{b_2} = \frac{b_1}{c_2} = \frac{c_1}{a_2}$

Q.4 If a pair of equations in two variables x and y is represented graphically by two straight lines L_1 and L_2 intersecting each other at the point $(\frac{a+b}{2}, 2ab)$, then a solution of given equations will be:

Question ID : 16794314072

Ans

✓ 1. $x = \frac{a+b}{2}, y = 2ab$

✗ 2. $x = 2ab, y = \frac{a+b}{2}$

✗ 3. $x = \frac{2}{a+b}, y = \frac{1}{2ab}$

✗ 4. $x = a+b, y = ab$

Q.5 Find out the fallacy if any in the statement:

Question ID : 16794314076

"The mean and the variance of a binomial distribution is 16.2 and 29.4 respectively."

Ans

✓ 1. $q = \frac{49}{27}$ is not possible.

✗ 2. The statement is true.

✗ 3. $p = \frac{47}{27}$ is not possible.

✗ 4. $p = \frac{49}{27}$ is not possible.

Q.6 If $f(x) = \sum_{n=0}^{2k} (a_n |x|^n + b_n \sin^2 x)$, where a_i 's and b_i 's ($0 \leq i \leq k$) are real constants, then $f(x)$ is:

Question ID : 16794314060

Ans

✓ 1. differentiable at $x=0$ for all $a_{2m+1} = 0, 0 \leq m \leq k-1$.

✗ 2. differentiable at $x=0$ for all $a_{2m} = 0, 0 \leq m \leq k$.

✗ 3. not differentiable at $x=0$ for all real a_i 's and b_i 's.

✗ 4. differentiable at $x=0$ for all real a_i 's and b_i 's.

Q.7 If 3 hen together are worth ₹ 21 and 5 chicks together ₹ 20, then how many hen and chicks, cannot be bought for ₹ 100?

Question ID : 16794314066

Ans

✗ 1. 12 hen and 4 chicks

✓ 2. 16 hen and 2 chicks

✗ 3. 4 hen and 18 chicks

X 4. 8 hen and 11 chicks

Q.8 If X is a random variable that takes on any of the values $x_i, i \geq 1$ with respective probabilities $p(x_i)$, and $E[X]$ denote the expected value of X , then $E[ax^2 + bx + c]$ is:

Question ID : 16794314075

Ans

1. $\sum_i (ax_i^2 + bx_i + c)p(x_i)$

2. $\sum_i \{a(x_i p(x_i))^2 + b(x_i p(x_i)) + c\}$

3. $\sum_i x_i p(x_i)$

4. $\sum_i x_i^2 p(x_i)$

Q.9 Which of the following equations doesn't have the solution $(7, -9)$?

Question ID : 16794314064

Ans

1. $6y - 3x + 75 = 0$

2. $7y - 9x + 1 = 0$

3. $\frac{3}{2}x + \frac{5}{4}y + \frac{3}{4} = 0$

4. $2x + 3y + 13 = 0$

Q.10 If X is a random variable with Mean μ , then the variance of X , denoted by $\text{Var}(X)$ is given by:

Question ID : 16794314077

Ans

1. $\text{Var}(X) = E[X] - \mu^2$

2. $\text{Var}(X) = E[X^2] - \mu$

3. $\text{Var}(X) = E[(X - \mu)^2]$

4. $\text{Var}(X) = E[X - \mu]$

Q.11 The antiderivative $F(x)$ of the function $f(x) = \frac{1}{(\log x)^2} + \log(\log x)$ such that $F(e) = e$, will be:

Question ID : 16794314062

Ans

1. $x \log(\log x) - x \left(\frac{1}{\log x} \right) + 2e$

2. $x \log(\log x) - x \log x - 2e$

3. $\log(\log x) - x \log x - e$

4. $\log(\log x) + x \log x + e$

Q.12 If the straight line L having y -intercept as $\frac{1}{2}$ passes through the solution of the pair of equations in two variables x and y given as, $3x + 4y = 11, 7x - 2y = 3$, then the angle made by the straight line L with the positive direction of x -axis is:

Question ID : 16794314070

Ans

1. 45°

2. $\tan^{-1} \left(\frac{3}{2} \right)$

3. $\tan^{-1} \left(\frac{1}{2} \right)$

4. 30°

Q.13 What should be the value of k so that the linear equation in two variables x and y , $31x + 124y = k$ has integer-valued solutions?

