

ENTRANCE MODEL QUESTION

SCIENCE

SET A

F.M.: 100

Time: 1 hour 45 min.

Shade the appropriate circle (●) using black ink in the answer sheet.

SUBJECT: ENGLISH **F.M.:20** **P.M.: 10**

1. Which sentence is not in the passive form?
a) You are supposed to complete the project.
b) I have my hair cut.
c) Honey is sweet when it is tasted.
d) Let me see your new dress.
2. The cat jumped.....the roof
a) over b) onto c) into d) on
3. The couple.....been invited to the party.
a) is b) has c) have d) are
4. He was patient.....to wait for his turn.
a) very much b) too c) much d) enough
5. Van Gogh was a painter.....paintings were admired worldwide
a) which b) whom c) who d) whose
6. I had the mechanicmy brakes.
a) to check b) checked c) check d) checking
7. Had she been informed about the incident, shefor a help.
a) would come b) would have come c) had come d) came
8. 'Let him sing a song.' The negative form of the given sentence is...
a) Don't let him sing a song. b) Let him not sing a song.
c) Not let him sing a song. d) Let not him sing a song.
9. The plural form of cactus is.....
a) Cacti b) Cactuses c) cactes d) cactus
10. 'She lived her autumn years of her life all alone since her husband had already died and her children were abroad.' The meaning of underlined idiom means.....
a) cold years b) earlier time c) later years d) winter time
11. I really enjoyeddinner I had with you yesterday. It was delicious.
a) an b) a c) the d) no article

12. Choose the correct sentence.
a) He promised me to buy me an ice cream.
b) He threatened to report me to the police.
c) He denied me that he had stolen my purse.
d) He offered me to bring a glass of juice.
13. Aof sheep is crossing the road, delaying the motorists.
a) flock b) swarm c) bunch d) bouquet
14. The synonym of the word 'splendid' is.....
a) mediocre b) horrifying c) unimpressive d) magnificent
15. The indirect speech of 'would you mind passing me the newspaper?'
a) She asked me if I would mind passing her the newspaper.
b) She requested me to pass her the newspaper.
c) She questioned me if I would pass her the newspaper.
d) She inquired me if I was passing her the newspaper.
16. Which word comes first alphabetically?
a) manage b) magnificent c) maintenance d) manner
17. Let's help those needy ones,.....
a) will you? b) shall we? c) don't we? d) do we?
18. Our leaders need to break downto create favourable environment.
a) barriers b) obstacles c) hindrances d) problems
19. 'Amita is older than Ayusha.' The same sentence can be said as.....
a) Ayusha is older than Amita. b) Amita is not as old as Ayusha.
c) Ayusha is not as old as Amita. d) Ayusha is as old as Amita.
20. They are so excited to go for swimming. So
a) my daughters are b) are my daughters excited
c) are my daughters d) my daughter are equally excited

SUBJECT: SCIENCE **F.M.:40** **P.M.:20**

21. Which of the following organisms belong to Annelida
a) Earthworm and flatworm b) Leech and Flatworm
c) Flatworm and Starfish d) Earthworm and Leech
22. Growing foetus derive nutrition from mother's blood through.
a) Uterus b) Fallopian tube c) Placenta d) Cervix

