TARGET IIT JEE-PMT CLASSES™

(NTTSE) National Target Talent Search Examination

(FOR CLASS XII) (Medical)

TIME: 2:15 Hrs. **INSTRUCTIONS FOR THE CANDIDATES** **M.M: 720**

Section	Subject	No. of Questions	Mark per Question	Negative Marking	Total Marks
A	Physics	45	4	-1/4th	180
B	Chemistry	45	4	-1/4th	180
C	Biology	90	4	-1/4th	360
	Total	180			720

- Read each question carefully.
- Do not use white – fluid or any other rubbing material on sheet. No change in the answer once marked.
- Student cannot use log tables and calculators or any other electronic material in the examination hall.
- Rough work is to be done on the rough sheet provided for this purpose with the booklet.
- Immediately after the prescribed examination time is over, the answer sheet to be returned to the invigilator.
- Marking Scheme:

  a. If darkened bubble is RIGHT answer: **4 Marks**.

  b. If no bubble is darkened in any question: **No Mark.**

  c. If darkened bubble is WRONG answer: **1/4 Mark (Minus).**

- If you are found involved in cheating or disturbing others then your OMR Sheet will be cancelled.
- Do not put any stain on OMR Sheet and hand it over back properly to the invigilator.

SECTION –A: PHYSICS

This section contains **45 Multiple Choice Questions.** Each question has four choices (a), (b), (c) and (d) out of which ONLY ONE is correct.

1) The figure shows two equipotential lines in XY-plane for an electric field. The scales are marked. The X-component E_x and Y-component of the electric field in the space between these equipotential lines are respectively.

a)

b)

c)

d)

2) The electric dipole is situated in an electric field as shown in figure. The dipole and electric field are both in the plane of paper. The dipole is rotated about an axis perpendicular to the paper at point A in anticlockwise direction. If the angle of rotation is measured with respect to the direction of the electric field then the torque for different values of the angle of rotation will be represented in Fig. (b)

a) a

b) b

c) c

d) d

3) A dielectric is placed in between the two parallel plates of a capacitor as shown in figure, the dielectric constant of the dielectric being K. If the initial capacity is C, then the new capacity will be :

a) KC

b) (K + 1) C

c) C (K + 1)/2

d)

4) Two spherical conductors A and B of radii a and (b > a) are placed concentrically in air. The two are connected by a copper wire as shown in figure. Then the equivalent capacitance of the system is :

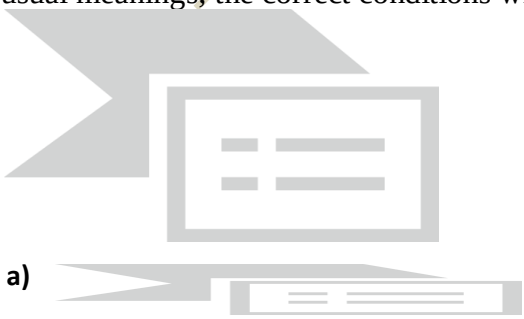
a)

b)

c)

d)

5) In the given figure, three capacitors C_1 , C_2 and C_3 are joined to a battery, with symbols having their usual meanings, the correct conditions will be :



a)

b)

c)

d)

6) A particle of mass m and charge q is projected vertically upwards. A uniform electric field is acted vertically downwards. The most appropriate graph between potential energy U (gravitational plus electrostatic) and height h (< < radius of earth) is (assume U to be zero on surface of earth)

a)

b)

c)

d)

7) When the key K is pressed at time t = 0, then which of the following statements about the current *I* in the resistor AB of the given circuit is true ?

a) *I* = 1 mA at all times

b) *I* = 2 mA at all times

c) *I* oscillates between 1 mA and 2 mA

d) At t = 0, *I* = 2 mA and with time it goes to 1 mA

8) Four resistors are connected as shown in the following figure. A 6 V battery of negligible resistance is connected across terminals A and C. The potential difference across terminals B and D will be :

a) 0 volt

b) 1.5 volt

c) 2 volt

d) 3 volt

9) A cell supplies a current I_1 through a resistor of resistance R_1 and a current I_2 through a resistor of resistance R_2 , then the e.m.f. of the cell is :

a)

b)

c)

d)

10) In the following figure, the equivalent between A and B is :

a)

b)

c)

d)

11) A galvanometer has a resistance of 3663 ohm. A shunt S is connected across it such that (1/34) of the total current passes through the galvanometer. The combined resistance of the shunt and the galvanometer is :

a)

b)

c)

d)

12) Under what conditions current passing through the resistance R can be increased by short circuiting the battery of emf . The internal resistances of the two batteries are and  respectively

a)

b)

c)

d)

