RASHTROTTHANA GROUP OF PU COLLEGES
DAVANAGERE, DHARWAD & UDUPI

MODEL QUESTION PAPERS
VERSION A

Time: 90 minutes **Total Marks: 240**

Each question carries only one correct choice out of the four given choices and four marks will be awarded for the correct choice made. One mark will be minus for the incorrect choice made.

ENGLISH

1) Identify the tense of the following sentence.
"She has been working on the project for a week"
   a) Present continuous tense
   b) Past continuous tense
   c) Future continuous tense
   d) Present perfect continuous tense
2) Fill in the blank with the most appropriate word.
I will help him if he _____
   a) ask b) asks c) asked d) will ask
3) Fill in the blank with the correct option.
Ram as well as his brothers _____coming today
   a) are b) were c) is d) have been
4) Unless she _____done the work to my standards, i_____her.
   a) has, shall not appreciate
   b) will, would not appreciating
   c) have, shall not appreciate
   d) shall, will not appreciated
5) Select the right option.
The road seems uneven, you _____slow down
   a) would b) can c) need to d) done to
6) All the tickets have been sold out. You _____
   a) should have come early
   b) will have come early
   c) May have come early
   d) Can have come early
7) Fill in the blank with the correct passive form.
The thief _____by the police yesterday
   a) is caught b) was caught c) has been caught d) will be caught
8) Select the correct passive form of the given sentence.
"They have invited the parents as well as the child".
   a) The parents as well as the child have been invited.
   b) The child as well as the parents has been invited.
   c) The parents as well as the child have been invited.
   d) The parents as well as the child had been invited by them.
9) Choose the most appropriate form of Indirect Speech for the given sentence.
She said to me, "where are you going for the vacation?"
   a) She said that where I was going for the vacation.
   b) She asked me that where I was going for the vacation.
   c) She asked where I was going for the vacation.
   d) She asked me where I was going for the vacation.

10) He said, "Be quiet and listen to my words"
   a) He urged them and said be quiet & listen to his words.
   b) He urged them to be quiet & listen to his words.
   c) He urged they should be quiet & listen to his words.
   d) He said you should be quiet & listen to his words.

PHYSICS

11) When a plane mirror is placed horizontally on a level ground at a distance of $60m$ from the foot of a tower, the top of the tower and its image in the mirror subtend an angle of $90°$ at the eye. The height of the tower will be

(a) $30m$ (b) $60m$

(c) $90m$ (d) $120m$

12) The field of view is maximum for

(a) Plane mirror (b) Concave mirror

(c) Convex mirror (d) Cylindrical mirror

13) A boy stands straight infront of a mirror at a distance of $30cm$ away from it. He sees his erect image whose height is $\frac{1}{5}th$ of his real height. The mirror he is using is

(a) Plane mirror (b) Convex mirror

(c) Concave mirror (d)Plano-convex mirror

14) All of the following statements are correct except

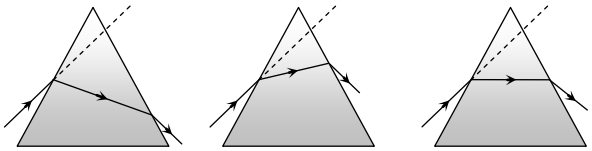
(a)The magnification produced by a convex mirror is always less than one

(b)A virtual, erect, same-sized image can be obtained using a plane mirror

(c) A virtual, erect, magnified image can be formed using a concave mirror

(d) A real, inverted, same-sized image can be formed using a convex mirror

15) The figures represent three cases of a ray passing through a prism of angle *A*. The case corresponding to minimum deviation is



(1) (2) (3)

(a)1 (b) 2

(c)3 (d) None of these

16) If the distance of the far point for a myopia patient is doubled, the focal length of the lens required to cure it will become