- 23.** Which characteristics are not common in insects?
 a) Hard exoskeleton made up of chitin.
 b) Jointed appendages
 c) Mouth parts adapted for different modes of feeding.
 d) Presence of mantle
- 24.** Genotype ration in Mendel's monohybrid cross is
 a) 3:1 b) 9:3:3:1 c) 1:2:1 d) 1:2:1:2:4:2:1:2:1
- 25.** Plants having vascular tissue without seeds are
 a) Angiosperm b) Pteridophytes
 c) Bryophytes d) Gymnosperms
- 26.** Carbohydrates in the plants are stored in the form of
 a) Glycogen b) Starch c) Glucose d) Maltose
- 27.** The normal blood pressure of an adult is.
 a) 150/90 mm of Hg b) 120/80 mm of Hg
 c) 80/120 mm of Hg d) 90/60 mm of Hg
- 28.** Pollination by air is called as
 a) Hydrophily b) Anemophily
 c) Ornithophily d) Chiropterophily
- 29.** When an organism is cut into pieces and each piece grows into a complex organism. What is the process?
 a) budding b) Fragmentation
 c) Spore formation d) Regeneration
- 30.** Moss belongs to
 a) Algae b) Bryophyta
 c) Pteridophytes d) Gymnosperm
- 31.** A component of prokaryotic cells:
 a) Plasma membrane b) DNA c) Cytoplasm d) All of these
- 32.** Mitosis can be observed in ____
 a) Polyploid cell b) Diploid cell c) Haploid cell d) All of these
- 33.** _____ is not a biodegradable pollutant.
 a) Paper b) Cotton cloth c) Cotton d) DDT
- 34.** The number of atoms of oxygen present in the ozone are.
 a) 3 b) 4 c) 2 d) 1
- 35.** Which of the following is not unit of energy?
 a) Kwh b) Nm c) kgms⁻¹ d) Joule
- 36.** When water is heated from 0°C to 10°C, its density
 a) increases b) decreases
 c) remains the same d) first increases and then decreases
- 37.** High temperature is measured by
 a) mercury thermometer b) gas thermometer
 c) pyrometer d) sphygmonometer
- 38.** In an optical fiber, the transmission of light from one end to other is the result of
 a) interference b) diffraction
 c) refraction d) repeated total internal reflection
- 39.** A convex lens can give virtual image of a real object when an object is
 a) at the focus b) at infinity
 c) beyond focus d) between pole and focus
- 40.** The minimum value of charge on any charged body may be
 a) 1.6×10^{-19} C b) 1 C c) 1 μ C d) 4.8×10^{-12} C
- 41.** Which of the following is the unit of electric charge
 a) Coulomb b) Newton c) Volt d) Ampere
- 42.** If a ball is released from a bus, the ball will appear to hit the ground following a.....path.
 a) circular b) parabolic c) straight d) hyperbolic
- 43.** Rocket works on a principal conservation of
 a) mass b) energy
 c) angular momentum d) linear momentum
- 44.** The action and reaction of third law of motion
 a) must act upon same body
 b) need not be equal in magnitude but must have same line of action
 c) must act upon different bodies
 d) must be equal in magnitude but need not have same line of action
- 45.** A body at rest may have
 a) energy b) momentum c) speed d) velocity
- 46.** Which of the following state passes greater P.E.
 a) solid b) liquid c) gas d) none
- 47.** The dimensional formula for force is
 a) $[MLT^{-2}]$ b) $[MLT^{-1}]$ c) $[ML^{-1}T^1]$ d) $[ML^2T^2]$
- 48.** The position of alkaline earth metal is
 a) I A b) II A c) III A d) IV A

49. In modern periodic table, the elements placed in VIIA are
 a) Halogen b) alkaline earth metal
 c) alkali metal d) inert gas
50. In the decomposition of limestone, $\text{CaCO}_3 \rightarrow \text{A} + \text{CO}_2$ A is also called as:
 a) Lime water b) Slaked lime
 c) quick lime d) milk of lime
51. Bauxite is used to extract:
 a) Cu b) Al c) Fe d) Zn
52. Which alkali metal gives golden yellow color to the flame?
 a) Na b) K c) Rb d) Fr
53. In the Haber's synthesis of ammonia, the ratio of N_2 and H_2 is
 a) 1:1 b) 1:2 c) 1:3 d) 1:4
54. Which color is imparted to the glass by using cuprous oxide?
 a) Black b) Purple c) Red d) Green
55. In which of the following glasses, boric oxide is used?
 a) Silica b) borosilicate c) water d) ordinary
56. $-\text{COOH}$ is the functional group of
 a) Carboxylic acid b) Ester c) alcohol d) Ketone
57. The reaction between strong acid and strong base gives:
 a) acidic salt b) basic salt c) both a and b d) Neutral salt
58. Which of the following is basic oxide?
 a) CO_2 b) Na_2O c) MgO d) both b and c
59. The slaked lime is:
 a) MgCl_2 b) CaO c) $\text{Ca}(\text{OH})_2$ d) $\text{Mg}(\text{OH})_2$
60. Which of the following is bio-degradable?
 a) plastic b) detergents c) pesticides d) soap

