# Andhra Pradesh State Council of Higher Education

**Notations :**

1.Options shown in green color and with ✔ icon are correct.

2.Options shown in red color and with ✖ icon are incorrect.

| | |
|---|---|
| **Question Paper Name :** | MATHEMATICS URDU 21st Sep 2021 S1 |
| **Duration :** | 120 |
| **Total Marks :** | 150 |
| **Display Marks:** | No |
| **Calculator :** | None |
| **Magnifying Glass Required? :** | No |
| **Ruler Required? :** | No |
| **Eraser Required? :** | No |
| **Scratch Pad Required? :** | No |
| **Rough Sketch/Notepad Required? :** | No |
| **Protractor Required? :** | No |
| **Show Watermark on Console? :** | Yes |
| **Highlighter :** | No |
| **Auto Save on Console? ( SA type of questions will be always auto saved ) :** | Yes |
| **Is this Group for Examiner? :** | No |

## General English

| | |
|---|---|
| **Section Id :** | 152536297 |

| | |
|---|---|
| **Section Number :** | 1 |
| **Mandatory or Optional :** | Mandatory |
| **Number of Questions :** | 21 |
| **Section Marks :** | 25 |
| **Enable Mark as Answered Mark for Review and Clear Response :** | Yes |

**Question Id : 1525368934 Sub Question Shuffling Allowed : Yes Group Comprehension Questions : No**

**Question Numbers : (1 to 5)**

Directions (Q.No. 1 to 5) : Read the following passage and answer the questions that follow.

Even when the government realises the importance of a plentiful supply of trees, it is difficult for it to persuade the villager to see this. He wants wood to cook his food with; and he can earn money by making charcoal or selling wood to the townsman. He is usually too lazy or too careless to plant and look after new trees. So, unless the government has a good system of control, or can educate the people, the forests slowly disappear.

**Sub questions**

**Question Number : 1 Question Id : 1525368935 Display Question Number : Yes Is Question Mandatory : No**

The government finds it difficult to make the villager realise _____

**Options :**

1. ✖ The importance of food being cooked.

2. ✔ The value of trees

3. ✖ The difficulty of cutting the forest

4. ✖ The needs of the town dwellers

**Question Number : 2 Question Id : 1525368936 Display Question Number : Yes Is Question Mandatory : No**

The villager makes charcoal

**Options :**

1. ✖ to brush the teeth

2. ✖ to help his neighbours

3. ✔ to earn money

4. ✖ to pass the time lavishly

**Question Number : 3 Question Id : 1525368937 Display Question Number : Yes Is Question Mandatory : No**

The villager pays no heed to

**Options :**

1. ✔ trees

2. ✖ charcoal

3. ✖ proper cooking

4. ✖ neighbours

**Question Number : 4 Question Id : 1525368938 Display Question Number : Yes Is Question Mandatory : No**

According to the passage the government should _____

**Options :**

1. ✖ ban making charcoal

2. ✖ punish the villager

3. ✖ helps the townsmen

4. ✔ regulate cutting down of trees

**Question Number : 5 Question Id : 1525368939 Display Question Number : Yes Is Question Mandatory : No**

The synonym of the word 'lazy' is _____

**Options :**

1. ✖ Careful

2. ✔ Derelict

3. ✖ Attentive

4. ✖ Conscientious

**Question Number : 6 Question Id : 1525368940 Display Question Number : Yes Is Question**

**Mandatory : No**

The idiom 'to fight tooth and nail' means

**Options :**

1. ✔ making every possible effort to win

2. ✖ to fight a loosing battle

3. ✖ to fight cowardly

4. ✖ to fight with a woman

**Question Number : 7 Question Id : 1525368941 Display Question Number : Yes Is Question Mandatory : No**

I saw a boy _____ red hair. Fill in the blank with correct preposition.

**Options :**

1. ✖ on

2. ✖ of

3. ✔ with

4. ✖ in

**Question Number : 8 Question Id : 1525368942 Display Question Number : Yes Is Question**

**Mandatory : No**

An example for the Interrogative sentence is _____

**Options :**

1. ✖ He is a bad listener

2. ✖ What a surprise!

3. ✔ When did you see him

4. ✖ Shunt the door

**Question Number : 9 Question Id : 1525368943 Display Question Number : Yes Is Question Mandatory : No**

Pick out the most suitable word to complete the sentence.
_____is a person who walks is sleep.

**Options :**

1. ✖ Omniscient

2. ✖ Orientalist

3. ✖ Parasite

4. ✔ Somnambulist

**Question Number : 10 Question Id : 1525368944 Display Question Number : Yes Is Question Mandatory : No**

Fill in the blank with appropriate verb form.
I _____ a letter a few minutes ago.

**Options :**

1. ✖ have received

2. ✔ received

3. ✖ receive

4. ✖ will receive

**Question Number : 11 Question Id : 1525368945 Display Question Number : Yes Is Question Mandatory : No**

Ramesh is an ingenious writer.
The meaning of the underlined word is _____

**Options :**

1. ✖ poor

2. ✖ mechanical

3. ✖ foolish

4. ✔ skillful

**Question Number : 12 Question Id : 1525368946 Display Question Number : Yes Is Question Mandatory : No**

"When did you see him?" The sentence is

**Options :**

1. ✔ Interrogative

2. ✖ Imperative

3. ✖ Assertive

4. ✖ Exclamatory

**Question Number : 13 Question Id : 1525368947 Display Question Number : Yes Is Question Mandatory : No**

'Open the door". The passive voice of the sentence is

**Options :**

1. ✖ The door be opened

2. ✔ Let the door be opened

3. ✖ The door was opened

4. ✖ The door is opened by someone

**Question Number : 14 Question Id : 1525368948 Display Question Number : Yes Is Question Mandatory : No**

My mother always _____ food for us.

**Options :**

1. ✖ Cook

2. ✖ is cooked

3. ✖ Cooking

4. ✔ Cooks

**Question Number : 15 Question Id : 1525368949 Display Question Number : Yes Is Question Mandatory : No**

The teacher said, "What is you name?". The reported speech of the sentence is

**Options :**

1. ✖ The teacher said that what my name is

2. ✖ The teacher asked me to tell my name

3. ✔ The teacher asked me what my name was

4. ✖ The teacher enquired my name

**Question Number : 16 Question Id : 1525368950 Display Question Number : Yes Is Question Mandatory : No**

If I _____ you, I would not have committed this blunder.

**Options :**

1. ✖ was

2. ✖ are

3. ✔ were

4. ✖ is

**Question Number : 17 Question Id : 1525368951 Display Question Number : Yes Is Question Mandatory : No**

If it rains, the game will be _____

**Options :**

1. ✖ Cancelling

2. ✔ Cancelled

3. ✖ Cancels

4. ✖ Cancel

**Question Number : 18 Question Id : 1525368952 Display Question Number : Yes Is Question Mandatory : No**

What are you talking _____? Fill in the blank.

**Options :**

1. ✖ on

2. ✖ in

3. ✔ about

4. ✖ upon

**Question Number : 19 Question Id : 1525368953 Display Question Number : Yes Is Question Mandatory : No**

He drove the car at sixty kilometers _____ hour.

**Options :**

1. ✖ a

2. ✔ an

3. ✖ for

4. ✖ by

**Question Number : 20 Question Id : 1525368954 Display Question Number : Yes Is Question**

**Mandatory : No**

Rama is cleverer than all other boys in the class. The positive degree statement of the sentence is

**Options :**

1. ✔ No other boy in the class is as clever as Rama

2. ✖ Rama is the cleverest boy in the class

3. ✖ All other boys in the class are cleverer as Rama

4. ✖ No other boy in the class is cleverer than Rama

**Question Number : 21 Question Id : 1525368955 Display Question Number : Yes Is Question Mandatory : No**

Identify the grammatically correct sentence.

**Options :**

1. ✔ One must love one's parents

2. ✖ One must love his parents

3. ✖ Priya is more taller than her sister

4. ✖ She is my cousin sister

**Question Number : 22 Question Id : 1525368956 Display Question Number : Yes Is Question Mandatory : No**

My mother goes to the Cinema Once in a blue moon. The underlined idiom means.

**Options :**

1. ✖ on a full moon day

2. ✔ an event that happens infrequently

3. ✖ on the day of ellipse

4. ✖ once in a fortnight

**Question Number : 23 Question Id : 1525368957 Display Question Number : Yes Is Question Mandatory : No**

The weather has been abominable all week.

**Options :**

1. ✖ Pleasant

2. ✖ Cold

3. ✖ Hot

4. ✔ Unpleasant

**Question Number : 24 Question Id : 1525368958 Display Question Number : Yes Is Question Mandatory : No**

My son was disobedient and so I punished him.
The simple sentence for this sentence is

**Options :**

1. ✖ I punished my son as he is very disobedient

2. ✖ My son received punishment and I found him disobedient

3. ✔ I punished my son for his disobedience

4. ✖ My son's punishment by me was due to his disobedient nature.

**Question Number : 25 Question Id : 1525368959 Display Question Number : Yes Is Question Mandatory : No**

She met an accident, while she _____ the rod. Fill in the blank.

**Options :**

1. ✖ had crossed

2. ✖ is crossing

3. ✔ was crossing

4. ✖ crossed

# General Knowledge

| | |
|---|---|
| **Section Id :** | 152536298 |
| **Section Number :** | 2 |
| **Mandatory or Optional :** | Mandatory |
| **Number of Questions :** | 15 |
| **Section Marks :** | 15 |
| **Enable Mark as Answered Mark for Review and Clear Response :** | Yes |

**Question Number : 26 Question Id : 1525368960 Display Question Number : Yes Is Question Mandatory : No**

What is the full from of ABC as per the National Educational Policy-2020?

قومی تعلیمی پالیسی 2020 کے مطابق ABC کی مکمل شکل کیا ہے؟

**Options :**

1. ✖ Academic Basic Certificate

اکیڈمک بیسک سرٹفکیٹ

2. ✖ Annual Basic Certificate

اینول بیسک سرٹفکیٹ

3. ✖ Annual Bank Certificate

اینول بینک سرٹفکیٹ

4. ✔

Academic Bank of Credit

اکیڈمک بینک آف کریڈٹ

**Question Number : 27 Question Id : 1525368961 Display Question Number : Yes Is Question Mandatory : No**

The new name of ministry of Human Resources Development is

انسانی وسائل کی ترقی کا نیا نام

**Options :**

1. ✖ Ministry of Higher Education

وزارت اعلیٰ تعلیم

2. ✖ Ministry of Human Capital

وزارت انسانی سرمایہ

3. ✔ Ministry of Education

وزارت تعلیم

4. ✖ Ministry of Human Development

وزارت انسانی ترقی

**Question Number : 28 Question Id : 1525368962 Display Question Number : Yes Is Question Mandatory : No**

Who among the following transformed the Shivaji and Ganapthi festivals into national festivals.

