

## 378 PU M Sc Bioinformatics

### 1 of 100

196 PU\_2016\_378\_Bioinfo\_E

In which of the processes, does the internal energy of the system remain constant?

- Isochoric
- Isobaric
- Isothermal
- Adiabatic

### 2 of 100

113 PU\_2016\_378\_Bioinfo\_E

Which of the following is not a conjugated protein?

- Peptone
- Phosphoprotein
- Chromoprotein
- Lipoprotein

### 3 of 100

151 PU\_2016\_378\_Bioinfo\_E

The orbitals are not occupied by:-

- 3 electrons
- 0 electrons
- 2 electrons
- 1 electrons

### 4 of 100

192 PU\_2016\_378\_Bioinfo\_E

If an electron and a proton have the same de-Broglie wavelength, then the kinetic energy of the proton is:-

- equal to that of the electron
- more than that of the electron
- zero
- less than that of the electron

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135 PU\_2016\_378\_Bioinfo\_E

Following are given chemical elements found in the human body in decreasing concentration:-

- O<C<N<H
- C<O<H<N
- H<O<C<N

C<H<O<N

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101 PU\_2016\_378\_Bioinfo\_E

Arrange the following events of meiosis in the correct sequence:-

- I. Terminalization
- II. Crossing over
- III. Synapsis
- IV. Disjunction of genomes

- II, I, IV, III
- IV, III, II, I
- I, IV, III, II
- III, II, I, IV

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The smallest unit of life is:-

- DNA molecule
- Virus
- Cell
- Organelle

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175 PU\_2016\_378\_Bioinfo\_E

A wheel of diameter 10 cm is rotating at 300 rpm. The linear velocity of a particle at its rim is:-

- 31.42 cm/s
- 314.2 cm/s
- 15.71 cm/s
- 157.1 cm/s

**9 of 100**

197 PU\_2016\_378\_Bioinfo\_E

Solar spectrum is an example for:-

- band absorption spectrum
- continuous emission spectrum
- line emission spectrum
- line absorption spectrum

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171 PU\_2016\_378\_Bioinfo\_E

Balance the following chemical reaction:-  $\text{Fe} + \text{Cl}_2 \rightarrow \text{FeCl}_3$

- $\text{Fe} + \text{Cl}_2 \rightarrow \text{FeCl}_3$
- $2\text{Fe} + 3\text{Cl}_2 \rightarrow 2\text{FeCl}_3$
- $2\text{Fe} + 2\text{Cl}_2 \rightarrow 2\text{FeCl}_3$
- $\text{Fe} + 3\text{Cl}_2 \rightarrow 2\text{FeCl}_3$

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The maximum kinetic energy of emitted electrons in a photoelectric effect does not depend upon:-

- frequency of the radiation
- wavelength of the radiation
- work function of the material
- intensity of the radiation

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206 PU\_2016\_378\_Bioinfo\_E

The most abundant rare gas in the atmosphere is:-

- Ar
- Xe
- He
- Ne

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202 PU\_2016\_378\_Bioinfo\_E

R - COO - R represents which class of organic compounds?

- acids
- esters
- ethers
- alcohols

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213 PU\_2016\_378\_Bioinfo\_E

The main active constituent of tea and coffee is:-

- nicotine
- caffeine
- chlorophyll
- codine

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112 PU\_2016\_378\_Bioinfo\_E

The sequence of cardiac cycle is:-

- Ventricular diastole - Diastole - Ventricular systole - Atrial systole
- Atrial systole - Ventricular diastole - Ventricular systole
- Diastole - Atrial systole - Ventricular diastole
- Atrial systole - Ventricular systole - Joint diastole

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What is laughing gas?

- Nitrous Oxide
- Sulphur dioxide
- Hydrogen peroxide
- Carbon monoxide

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116 PU\_2016\_378\_Bioinfo\_E

Which of the following apply to intercellular junctions?