13) A vertical straight conductor carries a current vertically upwards. A point P lies to the east of it at a small distance and another point Q lies to the west at the same distance. The magnetic field at P is :

a) greater than at Q

b) same as at Q

c) less than at Q

d) greater or less than at Q depending upon the strength of current

14) A plastic disc of radius R has a charge q uniformly distributed over its surface. If the disc is rotated with a frequency f about its axis, then the magnetic induction at the centre of the disc is given by :

a)

b)

c)

d)

15) A long wire bent as shown in the figure carries current I. If the radius of the semi-circular portion of a the magnetic induction at the centre O is :

a)

b)

c)

d)

16) Two particles A and B of masses and respectively and having the same charge are moving in a plane. A uniform magnetic field exists perpendicular to this plane. The speeds of the particles are and respectively and the trajectories are as shown in the figure. Then

a)

b)

c)

d)

17) If the inductance per unit length for a solenoid near its centre and near the end be denoted by and , then :

a)

b)

c)

d)

18) For the circuit shown in the figure, the current through the inductor is 0.9 A while the current through the condenser is 0.4 A. Hence, the current drawn from the generator is :

a) l = 1.13 amp

b) l = 0.9 amp

c) l = 0.5 amp

d) l = 0.6 amp

19) When high speed electrons hit a target of high atomic number, the efficiency for the production of X-rays is :

a) 100%

b) 99%

c) 50%

d) even less than 1%

20) Decay constant of radium is . By a suitable process its compound radium bromide is obtained. The decay constant of radium bromide will be :

a)

b)

c)

d) zero

21) After a time equal to four half-lives the amount of radioactive material remaining undecayed is :

a) 6.25%

b) 12.50%

c) 25.00%

d) 50%

22) The half-life of radium is 1600 years. What is the mean life and disintegration constant of radium ?

a) 2309, per year

b) 3309, per year

c) 1309, per year

d) None of these

23) and represent the frequencies of X-ray lines of a given material, then :

a)

b)

c)

d)

24) Two equal charges are separated by a distance 'd'. A third charge placed on a perpendicular bisector at x distance will experience maximum coulomb force when:

a)

b)

c)

d)

25) Two equal negative charges are fixed at points (0, a) and . A positive charge Q is released from rest at the point (2a, 0) on the x-axis. The charge Q will:

a) execute SHM about the origin

b) move to origin and remain at rest

c) move to infinity

d) execute oscillation but not SHM

26) If a charge q is placed at the centre of the joining two equal like charges Q. The systems or three will be in equilibrium if q is:

a)

b)

c) Q/2

d) 4 Q

27) A charged particle q is placed at the centre O of a cube of length L (ABCDEFGH). Another same charge q is placed at a distance L from O. Then the electric flux through ABCD is:

a)

b) Zero

c)

d)

28) Which of the following is a natural resource of gamma rays?

a) Radio-cobalt

b) Radio-phosphorus

c) Radiogas

d) Radio-carbon

e) Radio-iodine

29) The mean electric energy density between the plates of charged capacitor is (hereq = charge on the capacitor and A = area of the capacitor plate)

a)

b)

c)

d) none of these

30) If and represent the wavelengths of visible light, x-rays and microwaves respectively, the

a)

b)

c)

d)

31) At resonance, in a series LCR circuit, which relation does not hold?

a)

b)

c)

d)

32) In an ideal inductor L = 4H and = 100 rad/s. The power developed is:

a)

b)

c)

d) 0

33) The current in a series LCR circuit will be maximum, then is:

a) as large as possible

b) equal to natural frequency of LCR system

c)

d)

34) Which of the following quantities remain constant in a step down transformer?

a) Current

b) Voltage

c) Power

d) None of these

35) An inductance L having a resistance R is connected to an alternating source of angular frequency w. The quantity factor (0) of the inductance is:

a)

b)

c)

d)

36) For a coil having L = 2 mH, current flows at the rate of . The emf induced is:

a) 2 V

b) 1 V

c) 4 V

d) 3 V

37) An emf of 100 mV is induced in a coil when current in another near by coil becomes 10 A from 0 in 0.1 S. The coefficient of mutual induction between the two coils will be:

a) 1 mH

b) 10 mH

c) 100 mH

d) 1000 mH

38) A bar magnet of magnetic moment M and length L is cut into two equal parts each of length L/2. The magnetic moment of each part will be:

a) M

b) M/4

c)

d) M/2

39) The force between two magnetic poles is F. If the distance between the poles and pole strengths of each pole are doubled, then the force experienced is:

a) 2 F

b) F/2

c) F/4

d) F

40) If electron velocity is and it is subjected to magnetic field of , then its

a) path will change

b) speed will change

c) both (a) and (b)

d) none of the above

41) An electron having energy 10 eV is circulating in path having magnetic field of . The speed o the electron will be:

a)

b)

c)

d)