Question ID : 16794314067

- Ans
- 1. 103
 - 2. 134
 - 3. 155
 - 4. 72

Q.14 Which of the given equations in variables x and y has integer-valued solutions?

Question ID : 16794314065

- Ans
- 1. $12x + 16y = 8$
 - 2. $12x + 16y = 5$
 - 3. $12x + 16y = 6$
 - 4. $12x + 16y = 7$

Q.15 In a game there are three rooms- I, II and III. Room I contains 2 boxes having gift items and 3 empty boxes, room II contains 3 boxes having gift items and 2 empty boxes, and room III contains 4 boxes having gift items and one empty box respectively. There is equal probability of each room being chosen by a player. Mr. John selects one box from a room chosen at random. The probability that Mr. John wins a box having gift items is:

Question ID : 16794314074

- Ans
- 1. $\frac{4}{5}$
 - 2. $\frac{2}{5}$
 - 3. $\frac{3}{5}$
 - 4. $\frac{1}{5}$

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Q.16 If a rectangle has perimeter 96 meters and its length is three times its breadth, then the area of the rectangle is:

Question ID : 16794314071

- Ans
- 1. 436 cubic meters
 - 2. 436 sq. meters
 - 3. 432 sq. meters
 - 4. 432 cubic meters

Q.17 If $\lim_{x \rightarrow \infty} \left(\frac{x^2+5}{2x+3} - ax - b \right) = \infty$, then the values of a and b are:

Question ID : 16794314058

- Ans
- 1. $a = \frac{1}{2}, b \notin \mathbb{R}$
 - 2. $a \neq \frac{1}{2}, b \in \mathbb{R}$
 - 3. $a = \frac{1}{2}, b \in \mathbb{R}$
 - 4. $a \neq \frac{1}{2}, b \notin \mathbb{R}$

Q.18 If $\int \frac{\sin x}{\cos(x-a)} dx = Ax + B \log|\sec(x-a)| + c$, where A, B and c are real constants, then:

Question ID : 16794314061

- Ans
- 1. $A = \sin a, B \in \mathbb{R}, c = \cos a$
 - 2. $A = \cos a, B = \sin a, c \in \mathbb{R}$
 - 3. $A \in \mathbb{R}, B = \cos a, c = \sin a$
 - 4. $A = \sin a, B = \cos a, c \in \mathbb{R}$

Q.19 A student solved 30 questions of Algebra and Analysis for 2 hours 40 minutes. If each question of Algebra and Analysis takes 5 minutes and 6 minutes respectively, then the student has solved:

Question ID : 16794314073

- Ans
- 1.
Algebra : 15 questions, Analysis: 15 questions
 - 2.
Algebra : 10 questions, Analysis: 20 questions
 - 3.
Algebra : 16 questions, Analysis: 14 questions
 - 4.
Algebra : 20 questions, Analysis: 10 questions

Q.20 If two straight lines in $x-y$ -plane representing a pair of linear equations in two variables x and y overlap each other, then the pair of equations representing these lines will:

Question ID : 16794314069

- Ans
- 1. have infinite many solutions
 - 2. have no possible solution
 - 3. be inconsistent
 - 4. have a unique solution

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Section : Subject Related

Q.1 Any positive integer is of the form:

Question ID : 16794314097

- Ans
- 1.
 $6q$ or $6q+2$ or $6q+4$, where q is some non-negative integer.
 - 2.
 $3q$ or $3q+1$ or $3q+2$, where q is some non-negative integer.
 - 3.
 $6q+1$ or $6q+3$ or $6q+5$, where q is some non-negative integer.
 - 4.
 $6q$ or $6q+1$ or $6q+2$, where q is some non-negative integer.

Q.2 The general values of x for which $\sin x + \cos x = \min_{a \in \mathbb{R}} \{1, a^2 - 4a + 7\}$ are given as:

Question ID : 16794314082

- Ans
- 1. $n\pi + \{(-1)^n - 1\} \frac{\pi}{4}$
 - 2. $n\pi + (-1)^n \frac{\pi}{2}$
 - 3. $2n\pi + \frac{\pi}{4}$

~~X~~ 4. $2n\pi + (-1)^n \frac{\pi}{2}$

Q.3 The number $19.999\dots$ in the form $\frac{p}{q}$, where p and q are integers and $q \neq 0$, can be written as:

Question ID : 16794314094

Ans ~~X~~ 1. $\frac{199}{10}$

~~X~~ 2. $\frac{1999}{100}$

✓ 3. 20

~~X~~ 4. $\frac{81}{100}$

Q.4 Two hotels stand 25 m apart. One of them is 70 m high and the angle of depression of the top of other as observed from the top of this hotel is 45° . Height of the other hotel is:

Question ID : 16794314085

Ans ~~X~~ 1. 46 m

~~X~~ 2. 44 m

~~X~~ 3. 43 m

✓ 4. 45 m

Q.5 In a $\triangle ABC$, let D, E, F be the points on lines BC, CA and AB respectively such that lines AD, BE and CF are concurrent.