شیواجی اور گنپتی کے تہواروں کو کس نے قومی تہواروں میں بدل دیا؟

**Options :**

1. ✔ Bal Gangadhar Tilak
بال گنگا دھر تلک

2. ✖ Veer Savarkar
ویر ساورکر

3. ✖ Swami Dayananda Saraswathi
سوامی دیانند سرسوتی

4. ✖ M G Rande
ایم جی رناڈے

**Question Number : 29 Question Id : 1525368963 Display Question Number : Yes Is Question Mandatory : No**

'Black Fungus' is also called as

'بلاک فنگس' کا ایک اور نام

**Options :**

1. ✖ Taeniasis
ٹی نیاسس

2. ✔

Mucor mycosis

میوکار مائی کوسس

Cutaneous candidiasis

کوٹینی ایس کینڈی ڈیاسس

3. ✖

Blasto mycosis

بلاسٹو مائکوسس

4. ✖

**Question Number : 30 Question Id : 1525368964 Display Question Number : Yes Is Question Mandatory : No**

Which of the following is a Directive Principle relating to Education?

درج ذیل میں کون سا، تعلیم کے لیے ہدایتی اصول سے متعلق ہے۔

**Options :**

Article 40

دفعہ ۴۰

1. ✖

Article 42

دفعہ ۴۲

2. ✖

Article 45

دفعہ ۴۵

3. ✔

Article 48
دفعہ 48
4. ✖

**Question Number : 31 Question Id : 1525368965 Display Question Number : Yes Is Question Mandatory : No**

Who is the author of 'Anomalies in Law and Justice'?

"اناملیس ان لا اینڈ جسٹس" کا مصنف کون ہے؟

**Options :**

Justice Ramana
جسٹس رمنا
1. ✖

Justice Raveendran
جسٹس رویندرن
2. ✔

Ravi Sankar Prasad
روی شنکر پرساد
3. ✖

Justice S.K.Kaul
جسٹس ایس کے کول
4. ✖

**Question Number : 32 Question Id : 1525368966 Display Question Number : Yes Is Question Mandatory : No**

Which of the following Country is called as 'Land of Midnight Sun'?

کس ملک کو "لینڈ آف مڈ نائٹ سن" کہتے ہیں؟

**Options :**

1. ✖ Finland
فن لینڈ

2. ✔ Norway
ناروے

3. ✖ Iceland
آئس لینڈ

4. ✖ Sudan
سوڈان

**Question Number : 33 Question Id : 1525368967 Display Question Number : Yes Is Question Mandatory : No**

Which of the following state had more than 90 percent of schools online facility?

کس ریاست میں ۹۵ فی صد اسکولوں میں آن لائن کی سہولت ہے؟

**Options :**

1. ✖ Gujarat
گجرات

2. ✖

Delhi

دہلی

Uttar Pradesh

اتر پردیش

3. ✖

Kerala

کیرلا

4. ✔

**Question Number : 34 Question Id : 1525368968 Display Question Number : Yes Is Question Mandatory : No**

Joseph Robinette Biden is

جوزف رابی نیٹے بائیڈن کون ہے۔

**Options :**

45th President of U.S.A

یو۔ایس۔اے کے 45ویں صدر

1. ✖

46th President of U.S.A

یو۔ایس۔اے کے 46ویں صدر

2. ✔

47th President of U.S.A

یو۔ایس۔اے کے 47ویں صدر

3. ✖

48th President of U.S.A

یو۔ایس۔اے کے 48 ویں صدر

4. ✖

**Question Number : 35 Question Id : 1525368969 Display Question Number : Yes Is Question Mandatory : No**

The World Population Day is celebrated on

"عالمی یوم آبادی" ہر سال کب منایا جاتا ہے؟

**Options :**

10th July

10 جولائی

1. ✖

11th July

11 جولائی

2. ✔

14th July

14 جولائی

3. ✖

10th December

10 دسمبر

4. ✖

**Question Number : 36 Question Id : 1525368970 Display Question Number : Yes Is Question Mandatory : No**

The Central Information Commission is a

مرکزی اطلاعاتی کمیشن کیا ہے؟

**Options :**

1. ✖ Constitutional Body
دستوری ادارہ

2. ✔ Statutory Body
قانونی ادارہ

3. ✖ Neither Constitutional or Statutory
نہ دستوری نہ قانونی ادارہ

4. ✖ Central Buru of Investigation Body
مرکزی تفتیشی بیورو

**Question Number : 37 Question Id : 1525368971 Display Question Number : Yes Is Question Mandatory : No**

How many 'Sustainable Development Goals' were introduced in September 2015?

ستمبر 2015ء میں کتنے "پائیدار ترقیاتی مقاصد" متعارف کیے گئے۔

**Options :**

1. ✖ 08

2. ✖ 16

3. ✔ 17

4. ✖ 18

**Question Number : 38 Question Id : 1525368972 Display Question Number : Yes Is Question Mandatory : No**

Which of the following disease is not caused by Bacteria?

درج ذیل کی کون سی بیماری بیکٹیریا کی وجہ سے نہیں ہوتی ؟

**Options :**

1. ✖ Tuberculosis
دق

2. ✖ Tetanus
ٹٹنس

3. ✔ Rabbies
ریبیس

4. ✖ Plague
طاعون

**Question Number : 39 Question Id : 1525368973 Display Question Number : Yes Is Question Mandatory : No**

Total number of medals won by India in Tokyo Olympics 2021

ٹوکیو اولمپکس 2021 میں ہندوستان نے کتنے تمغے حاصل کیے؟

**Options :**

1. ✖ 5

2. ✖ 6

3. ✔ 7

4. ✖ 8

**Question Number : 40 Question Id : 1525368974 Display Question Number : Yes Is Question Mandatory : No**

Presently the new name of Telugu Academy of A.P.

آندھرا پردیش کی 'تلگو اکیڈمی' کا موجودہ نام کیا ہے؟

**Options :**

1. ✖ Sanskrit Academy

سنسکرت اکیڈمی

2. ✖ Andhra Pradesh Telugu Academy

آندھرا پردیش تلگو اکیڈمی

3. ✔ Telugu and Sanskrit Academy

تلگو اور سنسکرت اکیڈمی

4. ✖ Telugu and Sahitya Academy
تلگو اور ساہتہ اکیڈمی

# Teaching Aptitude

| | |
|---|---|
| **Section Id :** | 152536299 |
| **Section Number :** | 3 |
| **Mandatory or Optional :** | Mandatory |
| **Number of Questions :** | 10 |
| **Section Marks :** | 10 |
| **Enable Mark as Answered Mark for Review and Clear Response :** | Yes |

**Question Number : 41 Question Id : 1525368975 Display Question Number : Yes Is Question Mandatory : No**

The main aim of teaching is to
تدریس کا اہم مقصد

**Options :**

1. ✖ Give notes to the students
طلبہ کو نوٹس دینا

2. ✖ Prepare the students to pass in the examinations
طلبہ کو امتحان میں کامیاب ہونے کے لیے تربیت دینا

Prepare the students for jobs

نوکریاں حاصل کرنے کے لیے طلبہ کو تیار کرنا

3. ✖

Develop thinking ability in the students

طلبہ میں سوچنے کی صلاحیت بڑھانا

4. ✔

**Question Number : 42 Question Id : 1525368976 Display Question Number : Yes Is Question Mandatory : No**

To reduce absenteeism in the class, the teacher.

کمرۂ جماعت میں طلبہ کی غیر حاضری کو کم کرنے کے لیے استاد کو

**Options :**

Should teach effectively

موثر طریقے سے پڑھانا چاہیے

1. ✔

Should ignore absenteeism

غیر حاضر کو نظر انداز کرنا چاہیے

2. ✖

Should punish students

طلبہ کو سزا دینا چاہیے

3. ✖

Should inform parents

والدین کو بتانا چاہیے

4. ✖

**Question Number : 43 Question Id : 1525368977 Display Question Number : Yes Is Question Mandatory : No**

If a student is quarrelsome in the class, the teacher should

اگر کلاس میں کوئی طالب علم لڑاکو ہے تو استاد کو چاہیے کہ

**Options :**

1. ✖ Inform Police

پولس کو مطلع کریں

2. ✖ Inform the head master

صدر مدرس کو مطلع کریں

3. ✔ Gives suitable counseling

اسے مناسب رہنمائی اور مشاورت دیں۔

4. ✖ Gives punishment

سزا دیں۔

**Question Number : 44 Question Id : 1525368978 Display Question Number : Yes Is Question Mandatory : No**

Apt learner is one who

لائق سیکھنے والا وہ ہے جو

**Options :**

1. ✖

listerns interestingly to the teachings of teachers

اساتذہ کی تدریس کو شوق سے سنے

spends lot of time in the library

2. ✖ کتب خانے میں زیادہ وقت بتائے

has questioning attitude

3. ✔ سوال کرنے کا مزاج ہو

prepares well for the examination

4. ✖ امتحان کے لیے پوری تیاری کرے

**Question Number : 45 Question Id : 1525368979 Display Question Number : Yes Is Question Mandatory : No**

The most appropriate meaning of learning is

سیکھنے کا صحیح مطلب

**Options :**

Inculcation of knowledge

1. ✖ آگاہی کی ترقی

Modification of behaviour

2. ✔ برتاؤ میں تبدیلی

3. ✖

Personal adjustment

شخصی سازگاری

Acquisition of skills

4. ✖ مہارتوں کا حصول

**Question Number : 46 Question Id : 1525368980 Display Question Number : Yes Is Question Mandatory : No**

For which purpose achievement tests are commonly used.

عموماً کس مقصد کے لیے حصولی امتحان استعمال کیے جاتے ہیں؟

**Options :**

To make selections for a specific job

1. ✖ خاص نوکری کے لیے انتخاب کرنے

To select candidates for different courses

2. ✖ مختلف کورسوں میں طلبہ کا انتخاب کرنے

To identify strengths and weaknesses of students.

3. ✖ طلبہ کی صلاحیت اور کمزوریوں کو پہچاننے

To identify the amount of learning

4. ✔ سیکھنے کی صلاحیت معلوم کرنے

**Question Number : 47 Question Id : 1525368981 Display Question Number : Yes Is Question Mandatory : No**

Which of the following is the highest level of cognitive ability?

