MTS - I

Paper - I Marks: 50 Time: 50 min.

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Q.1) *An aeroplane is moving in a circular path with speed 300 km/hr. What is the change in velocity after half a revolution?*
1) zero 2) 600 kmph
3) 300 kmph 4) 300 x 1.414 kmph

Q.2) Which of the following is not a vector?
1) displacement 2) force
3) angular momentum 4) pressure

Q.3) A test tube containing air at atmospheric pressure with its mouth downwards is immersed in water. The force required to hold it immersed in water
1) is the same at all depths 2) increases with depth
3) decreases with depth
4) increases with depth till half way and
then it begins to increase.

Q.4) A differrence of temperature of 25 deg Celcius is equivalent to a differrence of
1) 45 deg F 2) 75 deg F
3) 32 deg F 4) 25 deg F

Q.5) How will an image produced by a lens change if half the lens is wrapped in black paper?
1) There will be no effect 2) The image will disappear
3) The size of the image will be reduced to one-half
4) The brightness of the image will be reduced

Q.6) A film projector magnifies a 100 sq. cm. film strip on the screen. If the magnification is 4 the area of the image on the screen in sq. cm. is
1) 1600 2) 400 3) 800 4) 200

Q.7) In mechanical wave motion
1) no medium is required
2) particles of the medium travel along the wave
3) particles of the medium remain at rest throughout
4) particles of the medium vibrate about their mean position.

Q.8) A compass needle will be deflected if it is kept near
1) a positively charged body at rest
2) a negatively charged body at rest

3) a charged body in motion 4) a brass ball in motion

Q.9) Two particles having charges q1 and q2 when kept at a certain distance exert a force F on each other. If the distance between them is reduced to half and the charge on each particle is doubled, the force between them would be
1) 2F 2) 4F 3) 8F 4) 16F

Q.10)When an electron in an excited atom returns to the ground state, radiation is emitted. Which one of the following radiations is NOT produced in this manner?
1) green light 2) gamma radiation
3) X-rays 4) Ultraviolet light

Q.11)Which of the following is neither an element nor a compound?
1) water 2) gold 3) glucose 4) air

Q.12)The smallest possible unit of a chemical compound is
1) an electron 2) an ion
3) an atom 4) a molecule

Q.13)Chemical formulae represent
1) molecules of an element 2) molecules of compounds
3) molecules of elements or of compounds
4) structure of molecules

Q.14)Mass of an electron is about
1) 1/100 of the lightest nucleus
2) 1/1000 of the lightest nucleus
3) 1/1800 of the lightest nucleus
4) 1/2500 of the lightest nucleus

Q.15)When two elements form a compound there occurs a rearrangement of their
1) atoms 2) molecules
3) nuclei 4) valency electrons

Q.16)When zinc is added to dilute sulphuric acid, hydrogen is evolved. This is an example of
1) substitution 2) decomposition
3) double decomposition 4) reversible reaction

Q.17)Which of the following reactions is fastest?
1) Burning of a lamp of charcoal
2) Precipitation of silver chloride when solutions of silver nitrate and sodium chloride are mixed
3) rusting of iron in moist air
4) electrolysis of fused sodium chloride

Q.18)Carbon atom attains a stable structure by
1) gaining electrons 2) losing electrons
3) sharing electrons 4) either transfer or sharing of electrons

Q.19)The first organic substance ever prepared in the Lab' from inorganic substances is
1) urea 2) ethyl alcohol
3) sugar 4) methane

Q.20)Which of the following elements is not radioactive?
1) Radium 2) Polonium
3) Thorium 4) Iridium

Q.21)Find a four digit no. of the form *a,abb* which is a perfect square?
1) 7,799 2) 7,766 3) 7,755 4) 7,744

Q.22)What decimal of an hour is a second?
1) 0.00029 2) 0.00028 3) 0.00027 4) 0.00026

Q.23)Zero is a _____ number.
1) natural 2) whole 3) prime 4) composite

Q.24)If then the value of
is
1) zero 2) 1.414 3) -1.414 4) 5 x 1.414

Q.25)The sum of two nos. is 7 and their product is 10. The sum of their squares is
1) 49 2) 29 3) 14 4) 10

Q.26)The perimeter of a square is (4y+12) cm. Its diagonal is
1) (y + 3) / 1.414 cm
2) 1.414 x (y + 3) cm
3) 1.414 x (4y + 12) cm
4) (4y + 12) / 1.414 cm

Q.27)If the length of the rectangle is increased by 1 / 3, and the width is decreased by 1 / 3, the area if the rectangle is diminished by the fraction
1) 2 / 3 2) 1 / 9 3) 1 / 6 4) 1 / 8

Q.28)The sides of a triangle are 5 cm, 12 cm and 13 cm. Find its area in sq. cm.
1) 24 2) 26 3) 30 4) 15

Q.29)the digrammatic representation with the help of pictures is called
1) Histogram 2) Pie Chart
3) Pictogram 4) Cartogram

Q.30)The mean of the first 'n' natural nos. is
1) n / 2 2) (n + 1) / 2

3) (n - 1) / 2 4) (n / 2) + 1

Q.31)The distant past when man kept no written records is called
1) Pre-Vedic Time 2) Old stone age
3) Prehistoric Times 4) Neolithic age

Q.32)Man's main occupation during the paleolithic age was
1) agriculture 2) domestication of animals
3) hunting & fruit gathering
4) hunting & agriculture

Q.33)Harrapan culture seems to have existed about
1) 5,000 B.C. 2) 600 B.C.
3) 10,000 B.C. 4) 2,500 B.C.

Q.34)The credit for employing iron-making goes to
1) Romans 2) Chinese
3) Hitties 4) Greeks

Q.35)In the ancient Roman civilisation the aristocracy was known as
1) the Plebian 2) the Patrician
3) the Tribune 4) Thebes

Q.36)The largest empire in the ancient American civilisation was
1) Inca 2) Aztec 3) Maya 4) Kush

Q.37)Which of the following was an important cause for the downfall of feudalism in Europe?
1) Rise of the middle class
2) Constant danger to life and property
3) Abnormal increase in the number of serfs
4) Absence of guarantee of any justice in the feudal courts.

Q.38)The Renaissance in Europe began around
1) 1000 AD 2) 600 AD
3) 1300 AD 4) 1600 AD

Q.39)Under Capitalism the instruments and means of production are owned by
1) state 2) private individuals
3) community 4) Co-operatives

Q.40)Austria declared war on Serbia in July
1) 1912 2) 1913 3) 1914 4) 1915

Q.41)The part of India recieving maximum *insolation*
1) northern 2) southern
3) eastern 4) western

Q.42)The cyclones visiting northern India during winter originate in
1) Atlantic ocean 2) Indian ocean
3) Eastern mediterranean sea 4) south of China sea

Q.43)The agricultural practice most adaptive in dry regions is
1) bunding contour ploughing
2) Co-operative farming
3) intensive farming
4) mechanised farming

Q.44)The world's largest irrigation canal is
1) Upper Ganga canal
2) Lower Ganga canal
3) Eastern Yamuna canal
4) Sharda canal

Q.45)The coal reserves of India are largely concentrated in
1) Damodar valley 2) Mahanadi valley
3) Godavari valley 4) Son valley

Q.46)Bohr ghat gap provides access to the railway link between
1) Bombay and Pune 2) Bombay and Goa
3) Pune and Goa 4) Madurai and Calicut

Q.47)Biosphere is confined to the area between
1) lithosphere and hydrosphere
2) hydrosphere and atmosphere
3) lithosphere and atmosphere
4) all the three spheres

Q.48)The important elements of weather are
1) temperature, pressure and winds
2) temperature, sunshine and winds
3) temperature, pressure and moisture
4) temperature, sunshine and moisture

Q.49)The three most abundant elements in the earth's crust are
1) O, Si, Fe 2) O, Si, Al
3) Si, Al, Fe 4) Si, Al, Mg

Q.50)Which of the following factors does not lead to soil erosion?
1) deforestation 2) over-grazing
3) excessive vegetation 4) winds

MTS - II

Paper - II **Marks: 50** **Time: 45 min.**

Q.1) A person inside an earth satellite in orbit experiences wightlessness, because
1) inside the satellite the person loses all weight
2) inside the satellite the person acquires negative weight
3) the person and satellite are both falling freely
4) the mass of the person inside the satellite becomes zero

Q.2) An iron ball and a wooden ball, of the same mass, are released from height 'h' in air. Neglecting the friction of air
1) the iron ball will hit the ground earlier
2) the wooden ball will hit the ground earlier
3) both will hit the ground together
4) there is equal chance that either of them hits the ground earlier

Q.3) *For the same kinetic energy the momentum shall be maximum for*
1) electron *2) proton*
3) deuteron *4) alpha particle*

Q.4) A glass bulb is balanced by a brass weight on a sensitive beam balance. Now the balance is covered by a bell jar, which is then evacuated.
1) the pan containing the bulb will go up
2) the pan containing the bulb will go down
3) the beam will continue to remain horizontal
4) the pan containing the bulb will go up or down depending upon the degree of vacuum

Q.5) Which is lighter (under the same conditions) one cu. m. of dry air or one cu. m. of humid air?
1) humid air 2) dry air
3) both have the same weight
4) depends upon the country where the expt. is conducted

Q.6) In the visible spectrum the colour with the shortest wavelength is
1) red 2) yellow 3) blue 4) violet

Q.7) In vacuum the speed of light depends upon
1) wavelength 2) frequency
3) speed of source 4) none of the above

Q.8) If the earth had no atmosphere the sky would appear
1) dark blue 2) red 3) dark black 4) violet

Q.9) A small magnet is placed perpendicular to a magnetic feild. This force will result in

1) rotation 2) translation
3) no motion 4) both 1) and 2)

Q.10)Which of the following when in motion can't be deflected by magnetic feilds?
1) electrons 2) neutrons
3) alpha particles 4) sodium ions

Q.11)A number is increased by 10 % and then reduced by 10 % . The number
1) does not change 2) decreases by 1 %
3) increases by 1 % 4) increases by 0.1 %

Q.12)A train travelling with constant speed crosses a 96m platform in 12 sec and another 141m platform in 15 sec.The length of the train and its speed are
1) 80m & 60 kph 2) 64m & 44 kph
3) 64m & 54 kph 4) 84m & 54 kph

Q.13)Which of the following sets is infinite? A set of
1) all rivers in the world
2) all drops of water in the ocean
3) all sand particles on the bank of the river
4) none of these

Q.14)Which one of the following statements is true?
1) zero is positive 2) zero is negative
3) both 1) and 2) 4) neither 1) nor 2)

Q.15)If $a - b = 3$ and $a^3 - b^3 = 117$, then $a + b =$
1) 5 2) 7 3) 9 4) 11

Q.16)The age of father is twice that of the elder son. Ten years hence the age of the father will be three times that of the younger son. If the difference of the ages of the two sons is 15 years, the age of the father is
1) 90 Years 2) 70 Years 3) 60 Years 4) 50 Years

Q.17)At 4:24 p.m. how many degrees has the hour hand of a clock moved from its position at noon
1) 132 deg 2) 100 deg 3) 66 deg 4) 26.4 deg

Q.18)The sum of the measures of the angles of a regular polygon is 1080 deg. The polygon has
1) 7 sides 2) 8 sides 3) 9 sides 4) 10 sides

Q.19)If the radius of a circle is increased by 100 %, the area increases by
1) 100% 2) 200% 3) 300 % 4) 400%

Q.20) Compounds may be formed by
1) Decomposition of other compounds

2) Combination of elements
3) Combinaton of compounds
4) All of the above

Q.21)Which of the following statements about a balanced chemical equation is TRUE
1) Mass is conserved
2) Atoms are conserved
3) Mass as well as atoms are conserved
4) Molecules are conserved

Q.22)A proton is identical with
1) An ionised hydrogen molecule
2) Nucleus of hydrogen atom
3) Nucleus of a light gas
4) An Alpha-ray particle

Q.23)The atomic number of an element is 12. Its valency is
1) 1 2) 2 3) 3 4) 4

Q.24)Among the following the best electrical conducter
1) Cu 2) Ag 3) Al 4) Fe

Q.25)When a pinch of manganese dioxide is added to hydrogen peroxide, oxygen is evolved. This is an example of
1) oxidation 2) reduction
3) decomposition 4) double decomposition

Q.26)Things burn more effeciently in pure oxygen than in air because air contains
1) moisture 2) Nitrogen 3) carbon dioxide
4) lower concentration of Oxygen than pure Oxygen

Q.27)Carbon-dating is a system of
1) finding the age of an object
2) Finding out the physical characteristic of man
3) Preserving archeological findings
4) study of species of pre-historic man

Q.28)Which of the following civilizations is regarded the first to manufacture paper?
1) Chinese 2) Egyptian 3) Babylonian 4) Roman

Q.29)Mahavir
1) denied the authority of the vedas
2) laid emphasis on good conduct
3) did not prescribe the rituals
4) all of the above

Q.30)Which philosopher of ancient egypt wrote the book " The Republic"
1) Socrates 2) Epicurus 3) Aristotle 4) Plato

Q.31)The Aztecs were mainly
1) farmers 2) warriors 3) traders 4) craftsmen

Q.32)"Rubaiyat" and "Arabian Nights" tell us much about the Arab
1) wars 2) religion
3) culture and society 4) evils of feudal system

Q.33)Who discovered that the Earth rotates about its own axis?
1) Galileo 2) Keplar 3) Isaac Newton 4) Copernicus

Q.34)Who performed a sea-journey from Venice to China and Japan?
1) Bartholomew Diaz 2) Colombus
3) Vasco da Gama 4) Marco Polo

Q.35)Who invented the Power loom?
1) Cartwright 2) Eli Whitney
3) Hargreaves 4) James Watt

Q.36)The essential feature of colonialism is
1) control 2) rule 3) domination 4) exploitation

Q.37)The parellel of latitude touching the southern most tip of Indian main land is
1) 8 deg N 2) 7 deg N 3) 9 deg N 4) 6 deg N

Q.38)Which is the largest lake in India?
1) Chilka 2) Sambhar 3) Naini Tal 4) Bhopal Tal

Q.39)The most fertile of the major types of soils in India are
1) regur soils 2) alluvial soils
3) laterite soils 4) red soils

Q.40)The crop requiring excessive water is
1) rice 2) sugarcane 3) cotton 4) wheat

Q.41)The first implosion of an atomic device in India was at
1) Trombay 2) Pokhran 3) Tarapur 4) Durgapur

Q.42)The suns's rays are vertically overhead twice a year in the region between
1) Tropic of Cancer and Tropic of Capricorn
2) Tropic of Cancer and Artic circle
3) Tropic of Capricorn and the Antartic circle
4) Tropic of Capricorn and Horse latitude

Q.43)According to Ferrel's law, the wind in the northern hemisphere is deflected towards the

1) right 2) left 3) north 4) south

Q.44)Hanging valleys are carved out by the action of
1) river 2) wind 3) glacier 4) ocean current

Q.45)An example of mineral occurring in layers of sedmientary rocks is
1) lignite 2) gold 3) lead 4) tin

Q.46)The temperature of air is maximum at
1) sunrise 2) 10:00 am 3) 12:00 am 4) 3:00 pm

Q.47)A mineral is termed as the ore if a metal contained in it
1) is present in the free state 2) can be produced profitably
3) can be isolated by a chemical process
4) can be isolated by an electrochemical process

Q.48)The amount of hydrogen in water by mass is
1) 11.11 % 2) 33.33 % 3) 66.66 % 4) 88.88 %

Q.49)The densest form of carbon is
1) diamond 2) graphite 3) charcoal 4) lampblack

Q.50)A rectangle with side 4 cm is inscribed into a circle with radius 5 cm. The area of the rectangle is _____ sq.cm.
1) 12 2) 15 3) 16 4) 1.414 x 8

MTS - I & II

Paper - III **Marks: 50** **Time: 40 min.**

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Q.1) On the main scale of a Vernier Callipers, each cm length is divided into 10 divisions. If the vernier has to have a least count of 0.005cm, the vernier scale should have

1) 10 div 2) 20 div 3) 50 div 4) 25 div

Q.2) When an apple from a tree falls down freely, it acquires an acceleration of 9.8 m/sq.sec. During the fall of the apple, the earth

1) too acquires an acceleration of a very small magnitude
2) too acquires an acceleration of 9.8 m/sq.sec
3) acquires no acceleration
4) none of the above

Q.3) An ice-cube containing a large bubble of air is floating in water, contained in a large beaker. When the ice melts completely, the level of water will

1) remain unchanged 2) go down
3) rise 4) first rise and then go down

Q.4) Two identical bodies move on two concentric circular paths the speed and the radius of the path of the outer one being double to those of the inner one. The force experienced by them will be

1) zero for both 2) same but not zero for both
3) greater for outer body 4) greater for inner body

Q.5) The surface of water in a lake is just going to freeze. What is the temperature of water at the bottom?

1) 0 deg C 2) < 4 deg C 3) > 4 deg C 4) 4 deg C

Q.6) A double convex air bubble in water, will act like a

1) convex lens 2) concave lens
3) plain slab 4) concave mirror

Q.7) Ethly alcohol is completely miscible with water. It can be seperated from a mixture of the two, by

1) seperating funnel 2) evaporation
3) fractional distillation 4) allowing the water to evaporate

Q.8) In a chemical equation $2Mg + O_2 \Rightarrow 2MgO$

O_2 represents two

1) atoms of oxygen joined together in a molecule

2) molecules of oxygen
3) grams of oxygen 4) moles of oxygen

Q.9) If equal weights of hydrogen and oxygen are placed in separate containers of equal volume, at the same temperature,
1) both containers have the same no. of molecules
2) oxygen container has a larger no. of molecules
3) the pressure in the oxygen container is less than the pressure in the hydrogen container
4) the pressure in the hydrogen container is less than the pressure in the oxygen container

Q.10)The atomic no. of the element signifies the no. of
1) electrons in an atom of it 2) protons in an atom of it
3) electrons and protons in an atom of it
4) protons and neutrons in an atom of it

Q.11)An ionic compound is made up of
1) neutral atoms 2) neutral molecules
3) electrically charged molecules
4) electrically charged atoms or group of atoms

Q.12)The process of protecting iron by coating with zinc is called
1) smelting 2) galvanising 3) rusting 4) corrosion

Q.13)The centres of protein synthesis in the cell are the
1) vacuoles 2) ribosomes
3) mitochondria 4) golgi bodies

Q.14)The controlling centre of all cell activities is the
1) nucleus 2) nucleolus
3) mitochondria 4) cytoplasm

Q.15)Layering is an example of
1) phototropism 2) osmosis
3) grafting 4) vegetative propagation

Q.16)Yeast is used for the production of
1) ethyl alcohol 2) acetic acid 3) chese 4) curd

Q.17)The basic differrence between the gymnosperms and angiosperms is in
1) the means of fertilisation 2) the types of tissues present
3) the method of growth 4) the way in which seeds are born

Q.18)Which of the following statements is correct?
1) Heat is produced during respiration

2) Carbon dioxide is given out during photosysnthesis
3) Oxygen is essential for respiration
4) Suitable temperature conditions are essential for photosynthesis

Q.19)The instant energy sources in living things are
1) fats 2) vitamins 3) proteins 4) carbohydrates

Q.20)The producers in an ecosystem are
1) heterotrophs 2) autotrophs
3) parasites 4) saprophytes

Q.21)A four digit perfect square whose first two digits and last two digits, each represents squares, is
1) 1636 2) 1681 3) 3664 4) 4964

Q.22)P is 95 % of Q. What percentage of P is Q?
1) 95 % 2) 105 % 3) 105.3 % 4) 195 %

Q.23)The ratio of milk and water in 66 litres of adulterated milk is 5 : 1. The quantity of water to be added in the mixture to make the ration of milk and water as 5 : 3 is
1) 20 litres 2) 22 litres 3) 16.5 litres 4) 24.75 litres

Q.24)If $a^4 + b^4 = a^2b^2$ then $a^6 + b^6 = ?$
1) 0 2) $(ab)^3$ 3) abc 4) 1

Q.25)If $2^x - 2^{(x-1)} = 4$ then $x^x = ?$
1) 1 2) 3 3) 5 4) 27

Q.26)The measure of an angle, which is five times its supplement, is
1) 36 deg 2) 30 deg 3) 150 deg 4) 180 deg

Q.27)The interior angle of a regular polygon exceeds the exterior angle by 132 deg. the no. of sudes in the polygon is
1) 7 2) 8 3) 12 4) 15

Q.28)In a right angled triangle, with sides a & b, hypotenuse c, altitude drawn on the hypotenuse is x, then
1) $ab = x^2$ 2) $(1 / a) + (1 / b) = (1 / x)$
3) $a^2 + b^2 = 2x^2$ 4) $(1 / a)^2 + (1 / b)^2 = (1 /x)^2$

Q.29)The arithmatic mean of “n” numbers is A. If each no. is divided by k, then the new mean is
1) A 2) A - k 3) k A 4) A + k

Q.30)For the following data -1, 1, 0, 2, 3, 5, 5, 6, 8, 10, 11
1) mean = mode = median 2) mean = mode
3) mode = median 4) mean = 5

Q.31) Most of the early civilisations arose in certain river valleys, because
1) rivers were sacred
2) they provided protection from animals and nomadic invaders
3) the conditions in these valleys were most suitable for development of civilisation
4) they provided enough space for settlement for a large no. of people

Q.32)Pyramids were
1) palaces of egyptian monarchs 2) temples made of sandstone
3) tombs of pharaohs 4) symbol of acheivement of rulers

Q.33)The Nanda dynasty came to power around
1) 400 BC 2) 800 BC 3) 400 AD 4) 100 AD

Q.34)The great wall of China was constructed by
1) Wu-ti 2) Shih Hwang-ti 3) Ming-ti 4) Ching-ti

Q.35)A well known patron of the mahayana form of Buddhism was
1) Ajatsatru 2) Bimbisara 3) Ashoka 4) Kanishka

Q.36)The author of *Rubaiyat* was
1) Firdausi 2) Omar Khayyam 3) Ibn Sina 4) Abu Rushd

Q.37)In South India, *Bhakti* was popularised by
1) *Alvars* 2) *Nayanars* 3) both 4) none

Q.38)European powers introduced plantation in America. these plantations were worked by
1) the Europeans themselves 2) slaves from africa
3) local labour 4) none of the above