- The three major adhesive junctions of animal cells are adherens junctions, desmosomes and hemidesmosomes
- Gap junctions and plasmodesmata are homologous structures
- Desmosomes and hemidesmosomes connect epithelial cells to their basement membrane and adjacent cells respectively
- The junctional complexes of gastrointestinal enterocytes ensure that nutrients are only absorbed through the spaces between the cells, which prevents them absorbing potentially harmful substances

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131 PU\_2016\_378\_Bioinfo\_E

Speed of sound in vacuum is:-

- 340 m/s
- 300m/s
- 380m/s
- 600m/s

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185 PU\_2016\_378\_Bioinfo\_E

Longitudinal strain is observed in the case of:-

- Liquid
- Gases
- Only solids

- Only gases & liquids

**20 of 100**

108 PU\_2016\_378\_Bioinfo\_E

Enzyme carbonic anhydrase, in \_\_\_\_\_ speeds up the reaction.

- Leucocytes  
 Platelets  
 Lymphocytes  
 RBCs

**21 of 100**

126 PU\_2016\_378\_Bioinfo\_E

Formula to find the Force is:-

- $a = Fm$   
  $F = ma$   
  $F = a/m$   
  $F = m/a$

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The spectrum of an oil flame is an example for:-

- line emission spectrum  
 line absorption spectrum  
 continuous emission spectrum  
 continuous absorption spectrum

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156 PU\_2016\_378\_Bioinfo\_E

An acid is:-

- Chemical species that donates hydrogen ions or protons  
 Chemical species that accepts hydrogen ions or protons  
 Chemical species that donates electron  
 Liquid that can dissolve other matter

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What method of measuring angles (besides degrees) is used?

- Protractor  
 Metric  
 Angstrom

- Radians

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The process of forming curd is called:-

- Reduction reaction
- Condensation reaction
- Sublimation reaction
- Fermentation reaction

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105 PU\_2016\_378\_Bioinfo\_E

Read the statements A and B.

- A) The human small intestine is the longest portion in the alimentary canal
- B) Absorption of digested food requires a very large surface area

Identify the correct choice on the two statements.

- Statements A and B are both correct
- Statements B is correct and A is wrong
- Statements A is correct and B is wrong
- Both statements are wrong

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A passenger in a moving train tosses a coin which falls:-

- In front of him
- Will not move
- Falls outside the train
- Behind him

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134 PU\_2016\_378\_Bioinfo\_E

According to the second law of thermodynamics, energy tends to become more and more unavailable for conversion from:-

- Mechanical to thermal energy
- Thermal to kinetic energy
- Kinetic to thermal energy
- Thermal to mechanical energy

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If 1 kg block of a material was given 10 kcal of heat to rise its temperature from 20°C to 40°C, what is the specific heat of that material [in kcal/(kg°C)]?

- 0.05
- 2
- 20
- 0.5

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A molecule of mass  $m$  moving with a velocity  $v$  makes 5 elastic collisions with a wall of the container per second. The change in its momentum per second will be:-

- $mv/5$
- $5mv$
- $10mv$
- $mv$

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The chemical (ethyl mercaptan) added to the otherwise odourless LPG cooking gas for imparting a detectable smell to the gas is a compound of:-

- fluorine
- sulphur
- chlorine
- bromine

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The time period of a simple pendulum in a spacecraft orbiting the earth is:-

- Two seconds
- One second
- Infinity
- Zero

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The term bioinformatics was coined by:-

- Frederic Sanger
- Pauline Hogeweg
- Margaret Dayhoff
- JD Watson

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120 PU\_2016\_378\_Bioinfo\_E

In the biosynthesis of cortisol, the sequence of enzymes involved is:-

- Isomerase-lyase-hydroxylase-dehydrogenase
- Hydroxylase-lyase-dehydrogenase isomerase
- Hydroxylase-dehydrogenase + isomerase-hydroxylase
- Dehydrogenase-hydroxylase-isomerase

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201 PU\_2016\_378\_Bioinfo\_E

Which compound is a saturated hydrocarbon?