42) A particle of mass m and charge q is placed at rest in a uniform electric field E and then released. The kinetic energy attained by the particle after moving a distance y is:

a)

b)

c) qEy

d)

43) A galvanometer of resistance is shunted by a wire. The part of total current that flows through the galvanometer is given by:

a)

b)

c)

d)

44) If the number of turns, area and current through a coil is given by n, A and I respectively, then its magnetic moment will be:

a) nIA

b)

c)

d)

45) An electric kettle taking 3 A to 200 V brings one litre of water from 20°C to the boiling point in 10 minute. Its efficiency is:

a) 33.3%

b) 66.6%

c) 87.7%

d) 93.3%

SECTION –B: CHEMISTRY

This section contains **45 Multiple Choice Questions.** Each question has four choices (a), (b), (c) and (d) out of which ONLY ONE is correct.

46) The vapour pressure of a liquid in a closed container does not depend upon
(I) the viscosity of the liquid
(II) the surface area of the container
(III) The temperature
(IV) concentration of the solution

a) I, II, III

b) I, II, IV

c) II, III, IV

d) III, IV

47) What is the molarity of H_2SO_4 solution if 25 ml is exactly neutrilised with 32.63 ml of 0.164 M. NaOH ?

a) 0.107 M

b) 0.126 M

c) 0.214 M

d)

48) A solution containing components A and B follows Raoult's law when

a) A-B attractive force is greater than A-A and B-B

b) A-B attractive force is less than A-A and B-B

c) A-B attractive force remain same as A-A and B-B

d) volume of solution is different from sum of volume of solute and solvent

49) The average osmotic pressure of benzoic acid is 7.8 bar at 37°C. What is the concentration of aqueous KCl solution that could be used in blood stream ?

a)

b)

c)

d)

50) 2.5 litres of 1 M NaOH solution is mixed with 3.0 litres of 0.5 M NaOH solution. The molarity of resulting solution is

a) 0.80 M

b) 1.0 M

c) 0.73 M

d) 0.50 M

51) Identify the mixture that shows positive deviation from Raoult's law

a) $CHCl_3 + (CH_3)_2CO$

b) $(CH_3)_2CO + C_6H_5NH_2$

c) $CHCl_3 + C_6H_5$

d) $(CH_3)_2CO + CS_2$

52) The boiling point of an azeotropic mixture of water and ethanol is less than that of water and ethanol. The mixture shows

a) no deviation from Raoult's law

b) positive deviation from Raoult's law

c) negative deviation from Raoult's law

d) that the solution is unsaturated

53) When a small amount of $FeCl_3$ is added to a freshly precipitated $Fe(OH)_3$ a reddish brown colloidal solution is obtained. This phenomenon is known as

a) dialysis

b) peptization

c) protection

d) dissolution

54) The potential difference between the fixed charged layer and the diffused layer having opposite charge is called

a) zeta potential

b) electrokinetic potential

c) both (1) and (2)

d) streaming potential

55) If the dispersed phase is a liquid and the dispersion medium is solid, the colloid is known as a / an

a) sol

b) emulsion

c) gel

d) foam

56) The langmuir adsorption isotherm is deduced using the assumption

a) the adsorption sites are equivalent in their ability to absorb the particles

b) the heat of adsorption varies with coverage

c) the adsorption takes place in multilayers

d) the adsorbed molecules interact with each other

57) Which of the following is an application of adsorption?

a) Formation of delta

b) Smoke precipitation by cottrell precipitator

c) Artificial rain by spraying electrified sand

d) Decolourisation of sugar solution

58) Which of the following is capable of forming micelles in aqueous solution above certain concentration ?

a) Sucrose

b) Fructose

c) Acetic acid

d) Sodium palmitate

59) The volume of a colloidal particle, as compared to the volume of a solute particle in a true solution could be

a) ~ 1

b)

c)

d)

60) The volume of gases and adsorbed by 1 g of activated charcoal at 298 K are in the order:

a)

b)

c)

d)

61) The action of enzymes in living system is to :

a) supply energy to tissues

b) create immunity

c) circulate oxygen

d) enhance the rate of biochemical reactions

62) Which of the following is not an ore of iron?