Question ID : 16794314091

If $\frac{CE}{EA} = \frac{3}{5}$, $\frac{BD}{DC} = \frac{5}{7}$, and side AB has length 14cm, then the lengths of AF and FB will be:

Ans ~~X~~ 1. AF = 3 cm, FB = 7 cm

~~X~~ 2. AF = 7 cm, FB = 7 cm

✓ 3. AF = 9.8 cm, FB = 4.2 cm

~~X~~ 4. AF = 9 cm, FB = 5 cm

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Q.6 Consider a population which is finite, and sampling is with replacement. If the variance of the population is 2176.8 with sample size of 16, then the variance of the sampling distribution of means is:

Question ID : 16794314078

Ans ~~X~~ 1. 137.04

~~X~~ 2. 135.21

✓ 3. 136.05

~~X~~ 4. 134.12

Q.7 The median for a moderately asymmetrical series having mode and mean as 125 km and 130.7 km respectively is:

Question ID : 16794314088

Ans ~~X~~ 1. 129.7 m

~~X~~ 2. 128.8 m

~~X~~ 3. 124.8 m

✓ 4. 128.8 km

Q.8 Which of the following is a rational number:

Question ID : 16794314095

Ans ~~X~~ 1. $(4 + \sqrt{5})(4 + \sqrt{5})$

~~X~~ 2. $(4 - \sqrt{5})(4 - \sqrt{5})$

✓ 3. $(4 + \sqrt{5})(4 - \sqrt{5})$

~~X~~ 4. $(4 + \sqrt{5}) - (4 - \sqrt{5})$

Q.9 For 4 data points of two correlated variables x and y , it is given that

Question ID : 16794314079

$$\sum x = 24, \sum y = 11, \sum x^2 = 202, \sum xy = 84, \sum y^2 = 39.$$

Fit a least squares line to this data using x as independent variable.

Ans

1. $y = \frac{1}{116}(36 + 103x)$

2. $x = \frac{1}{116}(36 + 103y)$

3. $x = \frac{1}{116}(103 + 36y)$

4. $y = \frac{1}{116}(103 + 36x)$

Q.10 Which of the given relation is true?

Question ID : 16794314081

1. $\cos 1^\circ < \cos 1$

2. $\cos 1^\circ = \cos 1$

3. $\cos 1^\circ > \cos 1$

4. $\cos 1^\circ = \frac{\pi}{180} \sin 1$

Q.11 What should be filled at the places of 1, 2, and 3 to make the statement correct?
Histogram is a set of adjacent _____ whose _____ are proportional to the _____.

Question ID : 16794314086

Ans 1. rectangles; areas; frequencies

2. triangles; parameters; frequencies

3. triangles; areas; item size

4. rectangles; parameters; item size

Q.12 A vertical pole AB has two marks at C and D such that AC, AD and AB subtend angles α, β, γ from a point on the ground which is at a distance of x from the pole. If $AC = a, AD = b, AB = c$ and $\alpha + \beta + \gamma = 180^\circ$, then x is equal to:

Question ID : 16794314084

Ans

1. $\frac{abc}{\sqrt{a+b+c}}$

2. $\sqrt{\frac{abc}{a+b+c}}$

3. $\frac{\sqrt{abc}}{a+b+c}$

4. $\sqrt{\frac{1}{a} + \frac{1}{b} + \frac{1}{c}}$

Q.13 Consider a straight line L. The number of straight lines passing through a point P which are parallel to L is:

Question ID : 16794314090

Ans 1. Infinite

2. 1

3. 2

4. 0

Q.14

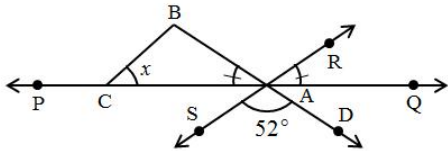
Simplify: $7^{\frac{5}{2} + \frac{7}{9}}$