Q.39)The industrial revolution first effected the
1) manufacture 2) transport 3) communication 4) agriculture

Q.40)The Khajuraho temples built by the Chandela rulers are
1) graceful and refined 2) designed as a chariot
3) full of delicate carvings 4) dedicated to the Sun god

Q.41)The part of India closest to the equator is
1) Cape Comorin 2) Lakshwadeep
3) Minicoy island 4) Nicobar island

Q.42)The country sharing the longest international boundary with India is
1) Bangladesh 2) Pakistan 3) Nepal 4) China

Q.43)The driest place in India is
1) Bikaner 2) Jaiselmer 3) Leh 4) Kandla

Q.44)Tobacco cultivation needs soil rich in

1) nitrogen 2) potash 3) calcerous matter 4) organic content

Q.45)The state which tops in well irrigation is
1) Punjab 2) Haryana 3) Bihar 4) Uttar Pradesh

Q.46)Bombay High refers to
1) Bombay island 2) sea bed off Bombay island
3) slopes of western ghats 4) highest place in Bombay

Q.47)The most important mode of transport in our mountainous border is
1) pack animals 2) aeroplanes 3) helicopters 4) trucks or jeeps

Q.48)Dandakaranya is located in _____ India.
1) North 2) North-East 3) South 4) Central

Q.49)In India, the largest sheep population exists in the state of
1) Uttar Pradesh 2) Madhya Pradesh
3) Andhra Pradesh 4) Rajasthan

Q.50)The three principal geographical factors which influence the type of vegetation are the amount of rainfall, the temperature and the nature of the soil. Thus the Coniferous forests in India are found in
1) marshy lands of the Sunderbans
2) higher altitudes of the Himalayas
3) higher grounds of the Western Ghats
4) upper Ganga Plain

MTS

Paper - IV Marks: 50 Time: 40 min.

Q.1) A body under uniformly accelerated motion covers 20 m and 60 m in first two consecutive seconds of time from the beginning. The body starts with an initial velocity
1) 0 m/s 2) 5 m/s 3) 10 m/s 4) 15 m/s

Q.2) For molecules in a solid which statement is not true?
1) They vibrate about the mean position
2) They sometimes rotate 3) They have no mass
4) They vibrate with larger amplitude at higher temperature

Q.3) Sonar is a device for
1) location and ranging of aircrafts
2) location and ranging of submarines
3) producing a musical note of high frequency
4) measuring the frequency of a musical note

Q.4) In the SI system, the unit of pressure is
1) atmosphere 2) dyne/sq.cm.
3) pascal 4) mm of mercury

Q.5) A body is floating in a liquid, contained in a beaker. The whole system falls freely under gravity. The upward force acting on the body due to the liquid is
1) zero 2) equal to the weight of the body in air
3) equal to the weight of liquid displaced by the whole body
4) equal to the weight of the immersed portion of the body

Q.6) A body acquires a positive charge of 1 Coulomb. It means,
1) 1 electron has been removed from the body
2) 1 additional electron has been acquired by the body
3) 6.25×10^{18} electrons have been removed from the body
4) 6.25×10^{18} additional electrons have been acquired by it.

Q.7) Magnetic lines of force due to a straight current are
1) straight 2) elliptical 3) concentric 4) parabolic

Q.8) Particles which can be added to the nucleus without changing chemical properties are called
1) electrons 2) protons 3) neutrons 4) alpha particles

Q.9) Whan a mixture of sand, common salt, glass powder and iodine is heated, the sublimate is
1) iodine 2) glass powder 3) common salt 4) sand

Q.10) The maximum no. of electrons that can occupy the s sub-level is
1) 2 2) 6 3) 10 4) 14

Q.11) Which of the following is likely to have the highest melting point?

1) Iodoform CHI_3 2) NaCl 3) $SiCl_4$ 4) HCl

Q.12)Bleaching powder is
1) a mixture of calcium hypochlorite and calcium chloride
2) calcium hypochlorite 3) calcium chloride hypochlorite
4) a mixture of calcium hypochlorite, calcium chloride and slaked lime
Q.13)An element which does not react with Oxygen is
1) Chlorine 2) Helium 3) Iodine 4) Nitrogen
Q.14)Where would you look for active cell division in a plant?
1) in pith cells 2) in the cortical cells
3) in the internodal region 4) at the tips of stems & roots
Q.15)Who among the following scientists is associated with the discoveries in genetic engineering?
1) Khurana 2) Watson 3) Darwin 4) Morgan
Q.16)Petals would most likely be missing in flowers that are pollinated by
1) bees 2) wind 3) moths 4) birds
Q.17)A virus reproduces by
1) binry fission 2) mitosis
3) inducing the host cell to form viruses
4) reproducing asexually under favourable conditions
Q.18)A root grows into downward into the soil
1) in order to find water 2) because it needs mineral salts
3) because root tissues respond to auxins
4) to get away form light
Q.19)Ecology is the study of
1) the physical structure of organisms
2) the inter-relationships of organisms and their surroundings
3) the inheritance of characteristics among organisms
4) the naming and classification of organisms
Q.20)Which of the following is an infectious disease?
1) leucoderma 2) diabetes mellitus
3) beri-beri 4) dysentry
Q.21)An agent makes a profit of 20 % even after giving a 10 % discount on the advertised price. If he makes a profit of Rs. 750 on the sale of the scooter then the advertised price is
1) Rs. 4500 2) Rs. 4750 3) Rs. 5000 4) Rs. 5250
Q.22)How many prime nos. are there equal to 10n + 1, where n is a whole no. s.t. $1 < n < 10$?
1) 2 2) 3 3) 4 4) 5
Q.23)The sum of two nos. is 10; their product is 20. The sum of their reciprocals is

1) 2 2) 1 / 2 3) 1 / 10 4) 1 / 13

Q.24)The three consecutive integers, which are such that the sum of the first, twice the second and three times the third is equal to eight times the first are

1) 1,2,3 2) 2,3,4 3) 3,4,5 4) 4,5,6

Q.25)The soln. of the equation is

1) x = -3 2) x = $\pm$ 5 3) x = 1 4) x = 4

Q.26)In triangle ABC, measure of angle A = 50^0 and the external bisectors of angles B and C, meet in O. The measure of angle BOC is

1) 140^0 2) 40^0 3) 105^0 4) 65^0

Q.27)X and Y are respectively two points on the sides DC and AD of the parellelogram ABCD. The area of triangle ABX is _____ the area of triangle BYC.

1) equal to half of 2) equal to one third of

3) equal to twice of 4) equal to

Q.28)In an equiangular triangle, incentre, circumcentre and orthocentre are

1) collinear 2) concyclic 3) coincident 4) not related

Q.29)The harmonic mean of 3, 7, 8, 10, 14 is

1) 2)

3) 4)

Q.30)The marks, out of 50, of a group of 15 students in a test are given . Find the median.

20, 24, 27, 38, 18, 42, 35, 21, 44, 29, 18, 31, 26, 36, 41

1) 8 2) 21 3) 29 4) 31

Q.31)The growth of India's composite culture reached its highest point under

1) Turks 2) Pathans 3) Moughals 4) English

Q.32)The earliest known Indian script and mother of most Indian scripts is

1) Brahmi 2) Sanskrit 3) Apbhransh 4) Prakrit

Q.33)Prarthana Samaj was an institution concerned with

1) social reforms 2) religious reforms

3) revolutionary activities 4) first and second above

Q.34)The immediate cause of the revolt of 1857 was

1) annexation of Jhansi

2) discontent among Indians against the British policies

3) introduction of modern English education

4) greased cartridges

Q.35)Which of the following brought glory to the vedic religion in foreign countries?

1) Raja Ram Mohan Roy 2) Dayanand Saraswati

3) Swami Vivekananda 4) Ishwar Chandra Vidyasagar

Q.36)The greatest scientific instrument of the renaissance age was

1) telescope 2) compass

3) thermometer 4) microscope

Q.37)Society is the name for a group of people, who
1) are its members 2) constitute it
3) live in it 4) all the three above
Q.38)The body responsible for making laws and enforcing them is called the
1) state 2) parliament
3) government 4) all the three put together
Q.39)Government functions as
1) a representative of the electorate 2) an agency of the state
3) society's policeman 4) a ruler in the state
Q.40)The Panchayat Samiti looks after development of
1) agriculture 2) cottage industry
3) animal husbandry 4) all the three above
Q.41)India is a secular state. It means
1) state shall not favour any particular religion
2) state shall not allow religious activities
3) religion is state controlled 4) none of these
Q.42)The planet with the shortest year is
1) mercury 2) pluto 3) venus 4) earth
Q.43)The average time interval between successive high and low tides is
1) 50 m 2) 6 hrs. 26 m 3) 12 hrs. 26 m 4) 24 hrs. 52 m
Q.44)Cotton and rice cannot be cultivated in the middle and the high altitudes due to the prevailing conditions of
1) low temperature 2) low humidity
3) labour shortage 4) high rainfall
Q.45)Erosion is the process of
1) rock decay and disintegration 2) rock decomposition
3) Earth sculpture due to agents of transport
4) extrusion of solid, liquid or gaseous material to the surface
Q.46)The ore for aluminium is
1) lignite 2) hemtite 3) bauxite 4) magnetite
Q.47)Cattle-rearing is the most important occupation in
1) Savanna grasslands 2) Steppe grasslands
3) Andes mountains 4) Deserts
Q.48)Panama canal has shortened the distance between
1) America and Europe 2) N. America and S. America
3) Canada and USA 4) East and West USA
Q.49)The river Tigris flows mainly through
1) Iran 2) Iraq 3) Syria 4) Quwait
Q.50)Cactus is a plant, which usually grows in
1) semi-arid regions 2) fresh water lakes

3) flood plains 4) river deltas

Q.1) Neanderthal man was succeeded by
1) Grimaldi man 2) Cro-magnon man
3) Heidelberg man 4) Peking man

Q.2) The Indus valley people worshipped
1) Indra 2) Varuna
3) Mother Goddess 4) Mitra

Q.3) The first proper system of writing was developed by
1) Egyptians 2) Harrapans
3) Chinese 4) Sumerans

Q.4) *Susruta* and *Charak* , two names in ancient Indian medicine lived during
1) Mauryan period 2) Gupta Period
3) Satavahan period 4) the time of Harsha

Q.5) Which is regarded as the Golden age of China's history
1) Han period 2) Chu period
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Q.7) Kanchipuram was the capital city of
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Q.8) A noteworthy innovation of the Aztecs was "Chinampas". It was
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3) modified potter's wheel 4) rope bridge

Q.9) The Arab art was influenced by
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Q.10)The crusades were fought because
1) the feudal lords wanted to gain new lands
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Q.11)Who explained that the planets moved around the sun?
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Q.14)Which of the folowing necessitated the formation of trade unions of workers?
1) industrial revolution 2) colonization
3) capitalism 4) socialism

Q.15)The English General who led the British army in the war of America independance was
1) George Washington 2) Hamilton
3) Cornwallis 4) Lord North

Q.16)Who said "Man is born free, yet everywhere he is in chains"?
1) Montesquieue 2) Voltaire
3) Rousseau 4) Thomas Paine

Q.17)Who is known as the Bismarck of Italy?
1) Garibaldi 2) Mazzini
3) Victor Emmanuel 4) Count Cavour

Q.18)The underlying cause of the first world war was
1) revolt by the colonies
2) rivalries between imperialist countries
3) enmity between Austria and Serbia
4) Pan-Slav movement

Q.19)The fascism that developed in Italy was
1) pro-democracy 2) pro-socialism
3) anti-democracy & anti-socialism 4) anti-imperialism

Q.20)The slogan "Go back to the vedas" was raised by
1) Vivekanand 2) Ramakrishna Paramhansa
3) Raja Ram Mohan Roy 4) Dayanand Saraswati

Q.21)India is connected with Europe through
1) Malaccan strait 2) Suez canal
3) Persian gulf 4) Red sea

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Q.22)The McMohan line is
1) an oil pipe running along the Gulf of Cambay
2) an international boundary between India and China
3) a line of discontinuity on a tropical depression
4) the coastline along Bangladesh and West Bengal

Q.23)The winter monsoon blows into India from
1) North West 2) North East 3) South West 4) South East

Q.24)The most important tropical forests in India are
1) tropical evergreen 2) tropical semi-evergreen
3) tropical deciduous 4) coniferous

Q.25)Jowar, Bajra and Ragi grow well in areas with
1) high temperature and light rainfall
2) high temperature and low rainfall
3) high temperature and moderate rainfall
4) moderate temperature and low rainfall

Q.26)The major part of India's potential water power resources lie in
1) Himalayas 2) Ganga-Brahmaputra Basin
3) Ganga-Sutlej basin 4) Peninsular India

Q.27)Which of the following is not a mineral?
1) Aluminium 2) Clay 3) Rock salt 4) Coal

Q.28)The two major categories of industrial raw materials are
1) agro-based & forest-based 2) agro-based & animal-based
3) agro-based & mineral-based 4) forest-based & animal-based

Q.29)The private sector steel plants are situated in
1) Jamshedpur and Bhadravati 2) Jamshedpur and Bokaro
3) Durgapur and Bokaro 4) Bhadravati and Bhilai

Q.30)An important locational advantage which India possesses for international trade is its
1) central location in the eastern hemisphere
2) location amidst developing countries
3) location at the southern end of Asia
4) location on the east-west oceanic route through the Suez canal

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1) a climatic type
2) an isopleth on a map joining points on equal nights
3) the sun being directly overhead at noon along the equator

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3) wind erosion on plateaus 4) glacial erosion on cold plateaus

Q.35)Merino sheep rearing is widely practiced in
1) Africa 2) Argentina 3) Europe 4) Australia

Q.36)High population density in North-East USA is supported by
1) highly fertile soil 2) growth of manufacturing industries
3) assured water supplies 4) all of these factors

Q.37)The area of a certain district is 25,000 sq .km. and its population is 50 lakh. the population density is ___ persons / sq. km.
1) 50 2) 100 3) 150 4) 200

Q.38)A natural region is comprised of many countries having homogenity with reference to
1) climate, vegetation and soil 2) relief features and water bodies
3) human occupations and general economic development
4) climate, vegetation, soil and human occupation

Prairies and steppes are parts of the natural region called
1) temperate grassland 2) prairie grassland
3) steppe grassland 4) tropical grassland

The biggest island in the world is
1) Borneo 2) Greenland 3) U.K. 4) Japan (Honshu)

MTS

Paper - V Marks: 100 Time: 90 min.

Q.1) If a glass (made of steel) of water is dropped from a height, the water in it jumps upwards, because
1) water is lighter than steel 2) water is liquid
3) of its inertia 4) none of the above

Q.2) A boat with scrap-iron in it is floating in a lake. If the iron is thrown in the lake, what will happen to the water in the lake?
1) The level will rise 2) The level will go down
3) There will be no change in the water level
4) If water in the lake is saltish, then the level will go up.

Q.3) The speed of radiated heat in vacuum is
1) 1120 ft/s 2) 1120 m/s 3) 186000 m/s 4) 3×10^8 m/s

Q.4) A solid ball of metal has a spherical cavity inside it. On heating the ball, the volume of the cavity will
1) decrease 2) not change 3) increase 4) change its shape

Q.5) A closed vessel contains some gas at a given pressure and temperature. The vessel is given a high velocity by placing it on a fast moving train. Then the temperature of the gas
1) will increase 2) will decrease 3) will remain unchanged
4) may increase or decrease depending upon the nature of the gas.

Q.6) One feels the sensation of heat when exposed to
1) UV- rays 2) IR - rays 3) Gamma rays 4) X-rays

Q.7) In which of the following cases total internal reflection cannot be obtained?
1) A ray going from glass to air 2) A ray going from glass to water
3) A ray going from water to glass 4) A ray going from water to air

Q.8) Two stars situated at distances of 4 and 8 light years respectively from the earth, appear to possess the same brightness. The ratio of their real brightness is
1) 2 : 1 2) 1: 2 3) 4 : 1 4) 1 : 4

Q.9) What is the advantage of having two eyes seperated by some distance?
1) we can see clearly 2) we can see colors
3) if one eye is damaged then the other can be used
4) we can sense depth

Q.10) Inside a gas, transmission is possible for
1) longitudinal waves only 2) transverse waves only

3) both longitudinal and transverse waves
4) neither longitudinal nor transverse waves

Q.11)What is the resistance of a conductor through which a current of 5 amp is passed at a potential differrence of 10 volts?
1) 0.5 ohms 2) 5 ohms 3) 0.2 ohms 4) 2 ohms

Q.12)Molecules of a gas at room temperature
1) vibrate back and forth 2) move very fast, but never collide
3) move at random due to gravity
4) exert pressure on the walls of the vessel

Q.13) A fuse is fixed in an electrical circuit in order to
1) decrease the amount of current flowing
2) increase the amount of current flowing
3) increase the power consumed in the circuit
4) safeguard the circuit against excessive currents

Q.14)A mixture of water and sodium chloride can be seperated by
1) decantation 2) evaporation
3) simple distillation 4) fractional distillation

Q.15)The formula for phosphoric acid is H_4PO_4. The formula for a divalent metal forming a phosphate will be
1) MPO_4 2) M_3PO_4 3) $M(PO_4)_2$ 4) $M_3(PO_4)_2$

Q.16)An endothermic reaction is one which takes place
1) at an increased temperature 2) with evolution of heat
3) wit decrease in volume 4) with increase in volume

Q.17)The molecular weights of Carbon dioxide and hydrogen are 44 and 2 respectively. The no. of molecules in 44 gm of carbon dioxide will be _____ the no. of hydrogen molecules in 2 gm of hydrogen
1) more than 2) less than 3) equal to 4) 11 times

Q.18)What is not true about the cathode rays?
1) They carry mass and have kinetic energy
2) Their nature is similar to that of light rays
3) The particles constituting cathode rays are common constituents of all matter
4) They are deflected by an electric feild towards the positive plate

Q.19)What is the best proof that hydrogen is an element?
1) It is the lightest substance 2) it is present everywhere
3) It combines with oxygen to make water

4) Hydrogen molecules can be broken down to two atoms, each of which contains one proton and one electron

Q.20)The first element in every period in the periodic table has
1) 1 electron in the first shell 2) 8 electrons in the last shell
3) 1 electron in the last shell 4) 2 electrons in the last shell

Q.21)Which of the following does not involve a chemical reaction?
1) fermentation of rice flour to make *dosa*
2) mixing calcium oxide and water
3) mixing cane sugar and water
4) boiling an egg in water

Q.22)Halogens do not occur freely in nature, because
1) they are non-metals 2) they are highly reactive
3) they are highly soluble in water
4) they have a great affinity for hydrogen

Q.23)The most stable allotrope of sulpher is
1) rhombic 2) monoclinic 3) plastic 4) flowers of sulpher

Q.24)The nitrogenous fertilizer with the highest percentage of nitrogen is
1) ammonium nitrate 2) urea 3) silver nitrate 4) lead acetate

Q.25)In the reaction , if the concentration of both A and B is doubled, the rate of the reaction will be
1) halved 2) unaffected 3) doubled 4) quadrupled

Q.26)Formalin is the name for - 1) formic acid 2) chloroform
3) iodoform 4) 4 % strong aqueous soln. of formaldehyde

Q.27)Frogs can catch a moving insect rapidly because,
1) its tongue is free in front and attached behind
2) its moist slimy tongue is fixed in front and free behind
3) its sharp pointed teeth hold the insect quickly
4) it can open its jaws widely and quickly

Q.28)The cell (plasma) membrane is a living membrane and
1) occasionally permeable 2) permeable
3) selectively permeable 4) non-permeable

Q.29)The most acute sense in the bird is
1) smell 2) sight 3) touch 4) taste

Q.30)In a parasite's body which system is unusually well developed
1) locomotion 2) reproduction 3) digestive 4) sensitivity

Q.31)Roots are described as adventitous depending upon their
1) anatomy 2) function
3) place of origin 4) position - ariel or underground

Q.32)Water is essential to the body, due to its function as
1) nutrient 2) mineral 3) solvent 4) catalyst

Q.33)A man on an expedition in the tropics finds a seed which he decides to plant. It grows, but the flowers formed have no stamen. This probably shows that the it
1) only reproduces vegetatively 2) is sterile 3) is dioecious
4) did not receive proper mineral nourishment

Q.34)Jute fibres are obtained from the
1) bark 2) pith 3) xylem 4) endodermis

Q.35)Which of the following disease is caused by a virus?
1) tuberculosis 2) small pox 3) dysentry 4) diphtheria

Q.36)The amount of light entering the eye is regulated by the
1) retina 2) iris 3) cones 4) cornea

Q.37)A plant is kept in darkness and another in light for 2 days. Each was weighed before and after the expt. As a result the one in
1) dark will weigh the same 2) light will lose weight
3) dark will gain weight 4) light will gain weight

Q.38)After prolonged use your muscles feel tired, because of the accumulation of
1) glucose 2) oxygen 3) ATP 4) lactic acid

Q.39)Which of the following would least influence natural selection?
1) mutation 2) natural death 3) migration 4) interbreeding

Q.40)A sealed, balanced acquarium containing fish, snails and water plants is an example of -- -- 1) an ecosystem 2) a biosphere 3) a population
4) an organ system

Q.41)A buys a shirt for Rs. 200 and sells it to B at a profit of 15%. A gains Rs. ---
1) 15 2) 7.50 3) 30 4) 33

Q.42)10% of 15% of 20% of Rs. 500 is
1) Rs. 225 2) Rs. 150 3) Rs. 67 4) Rs. 1.50

Q.43)The average maximum temperature for 7 days from 12th to 18th sept. is 35 deg C. The same for 7 days from 13th to 19th sept. is 34 deg C. From this we conclude that the max. temp. for
1) 19th is 1 deg C less than 12th 2) 12th is 1 deg C less than 19th
3) 19th is 7 deg C less than 12th 4) none of the above

Q.44)If two chairs and one table cost Rs. 200 and one chair and two tables cost Rs. 250, then the cost of one chair is
1) Rs. 50 2) Rs. 100 3) Rs. 75 4) Rs. 55

Q.45)If a and b are any two real nos. and ab = 0, then
1) $a = 0, b \neq 0$ 2) $a \neq 0, b = 0$
3) a = 0 or b = 0 or both 4) a = 0 and b = 0

Q.46)Between any two fractions there lies
1) no fraction at all 2) only one fraction
3) a finite no. of fractions 4) an infinite no. of fractions

Q.47)The no. π is equal to
1) 22 / 7 2) 3.142
3) 3.142.... upto infinite places with repitition
4) 3.142.... upto infinite places without repitition

Q.48)The roots of the equation $x^2 - 8x - 16 = 0$
1) are both positive 2) are both negative
3) one root lies in the interval (-1, 0)
4) both the roots lie in the interval (-2, 0)

Q.49)A child was born on Friday, 1st October in some year. His age on Wednesday, 1st october 1980 would be
1) 4 yrs 2) 5 yrs 3) 6 yrs 4) 7 yrs

Q.50)A quadrilateral has angles a, (a + 10), (a + 20) and (a + 30). The smallest angle of the quadrilateral is
1) 75 deg 2) 300 deg 3) 90 deg 4) 100 deg

Q.51)The interior of a triangle is the
1) intersection of three lines 2) union of three line segments
3) intersection of three angles
4) intersection set of three interior angles of a triangle

Q.52)If two medians of the triangle are equal in length, then the triangle is
1) right angled 2) equilateral 3) isoceles 4) scalene

Q.53)A quadrilateral can be drawn if the measures of its
1) four sides are given 2) four sides & one angle are given
3) three sides and a diagonal are given
4) four angles and one side are given

Q.54)The least no. of non-collinear points required to determine a plane is
1) two 2) three 3) four 4) many

Q.55)The ratio of the area of a square to that of the square drawn on its diagonal is
1) 1 : 1 2) 1 : 2 3) 1 : 3 4) 1 : 4

Q.56)The area of the right angled triangle is 20 sq.cm. and one of the sides containing the right angle is 4 cm. The altitude on the hypotenuse is
1) 8 cm 2) 10 cm 3) 10 / √(41) cm 4) 20 / √ (29)

Q.57)A circle is inscribed in an equilateral triangle and a square is inscribed in the circle. The ratio of the area of the triangle to the area of the square is
1) √3 : 1 2) √3 : √2 3) 3 : √2 4) 3√3: 2

Q.58)The arithmetic mean of 10 observations is 12.45 and each reading is increased by 5. The resulting mean is the original mean
1) plus 5 2) plus 2 3) minus 5 4) minus 2

Q.59)You are asked to collect a data of the percentages of all the students in a class. The data will be most readable in the form of
1) class-marks and frequencies 2) averages
3) pie chart 4) bar - diagram (histogram)

Q.60)The geometric mean of 4, 5, 20 & 25 is - 1) 10000 2) 100 3)10 4)1

Q.61)Neanderthal man was succeeded by ____ man
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Q.76)Which leader of the 1857 revolt was caught and hanged?
1) Nana Saheb 2) Tatya Tope 3) Rani of Jhansi 4) Kunwar Singh

Q.77)Harrapa is famous as
1) a commercial centre of classical India
2) an urban centre of the Indus valley civilisation
3) a Vedic town of great religious significance
4) the capital of the Indian Kingdom of classical times

Q.78)The Aryans came to India around
1) 3000 BC 2) 1500 BC 3) 800 BC 4) 100 BC

Q.79)The holy book of the Parsis is
1) Ahura Mazda 2) Zend 3) Bible 4) none of the above

Q.80)The slogan “Go back to the vedas” was raised by
1) Vivekanand 2) Ramakrishna Paramhansa
3) Raja Ram Mohan Roy 4) Dayanand Saraswati

Q.81)A citizen’s most important duty is to
1) obey laws 2) respect the rights of other citizens
3) pay taxes 4) cherish the ideals of the freedom struggle

Q.82)Man is born and brought up in a
1) home 2) family 3) hospital 4) society

Q.83)A citizen is a person who
1) lives in a country for a particular period
2) enjoys protection of life and property in a country
3) participates in the process of government in the country
4) is ruled by the law of the country where he lives

Q.84)The Gram Panchayat
1) is elected by Gram Sabha 2) works under the Block samiti
3) is headed by the BDO 4) must meet once in a month

Q.85)Which right is violated if a Police Officer arrests a man without warrant?
1) Right to freedom 2) Right to equality
3) Right against exploitation 4) none of the above

Q.86)Which of the following is the highest court of appeal in India?
1) High court 2) Privy council 3) Supreme court 4) President

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1) 16 yrs 2) 18 yrs 3) 20 yrs 4) 21 yrs

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1) climate, vegetation and soil 2) relief features and water bodies
3) human occupations and general economic development
4) climate, vegetation, soil and human occupation

Q.99)Prairies and steppes are parts of the natural region called
1) temperate grassland 2) prairie grassland
3) steppe grassland 4) tropical grassland

Q.100)The biggest island in the world is
1) Borneo 2) Greenland 3) U.K. 4) Japan (Honshu)

MTS - II

Paper - V Marks: 100 Time: 90 min.

Q.1) An aeroplane flies 1000 km west and then 1000 km north. Now it flies back to its starting place by the shortest route. Its speed is 400 kph throughout. What is its average velocity for the entire trip?
1) 400 kph 2) 200 kph 3) 100 kph 4) zero

Q.2) A boat with scrap-iron in it is floating in a lake. If the iron is thrown in the lake, what will happen to the water in the lake?
1) The level will rise 2) The level will go down
3) There will be no change in the water level
4) If water in the lake is saltish, then the level will go up.

Q.3) The freezing point on a thermometer is marked as 20 deg and the boiling point as 150 deg. A temperature of 60 deg C on this thermometer will be read as
1) 40 deg 2) 65 deg 3) 98 deg 4) 110 deg

Q.4) A solid ball of metal has a spherical cavity inside it. On heating the ball, the volume of the cavity will
1) decrease 2) remain unchanged
3) increase 4) have its shape changed

Q.5) A closed vessel contains some gas at a given pressure and temperature. The vessel is given a high velocity by placing it on a fast moving train. Then the temperature of the gas
1) will increase 2) will decrease 3) will remain unchanged
4) may increase or decrease depending upon the nature of the gas.

Q.6) One feels the sensation of heat when exposed to
1) Ultra-violet rays 2) Infra-red rays
3) Gamma rays 4) X-rays

Q.7) In which of the following cases total internal reflection cannot be obtained?
1) A ray going from glass to air
2) A ray going from glass to water
3) A ray going from water to glass
4) A ray going from water to air

Q.8) Two stars situated at distances of 4 and 8 light years respectively from the earth, appear to possess the same brightness. The ratio of their real brightness is
1) 2 : 1 2) 1: 2 3) 4 : 1 4) 1 : 4

Q.9) Mirage is due to the fact that

1) that the refractive index of air is continuously increasing with height
2) that the refractive index of air is continuously decreasing with height
3) that the light gets reflected from sandy ground
4) none of the above

Q.10)Inside a gas transmission is possible for
1) longitudinal waves only 2) transverse waves only
3) both longitudinal and transverse waves
4) neither longitudinal and transverse waves

Q.11)Instruments can be sheilded from the effects of external magnetic feilds by surrounding them with a
1) glass sheild 2) rubber sheild 3) brass sheild 4) iron sheild

Q.12)The earth's magnetic feild has a horizontal component at all places except
1) at the magnetic poles 2) at the equator
3) at the geographic poles 4) at the magnetic equator

Q.13)A fuse is fixed in an electrical circuit in order to
1) decrease the amount of current flowing
2) increase the amount of current flowing
3) increase the power consumed in the circuit
4) safeguard the circuit against excessive currents

Q.14)A mixture of water and sodium chloride can be seperated by
1) decantation 2) evaporation
3) simple distillation 4) fractional distillation

Q.15)The formula for phosphoric acid is H_4PO_4. The formula for a divalent metal forming a phosphate will be
1) MPO_4 2) M_3PO_4 3) $M(PO_4)_2$ 4) $M_3(PO_4)_2$

Q.16)The equation in accordance with the gas laws is
1) 2)
3) 4)

Q.17)The molecular weights of Carbon dioxide and hydrogen are 44 and 2 respectively. The no. of molecules in 44 gm of carbon dioxide will be _____ the no. of hydrogen molecules in 2 gm of hydrogen
1) more than 2) less than 3) equal to 4) 11 times

Q.18)What is not true about the cathode rays?
1) They carry mass and have kinetic energy
2) Their nature is similar to that of light rays

3) The particles constituting cathode rays are common constituents of all matter
4) They are deflected by an electric feild towards the positive plate

Q.19)The formation of a chemical bond is accompanied by
1) a decrease in potential energy
2) an increase in potential energy
3) no change in potential energy
4) first a decrease and then an increase in potential energy

Q.20)The first element in every period in the periodic table has
1) 1 electron in the first shell
2) 8 electrons in the outermost shell
3) 1s electron in the outermost shell
4) 1p electron in the outermost shell

Q.21)The element of atomic no. 11 is highly reactive metal. What would be the atomic no. of the next very ractive metal?
1) 13 2) 15 3) 17 4) 19

Q.22)Halogens do not occur freely in nature, because
1) they are non-metals 2) they are highly reactive
3) they are highly soluble in water
4) they have a great affinity for hydrogen

Q.23)The most stable allotrope of sulpher is
1) rhombic sulpher 2) monoclinic sulpher
3) plastic sulpher 4) flowers of sulpher

Q.24)The nitrogenous fertilizer with the highest percentage of nitrogen is
1) ammonium nitrate 2) urea 3) silver nitrate 4) lead acetate

Q.25)In the reaction , if the concentration of both A and B is doubled, the rate of the reaction will
1) be halved 2) remain unaffected
3) be doubled 4) be quadrupled

Q.26)Formalin is the name for
1) formic acid 2) chloroform 3) iodoform
4) 4 % strong aqueous soln. of formaldehyde

Q.27)The half life of a radioactive element is 100 days. If one starts with 1000 gm of this element, its amount at the end of 400 days will be
1) 250 gm 2) 500 gm 3) 125 gm 4) 62.5 gm

Q.28)The cell membrane or the plasma membrane is a living membrane and
1) occasionally permeable 2) permeable

3) selectively permeable 4) non-permeable

Q.29)Endoplasmic reticulum is mainly concerned with
1) proteolysis 2) fatty acid synthesis
3) cholesterol synthesis 4) peptide bond formation

Q.30)The bases that connect two side-strands of the DNA molecule are
1) sugar and phosphates 2) sugar and guanine
3) phosphates & adenine 4) purines & pyrimidines

Q.31)Roots are described as adventitous depending upon their
1) anatomy 2) function
3) place of origin 4) position - ariel or underground

Q.32)Which of the following are not the vegetative organs?
1) leaves 2) flowers 3) stems 4) roots

Q.33)A man on an expedition in the tropics finds a seed which he decides to plant. It grows, but the flowers formed have no stamen. This probably shows that the it
1) only reproduces vegetatively 2) is sterile 3) is dioecious
4) did not receive proper mineral nourishment

Q.34)Jute fibres are obtained from the
1) bark 2) pith 3) xylem 4) endodermis

Q.35)Which of the following disease is caused by a virus?
1) tuberculosis 2) small pox 3) dysentry 4) diphtheria

Q.36)The basic units composing proteins are
1) fatty acids 2) monosaccharrides
3) glycerol 4) amino acids

Q.37)A plant is kept in darkness and another in light for 2 days. Each was weighed before and after the expt. What is the result?
1) the one in dark will weigh he same
2) the one in light will lose weight
3) the one in dark will gain weight
4) the one in light will gain weight

Q.38)The upward growth of stem illustrates
1) positive geotropism 2) positive hydrotropism
3) negative geotropism 4) negative hydrotropism

Q.39)Which of the following factors would least influence natural selection?
1) mutation 2) natural mortality
3) migration 4) interbreeding

Q.40)A sealed, balanced acquarium containing fish, snails and water plants is an example of
1) an ecosystem 2) a biosphere
3) a population 4) an organ system

Q.41)The circumference of the front wheels of a locomotive is 3.5 m and that of the back wheels is 3 m. If the locomotive is moving at the speed of 15 m/s, the shortest time in which both wheels make a whole no. of turns is
1) 6.4 sec 2) 4 sec 3) 2.1 sec 4) 1.4 sec

Q.42)10% of 15% of 20% of Rs. 500 is
1) Rs. 225 2) Rs. 150 3) Rs. 67 4) Rs. 1.50

Q.43)The average maximum temperature for 7 days from 12th to 18th sept. is 35 deg C. The same for 7 days from 13th to 19th sept. is 34 deg C. From this we conclude that
1) max temp. for the 19th is 1 deg C less than that for the 12th
2) max temp. for the 12th is 1 deg C less than that for the 19th
3) max temp. for the 19th is 7 deg C less than that for the 12th
4) none of the above

Q.44)If A is a subset of B, then the intersection of A and B is equal to
1) the null set 2) the universe 3) A 4) B

Q.45)In a class of 30 students, 10 take maths, 15 take physics and 10 take neither. The no. of students who offer both maths and physics is
1) 10 2) 5 3) 1 4) none

Q.46)The polynomial : $x^6 + 18x^3 + 125$ admits
1) no factor of degree between 2 and 5
2) $x^2 - 3x + 5$ as a factor
3) x + 1 as a factcr 4) x - 125 as a factor

Q.47)The graph of a system of linear equations 2y = 5 - x and 2x = y + 5, is a pair of lines which are
1) parellel to each other 2) intersecting
3) perpendicular to each other 4) coincident

Q.48)The roots of the equation $x^2 - 8x - 16 = 0$
1) are both positive 2) are both negative
3) one root lies in the interval (-1, 0)
4) both the roots lie in the interval (-2, 0)

Q.49)The number which is fifty times its own logarithm to base 10 is
1) 2 2) 50 3) 100 4) 200

Q.50)If 2^{10} is approximately equal to 10^3 , then $\log_2 10$ is approximately equal to

1) 0.33 2) 1.5 3) 3 4) 3.33

Q.51)The interior of a triangle is
1) the intersection of three lines
2) the union of three line segments
3) the intersection of three angles
4) the intersection set of three interior angles of a triangle

Q.52)If two medians of the triangle are equal in length, then the triangle is
1) right angled 2) equilateral
3) isoceles 4) scalene

Q.53)A quadrilateral can be drawn if the measures of its
1) four sides are given 2) four sides & one angle are given
3) three sides and a diagonal are given
4) four angles and one side are given

Q.54)Two opposite angles of a cyclic quadrilateral are 4x and 5x. Then x is equal to
1) 10 deg 2) 20 deg 3) 40 deg 5) 9 deg

Q.55)The ratio of the area of a square to that of the square drawn on its diagonal is
1) 1 : 1 2) 1 : 2 3) 1 : 3 4) 1 : 4

Q.56)The area of the right angled triangle is 20 sq.cm. and one of the sides containing the right angle is 4 cm. The altitude on the hypotenuse is
1) 8 cm 2) 10 cm 3) 10 / √(41) cm 4) 20 / √ (29)

Q.57)A circle is inscribed in an equilateral triangle and a square is inscribed in the circle. The ratio of the area of the triangle to the area of the square is
1) √3 : 1 2) √3 : √2 3) 3 : √2 4) 3√3: 2

Q.58)The arithmetic mean of 10 observations is 12.45 and each reading is increased by 5. The resulting mean is
1) increased by 5 2) increased by 2
3) decreased by 5 4) decreased by 2

Q.59)The harmonic mean of 3, 4, 5, 6 is
1) 4.5 2) 0.95 3) 0.2375 4) 4.2

Q.60)The geometric mean of 4, 5, 20 and 25 is
1) 10000 2) 100 3) 10 4) none of the above

Q.61)Neanderthal man was succeeded by
1) Grimaldi man 2) Cro-magnon man
3) Heidelberg man 4) Peking man

Q.62)The Indus valley people worshipped
1) Indra 2) Varuna 3) Mother Goddess 4) Mitra

Q.63)The first proper system of writing was developed by
1) Egyptians 2) Harrapans 3) Chinese 4) Sumerans

Q.64)*Susruta* and *Charak* , two names in ancient Indian medicine lived during
1) Mauryan period 2) Gupta Period
3) Satavahan period 4) the time of Harsha

Q.65)Which period is regarded as the Golden age of China's history
1) Han 2) Chu 3) Tsin 4) Shang

Q.66)Which of the following factors was the most important in preventing the king in ancient India from becoming an autocrat?
1) He was regarded as the paid servant of the people
2) A constant danger of being overthrown by his kith and kin
3) Obligation to act according to the advice of his ministers
4) He was supposed to have some sort of a contract with the people, which he could not violate

Q.67)Kanchipuram was the capital city of
1) Cholas 2) Pallavas 3) Chalukyas 4) Pandyas

Q.68)A noteworthy innovation of the Aztecs was "Chinampas". It was
1) floating garden 2) musical instrument
3) modified potter's wheel 4) rope bridge

Q.69)The Arab art was influenced by
1) Byzantine & Iranian art 2) Indian & Iranian art
3) Byzantine & Indian art 4) all of the above

Q.70)The crusades were fought because
1) the feudal lords wanted to gain new lands
2) the church leaders wanted to gain new converts
3) the kings wanted to display their bravery
4) the Christians wanted to recapture their holy places which were in Palestine.

Q.71)

Q.72)Japanese script was borrowed from
1) China 2) Manchuria 3) Indonesia 4) Malaysia

Q.73)The main objective of the Reformation movement was
1) to denigrade the Pope
2) to stop the sale of "letters of indulgance"
3) to reform the religion and the church

4) to establish a new sect within the christian religion

Q.74)

Q.75)The English General who led the British army in the war of American independance was
1) George Washington 2) Hamilton
3) Cornwallis 4) Lord North

Q.76)

Q.77)Who is known as the Bismarck of Italy?
1) Garibaldi 2) Mazzini
3) Victor Emmanuel 4) Count Cavour

Q.78)The underlying cause of the first world war was
1) revolt by the colonies
2) rivalries between imperialist countries
3) enmity between Austria and Serbia
4) Pan-Slav movement

Q.79)

Q.80)The slogan “Go back to the vedas” was raised by
1) Vivekanand 2) Ramakrishna Paramhansa
3) Raja Ram Mohan Roy 4) Dayanand Saraswati

Q.81)India is connected with Europe through
1) Malaccan strait 2) Suez canal
3) Persian gulf 4) Red sea

Q.82)The McMohan line is
1) an oil pipe running along the Gulf of Cambay
2) an international boundary between India and China
3) a line of discontinuity on a tropical depression
4) the coastline along Bangladesh and West Bengal

Q.83)

Q.84)

Q.85)

Q.86)

Q.87)Which of the following is not a mineral?
1) Aluminium 2) Clay 3) Rock salt 4) Coal

Q.88)The two major categories of industrial raw materials are
1) agro-based & forest-based 2) agro-based & animal-based

3) agro-based & mineral-based 4) forest-based & animal-based

Q.89)

Q.90)An important locational advantage which India possesses for international trade is its
1) central location in the eastern hemisphere
2) location amidst developing countries
3) location at the southern end of Asia
4) location on the east-west oceanic route through the Suez canal

Q.91)The term “equinox” refers to
1) a climatic type
2) an isopleth on a map joining points on equal nights
3) the sun being directly overhead at noon along the equator
4) the differrence between mean solar time and local time

Q.92)The layer of atmosphere which enables wireless communication is
1) troposphere 2) stratosphere 3) ionosphere 4) exosphere

Q.93)The basic process of soil formation is
1) erosion of the materials of earth’s crust
2) weathering of exposed rocks
3) transportation of eroded material
4) deposition of loose particles of rock by rivers and winds

Q.94)A cliff is produced by
1) wave erosion on the shores 2) river erosion on high mountains
3) wind erosion on plateaus 4) glacial erosion on cold plateaus

Q.95)Merino sheep rearing is widely practiced in
1) Africa 2) Argentina 3) Europe 4) Australia

Q.96)High population density in North-East USA is supported by
1) highly fertile soil 2) growth of manufacturing industries
3) assured water supplies 4) all of these factors

Q.97)The area of a certain district is 25,000 sq .km. and its population is 50 lakh. the population density is ___ persons / sq. km.
1) 50 2) 100 3) 150 4) 200

Q.98)A natural region is comprised of many countries having homogenity with reference to
1) climate, vegetation and soil 2) relief features and water bodies
3) human occupations and general economic development
4) climate, vegetation, soil and human occupation

Q.99)Prairies and steppes are parts of the natural region called

1) temperate grassland 2) prairie grassland

3) steppe grassland 4) tropical grassland

Q.100)The biggest island in the world is

1) Borneo 2) Greenland 3) U.K. 4) Japan (Honshu)

MTS - I

Paper - VI Marks: 100 Time: 90 min.

Q.1) What will be same at all places on a given longitude?
1) duration of summer 2) diurnal period
3) duration of solar day 4) **Avrutt**

Q.2) Underground rivers come to the surface due to
1) glaciers 2) wind 3) underground water 4) rivers

Q.3) Which is the most recently formed fold mountain?
1) Vinday 2) aravali 3) Nilgiri 4) Himalay

Q.4) Which is the shortest day in the southern hemisphere?
1) 21st June 2) 21st March 3) 22nd Sep 4) 23rd Dec

Q.5) Which is the tallest peak in the Indian peninsula?
1) Anaimundi 2) Kalsubai
3) Ootacamund 4) Mahabaleshwar

Q.6) What is the cause of the phases of the moon?
1) Earth's rotation 2) Moon's rotation
3) Earth's revoution 4) Moon's revolution

Q.7) River originating in the Sambar lake and flowing through the Rann of Kutch
1) Vyas 2) Luni 3) Sabarmati 4) Mahi

Q.8) Which of the following rocks are multi-colored?
1) sedimaentary 2) metamorphic 3) igneous 4) baccolith

Q.9) In which rocks are minerals like Thorium and Uranium found?
1) Basalt 2) Granite 3) Limestone 4)Sandstone

Q.10)A strip of land joining two huge land-masses.
1) **strait** 2) **bay** **3) head-land 4) Sanyog Bhumi**

Q.11)Which hemisphere has maximum water-content?
1) North 2) South 3) East 4) West

Q.12)Which of the following is an example of an abyss?
1) Red sea 2) Arabian sea 3) Sea of Bengal 4) Godavari

Q.13)The density of the following mixture - 2 cu.m. of water and 0.5 cu.m. of alcohol (density = 800 kg / cu.m.) -- is _____ kg / cu.m.
1) 900 2) 960 3) 850 4) 800

Q.14)A drop of mercury gas gets its round shape due to _____ force.

1) adhesive 2) repulsive 3) cohesive 4) none of these

Q.15)Find the odd man out.
1) chalk 2) sponge 3) bread 4) iron

Q.16)Thermostat is used for
1) measuring temperature 2) controlling temperature
3) measuring density 4) none of these

Q.17)A body has weight on Earth. It will become zero
1) on the moon 2) on mars
3) at the centre of the earth 4) none of these

Q.18)On the Centigrade-Celsius scale, the absolute zero temperature is
1) 0 deg C 2) - 32 deg C 3) 100 deg C 4) -273 deg C

Q.19)A man, 180 cm tall stands in front of a plain mirror. His eyes are at a height of 170 cm. For him to see his complete image, the minimum height of the mirror should be
1) 90cm 2) 85 cm 3) 45 cm 4) 360 cm

Q.20)Heat is transferred from a hot body to a cold body due to the collisions of molecules. This is by means of
1) convection 2) conduction 3) radiation 4) none of these

Q.21)From what can you prepare a permenant magnet?
1) soft iron 2) cobalt 3) manganese 4) alnico

Q.22)If a magnet is brought near an iron strip, and the pole near to the strip appears to be the south pole, then the other pole of the magnet will be
1) south 2) north 3) depends on latitude 4) can't say

Q.23)Which property of light causes all the phenomena listed below?
a) image formation by plain mirror b) our shadow
c) pin-hole camera d) eclipse
1) reflection 2) rectilinear propagation
3) refraction 4) light can't pass through opaque bodies

Q.24)A ray of light is falling perpendicularly on an horizontally placed plain mirror. If the mirror is tilted by an angle of 20 deg, what will be the angle between the reflected ray and the horizon.
1) 40 deg 2) 50 deg 3) 60 deg 4) 80 deg

Q.25)If a plain mirror is moved with a velocity of 10 m/s towards an observer, then the image of the observer will move towards him at the speed of ___ m/s.
1) 10 2) 20 3) 5 4) 40

Q.26)How many images will be seen of a metal ball placed between two plain mirrors kept parellel to and facing each other?
1) 7 2) 5 3) 3 4) infinite

Q.27)The vernier scale is divided into 50 parts. If 1 cm on the main scale is divided into 20 parts, what is the least count?
1) 0.02 cm 2) 0.001 cm 3) 0.05 cm 4) 0.001 mm

Q.28) In the figure, if PQ || ST, what is the measure of angle QRS ?

P Q

T

S

R

1) 30 deg 2) 40 deg 3) 50 deg 4) 60 deg

Q.29)What is the measure of an angle which is 1 / 5 th of its complementary angle?
1) 15 deg 2) 30 deg 4) 45 deg 4) 60 deg

Q.30)What is the sum of all angles of a pentagon?
1) 360 deg 2) 540 deg 3) 720 deg 4) none of these

Q.31) In the given figure, PQ = PR. Measure of angle QPR = ?

P

Q R 100

1) 20 deg 2) 30 deg 3) 40 deg 4) 50 deg

Q.32)$x + y = 3$ and $xy = 2$, then $x^3 - y^3 = ?$
1) 6 2) 7 3) 8 4) 0

Q.33)If and , then $x^2 + y^2 = ?$
1) 23 2) 1 / 1.732 3) 14 4) 1

Q.34)A man spends 60 % of his income. If his monthly salary is Rs. 3000 , then what are his monthly savings?
1) Rs. 1200 2) Rs. 1300 3) Rs. 1400 4) Rs. 1500

Q.35)What percentage of 10 kg is 8.75 gm?
1) 0.875 % 2) 8.75 % 3) 0.0875 % 4) 87.5 %

Q.36)The perimeter of a Rhombus with diagonals 24 cm and 10 cm is
1) 68 2) 60 3) 52 4) none of these

Q.37)The no. of triangles possible by joining the points on a circle is
1) 5 2) 10 3) 15 4) none of these

Q.38)The sum of the first 'n' even natural nos. is
1) n (n + 1) / 2 2) (n + 1) / 2 3) n (n + 1) 4) none

Q.39)The altitude of an equilateral triangle, whose side is √(12) cm, is
1) 3 cm 2) √3 cm 3) 3√3 cm 4) none of these

Q.40)The area of a square with diagonal 10√2 cm is_____ sq. cm.
1) 100 2) 100√2 3) 200 4) none of these

Q.41)A closed wooden box, 1 cm thick, measures 32cm x 20cm x 17cm on the outside. Its inner volume will be ____ cu. cm.
1) 10880 2) 8100 3) 69 4) none of these

Q.42)The volume of a cone height 8 m and area of base 156 sq.m. is
1) 156 cu.m. 2) 312 cu.m. 3) 468 cu.m. 4) 416 cu.m.

Q.43)The non-metal that remains in solid state at room temperature is
1) fluorine 2) bromine 3) chlorine 4) iodine

Q.44)The proprtion by weight in water of oxygen and hydrogen is
1) 1 : 2 2) 16 : 1 3) 8 : 1 4) 1 : 8

Q.45)Which of the following is a rare gas?
1) helium 2) carbon dioxide 3) nitrogen 4) oxygen

Q.46)Which of the following is not a chemical change?
1) electrolysis of mercury oxide 2) rusting of iron
3) salt dissolving in water 4) burning in air of magnesium

Q.47)Silver turns into black silver sulphide in presence of
1) hydrogen 2) oxygen 3) nitrogen 4) hydrogen sulphide

Q.48)Common (market) salt gets wet in monsoon because it contains
1) calcium chloride 2) sodium carbonate
3) copper sulphate 4) amonium chloride

Q.49)A mixture of water and acetone can be seperated by
1) distillation 2) fractional distillation
3) filtering 4) Sedimentation

Q.50)Gas released when water is electrolysd in presence of sodium is
1) nitrogen 2) carbon dioxide 3) hydrogen 4) oxygen

Q.51)What is the symbol for silver?
1) Al 2) Ag 3) Ar 4) Au

Q.52)Which of the following is a molecule of oxygen?
1) O 2) O_2 3) O_3 4) O_4

Q.53)Who discovered hydrogen?
1) Lavoisier 2) Cavendish 3) Preistley 4) Heber

Q.54)In preparation of dilute sulphuric acid in the lab
1) water is slowly added to conc. sulphuric acid
2) conc. sulphuric acid is slowly added to water
3) both water and conc. acid are taken together
4) nitric acid is added to sulphuric acid

Q.55)Gypsum salt is
1) sodium chloride 2) ferrous sulphate
3) magnesium sulphate 4) copper sulphate

Q.56)How many elements are found in nature?
1) 13 2) 12 3) 105 40 107

Q.57)A layer of copper ____ is formed on the surface of copper exposed to moist air.
1) oxide 2) sulphate 3) nitrate 4) carbonate

Q.58)Civics is a _____ science.
1) political 2) psychological 3) social 4) physical

Q.59)Civics is a search for a citizen's values and
1) rights 2) duties 3) affairs 4) ideals

Q.60)Society is
1) a group of people loyal to the country
2) a group of people loyal to the state
3) a group of people loyal to a common goal
4) the social relationships between various groups of people

Q.61)The progress of society requires co-operation and
1) brotherhood 2) religious equality
3) division of labour 4) all the three

Q.62)The group where people have the same eating habits and customs is called
1) narrow-minded 2) caste 3) family 4) class

Q.63)Who put forth the slogan " *Sab bhoomi gopal ki*"
1) Nehru 2) Gandhi 3) Vinoba Bhave 4) J.P. Narayan

Q.64)A group of people who feels that they are all one and are differrent from people in other countries is
1) State 2) gang 3) nation 4) society

Q.65)India is not yet self-sufficient in the production of
1) atom-bombs 2) aircraft engines

3) tanks 4) ammunition

Q.66)Civics
1) tells a citizen how to live in a city
2) tells a citizen how to live in a state
3) tells a citizen how to live in a country
4) studies all aspects of an individual's development

Q.67)Which is an ideal state?
1) capitalist 2) one which does a lot of good
3) dictatorship 4) state under the control of a single guide

Q.68)Who said that the history of mankind has always been one of class-conflict ?
1) Rousseau 2) Aristotle 3) Karl Marx 4) Gandhi

Q.69)A group of people having similar culture, food-habits, marriage customs, etc. is called
1) joint family 2) caste 3) sect 4) association

Q.70)Which of the following is a traditional marriage custom?
1) dowry 2) divorce 3) inter-caste marriage 4) none of these

Q.71)In Maharashtra a municipal corporation which is rated as B will have a population of
1) 5000 2) 30 to 75 thousand 3) 1 lakh 4) 5 lakh

Q.72)The Air Force Academy is located at
1) Allahabad 2) Pune 3) Hyderabad 4) Coimbatore

Q.73)How is the Hijra year calculated?
1) adding 622 years to BC 2) subtracting 622 years from BC
3) adding 522 yrs. in BC 4) subtracting 522 years from BC

Q.74)Where is the "Atala Devi " mosque situated?
1) Delhi 2) Ahemdabad 3) Juanpur 4) Calcutta

Q.75)How long did Vardhman Mahavir live?
1) 72 yrs 2) 80 yrs 3) 62 yrs 4) 75 yrs

Q.76)Before the advent of Islam, the Arabs,
1) believed in no God 2) believed in many Gods
3) did not believe in idol worship 4) believed in only one God

Q.77)"Messiah" means,
1) ammbassador 2) angel 3) saviour 4) immortal soul

Q.78)Famous musician Gopal belonged to
1) Delhi 2) Gwaliour 3) Devgiri 4) Vrindavan

Q.79)The caves of Udaygiri and Khandgiri are associated with
1) Hinduism 2) Jainism 3) Buddhism 4) *Bhakti* panth

Q.80)Jesus Christ was a
1) Christian 2) Jew 3) Anemist 4) Totemist

Q.81)Which of the following Universities' was not built by Shankaracharya?
1) Shringeri 2) Kanchi 3) Jagganathpuri 4) Badri-Kedar

Q.82)The "Ratna - Trai" philosophy of the Jains does not preach the pious _____.
1) character 2) vision 3) occupation 4) knowledge

Q.83)The author of "Geet Govind" is
1) Jaysi 2) Chand Bardai 3) Jaychand Suri 4) Jaydev

Q.84)Who built the Golden Temple of Amritsar?
1) Guru Ramdas 2) Guru Gobind Singh
3) Guru Srjun Singh 4) Guru Tegh Bahadur Singh

Q.85)The religious book of the Sikhs (Granth Sahib) is in ____ script.
1) Hindi 2) Punjabi 3) Sanskrit 4) none of the above

Q.86)The only Marathi saint referred to in the Granth Sahib is
1) Tukaram 2) Namdev 3) Ramdas 4) Dnyandev

Q.87)Macauley wrote the book --- 1) "The prince"
2) "Divine Comedy" 3) "In praise of folly" 4) "Servant"

Q.88)Who put forth the "Laws of planetary motion"?
1) Copernicus 2) Keplar 3) Newton 4) Galileo

Q.89)Which leader of the Agricultural movement, in England, was beheaded?
1) Watt Taylor 2) John Wall 3) Descartes 4) Francis Bacon

Q.90)Tansen's teacher was
1) Baiju Bawra 2) Gopal 3) Baaz Bahadur 4) Baba Haridas

Q.91)Which Mughal emperror wrote his own autobiography?
1) Aurangzeb 2) Babar 3) Akbar 4) Humayun

Q.92)Which British explorer circumnavigated the world?
1) Magellan 2) Captain Cook
3) Francis drake 4) Thomas Rho

Q.93)The Governor General of India during the 1857 uprising was
1) Dalhousie 2) Canning 3) Hardings 4) Amhurst

Q.94)Before the 1857 revolt, the uprising of the Ramoshi's in Konkan was under the leadership of

1) Vasudev Balwant Phadke 2) Tryambakji Dengle
3) Umaji Naik 4) Gangadhar Shastri Patwardhan

Q.95)After the 1857 revolt, Tatya Tope
1) was banished to Rangoon 2) was seriously injured
3) died fighting 4) was arrested and hanged

Q.96)Who led the 1857 revolt in Bihar?
1) Tatya Tope 2) Kunwar Singh
3) Khan Bahadur Khan 4) Rani Laxmibai

Q.97)Dalhousie adopted the policy of “refusing the right of adopted heirs”, for the first time, to annex
1) Satara 2) Jhansi 3) Nagpur 4) Sambalpur

Q.98)Who was the last ruler (Nawaab) of Awadh?
1) Shuja-ud-daullah 2) Wajid-Ali-shah
3) Anwar Hussain 4) Siraj-ud-daullah

Q.99)Wellesley’s protection army was first accepted by
1) Peshwa Bajirao-II 2) Nawab of Awadh
3) youngest king of Mysore 4) Nizam of Hyderabad

Q.100)South Africa is a colony of
1) Holland 2) England 3) Portugal 4) France

Q.1) A strectching force of 10 N is applied at one end of a spring balance and an equal stretching force is applied at the other end. The reading on the balance will be
1) 10 N 2) 20 N 3) zero 4) 5 N

Q.2) Air pressure is usually highest when air is
1) warm and moist 2) cool and dry
3) warm and dry 4) cool and moist

Q.3) In vacuum the speed of light depends on
1) the wavelength 2) the frequency
3) the speed of the wave 4) none of the above

Q.4) One important similarity between sound waves and light waves is that
1) they both travel with the same speed in air
2) they both are transverse waves
3) they both can pass through vacuum
4) they both can show interference effect

Q.5) A small magnet is placed perpendicular to a constant magnetic feild. The force acting on the magnet will result in
1) rotation 2) translation
3) no motion at all 4) rotation as well as translation

Q.6) Which one of the following when in motion cannot be deflected by a magnetic feild?
1) electrons 2) neutrons
3) alpha particles 4) sodium ions

Q.7) When a small magnetic needle is placed below a horizontal conductor carrying a strong current from west to east, the north poles will point
1) north 2) south 3) east 4) west

MTS - I

Paper - VI (MAT) Marks: 65 Time: 55 min.

Q.1) 2, 9, 28, ?, 126, 217
1) 36 2) 42 3) 56 4) 65

Q.2) 2, 20, ?, 110, 182
1) 56 2) 72 3) 90 4)100

Q.3) 4, 9, 16, 25, ?, 49
1) 36 2) 30 3) 37 4) 32

Q.4) 3, 6, 24, 30, 63, 2, ?, 132
1) 58 2) 90 3) 110 4) 120

Q.5) 1, 10, ?, 100, 1001, 1000, 10001
1) 101 2) 110 3) 111 4) 1011

Q.6) 0, 1, 3, 7, 15, ?, 63
1) 18 2) 21 3) 31 4) 41

Q.7) 1 : 4 : : 5 : ?
1) 6 2) 16 3) 81 4) 36

Q.8) 1 : 8 : : ? : 125
1) 10 2) 12 3) 15 4) 16

Q.9) 1, 3 5, 7, 9, ?, 13
1) 10 2) 11 3) 12 4) 7

Q.10) 2, 12, 30, ?, 90, 132
1) 48 2) 56 3) 63 4) 72

>> Which of the following expressions is correct?

Q.11) 1) 8 < 4 x 3 - 3 x 2 x 1 2) 8 > 4 < 3 - 3 > 2 > 1
3) 8 + 4 x 3 = 3 > 2 > 1 4) 8 + 4 < 3 + 3 < 2< 1

Q.12) 1) 5 > 2 < 1 - 3 x 4 x 1 2) 5 x 2 < 1 - 3 < 4 x 1
3) 5 + 2 x 1 = 3 + 4 >1 4) 5 > 2 x 1 - 3 > 4 < 1

>> ! = greater than @ = not equal to
= not less than $ = equal to
% = not greater than ^ = less than

Q.13) If p # q % r, then it is not possible that
1) p @ q ^ r 2) p # q $ r
3) p @ q ! r 4) p !q $ r

Q.14) If p @ q @ r, then
1) p ! q $ r 2) p ! q # r

3) p $ q ^ r 4) p % q $ r

Q.15) If p ! q # r, then
1) p ^ q $ r 2) p # q ! r
3) p # q ^ r 4) p % q ! r

>>

Q.16) No. of squares 1) 26 2) 25 3) 29 4) 40

Q.17) No. of rectangles 1) 55 2) 60 3) 65 4) 70

Q.18) No. of straight lines 1) 10 2) 12 3) 13 4) 14

Q.19) No. of triangles is 1) 32 2) 39 3) 46 4) 60

Q.20) No. of isoceles triangles 1) 4 2) 6 3) 8 4) 9

>> Square -- Employed, Triangle -- Farmers
Rectangle -- Illiterate Circle -- Backward

Q.21) Which of the following is true?
1) all illiterate, unemployed persons are backward
2) all unemployed non-farmers are illiterate or backward
3) all employed farmers are not literate
4) none of these

Q.22) Which of the following is false?
1) all illiterate non-farmers are backward
2) all literate employed farmers are backward
3) all backward farmers are employed
4) all unemployed farmers are literate

Q.23) region of employed, illiterate, backward farmers
1) 2 2) 11 3) 10 4) 16

Q.24) Region of illiterate, unemployed progressed, non-farmers
1) 17 2) 8 3) 15 4) 3

Q.25) Region of unemployed, literate, backward farmers
1) 1 2) 7 3) 16 4) 5

Q.26) Envelope, postman, postcard
1) a 2) b (a)
3) c 4) e

Q.27) Sun, moon, stars
1) a 2) e (b)
3) c 4) d

Q.28) Speaker, Prime Minister, President
1) a 2) b (c)
3) c 4) d

Q.29) Mountains, forests, earth
1) a 2) b (d)
3) c 4) d

Q.30) Shell, sea, pearl
1) a 2) b (e)
3) c 4) d

Q.31) A walks 3 km to north, turns left and walks for 2 km. He again turns left and walks for 3 km. Here, he turns right and walks for 3 km. How many km., and in what direction is he from the starting point?
1) 5, West 2) 3, South 3) 2, South 4) 1, East

Q.32) Five children are sitting in a row. B is sitting next to G but not next to R. If R is not sitting next to F, who are sitting to the left and right of F?
1) G only 2) B only 3) G and B 4) none

>> A solid cube of 4 cm has been painted red, green and block on pairs of opposite faces. It is then cut into 1 x 1 x 1 blocks. How many cubes have

Q.32) only one face painted?
1) 0 2) 8 3) 16 4) 24

Q.33) only two faces painted?
1) 0 2) 8 3) 16 4) 24

Q.34) only three faces painted?
1) 0 2) 8 3) 16 4) 24

Q.35) no face painted?
1) 0 2) 8 3) 16 4) 24

Q.36) only four faces painted?
1) 0 2) 8 3) 16 4) 24

Q.37) b h n - - b - e n - b e ? ? ? ?

- 1 - 2 1 3 4 - - 1 - 2 - - 1 -
1) e h b n 2) b e h n 3) n e h b 4) e n b h

Q.38) a b - - b c - - c - e - d ? ? ? ?
- 3 - - - 5 - 7 - - 9 - 7 - - - 9
1) c d e e 2) c d f e 3) e f f e 4) b c d e

Q.39) a b - - - x - - - y - b - a - -
- 3 - 1 - 2 - - - - 4 - ? ? ? ?
1) 2 3 4 1 2) 1 4 3 2 3) 1 2 3 4 4) 4 2 3 1

Q.40) b - a - b a b - a b - a
1) a b a b 2) b a b a 3) b a b b 4) a b b a

Q.41) - a a - b b a - a b - b
1) a b a b 2) b b a a 3) a b b b 4) a a b b

Q.42) y - x - - z x - y - x y - z x
1) z y y y x y 2) x y z x y z
3) z x y z y x 4) x y x y x y

Q.43) a - - a b - a a - - b b a a
1) a b b a b 2) b a a b b
3) b b a a a 4) b a b a b

Q.44) ZWABO, YABVN, XZCUM, ?, VXESK, UWFRJ
1) WYDTL 2) UYDTL
3) WVDTL 4) WYFTL

Q.45) APZLT, CQYNR, ERXPP, GSWRN, ITVTL, ?
1) KUUVJ 2) KVUUJ
3) JUVUK 4) JUUVK

Q.46) ACMYA, FHNDF, ?, PRNNP, UWMSU, ZBNXZ
1) INMKI 2) KMNIK
3) IMNKI 4) KMMIK

Q.47) ZXVT, WUSQ, TRPN, ?
1) NMLK 2) CAYW 3) KMOK 4) WYAC

>> Find the group similar to those given

Q.48) QRP GHI RTS KJI
1) FUE 2) BYX 3) OLK 4) NOM

Q.49) TVX SUW FHJ HJL
1) VPJ 2) RSQ 3) AXG 4) NPR

Q.50) QOM VTR IGE FDB
1) PNL 2) POM 3) UTS 4) QPO

>> Find the odd one out.

Q.51) 1) ETGV 2) QHSJ 3) ISHR 4) CVEX

Q.52) 1) HFJ 2) IKG 3) XVZ 4) LJN

Q.53) 1) train 2) car 3) cart 4) truck

Q.54) 1) Kerela 2) W. Bengal 3) Bihar 4) Gujarat

Q.55) 1) NljK 2) TroP 3) GecD 4) ZxvW

Q.56) GEF : WUV : : ? : KIJ
1) QOP 2) NOP 3) QPO 4) NPO

Q.57) ? : TVXZ : : FHJL : NPRT
1) LNRP 2) LMOQ 3) LNPR 4)NMPR

Q.58) PRLN : XZTV : : JLFH : ?
1) RTNP 2) NPRT 3) RPNT 4) NPTR

Q.59) MKQO : LNPR : : ? : XVTZ
1) SVWY 2) WYTS 3) XUSY 4)YSUW

Q.60) CdE : cDe : : ? : xYz
1) XYz 2) XyZ 3) xYZ 4) xyZ

>> Coding of letters

Q.61) BEAT ---> YHXW, SOUP ---> ?
1) SPRS 2) RPRS 3) SRRS 4) PRRS

Q.62) CROSS ---> ATMUQ, PISTON ---> ?
1) RGURQL 2) RQLRGU
3) RUGRLQ 4) RLQRUG

Q.63) 1 1

9 4 4

2 3 5
1) 8 2) 10 3) 14 4) 16

Q.64) 24 3 15

0 48

80 63 35
1) 7 2) 8 3) 9 4) 10

Q.65) Mr. X, by mistake, divided a number by 2, instead of multiplying it by 2. He got the anwser as 2. The correct answer should have been

1) 4 **2) 6** **3) 8** **4) 16**