درج ذیل میں کون سی عرفوتی صلاحیت کی اعلیٰ سطح ہے؟

**Options :**

1. ✖ Knowing
معلوم کرنا

2. ✖ Understanding
سمجھنا

3. ✖ Analyzing
تجزیہ

4. ✔ Evaluating
تشخیص

**Question Number : 48 Question Id : 1525368982 Display Question Number : Yes Is Question Mandatory : No**

A good teacher is one who

ایک اچھا استاد وہ ہے جو

**Options :**

1. ✖

gives useful information

فائدہ مند معلومات دیتا ہے

2. ✖ explains basic concepts to students

طلبہ کو تصورات اور نظریات سمجھاتا ہے۔

3. ✖ gives printed notes to students

طباعت کردہ نوٹس دیتا ہے۔

4. ✔ inspires students to learn

طلبہ کو سیکھنے پر اکساتا ہے۔

**Question Number : 49 Question Id : 1525368983 Display Question Number : Yes Is Question Mandatory : No**

'Operation Black Board' is concerned with

"آپریشن بلیک بورڈ" اس سے متعلق ہے۔

**Options :**

1. ✖ Pre - Primary Education

قبل ابتدائی تعلیم

2. ✔ Primary Education

ابتدائی تعلیم

3. ✖

Secondary Education

ثانوی تعلیم

Higher Education

اعلیٰ تعلیم

4. ✖

**Question Number : 50 Question Id : 1525368984 Display Question Number : Yes Is Question Mandatory : No**

If a required teaching aid is not available in your school then what you will do?

اگر آپ کے اسکول میں ضروری تدریسی اشیا نہیں ہیں تو آپ کیا کریں گے؟

**Options :**

Inform the students about the non- availability of the aid

طلبہ کو تدریسی اشیا نہ ہونے کی اطلاع دوں گا

1. ✖

Bring the aid from nearby school

نزدیکی اسکول سے وہ اشیا لاؤں گا

2. ✔

Ask the headmaster to purchase the aid

صدر مدرس سے کہوں گا کہ وہ اشیا خریدیں۔

3. ✖

Give the oral description of the aid

ان اشیا کے بارے میں زبانی بتاؤں گا۔

4. ✖

# Mathematics

| | |
|---|---|
| **Section Id :** | 152536300 |
| **Section Number :** | 4 |
| **Mandatory or Optional :** | Mandatory |
| **Number of Questions :** | 100 |
| **Section Marks :** | 100 |
| **Enable Mark as Answered Mark for Review and Clear Response :** | Yes |

**Question Number : 51 Question Id : 1525368985 Display Question Number : Yes Is Question Mandatory : No**

An Integrating factor of the differential equation $(1+x)\frac{dy}{dx} - xy = 1 - x$ is _____

تکمیلہ جزوی $(1+x)\frac{dy}{dx} - xy = 1 - x$ کا تفریقی مساوات

**Options :**

1. $(1+x)e^x$ ✖

2. $\frac{1+x}{e^x}$ ✔

3. $\frac{e^x}{1+x}$ ✖

$$\frac{1}{e^x(1+x)}$$

4. ✖

**Question Number : 52 Question Id : 1525368986 Display Question Number : Yes Is Question Mandatory : No**

Roots of the auxiliary equation of $f(D)=3D^2+16D+5$ are

مساوات کے جذر $f(D)=3D^2+16D+5$ کے معاون مساوات کے جذر ہیں

**Options :**

1. $5, \frac{1}{3}$ ✖

2. $-5, \frac{1}{3}$ ✖

3. $-5, -\frac{1}{3}$ ✔

4. $-5, -3$ ✖

**Question Number : 53 Question Id : 1525368987 Display Question Number : Yes Is Question Mandatory : No**

The Integrating factor of $\frac{\partial N}{\partial x} - \frac{\partial M}{\partial y} = Mg(y)$ is

کا تکملہ جزو ضرب $Mg(y) = \frac{\partial N}{\partial x} - \frac{\partial M}{\partial y}$

**Options :**

1. $\int_e g(y)\,dy$ ✔

2. $\int_e g(x)\,dx$ ✖

3. $\frac{1}{My}$ ✖

4. $\frac{1}{Nx}$ ✖

**Question Number : 54 Question Id : 1525368988 Display Question Number : Yes Is Question Mandatory : No**

The linear equation in $u$ of $\frac{dy}{dx} - xy = x^2y^3$ is

$\frac{dy}{dx} - xy = x^2y^3$ کی خطی مساوات کس شکل میں

**Options :**

1. $\frac{du}{dx} + xy = -y^3$ ✖

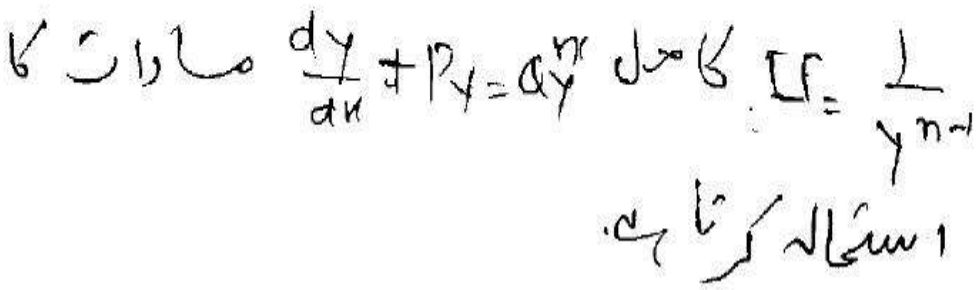
2. $\frac{du}{dy} + uy = y$ ✖

3. $\frac{du}{dy} + uy = -y^3$ ✔

4. $\frac{du}{dy} - uy = y^3$ ✖

**Question Number : 55 Question Id : 1525368989 Display Question Number : Yes Is Question Mandatory : No**

The solution $u=\frac{1}{y^{n-1}}$ transforms the equation $\frac{dy}{dx}+Py=Qy^n$ in to



**Options :**

1. $\frac{du}{dx}+(n-1)Pu=(n-1)Q$ ✖

2. $\frac{du}{dx}+(1-n)Pu=(1-n)Q$ ✔

3. $\frac{du}{dx}+(n+1)Pu=(n-1)Q$ ✖

4. $\frac{du}{dy}+(1-n)Py=(1-n)Q$ ✖

**Question Number : 56 Question Id : 1525368990 Display Question Number : Yes Is Question Mandatory : No**

The general solution of $y = xp + p^2, p = \frac{dy}{dx}$ is

$y = xp + p^2, p = \frac{dy}{dx}$ کی عمومی صورت

**Options :**

1. $y = cx + c^2$ ✔

2. $y = cy + c^2$ ✖

3. $y = \frac{c}{(1+x)^2}$ ✖

4. $y = x + 1$ ✖

**Question Number : 57 Question Id : 1525368991 Display Question Number : Yes Is Question Mandatory : No**

Wronskian of the function $y_1(x) = e^{(a+ib)x}$, $y_2(x) = e^{(a-ib)x}$

تفاعل $y_2(x) = e^{(a-ib)x}$ $y_1(x) = e^{(a+ib)x}$

. ع لـ Wronskian ؟

**Options :**

1. ✖ $e^{ax}(2ia)$

2. ✖ $e^{2ax}(2ib)$

3. ✔ $e^{2ax}(-2ib)$

4. ✖ $-2ib$

**Question Number : 58 Question Id : 1525368992 Display Question Number : Yes Is Question Mandatory : No**

In integrating factor of the differential equation $y^2dx + (x^2 - xy - y^2)dy = 0$

$\frac{1}{y^2}$ لغرض تفاضل واث کا مکمل جزو ضربی

**Options :**

1. $\frac{1}{y(x^2+y^2)}$ ✖

2. $\frac{y^2}{x^2-xy-y}$ ✖

3. $\frac{xy}{x^2-y^2}$ ✖

4. $\frac{1}{y(x^2-y^2)}$ ✔

**Question Number : 59 Question Id : 1525368993 Display Question Number : Yes Is Question Mandatory : No**

A solution of the differential equation $\frac{dy}{dx}+\frac{y}{x}=x^2y^6$ is

حل کا لئے مساوات لفزیقی $\frac{dy}{dx}+\frac{y}{x}=x^2y^6$

**Options :**

1. ✔

$5x^3y^5 + c_1 x^5y^5 = 2$

2. ✖ $5x^2y^5 + c_1 x^3y^5 = 2$

3. ✖ $5x^3y^3 + c_1 x^2y^5 = 2$

4. ✖ $5xy^4 + c_1 x^5y^2 = 2$

**Question Number : 60 Question Id : 1525368994 Display Question Number : Yes Is Question Mandatory : No**

$$\frac{1}{(D+2)(D-2)}x =$$

**Options :**

1. ✖ $\frac{x}{4}$

2. ✔ $-\frac{x}{4}$

3. ✖ $\frac{x^2}{2}$

$$-\frac{x}{2}$$

4. ✖

**Question Number : 61 Question Id : 1525368995 Display Question Number : Yes Is Question Mandatory : No**

$$\frac{1}{D^2-D-2}\sin 2x =$$

**Options :**

1. ✖ $\frac{-3}{20}\sin 2x$

2. ✖ $2\cos 4x+\sin 2x$

3. ✖ $\frac{\sin 2x}{16}-\frac{3\cos 2x}{20}$

4. ✔ $\frac{\cos 2x}{20}-\frac{3\sin 2x}{20}$

**Question Number : 62 Question Id : 1525368996 Display Question Number : Yes Is Question Mandatory : No**

The particular integral of $(D^3 - 4D^2)y = 5$ is

$(D^3 - 4D^2)y = 5$ کا مخصوصی تکمیلہ

**Options :**

1. ✖ $\frac{5}{8}x$

2. ✖ $\frac{-5}{8}x$

3. ✖ $\frac{5}{8}x^2$

4. ✔ $\frac{-5}{8}x^2$

**Question Number : 63 Question Id : 1525368997 Display Question Number : Yes Is Question Mandatory : No**

$$\frac{1}{D^2 + D + 1}x^3 =$$

**Options :**

1. ✖ $x^3 + 3x^2 + 6$

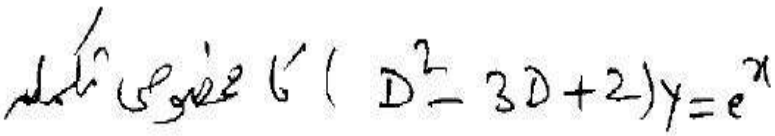
2. ✔ $x^3-3x^2+6$

3. ✖ $x^2+3x+8$

4. ✖ $x^3+3x+6$

**Question Number : 64 Question Id : 1525368998 Display Question Number : Yes Is Question Mandatory : No**

Particular integral of $(D^2-3D+2)y=e^x$ is



**Options :**

1. ✖ $e^x$

2. ✖ $-e^x$

3. ✖ $xe^x$

4. ✔ $-xe^x$

**Question Number : 65 Question Id : 1525368999 Display Question Number : Yes Is Question Mandatory : No**

$y = x$ is a solution of $\frac{d^2y}{dx^2} + P\frac{dy}{dx} + Qy = 0$ if

$y = x$ کے لئے $\frac{d^2y}{dx^2} + P\frac{dy}{dx} + Qy = 0$ مساوات حل ہو گی اگر

**Options :**

1. $P + Q = 0$ ✖

2. $P + Qx = 0$ ✔

3. $P + Q + 1 = 0$ ✖

4. $-P - Q = 0$ ✖

**Question Number : 66 Question Id : 1525369000 Display Question Number : Yes Is Question Mandatory : No**

If $y=0$ and $\frac{dy}{dx}=4$ when $x=0$, then the solution of the differential equation