- ethanol
- ethene
- ethyne
- ethane

**36 of 100**

184 PU\_2016\_378\_Bioinfo\_E

The velocity of sound in vacuum is:-

- 330 m/s
- 156 m/s
- Zero
- 27.5 m/s

**37 of 100**

209 PU\_2016\_378\_Bioinfo\_E

The most electropositive elements among the following is:-

- Cs
- K
- Na
- Ca

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176 PU\_2016\_378\_Bioinfo\_E

The angle of banking angle of a vehicle is independent of:-

- radius of curvature of road
- velocity of vehicle
- height of inclination
- mass of vehicle



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210 PU\_2016\_378\_Bioinfo\_E

The human body is made up of several chemical elements; the element present in the highest proportion (65%) in the body is:-

- nitrogen
- oxygen
- carbon
- hydrogen

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160 PU\_2016\_378\_Bioinfo\_E

Which of the following gives correct correlation between wave number and wave length?

- Wavelength in nanometers =  $1/\text{wavenumber}$
- Wavenumber =  $1/\text{wavelength in cm}$
- Wavenumber =  $1/\text{wavelength in nm}$
- Wavenumber =  $\text{wavelength in m}^{-1}$

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109 PU\_2016\_378\_Bioinfo\_E

Which one of the following is an example of negative feedback loop in humans?

- Constriction of skin blood vessels and contraction of skeletal muscles when it is too cold
- Salivation of mouth at the sight of delicious food
- Secretion of tears after falling of sand particles into the eyes
- Secretion of sweat glands and constriction of skin blood vessels when it is too hot

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214 PU\_2016\_378\_Bioinfo\_E

Sodium metal is kept under:-

- kerosene
- water
- petrol
- alcohol

**43 of 100**

205 PU\_2016\_378\_Bioinfo\_E

pH is a measure of:-

- pressure of hydrogen
- hydroxyl ion concentration
- hydrogen ion concentration

- All of the above

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189 PU\_2016\_378\_Bioinfo\_E

A charge Q is enclosed by a Gaussian spherical surface of radius R. If the radius is doubled, then the outward electric flux will:-

- Be doubled
- Increase four times
- Be reduced to half
- Remain the same

**45 of 100**

146 PU\_2016\_378\_Bioinfo\_E

Types of bond between C terminal and N terminal is:-

- a) Covalent
- b) Peptide bond
- c) Ionic bonds
- d) Both (a) and (b)

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142 PU\_2016\_378\_Bioinfo\_E

The term protein domain refers to:-

- The functional activity of a protein
- A region in the cell where a protein can be found
- The region on a protein that determines how it folds into a three dimensional structure
- A segment of a protein that can fold independently into its own compact, three-dimensional structure

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117 PU\_2016\_378\_Bioinfo\_E

An uncoupler of oxidative phosphorylation such as dinitrophenol:-

- Inhibits electron transport without impairment of ATP synthesis
- Specially inhibits cytochrome b
- Inhibits electron transport and ATP synthesis
- Allow electron transport to proceed without ATP synthesis

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218 PU\_2016\_378\_Bioinfo\_E

Geometrical isomers have:-

- same biological function
- same chemical formula

- same chemical and physical properties
- same physical properties

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163 PU\_2016\_378\_Bioinfo\_E

The bond between hydrogen and oxygen in water is:-

- Covalent and nonpolar
- Ionic and polar
- Non ionic and polar
- Covalent and polar

**50 of 100**

148 PU\_2016\_378\_Bioinfo\_E

The brain fluid contains:-

- Nucleus
- Cell Membrane
- Cytoplasm
- Mitochondria

**51 of 100**

100 PU\_2016\_378\_Bioinfo\_E

Cells in G0 phase of cell cycle:-

- Enter cell cycle
- Suspend cell cycle
- Exit cell cycle
- Terminate cell cycle

**52 of 100**

130 PU\_2016\_378\_Bioinfo\_E

The force acting on an object perpendicular to the surface is called:-

- Pressure
- Weight
- Thrust
- Weight

**53 of 100**

143 PU\_2016\_378\_Bioinfo\_E

Absorbance at 280nm exhibited by protein is due to:-

- All amino acids
- Aromatic amino acids

- Aliphatic amino acids
- Non-polar amino acids

**54 of 100**

155 PU\_2016\_378\_Bioinfo\_E

The lowest principle quantum number for an electron is:-

- 4
- 1
- 2
- 0

**55 of 100**

179 PU\_2016\_378\_Bioinfo\_E

If  $C_p - C_v$  is 'a' for hydrogen gas and 'b' for oxygen, then a and b are related to each other as:-

- a = 16 b
- a = b
- a = 4 b
- 16 a = b

**56 of 100**

159 PU\_2016\_378\_Bioinfo\_E

L and D form is described by based on the structure of:-

- Alanine
- Methanol
- Silver
- Glyceraldehyde

**57 of 100**

164 PU\_2016\_378\_Bioinfo\_E

What is the energy called that could give stability to the aromatic compounds?

- Resonance
- Kinetic
- Ionisation
- Potential

**58 of 100**

121 PU\_2016\_378\_Bioinfo\_E

The antibiotic which has a structure similar to the amino acyl end of tRNA tyrosine is:-

- Puromycin
- Mitomycin-C

- Actinomycin-D
- Streptomycin

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167 PU\_2016\_378\_Bioinfo\_E

Which of the following has 8 protons and 10 electrons?

- O<sup>2-</sup>
- F<sup>-</sup>
- N<sup>3-</sup>
- O<sup>3-</sup>

**60 of 100**

104 PU\_2016\_378\_Bioinfo\_E

Match column I with column II and choose the correct option:-

**Column-I**

- i. Goblet cells
- ii. Lysozyme
- iii. Saliva
- iv. Oxyntic cells

**Column-II**

- a. Antibacterial agent
- b. Mucus
- c. HCl
- d. Sublingual gland

- i-a, ii-c, iii- d, iv- b
- i-d, ii-a, iii-b, iv-c
- i-b, ii-c, iii- a, iv-d
- i-b, ii-a, iii-d, iv-c

**61 of 100**

234 PU\_2016\_378\_Bioinfo\_M

Which enzyme removes the RNA primer and fills in deoxyribonucleotides in prokaryotic replicase?

- DNA polymerase III
- Exonuclease
- DNA polymerase II
- DNA polymerase I

**62 of 100**

220 PU\_2016\_378\_Bioinfo\_M

In normal phase HPLC, there is a:-

- non polar solvent/polar column
- polar solvent/non-polar column
- non polar solvent/non-polar column
- polar solvent only

**63 of 100**

253 PU\_2016\_378\_Bioinfo\_M

If  $\cos A = 0.6$  then  $5 \sin A - 3 \tan A$  is equal to:-

- 0
- 2
- 8
- 1

**64 of 100**

229 PU\_2016\_378\_Bioinfo\_M

Membranes of the following two organelles are contiguous:-

- ER and Golgi
- Golgi and lysosomes
- nucleus and ER
- Golgi and plasma membrane

**65 of 100**

225 PU\_2016\_378\_Bioinfo\_M

N-Glycosyl linkage joins 1st carbon of pentose sugar with:-

- N3 of pyrimidine
- N9 of pyrimidine
- N3 of purine
- N9 of purine

**66 of 100**

237 PU\_2016\_378\_Bioinfo\_M

In prokaryotes the lagging strand primers are removed by:-

- 3' to 5' exonuclease
- DNA polymerase I
- DNA polymerase III
- DNA ligase

**67 of 100**

221 PU\_2016\_378\_Bioinfo\_M

In aqueous solution glucose remains as:-

- Only in pyranose form
- Only in furanose forms
- In all three forms in equilibrium
- Only in open chain form

**68 of 100**

242 PU\_2016\_378\_Bioinfo\_M

Which of the following statement is incorrect?