(a) Half (b) Double

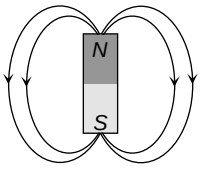
(c) The same but a convex lens (d)The same but a concave lens

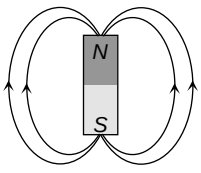
17) The specific resistance of manganin is $50\times10^{-8}\ ohm\times m$. The resistance of a cube of length $50\ cm$ will be

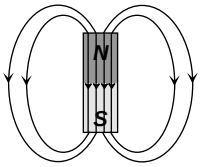
(a) $10^{-6}\ ohm$ (b) $2.5\times10^{-5}\ ohm$

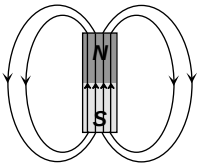
(c) $10^{-8}\ ohm$ (d) $5\times10^{-4}\ ohm$

18) The magnetic field lines due to a bar magnet are correctly shown in

(a) 

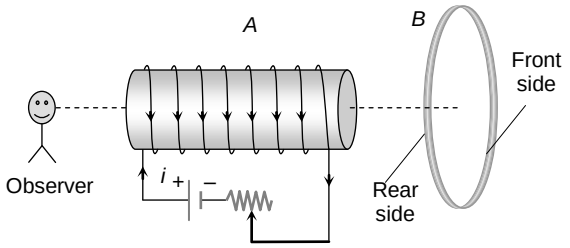
(b) 

(c) 

(d) 

19) If two streams of protons move parallel to each other in the same direction, then they
   (a) Do not exert any force on each other
   (b) Repel each other
   (c) Attract each other
   (d) Get rotated to be perpendicular to each other

20) An aluminum ring *B* faces an electromagnet *A*. The current *I* through *A* can be altered



   (a) Whether *I* increases or decreases, *B* will not experience any force
   (b) If *I* decrease, *A* will repel *B*
   (c) If *I* increases, *A* will attract *B*
   (d) If *I* increases, *A* will repel *B*

CHEMISTRY

21) X is an element with atomic number 13 which combines with sulphate ion and forms a compound. Write the formula of that compound?
   (a) $X(SO_4)_2$ (b) XSO_4
   (c) $X_3(SO_4)_2$ (d) $X_2(SO_4)_3$

22) Which of the following is the oxidizing agent in a given chemical reaction?

   $Fe_2O_3 + 2Al \longrightarrow 2Fe + Al_2O_3$
   (a) Fe_2O_3 (b) Al
   (c) Fe (d) Al_2O_3

23) What is the volume of H_2 occupied at S.T.P, when 6.54 g of zinc is treated with 73 grams of HCI?
   (a) 22.4 L (b) 2.24 L (c) 11.2 L (d) 1.12 L

24) The pH of an aqueous solution is zero; then the nature of the solution is
   (a) Slightly acidic (b) Strongly acidic
   (c) Neutral (d) Basic

25) Sodium carbonate is a basic salt because it is a salt of a
   (a) Strong acid and strong base
   (b) Weak acid and weak base
   (c) Strong acid and weak base
   (d) Weak acid and strong base

26) Identify the chemical reaction of HCl with basic oxides.
   (a) $Na_2CO_3 + 2\ HCl \longrightarrow 2\ NaCl + H_2O + CO_2$
   (b) $2HCl + CaO \longrightarrow CaCl_2 + H_2O$.
   (c) $AgNO_3 + HCl \rightarrow AgCl + HNO_3$
   (d) $CuS + HCl \rightarrow CuCl_2 + H_2S$

27) Liquid ammonia is used as a solvent for
   (a) alkali metals
   (b) the preparation of aqua regia.
   (c) the preparation of dyes.
   (d) the packaging industry

28) Identify a closed chain compound.
   (a) Isobutane (b) Cyclopentane (c) Neopentene (d) Acetylene