Ans

1. $7^{\frac{5}{2}}$
2. $7^{\frac{5}{2}} - 7^{\frac{9}{2}}$
3. $7^{\frac{5}{2}} \cdot 7^{\frac{7}{9}}$
4. $7^{\frac{5}{2}} + 7^{\frac{9}{2}}$

Q.15 In the given figure, $BC \parallel RS$, $\angle RAQ = \angle BAC$, $\angle SAD = 52^\circ$, then the value of x is:

Question ID : 16794314092



Ans

1. 64°
2. 26°
3. 38°
4. 52°

Q.16 For a given series of items, if we subtract 'a' from every item and divide every item by 'b', then arithmetic mean of the series:

Question ID : 16794314087

Ans

1. increases by 'a' and divided by 'b'
2. diminishes by 'a' and multiplied by 'b'
3. increases by 'a' and multiplied by 'b'
4. diminishes by 'a' and divided by 'b'

Q.17 A circle has:

Question ID : 16794314093

Ans

1. no two chords of equal length
2. infinite number of equal chords
3. exactly two chords of equal length
4. finite number of equal chords

Q.18 The curves that occur for a distribution in which class-frequencies go on decreasing symmetrically on either side of central value, are called:

Question ID : 16794314089

Ans

1. moderately asymmetrical curves
2. U-shaped curves
3. extremely asymmetrical curves
4. symmetrical curves

Q.19 For two correlated variables x and y , if coefficient of correlation between x and y is 0.8014, variance of x and y are 16 and 25 respectively. Then the covariance between x and y is:

Question ID : 16794314080

Ans

1. 162.08

✓ 2. 16.028

✗ 3. 160.28

✗ 4. 16.208

Q.20 If $\sin^{-1}\left(\frac{2a}{1+a^2}\right) - \cos^{-1}\left(\frac{1-b^2}{1+b^2}\right) = \tan^{-1}\left(\frac{2x}{1-x^2}\right)$, then the value of x is:

Question ID : 16794314083

Ans

✓ 1. $\frac{a-b}{1+ab}$

✗ 2. $\frac{a+b}{1-ab}$

✗ 3. $\frac{1+ab}{a+b}$

✗ 4. $\frac{1-ab}{a-b}$

Section : Subject Related

Q.1 An equilateral triangle of side 10 m is to be painted on a wall. If the cost of painting is ₹ 15 per m^2 , then the cost to paint the triangle is:

Question ID : 16794314104

Ans ✗ 1. ₹ 549.5

✗ 2. ₹ 559.5

✗ 3. ₹ 659.5

✓ 4. ₹ 649.5

Q.2 Find the two numbers whose sum is 30 and product of whose HCF and LCM is 224.

Question ID : 16794314098

Ans ✗ 1. 13, 17

✓ 2. 14, 16

✗ 3. 11, 19

✗ 4. 12, 18

Q.3 The volume of an open cubical box having surface area $125 m^2$ is:

Question ID : 16794314106

Ans ✗ 1. $625 m^3$

✓ 2. $125 m^3$

✗ 3. $125 m^2$

✗ 4. $625 m^2$

Q.4 The area of quadrilateral ABCD with $AB = 12$ cm, $BC = 17$ cm, $AC = 25$ cm, $AD = 24$ cm, $\angle CAD = 90^\circ$ will be:

Question ID : 16794314105

Ans ✗ 1. $300 cm^2$

✗ 2. $410 cm^2$

✓ 3. $390 cm^2$

✗ 4. $180 cm^2$

Q.5 If $x + 5$ is a factor of the polynomial $x^3 + ax^2 + ax - 15$, then the value of a is:

Question ID : 16794314100

Ans ✗ 1. -9

✓ 2. 7

~~X~~ 3. 9

~~X~~ 4. 8

Q.6 Which of the following is not a polynomial in one variable?

Question ID : 16794314099

Ans

~~X~~ 1. $\left(x^{-\frac{1}{2}} + x^{\frac{1}{2}}\right)\left(x^{\frac{1}{2}} - x^{\frac{3}{2}}\right)$

~~X~~ 2. $\left(x^{\frac{3}{2}} - \sqrt{2}\right)\left(x^{\frac{3}{2}} + \sqrt{2}\right)$

✓ 3. $\left(x^{-\frac{3}{2}} - x^{-\frac{1}{2}}\right)\left(x^{\frac{1}{2}} + x^{\frac{5}{2}}\right)$

~~X~~ 4. $\left(x^{\frac{3}{2}} + 2\sqrt{x}\right)x^{\frac{5}{2}}$

Q.7 At how many points does the polynomial $x^3 - x^2 + x - 1$ intersects the x -axis?