a) Limonite

b) Magnetite

c) Carnallite

d) none of these

63) Auto reduction process is used for the extraction of

a) Hg

b) Pb

c) Cu

d) All

64) As we move down the blast furnace, the temperature

a) first decreases then increases

b) increases

c) decreases

d) first increases then decreases

65) An ore / mineral which does not contain sulphur is:

a) galena

b) cinnabar

c) argentite

d) fluorite

66) Bone black is a polymorphic form of :

a) phosphorus

b) sulphur

c) carbon

d) nitrogen

67) XeF_4 and XeF_6 are expected to be

a) oxidizing

b) reducing

c) unreactive

d) strongly basic

68) The crystalline forms of carbon are

a) Diamond and graphite

b) Diamond and charcoal

c) Graphite and lamp black

d) Bone charcoal and fullerenes

69) Which form has maximum percentage of carbon ?

a) Lignite

b) Bituminous

c) Peat

d) Anthracite

70) How is H_2S prepared in laboratory ?

a) $FeSO_4 + H_2SO_4$

b) FeS + dil. H_2SO_4

c) FeS + conc. H_2SO_4

d) Elementary H_2 + elementary S

71) The gas that turns lime water milky is / are

a) CO_2

b) SO_2

c) Both 1 and 2

d) None of these

72) The compound which gives off oxygen on moderate heating is

a) cupric oxide

b) mercuric oxide

c) zinc oxide

d) aluminium oxide

73) Inorganic graphite is

a)

b)

c)

d)

74) Active charcoal is a good catalyst because it :

a) is made up of carbon atoms

b) is very reactive

c) has more adsorption power

d) has inert nature towards reagent

75) The magnetic moment of transition metal of 3d-series is 6.92 BM. Its electronic configuration would be :

a) $3d^4 4s^2$

b) $3d^5 4s^1$

c) $3d^6$

d) $3d^5 4s^0$

76) Mercury is the only metal which is liquid at room temperature. This is due to

a) weak metallic bond

b) absence of unpaired electrons

c) very low melting pt.

d) all the three

77) The property which is not characteristic of transition metal is :

a) variable oxidation states

b) tendency to form complexes

c) formation of coloured compounds

d) natural radioactivity

78) Which of the following oxides of chromium is amphoteric in nature ?

a) CrO

b) Cr_2O_3

c) CrO_3

d) CrO_5

79) A gas when passed through an acidified solution of $K_2Cr_2O_7$ turns in green. The gas is

a) hydrogen sulphide

b) chlorine

c) ammonia

d) sulphur dioxide

80) Which one of the following elements of the periodic table is a member of transition series ?

a) n = 4, l = 2, m = 0,

b) n = 4, l = 3, m = 3,

c) n = 4, l = 1,

d) Both of the above

81) If carbon is added to the interstitial sites of a iron, then iron becomes

a) softer

b) less tensile

c) less malleable

d) more ductile

82) Which of the following is considered to be an anticancer species ?

a)

b)

c)

d)

83) ion has magnetic moment of 1.73 BM while has a magnetic moment of 5.92 BM. Thus, hybridization of Fe in both the complexes are respectively

a) d^2sp^3, sp^3d^2

b) sp^3d^2, d^2sp^3

c) d^2sp^3, d^2sp^3

d) sp^3d^2, sp^3d^2

84) The value of 'spin only' magnetic moment for one of the following configuration is 2.84 B.M. The correct one is

a) d^4 (in strong field)

b) d^4 (in weak ligand field)

c) d^3 (in weak as well as in strong fields)

d) d^5 (in strong ligand field)

85) The number of isomers possible for square planar complex $K_2[PdBr_2Cl(SCN)]$ is

a) 2

b) 3

c) 4

d) 6

86) According to IUPAC nomenclature, sodium nitroprusside is named as

a) sodium nitro ferricyanide

b) sodium nitro ferrocyanide

c) sodium pentacyanonitrosylferrate (II)

d) sodium pentacyanonitrosylferrate (III)

87) Which one of the following is a tridentate ligand ?

a) Ethylene diamine

b) Ammonia

c) Oxalato

d) 1, 2, 3-triaminopropane

88) Which of the following is not organometallic compound ?

a) $(C_2H_5)_2Zn$

b) $Pb(C_2H_5)_4$

c) $[(CH_3)_3Al]_2$

d)

89) For the same metal ion, instability constant is more for the ligand

a) F^-

b) I^-

c) Cl^-

d) None

90) IUPAC names of is

a) triamminechlorobromonitroplatinum (IV) chloride

b) triamminechlorobromonitrochloroplatinum (IV) chloride

c) triamminebromochloronitroplatinum (IV) chloride

d) triamminenitrochlorobromoplatinum (IV) chloride

SECTION –C: BIOLOGY

This section contains **45 Multiple Choice Questions.** Each question has four choices (a), (b), (c) and (d) out of which ONLY ONE is correct.

91) Prostate glands are located below

a) Gubernaculum

b) Seminal vasicles

c) Epididymis

d) Bulbourethral glands

92) The second maturation division of the mammalian ovum occurs

a) Shortly after ovulation before the ovum makes entry into the fallopian tube

b) Until after the ovum has been penetrated by a sperm

c) Until the nucleus of the sperm has fused with that of the ovum

d) In the Graffian follicle following the first maturation division

93) How many sperms are formed from 4 primary spermatocytes?

a) 4

b) 1

c) 16

d) 32

94) At menopause there is rise in urinary excretion of

a) FSH

b) STH

c) MSH

d) None of these

95) In the development of the human body the ectoderm is responsible for the formation of

a) Lens of the eye

b) Nervous system

c) Sweat glands

d) All of these

96) Acrosomal reaction of the sperm occurs due to

a) Its contact with zona pellucida of the ova

b) Reactions within the uterine environment of the female

c) Reaction within the epididymal environment of the male

d) Androgens produced in the uterus

97) The different forms of interbreeding species that live in different geographical regions are called

a) Sibling species

b) Sympatric species

c) Allopatric species

d) Polytypic species

98) Presence of gills in the tadpole of frog indicates that

a) Fishes were amphibious in the past

b) Fishes evolved from frog like ancestors

c) Frogs will have gills in future

d) Frogs evolved from gilled ancestors

99) The cranial capacity was largest among the

a) Peking man

b) Java ape man

c) African man

d) Neanderthal man

100) What is common between vegetative reproduction and Apomixis

a) Both occur round the year

b) Both produces progeny idetical to the parent

c) Both are applicable to only dicot plants

d) Both bypass the flowering phase

101) Germpore is the region where the exine is

a) Thick

b) Uniform

c) Thick and uniform

d) Absent

102) During binary fission in amoeba which of the following organelles is duplicated?

a) Plasma membrane

b) Nucleus

c) Contractile vacuole

d) All of these

103) Asexual reproduction is seen in members of kingdom

a) Monera

b) Plantae

c) Animalia

d) All of these

104) Read the following statements about the reproductive cycles in mammals and select the correct ones.

(i) Oestrous cycle occurs in primate mammals

(ii) In species with oestrous cycle, females are generally sexually active during estrous phase

(iii) Both the cycles show monthly recurrence

a) (i) and (ii)

b) (ii) and (iii)

c) (ii) only

d) (i), (ii) and (iii)

105) If a leaf cell of Agave has x chromosomes then what will be the number of chromosomes in a cell of its bulbil?

a) 2x

b) x/2

c) x/4

d) x

106) Oestrous cycle is reported in

a) Humans and monkeys

b) Chimpanzees and gorillas

c) None of these

d) Cows and sheep

107) Which of the following animals give birth to young ones?

a) Omithorhynchus and Echidna

b) Macropus and Pteropus

c) Balaenoptera and Homo sapiens

d) Both (b) and (c)

108) More men suffer from colour blindness than women because

a) Women are more resistant to disease than men

b) The male sex hormone testosterone causes the disease

c) The colour blind gene is carried on the 'Y' chromosome

d) Men are hemizygous and one defective gene is enough to make them colour blind

109) Restriction endonucleases are most widely used in recombinant DNA technology. They are obtained from

a) Bacteriophages

b) Bacterial cells

c) Plasmids

d) All prokaryotic cells

110) Genetic engineering has been successfully used for producing

a) Animals like bulls for farm work as they have super power

b) Transgenic mice for testing safety of polio vaccine before use in humans

c) Transgenic models for studying new treatments for certain cardiac diseases

d) Transgenic Cow-Rosie which produces high fat milk for making ghee

111) In recombinant DNA technology a plasmid vector is cleaved by

a) Modified DNA ligase

b) A heated alkaline solution

c) The same enzyme that cleaves the donor DNA

d) The different enzyme than that cleaves the donor DNA

112) Primers are

a) Chemically synthesized oligonucleotides that are complementary to the regions of DNA

b) Chemically synthesized oligonucleotides that are not complementary to the regions of DNA

c) Chemically synthesized autonomously replicating circular DNA molecules

d) Specific sequences present on recombinant DNA

113) An enzyme catalyzing the removal of nucleotides from the ends of DNA is

a) Endonuclease

b) Exonuclease

c) DNA ligases

d) Hin II

114) Which of the following isolation is important for speciation

a) Seasonal

b) Tropical

c) Behavioural

d) Reproductive

115) Many freshwater organisms cannot live for long in seawater because the surrounding water will be __ to body cells and __ may occur