$\frac{d^2y}{dx^2}-2\frac{dy}{dx}+5y=0$ is

اگر $y=0$ اور $\frac{dy}{dx}=4$ جبکہ $x=0$ ہے تو

تفریقی مساوات $\frac{d^2y}{dx^2}-2\frac{dy}{dx}+5y=0$ کا حل کیا ہوگا

**Options :**

1. ✔ $y=2e^x\sin 2x$

2. ✖ $y=e^{2x}\sin 2x$

3. ✖ $y=2e^{2x}\sin x$

4. ✖ $y=e^x\sin 2x$

**Question Number : 67 Question Id : 1525369001 Display Question Number : Yes Is Question Mandatory : No**

The general solution of the differential equation $y^2 + x^2 \frac{dy}{dx} = xy \frac{dy}{dx}$ is

تفریقی مساوات کا عمومی حل $y^2 + x^2 \frac{dy}{dx} = xy \frac{dy}{dx}$

**Options :**

1. $e^{\frac{x}{y}} = cy$ ✖

2. $e^{\frac{y}{x}} = cy$ ✔

3. $e^{\frac{1}{x}} = cy$ ✖

4. $e^{x} = cy$ ✖

**Question Number : 68 Question Id : 1525369002 Display Question Number : Yes Is Question Mandatory : No**

The solution of the differential equation $\frac{d^2y}{dx^2}+4y=0$ satisfying

$y(0)=1, y'(0)=-1$ is

$y(0)=1, y'(0)=-1$ صادق حل جو $\frac{d^2y}{dx^2}+4y=0$ کو مطمئن کرتا ہے۔

**Options :**

1. $y=-\cos 2x+\sin 2x$ ✖

2. $y=-\cos 2x\frac{-3}{2}\sin 2x$ ✖

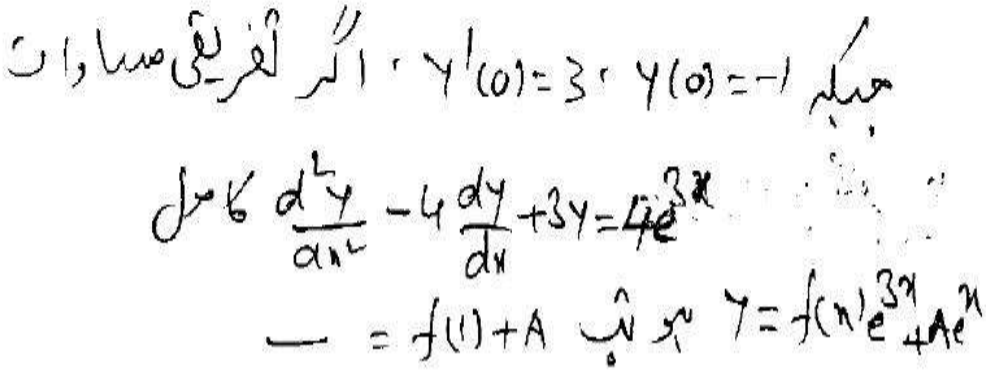
3. $y=-\cos 2x-\frac{1}{2}\sin 2x$ ✖

4. $y=\cos 2x-\frac{1}{2}\sin 2x$ ✔

**Question Number : 69 Question Id : 1525369003 Display Question Number : Yes Is Question Mandatory : No**

When $y(0)=-1, y'(0)=3$, if $y=f(x)e^{3x}+Ae^{x}$ is the solution of the differential equation

$\frac{d^2y}{dx^2}-4\frac{dy}{dx}+3y=4e^{3x}$, then $f(1)+A=$



**Options :**

1. ✖ 0

2. ✖ 3

3. ✔ 1

4. ✖ 2

**Question Number : 70 Question Id : 1525369004 Display Question Number : Yes Is Question Mandatory : No**

The solution of the differential equation $2xy\frac{dy}{dx} = y^2 - 2x^3$ when $y(1) = 2$ is

$2xy\frac{dy}{dx} = y^2 - 2x^3$ کا حل، تفریقی مساوات جب $y(1)=2$

**Options :**

1. $y + x^2 = 3x$ ✖

2. $y^2 + x^3 = 5x$ ✔

3. $y^2 + x = 5x^3$ ✖

4. $y + x = 3x^2$ ✖

**Question Number : 71 Question Id : 1525369005 Display Question Number : Yes Is Question Mandatory : No**

The perpendicular distance of $(3, -4, 1)$ to the plane $x+y-z+7=0$ is

$(3,-4,1)$ کا عمودی مسئوی $x+y-z+7=0$ کیلئے فاصلہ ــــ

**Options :**

1. ✔ $\frac{5}{\sqrt{3}}$

2. ✖ $\frac{3}{\sqrt{5}}$

3. ✖ $\sqrt{\frac{5}{3}}$

4. ✖ $\frac{\sqrt{3}}{5}$

**Question Number : 72 Question Id : 1525369006 Display Question Number : Yes Is Question Mandatory : No**

If the plane $x+2y-kz+3=0$ is perpendicular to the line whose direction ratios are 2, 4, 3 then k is

اگر مستوی $x+2y-kz+3=0$ کسی خط کے عمود ہے جبکی سمتی نسبت 2, 4, 3 ہیں۔ تب k کی قدر کیا ہوگی۔

**Options :**

1. ✖ $\frac{3}{2}$

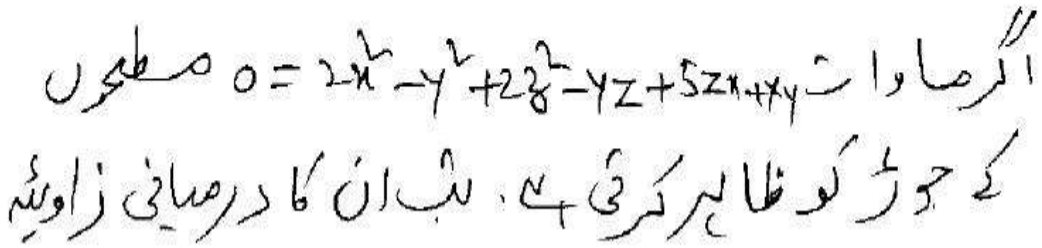
2. ✔ $-\frac{3}{2}$

3. ✖ $\frac{2}{3}$

4. ✖ $-\frac{2}{3}$

**Question Number : 73 Question Id : 1525369007 Display Question Number : Yes Is Question Mandatory : No**

If the equation $2x^2 - y^2 + 2z^2 - yz + 5zx + xy = 0$ represents a pair of planes, then the angle between them is



اگر مساوات $0 = 2x^2 - y^2 + 2z^2 - yz + 5zx + xy$ مستویوں کے جوڑے کو ظاہر کرتی ہے، تب ان کا درمیانی زاویہ

**Options :**

1. ✖ $\pi$

2. ✖ $\frac{\pi}{2}$

3. ✔ $\frac{\pi}{3}$

4. ✖ $\frac{\pi}{4}$

**Question Number : 74 Question Id : 1525369008 Display Question Number : Yes Is Question Mandatory : No**

The equation of the plane through $(2, -3, 1)$ and normal to the line joining of $(3, 4, -1)$ and $(2, -1, 5)$ is

نقطہ $(2,-3,1)$ سے گذرتی ہوئی اور $(2,-1,5)$ کو ملانے والی خط کو عمود ہونے والی مستوی کی مساوات۔

**Options :**

1. ✖ $x-5y+z=19$

2. ✖ $x+5y-6z=0$

3. ✔ $x+5y-6z=-19$

4. ✖ $x-5y-6z=-19$

**Question Number : 75 Question Id : 1525369009 Display Question Number : Yes Is Question Mandatory : No**

The equation of the plane through the origin and containing the line $x-3y+2z+3=3x-y+2z-5$ is

$x-3y+2z+3=3x-y+2z-5$ میں سے گذرتی ہوئی
خط والی مسوی مساوات ۔

**Options :**

1. ✔ $7x-9y+8z=0$

2. ✖ $7x+9y-8z=0$

3. ✖ $7x+9y-8z=0$

4. ✖ $7x-9y-8z=0$

**Question Number : 76 Question Id : 1525369010 Display Question Number : Yes Is Question Mandatory : No**

The length of the shortest distance between the lines

$\frac{x+3}{-3}=\frac{y+7}{2}=\frac{z-6}{4}, \frac{x-3}{3}=\frac{y-8}{-1}=\frac{z-3}{1}$ is

خطوط $\frac{x-3}{3}=\frac{y-8}{-1}=\frac{z-3}{1}$ ، $\frac{x+3}{-3}=\frac{y+7}{2}=\frac{z-6}{4}$

کے درمیان کم سے کم فاصلہ کی طمائی

**Options :**

1. ✖ $\sqrt{30}$

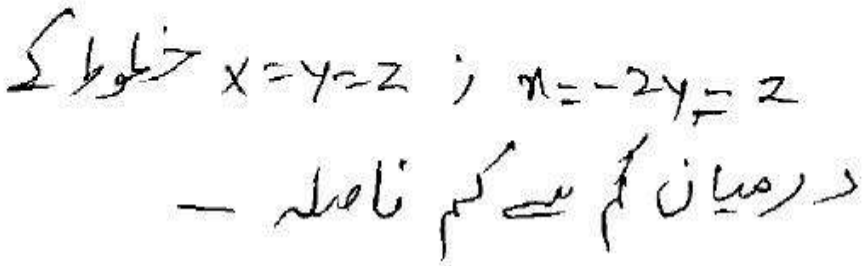
2. ✖ $2\sqrt{30}$

3. ✔ $3\sqrt{30}$

4. ✖ $5\sqrt{30}$

**Question Number : 77 Question Id : 1525369011 Display Question Number : Yes Is Question Mandatory : No**

The shortest distance between the lines $x = -2y = z; x = y = z$ is



**Options :**

1. ✖ 3

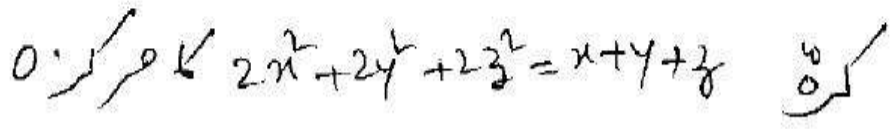
2. ✖ 4

3. ✖ 1

4. ✔ 0

**Question Number : 78 Question Id : 1525369012 Display Question Number : Yes Is Question Mandatory : No**

Centre of the sphere $2x^2 + 2y^2 + 2z^2 = x + y + z$ is



**Options :**

1. ✖ $\left(\frac{1}{3}, \frac{1}{3}, \frac{1}{3}\right)$

2. $\left(\frac{1}{4}, \frac{1}{4}, \frac{1}{4}\right)$ ✔

3. $\left(\frac{1}{2}, \frac{1}{2}, -\frac{1}{2}\right)$ ✖

4. 1, 1, 1 ✖

**Question Number : 79 Question Id : 1525369013 Display Question Number : Yes Is Question Mandatory : No**

Equation of the sphere with centre origin and radius 2 is

مرکزی مبداء اور 2 سم لمبے خط والے کرہ کی مساوات

**Options :**

1. $x^2 + y^2 + z^2 + xy + yz + zx = 0$ ✖

2. $x^2 + y^2 + z^2 = 0$ ✖

3. ✖

$x^2+y^2+z^2=2$

$x^2+y^2+z^2=4$

4. ✔

**Question Number : 80 Question Id : 1525369014 Display Question Number : Yes Is Question Mandatory : No**

General solution of the differential equation $y+xp=x^4p^2\left(p=\frac{dy}{dx}\right)$ is

تفریقی مساوات $y+xp=x^4p^2\left(p=\frac{dy}{dx}\right)$ کا

عمومی حل

**Options :**

$x=cx+c^2y$

1. ✖

$xy=cx+c^2$

2. ✖

$xy=c+c^2y$

3. ✔

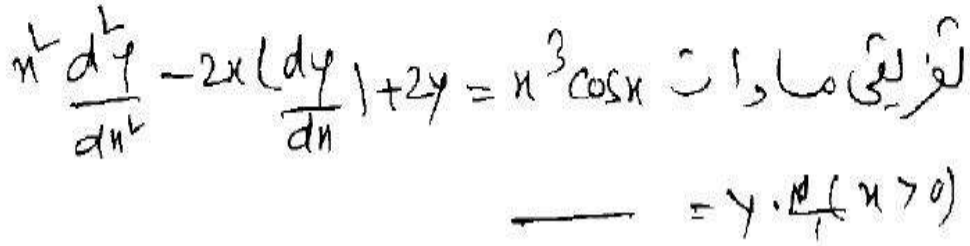
$y=cz+c^2x^2$

4. ✖

**Question Number : 81 Question Id : 1525369015 Display Question Number : Yes Is Question Mandatory : No**

The particular solution of the differential equation

$x^2\frac{d^2y}{dx^2}-2x\frac{dy}{dx}+2y=x^3\cos x(x>0)$ is $y=$ _____



**Options :**

1. ✖ $x\sin x$

2. ✖ $-x\sin x$

3. ✖ $x\cos x$

4. ✔ $-x\cos x$

**Question Number : 82 Question Id : 1525369016 Display Question Number : Yes Is Question Mandatory : No**

The radius of the circle $x^2+y^2+z^2+2x-2y+-4z-19=0,\ x+2y+2z+7=0$ is

دائرہ $x^2+y^2+z^2+2x-2y+-4z-19=0$ کے
مستوی $x+2y+2z+7=0$ کا رداس ہے۔

**Options :**

1. ✖ 2

2. ✔ 3

3. ✖ 4

4. ✖ 5

**Question Number : 83 Question Id : 1525369017 Display Question Number : Yes Is Question Mandatory : No**

Every section of a right circular cone by any plane perpendicular to its axis is

اگر کسی مستوی کے ذریعہ قائم دائری مخروط
کا ہر تراشہ جو اسکے محور پر عمود ہوتا ہے
تب وہ کہلائیگا۔

**Options :**

a cone

مخروط

1. ✖

a sphere

کرہ

2. ✖

a circle

دائرہ

3. ✔

a plane

مستوی

4. ✖

**Question Number : 84 Question Id : 1525369018 Display Question Number : Yes Is Question Mandatory : No**

The radius of the circular cylinder having for its base the circle

$x^2+y^2+z^2=9,\ x-y+z=3$

دائری قاعدہ والے دائری استوانہ کا نصف قطر ۔ $x-y+z=3$ ، $x^2+y^2+z^2=9$

**Options :**

1. ✖ $\sqrt{3}$

2. ✔ $\sqrt{6}$

3. ✖ $\sqrt{9}$

4. ✖ $\sqrt{7}$

**Question Number : 85 Question Id : 1525369019 Display Question Number : Yes Is Question Mandatory : No**

The general solution of the differential equation $\frac{dx}{z^2y}=\frac{dy}{z^2x}=\frac{dz}{y^2x}$ is

تفریقی مساوات $\frac{dx}{z^2y}=\frac{dy}{z^2x}=\frac{dz}{y^2x}$ کا عمومی حل

**Options :**

1. ✖ $x^2 + y^2 = c_1,\ y^3 + z^3 = c_2$

2. ✖ $x^2 + y^2 + z^2 = c_1,\ x^3 + y^3 + z^3 = c_2$

3. ✖ $x^2 - y^2 - z^2 = c_1,\ x^3 - y^3 - z^3 = c_2$

4. ✔ $x^2 - y^2 = c_1,\ y^3 - z^3 = c_2$

**Question Number : 86 Question Id : 1525369020 Display Question Number : Yes Is Question Mandatory : No**

The equation of the plane passing through the intersection of the planes $7x+y-2z=11$, $3x+y+2z=5$ and perpendicular to the plane $x-2y+z-1=0$ is

$3x+y+2z=5$، $7x+y-2z=11$ تالع خطوط
" $x-2y+z=1=0$ سے گزرتی ہوئی اور خط
پائے جانے والی سطوی کی مساوات ۔

**Options :**

1. ✖ $x+y+z=3$

2. ✖

$2x+2y+2z=3$

3. ✖ $x-z=3$

4. ✔ $2x-2z=3$

**Question Number : 87 Question Id : 1525369021 Display Question Number : Yes Is Question Mandatory : No**

Number of subgroups of the group $(Z_{93}, +_{93})$ is

گروپ $(Z_{93}, +93)$ کے مختلف گروپ کی تعداد

**Options :**

1. ✔ 4

2. ✖ 6

3. ✖ 9

4. ✖ 10

**Question Number : 88 Question Id : 1525369022 Display Question Number : Yes Is Question**

**Mandatory : No**

The generators of the group $G=\left\{\frac{6^n}{n}: n \in Z\right\}$ are

— جنریٹرز کے گروپ $G=\left\{\frac{6^n}{n}: n \in Z\right\}$ ہیں

**Options :**

1. $1, \frac{1}{6}$ ✖

2. $3, \frac{1}{6}$ ✖

3. $6, \frac{1}{6}$ ✔

4. $4, \frac{1}{4}$ ✖

**Question Number : 89 Question Id : 1525369023 Display Question Number : Yes Is Question Mandatory : No**

If a group is abelian, then $\forall\, a, b$

اگر ایک گروپ ابیلی ہو تب $\forall\, a, b$ ــــ

**Options :**

1. ✖ $(a\,b)^{2} = a\,b$

2. ✔ $(a\,b)^{2} = a^{2}\,b^{2}$

3. ✖ $(a\,b)^{2} = a^{2}$

4. ✖ $(a\,b)^{2} = b^{2}$

**Question Number : 90 Question Id : 1525369024 Display Question Number : Yes Is Question Mandatory : No**

If $G$ is a finite group of order $n$, then for $a \in G$

اگر $n$ درجہ والا ایک متناہی گروپ $G$ ہو
تب $a \in G$ کیلئے

**Options :**

1. ✖ $e = 1$

2. ✖ $a = e$

3. ✔ $a^n = e$

4. ✖ $a^n = 1$

**Question Number : 91 Question Id : 1525369025 Display Question Number : Yes Is Question Mandatory : No**

Let $H$ be a subgroup of a group $G$ such that $0(G) = 36$ and $0(H) = 4$. Then $0(G/H) =$

مان لیجئے کہ گروپ G کا ایک تحت گروپ H ہے۔

$O(G/H)$ = اسطرح $O(G) = 36$ اور $O(H) = 4$ ہے۔

**Options :**

1. ✔ 9

2. ✖ 12

3. ✖ 24

4. ✖ 36

**Question Number : 92 Question Id : 1525369026 Display Question Number : Yes Is Question Mandatory : No**

$15 +_5 7 =$

**Options :**

1. ✖ $-2$

2. ✔ $2$

3. ✖ $-3$

4. ✖ $3$

**Question Number : 93 Question Id : 1525369027 Display Question Number : Yes Is Question Mandatory : No**

The number of automorphism of the group $Z_6$ is

$Z_6$ گروپ کے خودمارفیٹ کی تعداد

**Options :**

1. ✖ $0$

2. ✖ $1$

3. ✔ 2

4. ✖ 3

**Question Number : 94 Question Id : 1525369028 Display Question Number : Yes Is Question Mandatory : No**

$(G,+_6)$ is a finite abelian group of order

ایک متناہی ابیلی گروپ $(G,+_6)$ کا درجہ

**Options :**

1. ✖ 2

2. ✖ 3

3. ✖ 5

4. ✔ 6

**Question Number : 95 Question Id : 1525369029 Display Question Number : Yes Is Question Mandatory : No**

The order of 9 in $Z_{12}$ is

$Z_{12}$ میں 9 کا رتبہ

**Options :**

1. ✖ 2

2. ✔ 4

3. ✖ 6

4. ✖ 12

**Question Number : 96 Question Id : 1525369030 Display Question Number : Yes Is Question Mandatory : No**

The point of intersection of the line $\frac{x-1}{1}=\frac{y-2}{-1}=\frac{z-3}{2}$ and the plane $x+2y-z=5$ is

خط $\frac{x-1}{1}=\frac{y-2}{-1}=\frac{z-3}{2}$ اور مستوی $x+2y-z=5$ کا نقطہ تقاطع

**Options :**

1. ✖ (1, 2, 0)