SUBJECT: MATHEMATICS

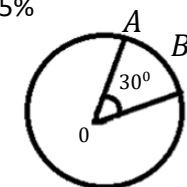
F.M.: 40

P.M.: 20

61. What is the average (arithmetic mean) of the measures of five angles in a pentagon?
 a) 36^0 b) 72^0 c) 92^0 d) 100^0
62. Find the LCM of a^2b and a^2b^2 .
 a) ab b) a^2b c) a^2b^2 d) a^4b^3
63. What is the square root of $9 + 4\sqrt{5}$?
 a) $3 + 2\sqrt{5}$ b) $2 + \sqrt{5}$ c) $3 + 4\sqrt{5}$ d) None of above

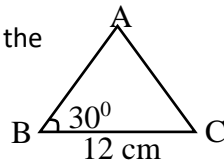
64. If $a + b = 3(c + d)$, Which of the following is the average (arithmetic mean) of a, b, c and d?
 a) $\frac{c+d}{4}$ b) $\frac{3(c+d)}{4}$ c) $\frac{c+d}{2}$ d) $c + d$
65. If the mean of a and $\frac{1}{a}$ is M then What is the mean of a^3 and $\frac{1}{a^3}$?
 a) $\frac{M(M^2-3)}{3}$ b) M^3 c) $M^3 - 3$ d) $M(4M^2 - 3)$
66. Which of the following sets are equivalent?
 a) ϕ and $\{\phi\}$ b) $\{0\}$ and $\{\phi\}$ c) ϕ and $\{0\}$ d) None
67. If $\text{£}1 = \text{Rs } 135$ and $\text{\$}1 = \text{Rs } 105$ then convert $\text{£}63$ into dollar.
 a) $\text{\$ } 63$ b) $\text{\$ } 30$ c) $\text{\$ } 81$ d) $\text{\$ } 36$
68. The compound interest compounded half yearly is calculated by
 a) $P \left(1 + \frac{R}{100}\right)^T$ b) $P \left[\left(1 + \frac{R}{100}\right)^T - 1\right]$
 c) $P \left(1 + \frac{R}{200}\right)^{2T}$ d) $P \left[\left(1 + \frac{R}{200}\right)^{2T} - 1\right]$
69. Find the compound interest on Rs 32000 at 20% p.a for 1 year compounded half yearly.
 a) Rs. 6320 b) Rs. 6720 c) Rs. 6400 d) Rs. 6520
70. What single discount is equivalent to two successive discounts of 10% and 15%?
 a) 23% b) 23.5% c) 24% d) 24.5%

71. The radius of the circle with centre O is 6. The length of its arc ABC i.e. \widehat{ABC} is
 a) π b) 2π
 c) 1 d) 2

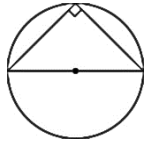


72. A sector of a circle has a radius of 8 and an area of 8π . What is the arc length of the sector?
 a) π b) 2π c) 4π d) 6π
73. Find the LCM of a^2b and a^2b^2 .
 a) ab b) a^2b c) a^2b^2 d) a^4b^3
74. The HCF of $x^3 + \frac{1}{x^3}$ and $x^4 + 1 + \frac{1}{x^4}$ is
 a) 1 b) $x + \frac{1}{x}$ c) $x^2 + 1 + \frac{1}{x^2}$ d) $x^2 - 1 + \frac{1}{x^2}$
75. What value of x, $\frac{4}{3x-6}$ is undefined?
 a) 0 b) 1 c) 2 d) 3