Question ID : 16794314101

Ans

~~X~~ 1. 3

~~X~~ 2. 2

✓ 3. 1

~~X~~ 4. 0

Q.8 If $(x + a)$ is the greatest common divisor of $x^2 - qx + p$ and $x^2 + mx - n$, then the value of 'a' is given as?

Question ID : 16794314102

Ans

~~X~~ 1. $\frac{p+n}{m-q}$

✓ 2. $\frac{-n-p}{q+m}$

~~X~~ 3. $\frac{q-m}{n+p}$

~~X~~ 4. $\frac{p-n}{q+m}$

Q.9 Which of the following is a binomial in one variable of degree 5?

Question ID : 16794314103

Ans

~~X~~ 1. $(x^5 - 1)^2 - (x^5 + 1)^2 + 5x^5$

~~X~~ 2. $(x^5 + 1)^2 + (x^5 - 1)^2$

✓ 3. $(x^5 + 1)^2 + (x^5 - 1)^2 - 2(x^{10} - x^5)$

~~X~~ 4. $(x^5 - 1)(x^5 + 1)$

Q.10 Consider a frustum of a right circular cone such that its lateral surface area is 337 cm^2 and sum of squared radii of lower and upper base is 154 cm . The total surface area of the frustum is:

Question ID : 16794314107

Ans

~~X~~ 1. 491 cm^2

✓ 2. 821 cm^2

~~X~~ 3. 941 cm^2

~~X~~ 4. 812 cm^2

Q.11 Phonics approach facilitates reading because it _____

Question ID : 16794314114

Choose the best option to complete the sentence.

- Ans
- 1. Allows reader to focus
 - 2. Improves attention span
 - 3. Build sound-letter relationships
 - 4. Makes reading interesting

Q.12 Pre-Natal Diagnostic Techniques(Regulation and Prevention of Misuse) Act,1994, is a constitutional guarantee that checks on:

Question ID : 16794314112

- Ans
- 1. Female child mortality
 - 2. Female foeticide
 - 3. Infant mortality
 - 4. Mother mortality

Q.13 "Repetitions in learning can strengthen the connections and disuse can weaken the connections" is a classroom implication of which of the following theories?

Question ID : 16794314110

- Ans
- 1. Trial and error method
 - 2. Discovery method of learning
 - 3. Operant conditioning
 - 4. Classic conditioning

Q.14 Integrated Education for Disabled Children (IEDC) was established with an objective to _____.

Question ID : 16794314109

Complete the statement with the right option from the following.

- Ans
- 1. Providing educational opportunities only to children to physical disabilities
 - 2. Providing educational opportunities to all children with disabilities under the general school system
 - 3. Providing guidance to all children with special education needs
 - 4. Providing educational opportunities for children with mental disabilities

Q.15 Methods and theories of learning are dealt with under which of the following disciplines?

Question ID : 16794314116

- Ans
- 1. Educational sociology
 - 2. Educational psychology
 - 3. Educational technology
 - 4. Educational philosophy

Q.16 "Art is the response of man's creative soul to the call of the real"
Which philosopher said the above statement?

Question ID : 16794314115

- Ans
- 1. Swamy Vivekananda
 - 2. Rabindranath Tagore
 - 3. Mathatma Gandhi

X 4. Socrates

Q.17 Harnessing the power of talk to stimulate and extend thinking and learning in pupil is advocated by which of the teaching methods given below?

Question ID : 16794314111

- Ans**
- 1. Dialogic method
 - 2. Lecture method
 - 3. Reading method
 - 4. Didactic method

Q.18 Quality and relations are studied under which type of concepts?

Question ID : 16794314108

- Ans**
- 1. Concept of objects
 - 2. Concept of aspects
 - 3. Simple concepts
 - 4. Imaginary concepts

Q.19 Development of all round personality can be achieved through integrated approach is the philosophy of schools that follow which of the following curriculum?

Question ID : 16794314113

- Ans**
- 1. Subject based
 - 2. Child centered
 - 3. Undifferentiated
 - 4. Activity based

Q.20 Institutional initiative for inclusive education can be evidenced when _____.

Question ID : 16794314117

- Ans**
- 1. School conducts entry level tests to enroll able students
 - 2. School has undifferentiated material for all students
 - 3. Time is provided for teams of teachers and paraprofessionals to plan together
 - 4. Teachers plan common assessments for all students

TEACHERS

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