- histones are highly conserved protein
- H1 is the linker histone
- histones are small basic proteins associated with acidic DNA
- nucleosome has one copies of each core histones

**69 of 100**

257 PU\_2016\_378\_Bioinfo\_M

A letter is chosen at random from the letters in the word "PROBABILITY". What is the probability that the letter will be a B or a vowel?

- 2/11
- 5/11
- 6/11
- 7/11

**70 of 100**

246 PU\_2016\_378\_Bioinfo\_M

Autoclaves are routinely used in laboratories for sterilization. It acts by:-

- disrupting cell membranes, denaturing proteins, changing physically membrane lipids
- denaturing proteins
- changing physically membrane lipids
- disrupting cell membranes

**71 of 100**

250 PU\_2016\_378\_Bioinfo\_M

Two vertices of a triangle are P(1,1), B(2,-3). If its centroid is (2,1) find the third vertex.

- 5,3
- 1,5
- 2,5
- 3,5

**72 of 100**

249 PU\_2016\_378\_Bioinfo\_M

Archaeal cells usually do not contain peptidoglycan, rather contain pseudopeptidoglycan which is mainly composed of:-

- N-acetylmuramic acid and L-amino acids
- N-acetylalosaminuronic acid and D-amino acid
- N-acetylmuramic acid and D-amino acid

- N-acetylalosaminuronic acid and L-amino acid

### 73 of 100

224 PU\_2016\_378\_Bioinfo\_M

Theoretical plates in HPCL are used to:-

- determine the thickness of the stationary phase
- measure the distribution of the analyte between mobile and stationary phases
- estimate the efficiency of a column
- None of the above

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238 PU\_2016\_378\_Bioinfo\_M

Which of the following statement about histones is not true?

- histones are rich in lysine and arginine
- histones are very similar between species
- each histone has one single gene that codes for it
- histones have many basic amino acids

### 75 of 100

233 PU\_2016\_378\_Bioinfo\_M

Prokaryotic plasmids can replicate in yeast cells if they contain a cloned yeast:-

- CDk
- ORC
- RNA
- ARS

### 76 of 100

254 PU\_2016\_378\_Bioinfo\_M

Which of the following is not defined?

- cosec  $0^\circ$
- sin  $90^\circ$
- cos  $90^\circ$
- tan  $0^\circ$

### 77 of 100

245 PU\_2016\_378\_Bioinfo\_M

'Kozak' is associated with:-

- transcription
- DNA replication
- DNA repair



- translation

### 78 of 100

228 PU\_2016\_378\_Bioinfo\_M

Colchicine treated cells are arrested in:-

- S phase
- metaphase
- G1 phase
- prophase

### 79 of 100

258 PU\_2016\_378\_Bioinfo\_M

Three numbers x, y and z are in the ratio 1:2:3. Their average is 600. If x is increase by 10% and y is decreased by 20%, then by how much will be z be increased to get the average increased by 5%?

- 180
- 190
- 200
- 160

### 80 of 100

241 PU\_2016\_378\_Bioinfo\_M

NOR (Nucleolus Organizing Regions) occurs in the region of:-

- telomere
- primary constriction
- centromere
- secondary constriction

### 81 of 100

262 PU\_2016\_378\_Bioinfo\_D

A number consists of 3 digits whose sum is 10. The middle digit is equal to the sum of the other two and the number will be increased by 99 if its digits are reversed. The number is:-

- 145
- 370
- 253
- 352

### 82 of 100

298 PU\_2016\_378\_Bioinfo\_D

A microprocessor unit, a memory unit, and an input/output unit form a/an:-

- ALU
- Microcomputer

- Compiler
- CPU

**83 of 100**

291 PU\_2016\_378\_Bioinfo\_D

Which of the following approach is adapted by C++?

- Top-down
- Right-left
- Bottom-up
- Left-right

**84 of 100**

287 PU\_2016\_378\_Bioinfo\_D

Which of the following concepts means determining at runtime what method to invoke?

- Dynamic loading
- Data hiding
- Dynamic binding
- Dynamic Typing

**85 of 100**

275 PU\_2016\_378\_Bioinfo\_D

The gross yield of ATP from one molecule of glucose processed through glycolysis and cellular respiration is:-

- 38
- 36
- 42
- 40

**86 of 100**

283 PU\_2016\_378\_Bioinfo\_D

The part of brain dramatically increased in size and associated with incredible intellect in human is:-

- Cerebral cortex
- Amygdala
- Hypothalamus
- Hippocampus

**87 of 100**

292 PU\_2016\_378\_Bioinfo\_D

Which of the following concepts means wrapping up of data and functions together?

- Inheritance

- Encapsulation
- Polymorphism
- Abstraction

**88 of 100**

278 PU\_2016\_378\_Bioinfo\_D

Immediate hypersensitivity occurs due to:-

- IgE
- IgM
- IgG
- IgD

**89 of 100**

295 PU\_2016\_378\_Bioinfo\_D

Which of the following header file includes definition of cin and cout?

- iomanip.h
- iostream.h
- istream.h
- ostream.h

**90 of 100**

266 PU\_2016\_378\_Bioinfo\_D

If the area of region bounded by the inscribed and circumscribed circles of a square is  $9\pi$ , then the area of the square will be:-

- $6\pi$
- 25
- $4\pi$
- 36

**91 of 100**

280 PU\_2016\_378\_Bioinfo\_D

The first terrestrial arthropods appeared in:-

- Devonian
- Ordovician
- Carboniferous
- Silurian

**92 of 100**

296 PU\_2016\_378\_Bioinfo\_D

Which of the following provides a reuse mechanism?

- Encapsulation
- Inheritance
- Dynamic binding
- Abstraction

**93 of 100**

284 PU\_2016\_378\_Bioinfo\_D  
SQL stands for \_\_\_\_\_.

- Sequential Question Language
- Structured Question Language
- Structured Query Language
- Sequential Query Language

**94 of 100**

265 PU\_2016\_378\_Bioinfo\_D  
If (2,6) is one of the extremities of a diameter of a circle with centre (3,5), then the other point is:-

- 3,4
- 2,2
- 4,4
- 4,3

**95 of 100**

299 PU\_2016\_378\_Bioinfo\_D  
'MOV' extension refers usually to what kind of file?

- Animation/movie file
- MS Office document
- Image file
- Audio file

**96 of 100**

270 PU\_2016\_378\_Bioinfo\_D  
The empirical relationship between mean, median and mode is:-

- Mean > Median > Mode
- Mean - Mode = 3 (Mean - Median)
- Mean < Median < Mode
- Mode - Mean = 3 (Median - Mean)

**97 of 100**

288 PU\_2016\_378\_Bioinfo\_D  
cout is a/an \_\_\_\_\_.

- Function
- Object
- Operator
- Macro

**98 of 100**

261 PU\_2016\_378\_Bioinfo\_D

If  $P(A) = 0.35$ ,  $P(B) = 0.73$  and  $P(A \cap B) = 0.14$  then  $P(A \cup B)$  is equal to:-

- 0.64
- 0.54
- 0.94
- 0.90

**99 of 100**

271 PU\_2016\_378\_Bioinfo\_D

If  $\alpha$ ,  $\beta$ ,  $\gamma$  be the roots of the equation  $x^3 + px + q = 0$  then the value of  $\sum \alpha^2 \beta$  is:-

- $3p$
- $3q$
- $3$
- $3pq$

**100 of 100**

274 PU\_2016\_378\_Bioinfo\_D

A can solve 80% of the problems given in a book and B can solve 60%. What is the probability that at least one of them will solve a problem selected at random from the book?

- $12/25$
- $11/25$
- $23/25$
- $97/100$