76. $0.\bar{6} + 0.\bar{7} + 0.\bar{8} = ?$
 a) $2.\bar{3}$ b) $2.\bar{1}$ c) $2.\bar{2}$ d) None
77. Solve: $\sqrt[4]{2x-1} = -1$
 a) 1 b) 2 c) 3 d) No solution
78. A has 6 more marbles than B. If B gives 2 marbles to C then B buys 5 new marbles, how many more marbles does A have than B?
 a) 3 b) 4 c) 5 d) 6
79. Which of the following statements is true?
 a) $-\sqrt{(-3)^2} < 0$ b) $(-1)^{87} = -1$
 c) $\sqrt{16} = 4$ d) All of above
80. The quadratic equation whose roots are $(3 + \sqrt{5})$ and $(3 - \sqrt{5})$ is
 a) $x^2 - 6x + 2 = 0$ b) $x^2 - 4x + 6 = 0$
 c) $x^2 - 6x + 4 = 0$ d) $x^2 + 6x + 4 = 0$
81. If $x = 6 + \sqrt{35}$ then the value of $x^2 + \frac{1}{x^2}$ is
 a) 241 b) 284 c) 142 d) 140
82. If $xy > 0$ and $yz < 0$, which of the following is true?
 a) $xz < 0$ b) $xz > 0$ c) $xz = 0$ d) None of above
83. For what value of x, the equation $ab^{x-2} = ba^{x-2}$ is true?
 a) -3 b) -2 c) 2 d) 3
84. If $\frac{1}{xa} = \frac{1}{y^5}$ and $xy = 1$, what is the value of a?
 a) -2 b) -3 c) -4 d) -5
85. There are two numbers. If we add one to each number, their ratio becomes 2:3. If 1 be decreased from each number, their ratio becomes 1:2. The numbers are
 a) 3,1 b) 1, 3 c) 1,5 d) none of above
86. A perfect cube has surface area 96 cm^2 . What is its volume (in cm^3)?
 a) 64 b) 80 c) 48 d) 96
87. In the given triangle ABC, if the area of ΔABC is 27cm^2 , find the length of AB,
 a) 12 cm b) 6cm
 c) 9cm d) None of above
88. The three distinct point, A,B and C are said to be co-linear if
 a) $AC = AB + BC$ b) slope of AB = slope of BC
 c) Area of $\Delta ABC = 0$ d) All of above



89. What is the maximum value of $y = \sin x$?
 a) -1 b) 1 c) 0 d) ∞
90. A right triangle is inscribed in a circle with an area of $16 \pi \text{ cm}^2$. What is the hypotenuse of the triangle in cm?
 a) 4π b) 4
 c) 8π d) 8
91. Find the probability of occurring squared number or cubed number while drawing a flash card from the set of cards numbered from 3 to 32
 a) $\frac{1}{4}$ b) $\frac{1}{5}$ c) $\frac{1}{2}$ d) $\frac{1}{3}$
92. If $f(x)$ is divided by $(b - ax)$ then the remainder is
 a) $f\left(\frac{b}{a}\right)$ b) $f\left(\frac{a}{b}\right)$ c) $f\left(-\frac{b}{a}\right)$ d) $f\left(-\frac{a}{b}\right)$
93. If the sum of first n positive integers is $\frac{1}{5}$ of the sum of the squares of first n positive integers then n is
 a) 23 b) 14 c) 7 d) 9
94. Which of the following parabola is more narrower?
 a) $y = x^2$ b) $y = \frac{x^2}{2}$ c) $y = 2x^2$ d) $y = \frac{x^2}{4}$
95. What does $\{x: 1 \leq x < 5\}$ represent?
 a) (1, 5) b) [1, 5] c) [1, 5) d) (1, 5]
96. If $A = \begin{pmatrix} 1 & 4 & 0 \\ 2 & 5 & 0 \\ 3 & 6 & 0 \end{pmatrix}$ then determinant of A is
 a) -1 b) 0 c) 1 d) None of above
97. Two circles having centers O and O' touch externally if
 a) $OO' =$ difference of radii b) $OO' =$ sum of radii
 c) $OO' >$ sum of radii d) $OO' <$ sum of radii
98. The minute hand of a clock is 28 cm long. How far does the tip of the minute hand move during 15 minutes?
 a) 28 cm b) 14 cm c) 44 cm d) 22 cm
99. If the sum of position vectors of vertices of a triangle is $6\vec{i} + 9\vec{j}$ then find the position vector of its centroid.
 a) $6\vec{i} + 9\vec{j}$ b) $3\vec{i} + 2\vec{j}$ c) $2\vec{i} + 3\vec{j}$ d) None of above
100. What is the combined transformation of the reflection on $x = -2$ followed by the reflection on $y = 3$?
 a) Translation with $\begin{pmatrix} 10 \\ 2 \end{pmatrix}$ b) $R[(0, 0), 180^\circ]$
 c) $R[(-2, 3), 180^\circ]$ d) Reflection on $y = -x$.



"Best Of Luck"

ENTRANCE MODEL QUESTION

SCIENCE

Time: 1 hour 45 min.