2. ✖ $(2, 0, -3)$

3. ✖ $(2, 1, -1)$

4. ✔ $(0, 3, 1)$

**Question Number : 97 Question Id : 1525369031 Display Question Number : Yes Is Question Mandatory : No**

If $f = (2\,3\,4\,1)$ is a permutation of degree 5, then $f^{-1} =$

اگر $f=(2\ 3\ 4\ 1)$ ایک 5 درجہ مبادلہ ہے۔

$f^{-1} =$ ــــــ

**Options :**

1. ✖ $(1\ 2\ 3\ 4)$

2. ✔ $(1\ 4\ 3\ 2)$

3. ✖ $(1\ 3\ 4\ 2)$

4. ✖ $(2\ 3\ 1\ 4)$

**Question Number : 98 Question Id : 1525369032 Display Question Number : Yes Is Question Mandatory : No**

The number of generators of a cyclic group of order 8 is

8 درجہ والے دوری گروپ کے مولد کی تعداد

**Options :**

1. ✖ 2

2. ✖ 3

3. ✔ 4

4. ✖ 5

**Question Number : 99 Question Id : 1525369033 Display Question Number : Yes Is Question Mandatory : No**

The number of even permutations in $0(S) = 4$ is

$O(S)=4$ میں جفت مبادلہ کی تعداد

**Options :**

1. ✔ 12

2. ✖ 10

3. ✖ 6

4. ✖ 4

**Question Number : 100 Question Id : 1525369034 Display Question Number : Yes Is Question Mandatory : No**

A cyclic group having only one generator is

وہ دوری گروپ جسمیں صرف ایک ہی مولد ہوتا ہے۔

**Options :**

1. ✖ $Z_4$

2. ✖ $Z_3$

3. ✔ $Z_2$

4. ✖ $Z_6$

**Question Number : 101 Question Id : 1525369035 Display Question Number : Yes Is Question Mandatory : No**

The radius of the great circle of the sphere $x^2+y^2+z^2-4x+10y-6z-11=0$ is

کرہ $x^2+y^2+z^2-4x+10y-6z-11=0$ کے عظیم دائرہ کا نصف قطر

**Options :**

1. ✔ 7

2. ✖ 6

3. ✖ $5\sqrt{5}$

4. ✖ $3\sqrt{3}$

**Question Number : 102 Question Id : 1525369036 Display Question Number : Yes Is Question Mandatory : No**

For $a>0, b>0$ $\lim\limits_{x\to 0_+}\left(\frac{b}{x}\right)\left[\frac{x}{a}\right]=$

اگر $b>0, a>0$

$= \left(\frac{b}{x}\right)\left[\frac{x}{a}\right]$ لیں،

$x \to 0_+$

**Options :**

1. ✖ $2$

2. ✖ $3$

3. ✖ $1$

4. ✔ $0$

**Question Number : 103 Question Id : 1525369037 Display Question Number : Yes Is Question Mandatory : No**

$$\lim_{x\to\infty}\frac{x^2+1}{x^2}=$$

**Options :**

1. ✖ $\infty$

2. ✖ $0$

3. ✔ $1$

4. ✖ $2$

**Question Number : 104 Question Id : 1525369038 Display Question Number : Yes Is Question Mandatory : No**

$f(x)=\frac{1}{x-a}$ has infinite discontinuity at _____

$f(x)=\frac{1}{x-a}$ پر، ___ لا محدود عدم تسلسل رکھتا ہے۔

**Options :**

1. ✖ $x=0$

2. ✖ $x=1$

3. ✔ $x=a$

4. ✖ $x=\infty$

**Question Number : 105 Question Id : 1525369039 Display Question Number : Yes Is Question Mandatory : No**

The directive of $f(x)=x^x, x>0$ is

جس کا $x>0$ ، $f(x)=x^x$

**Options :**

1. ✖ $(1+\log x)x$

2. ✔ $(1+\log x)x^x$

3. ✖ $1+\log x$

4. ✖ $\log x$

**Question Number : 106 Question Id : 1525369040 Display Question Number : Yes Is Question Mandatory : No**

$\{-2^n\}$ diverges to

$\{-2^n\}$ کہاں پر متباعد ہوتا ہے۔

**Options :**

1. ✔ $-\infty$

2. ✖ $\infty$

3. ✖ 2

4. ✖ 0

**Question Number : 107 Question Id : 1525369041 Display Question Number : Yes Is Question Mandatory : No**

$$\lim_{n\to\infty}\left(1+\frac{1}{n}\right)^{nx} =$$

**Options :**

1. ✖ $e$

2. ✔ $e^x$

3. ✖ $x$

4. ✖ $\infty$

**Question Number : 108 Question Id : 1525369042 Display Question Number : Yes Is Question Mandatory : No**

If $a_n = \frac{x^n}{n}, n \geq 1, x \neq 0$, then $\lim_{n\to\infty} \frac{a_{n+1}}{a_n}$

$\lim_{n\to\infty}$ if $n \geq 1, x \neq 0$, $a_n = \frac{x^n}{n}$

**Options :**

1. ✖ $0$

2. ✖ $e$

3. ✖ 1

4. ✔ $x$

**Question Number : 109 Question Id : 1525369043 Display Question Number : Yes Is Question Mandatory : No**

If the particular solution of the differential equation $\frac{d^2y}{dx^2}-8\frac{dy}{dx}+9y=8\sin 5x$ is $y=A\cos 5x+B\sin 5x$, then $29(2A+B)=$

$8\sin 5x=\frac{d^2y}{dx^2}-8\frac{dy}{dx}+9y$ اگر تفریقی مساوات

$=29(2A+B)$ ہے $y=A\cos 5x+B\sin 5x$ کا خاص حل

**Options :**

1. ✔ 8

2. ✖ 6

3. ✖ 4

4. ✖ 10

**Question Number : 110 Question Id : 1525369044 Display Question Number : Yes Is Question Mandatory : No**

In Taylor theorem, the Lagrange's form of remainder is

ٹیلر مسئلہ میں Lagrange شکل کا حاصل تفریق

**Options :**

1. ✖ $\frac{a^n f^n(c)}{n}$

2. ✖ $\frac{(b-a) f^n(c)}{n}$

3. ✔ $\frac{(b-a)^n f^n(c)}{n!}$

4. ✖ $\frac{f^n(c)}{n!}$

**Question Number : 111 Question Id : 1525369045 Display Question Number : Yes Is Question Mandatory : No**

The value of 'c' from Cauchy's mean value theorem for $f(x)=\sqrt{x}$ and $g(x)=\frac{1}{\sqrt{x}}$ in $[a,b]\ 0<a<b$ is

$g(x)=\frac{1}{\sqrt{x}}$ اور $f(x)=\sqrt{x}$، جس $[a,b]\ 0<a<b$ کیلئے

Cauchy's mean value سے مراد "c" کی قیمت ہوگی۔

**Options :**

1. $ab$ ✗

2. $\sqrt{ab}$ ✓

3. $a$ ✗

4. $b$ ✗

**Question Number : 112 Question Id : 1525369046 Display Question Number : Yes Is Question Mandatory : No**

If the function $f(x)=x^2(x^2-1), 0 \le x \le 1$ satisfies Rolle's theorem, then the value of 'c' is

اگر تفاعل $f(x)=x^2(x^2-1)$ جو $0 \le x \le 1$ Rolle's theorem کو مطمئن کرتا ہے، تب "c" کی قدر —

**Options :**

1. ✖ $-\frac{1}{2}$

2. ✖ $\frac{1}{2}$

3. ✖ $-\frac{1}{\sqrt{2}}$

4. ✔ $\frac{1}{\sqrt{2}}$

**Question Number : 113 Question Id : 1525369047 Display Question Number : Yes Is Question Mandatory : No**

$$\int_0^1 x\, e^x\, dx =$$

**Options :**

1. ✖

0

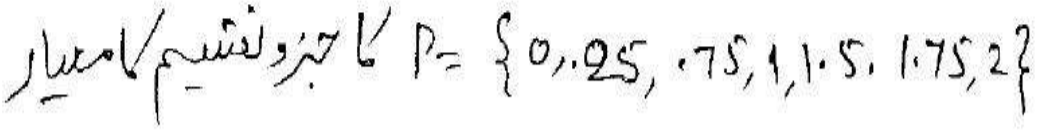
2. ✔ 1

3. ✖ 2

4. ✖ −2

**Question Number : 114 Question Id : 1525369048 Display Question Number : Yes Is Question Mandatory : No**

Norm of the partition P = {0, .25, .75, 1, 1.5. 1.75, 2} is




**Options :**

1. ✖ 0

2. ✖ 0.25

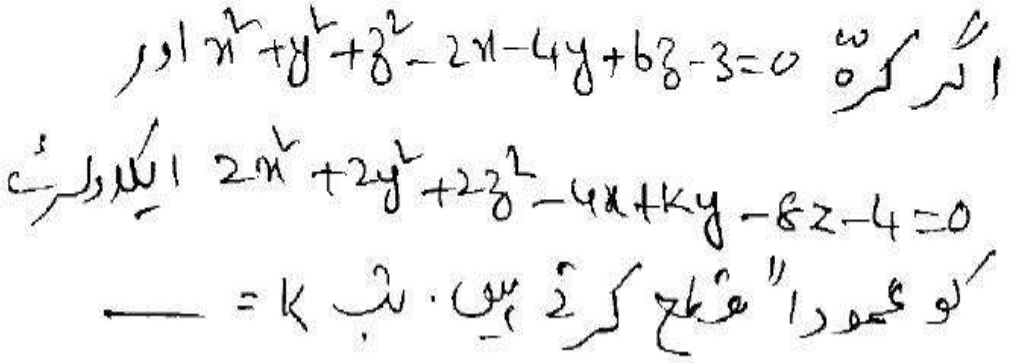
3. ✔ 0.5

4. ✖ 1

**Question Number : 115 Question Id : 1525369049 Display Question Number : Yes Is Question Mandatory : No**

If the spheres $x^2+y^2+z^2-2x-4y+6z-3=0$ and

$2x^2+2y^2+2z^2-4x+ky-8z-4=0$ cut each other orthogonally, then $k$ =



**Options :**

1. ✖ $-14$

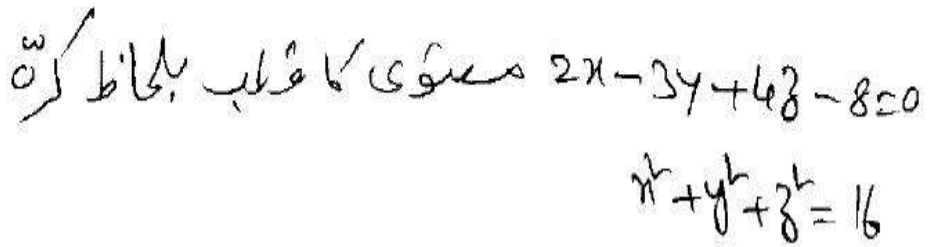
2. ✖ $-15$

3. ✖ $-6$

4. ✔ $-5$

**Question Number : 116 Question Id : 1525369050 Display Question Number : Yes Is Question Mandatory : No**

The pole of the plane $2x-3y+4z-8=0$ with respect to the sphere $x^2+y^2+z^2=16$ is



**Options :**

1. ✖ $(2, -3, 4)$

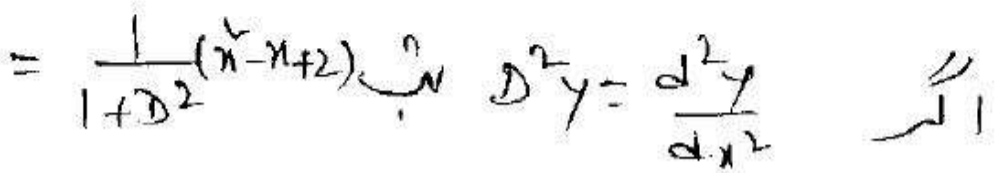
2. ✔ $(4, -6, 8)$

3. ✖ $(-2, 3, -4)$

4. ✖ $(-4, 6, -8)$

**Question Number : 117 Question Id : 1525369051 Display Question Number : Yes Is Question Mandatory : No**

If $D^2y=\frac{d^2y}{dx^2}$, then $\frac{1}{1+D^2}(x^2-x+2)=$



**Options :**

1. ✖

$x^3 - x^2 + 2x$

2. ✖ $x^3 - x^2$

3. ✔ $x^2 - x$

4. ✖ $x^2 + x - 2$

**Question Number : 118 Question Id : 1525369052 Display Question Number : Yes Is Question Mandatory : No**

Boolean ring characteristic is

بولین رنگ کی خصوصیات ___ ہیں .

**Options :**

1. ✔ 2

2. ✖ 3

3. ✖ 0

4. ✖ 4

**Question Number : 119 Question Id : 1525369053 Display Question Number : Yes Is Question Mandatory : No**

Number of zero divisions in the ring $(Z_{12}, +, \bullet)$ is

رنگ $(Z_{12}, +, \bullet)$ میں صفری تقسیم کی تعداد

**Options :**

1. ✖ 5

2. ✔ 7

3. ✖ 9

4. ✖ 11

**Question Number : 120 Question Id : 1525369054 Display Question Number : Yes Is Question Mandatory : No**

If R is a ring such that $a^2 = a, \forall a \in R$, then $a + a =$

اگر $R$ ایک رنگ ہے جس طرح کہ $a^2 = a$

$= a + a$ ہے، $\forall a \in R$

**Options :**

1. ✖ $a$

2. ✖ $2a$

3. ✖ $1$

4. ✔ $0$

**Question Number : 121 Question Id : 1525369055 Display Question Number : Yes Is Question Mandatory : No**

The equation of the cone with vertex at $(1, 1, 0)$ and guiding curve $x^2 + y^2 = 4,\ z = 1$ is

(Guiding curve) راس پر اور رہنمائی منحنی $(1, 1, 0)$
والے مخروط کی مساوات ۔

**Options :**

1. ✔ $x^2 + y^2 - 2z^2 + 2yz + 2zx - 2x - 2y - 4z + 2 = 0$

2. ✖ $x^2 + y^2 - 2z^2 + 2yz + 2zx - 4x - 4y + 4 = 0$

3. ✖

$$x^2+y^2+2z^2-2yz-2zx+2x-2y+4z-2=0$$

$$x^2+y^2+2z^2+2yz-2zx+4x-4y+4=0$$

4. ✖

**Question Number : 122 Question Id : 1525369056 Display Question Number : Yes Is Question Mandatory : No**

Number of associates of $a+ib$ in the Gaussian integral domain is

a+ib کے متعلقہ تکمیلہ علاقہ میں Gaussian کی تعداد ۔

**Options :**

1. ✖ 1

2. ✖ 2

3. ✔ 4

4. ✖ 5

**Question Number : 123 Question Id : 1525369057 Display Question Number : Yes Is Question Mandatory : No**

Let G be a group of order 40 and $a \in G$ such that $0(a) = 8$, then $0(a^{22}) =$

مان لیجیے کہ G ایک گروپ ہے جو 40 درجہ والا ہے
اور $a \in G$ اس طرح کہ $0(a) = 8$ تب $0(a^{22})$

**Options :**

1. ✖ 8

2. ✖ 6

3. ✔ 4

4. ✖ 2

**Question Number : 124 Question Id : 1525369058 Display Question Number : Yes Is Question Mandatory : No**

The units of $(Z_6, +_6, X_6)$ are

$(Z_6, +_6, X_6)$ کی اکائیاں

**Options :**

1. ✖ 2, 3

2. ✖

1, 2

3. ✖ 1, 3

4. ✔ 1, 5

**Question Number : 125 Question Id : 1525369059 Display Question Number : Yes Is Question Mandatory : No**

If a binary operation '*' is defined on the set $\mathbb{Z}$ of all integers by $m*n=m+n-5$ for all $m,n\in\mathbb{Z}$, then the inverse of '7' in the group $(\mathbb{Z},*)$ is

ایک دو اسا سی عمل * اس طرح بیان کیا گیا ہے
$m*n=m+n-5$ کے ذریعہ تمام صحیح اعداد کا سیٹ ہے ۔
تمام $m,n\in Z$ کیلئے ۔ تب گروپ $(z,*)$ میں 7 کا
معکوس کیا ہوگا

**Options :**

1. ✔ 3

2. ✖ 17

3. ✖ 5

4. ✖ 12

**Question Number : 126 Question Id : 1525369060 Display Question Number : Yes Is Question Mandatory : No**

The characteristic of the ring $Z_{10} \times Z_{15}$ is

$Z_{10} \times Z_{15}$ رنگ کی خصوصیات کیا ہے۔

**Options :**

1. ✖ 15

2. ✔ 30

3. ✖ 10

4. ✖ 5

**Question Number : 127 Question Id : 1525369061 Display Question Number : Yes Is Question Mandatory : No**

The equation of the right circular cylinder whose guiding curve is the circle passing through the points (1, 0, 0), (0, 1, 0) and (0, 0, 1) is

قائم دائری اسطوانہ کی مساوات لکھئے جسکا رہنمائی منحنی ایک دائرہ ہے جو نقاط (1,0,0) (0,1,0) (0,0,1) سے گذرتا ہے۔

**Options :**

1. ✖ $x^2 + y^2 + z^2 + xy + yz + zx + 1 = 0$

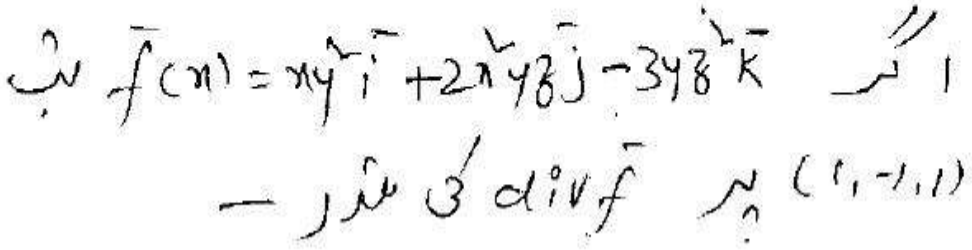
2. ✔ $x^2 + y^2 + z^2 - xy - yz - zx - 1 = 0$

3. ✖ $x^2 + y^2 + z^2 + xy + yz + zx - 1 = 0$

4. ✖ $x^2 + y^2 + z^2 - xy - yz - zx + 1 = 0$

**Question Number : 128 Question Id : 1525369062 Display Question Number : Yes Is Question Mandatory : No**

If $\bar{f} = xy^2\bar{i} + 2x^2yz\,\bar{j} - 3yz^2\,\bar{k}$, then $div\ \bar{f}$ at $(1, -1, 1)$ is



**Options :**

1. ✖ 6

2. ✖ $-6$

3. ✖ $-9$

4. ✔ 9

**Question Number : 129 Question Id : 1525369063 Display Question Number : Yes Is Question Mandatory : No**

Let G be the group of $4^{th}$ roots of unity under multipication and $f$ is the group homomorphism from the group $(\mathbb{Z},+)$ to the group by $f(n)=(i)^n$ for all $n\in\mathbb{Z}$, then $ker\ F=$

مان لیجیے کہ G گروپ کی 4 کا جذر کی اکائی بلحاظ (چوتھا جذروں) ضرب ہے۔ اور گروپ $(\mathbb{Z},+)$ سے G تک ایک ہم ماریت $f(n)=(i)^n$ جو کہ G کیلئے ہے نام کیلئے $n\in\mathbb{Z}$ = ker F ہے۔

**Options :**

1. ✔ $4\mathbb{Z}$

2. ✖ $3\mathbb{Z}$

3. ✖ $2\mathbb{Z}$

4. ✖ $\mathbb{Z}$

**Question Number : 130 Question Id : 1525369064 Display Question Number : Yes Is Question Mandatory : No**

If the permutation (1 3 5) 0(1 3 7 5) 0(6 8) 0(2 3 4 5) in the group $(S_8, 0)$ can be expressed as a product of $n$ disjoint cycles, then $n$ =

(1 3 5) o (1 3 7 5) o (6 8) o (2 3 4 5) گروپ $(S_8, o)$ میں مساوی اگر
کو 'n' غیر مشترکہ دور کے حاصل سے ظاہر کیا گیا ہے۔ تب
n = ——

**Options :**

1. ✖ 1

2. ✖ 2

3. ✔ 3

4. ✖ 4

**Question Number : 131 Question Id : 1525369065 Display Question Number : Yes Is Question Mandatory : No**

The number of generators of a cyclic group of order 33 is

33 درجہ والے دوری گروپ کے مولد کی تعداد

**Options :**

1. ✔ 20

2. ✖ 24

3. ✖ 18

4. ✖ 15

**Question Number : 132 Question Id : 1525369066 Display Question Number : Yes Is Question Mandatory : No**

Number of elements in the alternating group $(A_6, 0)$ is

متبادلہ گروپ $(A_6, 0)$ میں عناصر کی تعداد

**Options :**

1. ✖ 36

2. ✖ 180

3. ✔ 360

4. ✖ 720

**Question Number : 133 Question Id : 1525369067 Display Question Number : Yes Is Question Mandatory : No**

In the group $G = \{1, 2, 3, 4, 5, 6\}$ under multiplication $(X_7)$ modulo $_7$, $(5\ X_7\ 6)^{-1} =$

گروپ G = {1, 2, 3, 4, 5, 6} میں ماڈیولو 7
بلحاظ ضرب $(X_7)$ ماڈیولو 7، $(5 X_7 6)^{-1}$ =

**Options :**

1. ✖ 5

2. ✔ 4

3. ✖ 3

4. ✖ 2

**Question Number : 134 Question Id : 1525369068 Display Question Number : Yes Is Question Mandatory : No**

In $R^3$, if $U = L[(1,2,1),(0,1,2)]$ and $W = L[(1,0,0),(0,1,0)]$ then a basis for $U \cap W$ is

$R^3$ میں اگر $U = L[(1,2,1),(0,1,2)]$ اور
$W = L[(1,0,0),(0,1,0)]$ تب
$U \cap W$ کیلئے بنیاد کیا ہے۔

**Options :**

1. ✖ $\{(1,3,0)\}$

2. ✔ $\{(2,3,0)\}$

3. ✖ $\{(2,1,0)\}$

4. ✖ $\{(1,0,3)\}$

**Question Number : 135 Question Id : 1525369069 Display Question Number : Yes Is Question Mandatory : No**

If $\alpha = (1,-2,5)$ is vector that can be expressed as s linear combination of the vectors $e_1 = (1,1,1), e_2 = (1,2,3)$ and $e_3 = (2,-1,1)$ then $\alpha$ is

اگر $\alpha = (1,-2,5)$ ایک سمتی ہے جو سمتیے $e_1=(1,1,1), e_2=(1,2,3)$ اور $e_3=(2,-1,1)$ کو خطی اجتماع کی طرح ظاہر کیا گیا۔ تب "$\alpha$" کی قدر کیا ہوگی۔

**Options :**

1. $-6\,e_1 + 3\,e_2 + 2\,e_3$ ✔

2. $6\,e_1 - 3\,e_2 + 2\,e_3$ ✖

3. $6\,e_1 - 3\,e_2 - 2\,e_3$ ✖

4. $-6\,e_1 + 3\,e_2 - 2\,e_3$ ✖

**Question Number : 136 Question Id : 1525369070 Display Question Number : Yes Is Question Mandatory : No**

If $f(x)=x^2$ for all $x\in[0,1]$ and $p=\left|0,\frac{1}{4},\frac{1}{2},\frac{3}{4},1\right|$ then $U(p,f)=$

اگر $f(x)=x^2$ تمام $x\in[0,1]$ کیلئے اور
$U(P,f)=$ ــــ جب $P=\left|0,1/4,1/2,3/4,1\right|$

**Options :**

1. ✖ $\frac{15}{8}$

2. ✖ $\frac{15}{16}$

3. ✔ $\frac{15}{32}$

4. ✖ $\frac{15}{64}$

**Question Number : 137 Question Id : 1525369071 Display Question Number : Yes Is Question Mandatory : No**

The rank of the transformation $T: R^2 \to R^3$ defined by $T(x,y) = (x+y, x-y, y)$ is

استعمال $T: R^2 \to R^3$ کے درجہ کی تعریف اسطرح
کہ $T(x,y) = (x+y, x-y, y)$ ہے۔

**Options :**

1. ✖ 1

2. ✔ 2

3. ✖ 0

4. ✖ 3

**Question Number : 138 Question Id : 1525369072 Display Question Number : Yes Is Question Mandatory : No**

If $T: R^3 \to R^3$ is a linear transformation defined by

$T(x,y,z) = (x\cos\theta - y\sin\theta, x\sin\theta + y\cos\theta, z)$, then the kernal of T is

اگر $T: R^3 \to R^3$ ایک خطی استعمالہ کی تعریف

$T(x,y,z) = (x\cos\theta - y\sin\theta, x\sin\theta + y\cos\theta, z)$ ہو تو

Kernal of T ہے

**Options :**

1. ✔ $\{0\}$

2. ✖ $\{1\}$

3. ✖ 2

4. ✖ 3

**Question Number : 139 Question Id : 1525369073 Display Question Number : Yes Is Question Mandatory : No**

If $T_1$ and $T_2$ are linear operations on $R^2$ and $T_1(x,y)=(y,-x)$, $T_2(x,y)=(y,0)$ then $(T_1T_2-T_2T_1)(x,y)=$

اگر $R^2$ پر $T_1$ اور $T_2$ خطی عملیات ہو اور
$T_2(x,y)=(y,0)$, $T_1(x,y)=(y,-x)$ ہے
$=(T_1T_2-T_2T_1)(x,y)$

**Options :**

1. ✖ $(x,y)$

2. ✔ $(x,-y)$

3. ✖ $(-x,y)$

4. ✖ $(-x,-y)$

**Question Number : 140 Question Id : 1525369074 Display Question Number : Yes Is Question Mandatory : No**

$$\lim_{n\to\infty}\sum_{r=1}^{n}\frac{4n}{r^2n^2}=$$

$\sum_{r=1}^{n}\frac{4n}{r^2n}$ لیں
$n\to\infty$

**Options :**

1. ✖ $\frac{\pi}{4}$

2. ✖ $\frac{\pi}{2}$

3. ✔ $\pi$

4. ✖ $4\pi$

**Question Number : 141 Question Id : 1525369075 Display Question Number : Yes Is Question Mandatory : No**

If $\begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix} = A$, then $A^2 - 4A =$

$= A^2 - 4A$ تب $\begin{bmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{bmatrix} = A$ اگر

**Options :**

1. ✖ $2I$

2. ✖ $3I$

3. ✖ $4I$

4. ✔ $5I$

**Question Number : 142 Question Id : 1525369076 Display Question Number : Yes Is Question Mandatory : No**

If $A=\begin{bmatrix} 2 & -5 & 7 \\ -5 & 11 & -8 \\ 8 & 7 & 6 \end{bmatrix}$, then the trace of A is

اگر $A=\begin{bmatrix} 2 & -5 & 7 \\ -5 & 11 & -8 \\ 8 & 7 & 6 \end{bmatrix}$ تب A کا ٹریس ہے۔

**Options :**

1. ✖ $5$

2. ✖ $13$

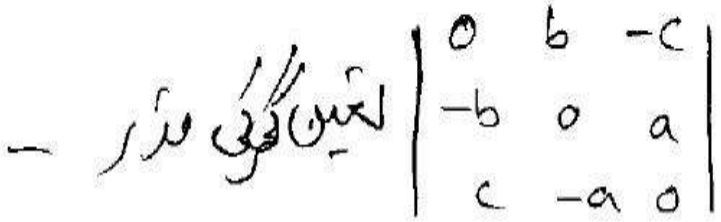
3. ✔ $19$

4. ✖ $-19$

**Question Number : 143 Question Id : 1525369077 Display Question Number : Yes Is Question**

**Mandatory : No**

Value of the determinant $\begin{vmatrix} 0 & b & -c \\ -b & 0 & a \\ c & -a & 0 \end{vmatrix}$



**Options :**

1. ✔ 0

2. ✖ 2

3. ✖ b

4. ✖ c

**Question Number : 144 Question Id : 1525369078 Display Question Number : Yes Is Question Mandatory : No**

Rank of the matrix $\begin{bmatrix} -1 & 2 & 3 \\ -2 & 4 & 6 \end{bmatrix}$ is

ماٹرکس $\begin{bmatrix} -1 & 2 & 3 \\ -2 & 4 & 6 \end{bmatrix}$ کا درجہ

**Options :**

1. ✖ 0

2. ✔ 1

3. ✖ 2

4. ✖ 3

**Question Number : 145 Question Id : 1525369079 Display Question Number : Yes Is Question Mandatory : No**

If $f(x) = x^{\log_e x}$, then $f'(e^2) =$

اگر $f(x) = x^{\log_e x}$ تب $f'(e^2) =$

**Options :**

1. ✔ $4e^2$

2. ✖ $2e^2$

3. ✖ $\frac{4}{e^4}$

4. ✖ $\frac{2}{e^2}$

**Question Number : 146 Question Id : 1525369080 Display Question Number : Yes Is Question Mandatory : No**

If $x, y$ are in an inner product space, then $|(x,y)| \leq$ ____

اگر $x, y$ داخلی حاصلِ ضرب فضا میں ہو، تب

$|(x,y)| \leq$ ___

**Options :**

1. ✖ $\|x\, y\|$

2. ✖ $|x| . |y|$

3. ✔ $\|x\| \|y\|$

4. ✖ $\|y\|$

**Question Number : 147 Question Id : 1525369081 Display Question Number : Yes Is Question Mandatory : No**

The unit vector orthogonal to $(4, 2, 3)$ in $R^3$ is

$R^3$ میں $(4, 2, 3)$ کیلئے عمودی اکائی سمتی

**Options :**

1. ✖ $\left(\frac{2}{3}, \frac{1}{3}, \frac{-2}{3}\right)$

2. ✔ $\left(\frac{2}{3}, \frac{-1}{3}, \frac{-2}{3}\right)$

3. ✖ $(2, -1, -2)$

4. ✖ $\left(2, \frac{1}{3}, \frac{2}{3}\right)$

**Question Number : 148 Question Id : 1525369082 Display Question Number : Yes Is Question Mandatory : No**

If $\alpha = (0,-2,3)$, $\beta = \left(\frac{7}{2},3,2\right)$ are in an inner product space $R^3$, then $(\alpha,\beta) =$

_____

اگر $\alpha = (0,-2,3)$ $\beta = (7/2, 3, 2)$ داخلی حاصلضرب
$= (\alpha, \beta)$ ہے۔ $R^3$ فضاء

**Options :**

1. ✖ 7

2. ✖ 5

3. ✖ 3

4. ✔ 0

**Question Number : 149 Question Id : 1525369083 Display Question Number : Yes Is Question Mandatory : No**

If $\alpha=(-1,0,1), \beta=(2,0,-2)$ are in an inner product space $V_3(R)$ then $\|\alpha+\beta\|=$

____

اگر $\alpha=(-1,0,1), \beta=(2,0,2)$ داخلی حاصلِ ضرب فضاء $V_3(R)$ میں ہو تب $\|\alpha+\beta\|$ =

**Options :**

1. ✖ $2$

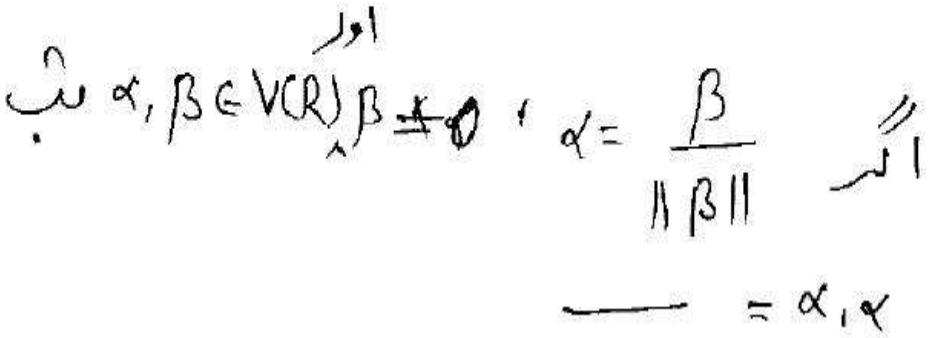
2. ✔ $\sqrt{2}$

3. ✖ $3$

4. ✖ $\sqrt{3}$

**Question Number : 150 Question Id : 1525369084 Display Question Number : Yes Is Question Mandatory : No**

If $\alpha = \frac{\beta}{\|\beta\|}, \beta \neq 0$ and $\alpha, \beta \in V(R)$, then $\alpha, \alpha =$ _____



**Options :**

1. $\beta$ ✖
2. $\beta^2$ ✖
3. 1 ✔
4. 0 ✖