a) Hypertonic, exosmosis

b) Hypertonic, endosmosis

c) Hypotonic, exosmosis

d) Hypotonic, endosmosis

116) Niche overlap indicates

a) Mutualism between two species

b) Active cooperation between two species

c) Two different parasites on the same host

d) Sharing of one or mroe resources between the two species

117) The rate of conversion of light energy into chemical energy of organic molecules in an ecosystem is

a) Net primary productivity

b) Gross primary productivity

c) Secondary productivity

d) Gross secondary productivity

118) Which of the following group of gases cause photochemical smog

a) O_3, PAN and

b) HC, NO and PAN

c) O_2, PAN and NO_2

d) O_2, PAN and NO_3

119) Ecofriendly method is

a) Plantation of C_3 plants

b) Plantation of sugarcane

c) Energy plantation

d) None of the above

120) Motor vehicles equipped with catalytic converter are advised to use unleaded petrol because

a) Lead is a heavy metal

b) Lead causes inactivation of catalyst

c) Lead decreases the efficiency of vehicle

d) Lead increases burning of petrol

121) The major ozone depleting substance out of the following is

a) CFCs

b)

c) Nitrogen

d) All of these

122) The exotic species, which when introduced in India became notorious weed(s), is / are

a) Lantana camara

b) Eicchornia crassipes

c) Parthenium hysterophorus

d) All of these

123) Presently, total number of biodiversity hot spots in the world is

a) 25

b) 34

c) 37

d) 40

124) Which of the following is not an example of in Situ conservation?

a) Biosphere reserves

b) National parks

c) Wildlife sanctuaries

d) Zoological parks

125) Select the incorrectly matched pair

a) UNESCO = United Nations Educational Scientific and Cultural Organization

b) CITES - Conversion in International Trade in Elite species

c) IUCN = International Union of Conservation for Nature and Natural resources

d) WW F= World Wide Fund for Nature

126) Ecological hot spots present in India are

a) One

b) Two

c) Three

d) Four

127) Desired improved variety of economically useful crops are raised by

a) Natural selection

b) Hybridization

c) Mutation

d) Biofertilizer

128) Cryobiology deals with

a) Temperature effect

b) Physiology

c) Anatomy

d) Characteristics of biomolecule

129) Narcotic and soothing properties of tobacco is due to or Harmful alkaloid contained in the leaves o tobacco is

a) Caffeine

b) Aconite

c) Nicotine

d) Codeine

130) A cultivated plant whose seed epidermis produces abundant cellulosic hairs used in textile industry and manufacture of fine quality paper is

a) Cannabis sativa

b) Linum usitatissimum

c) Gossypium herbaceum (cotton)

d) Salmalia malabarica

131) Vitis is a tendril climber, a species which is extensively used for

a) Charas

b) Wine

c) Opium

d) Volatile oil

132) Choose the correct pair

a) Apiculture - Honey bee

b) Sericulture - Fish

c) Pisciculture - Silk worm

d) Aquaculture - Lac insect

133) Shells of molluscs are used for preparing ointments because they are rich in

a) Zinc

b) Iodine

c) Sodium

d) Both (a) and (b)

134) Which of the following diseases is caused by virus?

a) Tobacco mosaic

b) Late blight of potato

c) Turnip mosaic

d) Both (a) and (c)

135) Biofertilizers

a) Kill pests

b) Prevent pest growth

c) Retain soil fertility

d) All the above

136) The inoculums is added to the fresh milk in order to convert milk into curd, the term 'inoculum' here refers to

a) A starter rich in vitamin

b) A starter rich in proteins

c) A starter containng millions of LAB

d) An aerobic digester

137) Which of the following organisms is used in the production of beverages?

a) Penicillium notatum

b) Saccharomyces cerevisiae

c) Aspergillus niger

d) Clostridium butylicum

138) The masses of bacteria held together by slime and fungal filaments to form mesh like structures are called as

a) Primary sludge

b) Flocs

c) Activated sludge

d) Anaerobic sludge

139) Process of biogas production is

a) Aerobic process

b) Anaerobic process

c) Active process

d) Passive process

140) When a natural predator (living organism) is applied on the other pathogen organisms to control them, this process is called as

a) Biological control

b) Genetic engineering

c) Artificial control

d) Confusion techniques

141) Cyanobacteria are

a) Heterotrophs

b) Chemotrophs

c) Autotrophs

d) Organotrophs

142) Mycorrhiza does not help the host plant in

a) Enhancing its phosphorus uptake capacity

b) Increasing its tolerance to drought

c) Enhancing its resistance to root pathogens

d) Increasing its resistance to insects

143) Streptococcus thermophilus and Lactobacillus bulgaricus are being used for the production of

a) Cheese

b) Yoghurt

c) Tempeh

d) Miso

144) The name of drug used in cancer treatment produced by biotechnology is

a) Interferon

b) HGH

c) TSH

d) Insulin

145) Cheese is prepared from

a) Lactobacillus

b) Streptococcus

c) Myrothecium

d) Streptococcus, Lactobacillus and Leuconostoc

146) The population density is highest in

a) USA

b) India

c) China

d) Japan

147) For pollinated ovary which is correct

a) Accessory cells are diploid

b) Antipodal cells are haploid

c) Egg cell in diploid

d) Ovule cell is haploid

148) Germpore is the region where the exine is

a) Thick

b) Uniform

c) Thick and uniform

d) Absent

149) In a young anther the four rows of cells which later produce pollen are called

a) Antheridium

b) Archesporium

c) Tapetum

d) Zoosporangium

150) Study the following statements and select the correct option.
A. Tapetum nourishes the developing pollen grains
B. Hilum represents the junction between ovule and funicle
C. In aquatic plants such as water hyacinth and water lily, pollination is by water
D. The primary endosperm nucleus is triploid

a) A, B and D are correct but C is incorrect

b) B, C and D are correct but A is incorrect

c) A and D are correct but B and C are incorrect

d) B and D are correct but A and C are incorrect

e) A and B are correct but C and D are incorrect

151) Egg apparatus of angiosperm consists of

a) One egg cell and two synergids

b) One egg cell 2 synergids 3 antiodals

c) 3 antipodals only

d) Secondary nucleus and egg cell

152) Chiropterophily is the process of pollination by

a) Water

b) Bat

c) Insect

d) Bird

153) For self pollination, flower must be

a) Unisexual

b) Bisexual

c) Monosexual

d) Asexual

154) Development of seed from an unfertilised egg is called

a) Vivipary

b) Parthenocarpy

c) Apogamy

d) Apospory

155) The coconut water and the edible part of coconut are equivalent to

a) Endosperm

b) Endocarp

c) Mesocarp

d) Embryo

156) Refer the given figures and select the correct option

a) It is a type of parthenogenesis

b) It is a type of asexual reproduction

c) The offspring's can also be called as clones

d) Both (b) and (c)

157) The growth phase of an organisms before attaining sexual maturity is referred to as

a) Juvenile phase

b) Vegetative phase

c) Both (a) and (b)

d) None of these

158) Senescent phase of an organisms life span can be recognized by

a) Slow metabolism

b) Cessation of reproduction

c) Decreased immunity

d) All of these

159) Staminate flowers produce

a) Eggs

b) Antherozoids

c) Fruits

d) All of these

160) A diploid parent plant body produces ____ gametes and a haploid parent plant body produces ___ gametes.

a) Diploid, haploid

b) Haploid, diploid

c) Diploid, diploid

d) Haploid, haploid

161) DNA nucleotides are attached by

a) Hydrogen bond

b) Covalent bond

c) Van der waals bond

d) Electrovalent Bond

162) Locations or sites in the human DNA where single base DNA differences occurs are called

a) Repetitive DNA

b) VNTR

c) SNP

d) SSCP

e) Expressed sequence tags

163) Which of the following is structural subunit of DNA

a) Protein

b) Carbohydrate

c) RNA

d) Nucleotides

164) The 5' end of polynucleotide chain is attached to

a) Hydroxyl group

b) Carboxyl group

c) Methyl group

d) Phosphate group

165) The double helical model of the DNA was proposed by Watson and Crick based on what data produced by Wilkins and Franklin

a) Hybridization

b) DNA sequencing

c) Southern blotting

d) Fourier's transformation

e) X-ray diffraction

166) If a segment of an mRNA molecule has the sequence 5' GUACCGAUCG 3', which of the following could have been the template DNA molecule

a) 5' GCUAGCCAUG 3'

b) 5' GUACCGAUCG 3'

c) 5' CATGGCTAGC 3'

d) 5' CGATCGGTAC 3'

167) For transformation, micro-particles coated with DNA to be bombarded with gene gun made up of

a) Silver or Platinum

b) Platinum or Zinc

c) Silicon or Platinum

d) Gold or Tungsten

168) Select the incorrect statement

a) Protein are heteropolymers made of amino acids

b) Ribozymes are nucleic acids with catalytic power

c) Nucleic acids serve as genetic material

d) Proteins, nucleic acids and polysaccharides are the only three types of macromolecules found in the living system

e) Collagen is the most abundant protein in the whole of the biosphere and RuBisCo is the most abundant proteins in animal world

169) Which one of the following is not a part of a transcription unit in DNA

a) The inducer

b) A terminator

c) A promoter

d) The structural gene

170) Who postulated the 'Chromosome Theory of Inheritance'

a) De Vries

b) Mendel

c) Sutton and Boveri

d) Morgan

171) The term 'gene' was coined by

a) Mendel

b) Johannsen

c) Khorana

d) Kornberg

172) Experimental verification of the chromosomal theory of inheritance was given by

a) Gregor Johann Mendel

b) Hugo de Vries

c) Langdon Down

d) Henking

e) Thomas Hunt Morgan

173. According to WHO, reproductive health means a total well-being in all aspects of reproduction like..

(a) Physical, Emotional, Behavioral, Social

(b) Physical, Mental, Health, Sexual Habits, Healthy body

(c) Physical, Mental, Behevioural, Devlopment of sexual organs

(d) Physical, Mental, Emtional, Social

174. What is the rank of India to kick off action plans and programs at national level to get total reproductive health as a social goal ?

(a) First

(b) Second

(c) Third

(d) Fourth

175. What are the programs called to get total reproductive health as a social goal of national level?

(a) Family care

(b) Family planning

(c) Family organization

(d) Reproductive care

176. When was family planning initiated ?

(a) 1950

(b) 1951

(c) 1952

(d) 1953

177. By which name family planning is currently popular ?

(a) Family and child care

(b) Reproductive and chid care

(c) Reproductive and child health care

(d) Reproductive and child health.

178. Which of the following steps in transcription is catalysed by RNA polymerse?

a. Initiation

b. Elongation

c. Termination

d. All of the above

179. Control of gene expression takes place at the level of:

a. DNA-replication

b. Transcription

c. Translation

d. None of the above

180. Who amongst the following scientists had no contribution in the development of the double helix model for the structure of DNA?

a. Rosalind Franklin

b. Maurice Wilkins

c. Erwin Chargaff

d. Meselson and Stahl

Answer Keys

Physics

Q1: b Q2: b Q3: c Q4: c Q5: c Q6: a Q7: d Q8: a Q9: c Q10: b

Q11: c Q12: b Q13: b Q14: a Q15: b Q16: b Q17: b Q18: c Q19: d Q20: a

Q21: a Q22: a Q23: a Q24: a Q25: c Q26: c Q27: d Q28: c Q29: a Q30: d

Q31: a Q32: d Q33: b Q34: c Q35: c Q36: a Q37: a Q38: d Q39: a Q40: d

Q41: c Q42: a Q43: d Q44: a Q45: d

Chemistry

Q46: b Q47: a Q48: c Q49: b Q50: c Q51: d Q52: b Q53: b Q54: c Q55: c

Q56: a Q57: d Q58: d Q59: d Q60: d Q61: d Q62: c Q63: d Q64: b Q65: d

Q66: a Q67: a Q68: a Q69: d Q70: b Q71: c Q72: b Q73: b Q74: c Q75: b

Q76: d Q77: d Q78: b Q79: d Q80: a Q81: c Q82: b Q83: a Q84: a Q85: c

Q86: d Q87: d Q88: d Q89: b Q90: c

Biology

Q91: b Q92: b Q93: c Q94: a Q95: d Q96: a Q97: c Q98: d Q99: d Q100: b

Q101: d Q102: b Q103: d Q104: c Q105: d Q106: d Q107: d Q108: d Q109: b Q110: b

Q111: c Q112: a Q113: b Q114: d Q115: a Q116: d Q117: b Q118: a Q119: c Q120: b

Q121: a Q122: d Q123: b Q124: b Q125: b Q126: c Q127: b Q128: a Q129: c Q130: c

Q131: b Q132: a Q133: d Q134: d Q135: c Q136: c Q137: b Q138: b Q139: b Q140: a

Q141: c Q142: d Q143: b Q144: a Q145: d Q146: d Q147: b Q148: d Q149: b Q150: a

Q151: a Q152: b Q153: b Q154: c Q155: a Q156: d Q157: c Q158: d Q159: b Q160: d

Q161: a Q162: c Q163: d Q164: d Q165: e Q166: c Q167: d Q168: e Q169: a Q170: c

Q171: b Q172: e Q173: a Q174: a Q175: b Q176: c Q177: c Q178: d Q179: c Q180: b