SET B

F.M.: 100

Shade the appropriate circle (●) using black ink in the answer sheet.

SUBJECT: ENGLISH **F.M.:20** **P.M.: 10**

1. She has done such work that everyone is talking about her
a) the b) an c) a d) No article
2. Call me tomorrow.
The negative form of the given sentence is.....
a) Don't call me tomorrow.
b) You are not allowed to call me tomorrow.
c) Don't let me call tomorrow.
d) None of the above options.
3. Everything is great.....?
a) isn't it? b) are they? c) aren't they? d) is it?
4. Neither my friends nor Ito be blamed.
a) am b) are c) aren't d) am not
5. We used to talk on the phone2 am.
a) in b) for c) till d) at
6. Bir's mother raised her son all alone.
The passive voice of the given sentence is.....
a) Her son was raised all alone by Bir's mother.
b) Her son was being raised all alone by Bir's mother.
c) Bir was raised all alone by his mother.
d) Bir was being raised all alone by his mother.
7. Jiya said to me, "Would you mind passing me the newspaper?"
a) Jiya asked me if I would mind passing her the newspaper
b) Jiya asked me if I would pass her the newspaper.
c) Jiya told me if I would mind passing her the newspaper.
d) Jiya requested me to pass her the newspaper.
8. The early 1990s,we started the project, was a very challenging time for us
a) what b) when c) that d) which
9. Someone has called for Rajnish. I

- a) So have b) So did c) Also have d) Also did
10. These kids are to understand the conflict.
a) too naive b) naive c) very naive d) properly naive
11. She came to the party she had an important meeting.
a) because b) even though c) but d) in spite of
12. Do you remember Ramita, Barsha, you and I have taken the decision?
a) themselves b) yourselve c) myself d) ourselves
13. Harimaya had her maid..... her house?
a) cleaned b) clean c) cleaning d) to clean
14. If you had informed me about your problem, I you.
a) would have helped b) would help
c) could help d) must have helped
15. By the end of 2025, sheher first novel.
a) will be published b) will have published
c) will publish d) will have been published
16. This journey won't be a piece of cake for you. The idiom 'a piece of cake' means
a) terrible b) tasty c) difficult d) easy and pleasant
17. The synonym of 'tranquility' is
a) disturbance b) terror c) dangerous d) calmness
18. One of the best Nepali films I have ever watched 'Jaari'
a) is b) are c) has been d) have been
19. This is the first week of my job. I am glad that everything is running.....
a) smoothly b) peacefully c) easily d) calmly
20. The plural form of 'calf' is.....
a) Calfs b) Calfvs c) Calves d) calf

SUBJECT: SCIENCE **F.M.:40** **P.M.:20**

21. Insects are called arthropods, where arthro refers to.
a) Jointed b) False c) Compound d) Spiny
22. Pisces are generally.
a) Poikilothermic and oviparous b) Poikilothermic and viviparous
c) Homoiothermic and oviparous d) Homoeothermic and viviparous
23. Temporary finger like extensions on amoeba are called.
a) Cell membrane b) Cell wall c) Pseudopodia d) Cilia

- 24.** Starfish belongs to
 a) Annelia b) Protista
 c) Echinodermata d) Coelenterate
- 25.** Plants having vascular tissue and seeds but not fruit.
 a) Angiosperm b) Pteridophytes
 c) Bryophytes d) Gymnosperms
- 26.** Chlorophyll in photosynthesis is used for.
 a) Absorbing light b) Breaking down water molecule
 c) No function d) Reduction of CO₂
- 27.** Phenotype ratio in Mendel's dihybrid cross is
 a) 1:2:1 b) 9:3:3:1 c) 3:1 d) 1:2:1:2:4:2:1:2:1
- 28.** In comparison to red blood cells, white blood cells do not possess.
 a) Nucleus b) Protein
 c) Hemoglobin d) None of the above
- 29.** If a number of chromosome in a somatic cell is 24 then the number of chromosome in pollen grain is
 a) 12 b) 24 c) 36 d) 48
- 30.** Storage food material found in algae is
 a) Glucose b) Sucrose c) Cellulose d) Starch
- 31.** Which of the following fruits is produced by parthenocarpy?
 a) Brinjal b) Apple c) Banana d) