

تعداد سؤال: ۲۰ تکمیلی - تشریحی ۵

نام درس: زبان تخصصی

رشته تحصیلی: گرایش: ریاضی

کد درس: ۲۴۱۳۵۳

زمان امتحان: تستی و تکمیلی ۴۰ دقیقه تشریحی ۶۰ دقیقه

[ استفاده از ماشین حساب مجاز نیست ☆ سوالات تستی نمره منفی دارد ]

تعداد کل صفحات: ۳

نیمسال دوم ۸۲-۸۳

- Derivative is usually studied in .....  
a. topology      b. algebra      c. analysis      d. geometry
- To compute a definite integral we may first compute the .....  
a. derivative      b. antiderivative      c. limit point      d. logarithm
- Each corner point in the honeycomb is surrounded by exactly 3 .....and there is no space wasted between cells.  
a. plans      b. lines      c. hexagons      d. pentagons
- The Greeks knew that .....in prespective may appear to be curved.  
a. straight lines      b. triangles      c. circles      d. curved lines
- As a wheel rolls along a straight line, a point on its rim follows a path called a .....  
a. circle      b. cycloid      c. ellipsoid      d. cardioid
- A great French mathematician named Pascal later studied the cycloid as a result of suffering from a .....  
a. square      b. cub      c. toothache      d. parabola
- The following property of natural numbers is called:  
$$p.(m + n) = (p.m) + (p.n)$$
  
a. the commutative law      b. the distributive law  
c. the cancellation law      d. induction
- The number of permutations of n objects is .....n!.  
a. less than      b. equal to      c. greater than      d. opposite from
- The law of trichotomy is not valid for  
a. natural numbers      b. rational numbers  
c. complex numbers      d. integers
- A statement which is not proved to be true or false is a .....  
a. theorem      b. conjecture      c. assumption      d. relation
- A synonym for supremum is:  
a. least upper bound      b. greatest lower bound  
c. least square      d. maximum

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زمان امتحان: تئوری و تکمیلی ۴۰ دقیقه تشریحی ۶۰ دقیقه

[ استفاده از ماشین حساب مجاز نیست ☆ سوالات تئوری نمره منفی دارد ]

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نیمسال دوم ۸۲-۸۳

12. The well ordering principle for  $N$  states that:
- every empty subset of  $N$  has a first element
  - every subset of  $N$  has a first element.
  - every non empty subset of  $N$  has a maximum.
  - every non empty subset of  $N$  has a first element.
13. Omar Khayyam's work on ..... was translated into French by P. Woepcke in 1851.
- geometry
  - Jalali solar calendar
  - poetry
  - algebra
14. Completeness is the deficiency in the system of:
- real numbers
  - complex numbers
  - rational numbers
  - natural numbers
15. Every non empty set of real numbers which is bounded above has a:
- maximun
  - minimum
  - least upper bound
  - greatest common divisor
16. The set  $Q$  of all rational numbers has the interesting property of being a countably infinite set which is ..... in  $R$ .
- subset
  - bounded
  - dense
  - open
17. Most people are familiar with the term statistics as it is used to denote and record ..... facts and figures.
- mathe matical
  - numerical
  - natural
  - real
18. If  $f$  is not given explicitly the process by which  $f'(n)$  is computed is called ..... differentiation.
- implicit
  - explicit
  - simple
  - function
19.  $F$  is called ..... if it is both left and right continuous.
- differentiable
  - continuous
  - increasing
  - decreasing

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نیمسال دوم ۸۲-۸۳

تعداد سوال: ۲۰ تکمیلی - تشریحی ۵

زمان امتحان: تستی و تکمیلی ۴۰ نوبت تشریحی ۶۰ نوبت

[استفاده از ماشین حساب مجاز نیست] ☆ سوالات تستی نمره منفی دارد]

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20. The first proof in the history of mathematics is said to have been given by:

- a. Thales of Miletus                      b. Archimedes  
c. Euclide                                      d. Alkwarazmi

## سوالات تشریحی

یاراگرافهای زیر را به فارسی روان ترجمه نمائید:

1. A straight line passing through a point on the circumference of a circle is tangent to the circle if and only if it is perpendicular to the radius drawn to that point.
2. If every solution of a differential equation can be obtained by assigning particular values to the  $n$  arbitrary constants in a general solution, that general solution is called a complete solution. A solution of the differential equation that cannot be obtained from a general solution by assigning particular values to the arbitrary constants is called a singular solution.
3. A partition of a set  $S$  is a family  $P$  of non empty subsets of  $S$  called the classes of the partition, with the following two property
  - a. Any two distinct classes are disjoint.
  - b. Every element of  $S$  lies in on class.
4. As mentioned in an earlier column, many mathematicians have observed that the main impact of computers on mathematics has been in raising new problems rather than solving old ones.
5. Andre weil, one of the giants of twentieth century mathematics, recalls a career that led him all over the world. We learn of his experiences in India where he lived and taught at a critical time in the history of that country, and where he met with Ghandhi and Jawaharlal Nehru.