29) Which polymer is matched incorrectly?
(a) Addition polymer – polyvinyl chloride
(b) Condensation polymer – Polyester
(c) Linear polymers – Nylon
(d) Thermoplastic – Bakelite

30) If the carbon chain is linear, the corresponding detergent will be
(a) Soft and non –biodegradable
(b) Soft and biodegradable
(c) Hard and biodegradable
(d) Hard and non-biodegradable

BIOLOGY

31) Select the group in which all organisms have the same mode of nutrition.
a) Cuscuta, yeast, legumes, leeches and tapeworm
b) Cactus, ticks, lice, leeches and cow
c) Cuscuta, ticks, lice, leeches and tapeworm
d) Cactus, grass, lice, lion and tapeworm

32) Which of the following is a correct combination of function and part of the brain?
a) Posture and balance: Cerebrum
b) Salivation: Medulla in midbrain
c) Hunger: Pons in hindbrain
d) Blood pressure: Medulla in hindbrain

33) The blood glucose level in a patient was very high. It may be due to inadequate secretion of:
a) growth hormone from pituitary gland
b) oestrogen from ovary
c) insulin from pituitary gland
d) insulin from pancreas

34) In a cross between black furred rabbit (B) and white furred rabbit (b), all offspring were found to have black fur. What can be inferred about the genetic makeup of the parent rabbits?
a) BB X bb b) Bb X Bb c) Bb X bb d) bb X bb

35) Which are the correct statements related to ozone?
(i) Ozone layer helps in increasing the UV radiations reaching earth.
(ii) Ozone is a deadly poison.
(iii) Ozone layer shields the earth from UV radiations.
(iv) Ozone layer prevents UV rays which cause skin cancer.
(v) Ozone is formed with the help of Chloroflurocarbons.
a) (i), (ii), (iii) b) (ii), (iii), (iv) c) (iii), (iv), (v) d) (i), (iv), (v)

36) The statement that correctly describes the characteristic(s) of a gene is:
a) In individuals of a given species, a specific gene is located on a particular chromosome.
b) A gene is not the information source for making proteins in the cell.
c) Each chromosome has only one gene located all along its length.
d) All the inherited traits in human beings are not controlled by gene

37) Assertion (A): The anaerobic respiration which takes place in yeast, has one of the end products as an acid. Reason (R): During anaerobic respiration, there is incomplete breakdown of glucose.
a) Both (A) and (R) are true and (R) is the correct explanation of (A).
b) Both (A) and (R) are true, but (R) is not the correct explanation of (A).
c) (A) is true, but (R) is false.
d) (A) is false, but (R) is true

38) Which of the following is not a direct conclusion that can be drawn from Mendel's Experiment?
a) Only one parental trait is expressed
b) Two copies of each trait is inherited in sexually reproducing organism
c) For recessive trait to be expressed, both copies should be identical
d) Natural selection can alter frequency of an inherited trait.

39) IUCD is for
a) Vegetative propagation b) Contraception
c) Increasing fertility d) Avoiding miscarriage

40) Bile juice is secreted by
a) Stomach b) Pancreas c) Small intestine d) Liver

MATHEMATICS

41) Solve for n: $4^n + 4^n + 4^n + 4^n = 2^{2010}$.
a) 1005 b) 2010 c) 1004 d) 1003

42) The numerical value of $\left(\frac{x^m}{x^n}\right)^{m+n-l} \times \left(\frac{x^n}{x^l}\right)^{n+l-m} \times \left(\frac{x^l}{x^m}\right)^{l+m-n}$ *is*
a) 1 b) 8 c) 0 d) None

43) Ashok has two vessels which contain 720ml and 405ml of milk respectively. Milk in each vessel is poured into glasses of equal capacity of their brim. Find the minimum number of glasses which can be filled with milk
a) 45 b) 35 c) 25 d) 30

44) Find the value of p and q so that the polynomial $f(x) = px^3 + 2x^2 - 19x + q$ is divisible by $x^2 + x - 6$.
a) $p = 3, q = 6$ b) $p = 6, q = 3$ c) $p = 4, q = 5$ d) $p = 5, q = 6$

45) The maximum number of zeroes that a polynomial of degree 4 can have is
a) one b) two c) three d) four

46) The sum of two numbers is 8. If their sum is four times their difference, find the numbers
a) 6, 2 b) 7, 1 c) 5, 3 d) 6, 3

47) A man has some hens and cows. If the number of heads are 48 and number of feet equals 140, the number of hens will be
a) 24 b) 26 c) 22 d) 25

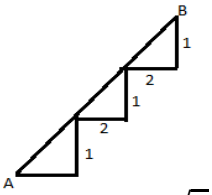
48) A girl is twice as old as her sister. Four years hence, the product of their ages (in years) will be 160. Find their present age of her sister.
a) 12 years b) 6 years c) 8 years d) 9 years

49) If one root of $x^2 - 4x + k = 0$ is 6, then the value of k is
a) -12 b) 2 c) -2 d) 12

50) Find the sum of all three – digit numbers which leave remainder 2 when divided by 5
a) 98910 b) 9820 c) 9830 d) 9840

51) The median AD of ΔABC meets BC at D. The internal bisectros of $\angle ADB \; and \; \angle ADC$ meet AB and AC at E and F respectively. Then EF
a) is perpendicular to AD b) is parallel to BC
c) divides AD in the ratio of AB : AC d) None of these

52) The straight line distance between A and B is



a) $3\sqrt{5}\ units$ b) $5\sqrt{3}\ units$ c) 5 units d) $5\sqrt{2}\ units$

53) The end points of the longest chord of a circle are $(-4, 2) and \ (-6, -8)$. Find its centre
a) $\left(-\frac{10}{3}, -2\right)$ b) $(-5, -2)$ c) $(-5, -4)$ d) $(-5, -3)$

54) The coordinates of the point on x – axis which is equidistant from the points $(5, 4) and \ (-2, 3) \ a$re
a) $(2, 0)$ b) $(3, 0)$ c) $(0, 2)$ d) $(0, 3)$

55) If $sec\theta + tan\theta = p, then\ tan\theta\ is$

a) $\frac{p^2+1}{2p}$ b) $\frac{p^2-1}{2p}$ c) $\frac{p^2-1}{p^2+1}$ d) $\frac{p^2+1}{p^2-1}$

56) If $x tan\ 45^0 \sin 30^0 = \cos 30^0 \tan 30^0$, $then\ x\ is\ equal\ to$

a) $\sqrt{3}$ b) $\frac{1}{2}$ c) $\frac{1}{\sqrt{2}}$ d) 1

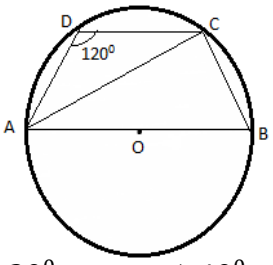
57) If $sec\theta = \frac{13}{5}, then\ the\ value\ of\ \frac{2sin\theta - 3cos\theta}{4sin\theta - 9\ cos\theta}$ is

a) 1 b) 3 c) 2 d) 4

58) The radii of two concentric circle are 13 cm and 8cm. AB is a diameter of the bigger circle. BD is a tangent to the smaller circle touching it at D. Find the length AD

a) 19 cm b) 20cm c) 16 cm d) $\sqrt{105}\ cm$

59) In the given figure, AB is the diameter of the circle $\angle ADC = 120^0$. Find $\angle CAB$



a) 20^0 b) 30^0 c) 40^0 d) cannot be determined

60) The perimeter of square and circumference of circle are equal. The area of square is 121 m^2, then the area of circle is

a) 7 πm^2 b) 14 πm^2 c) 21 πm^2 d) 49πm^2

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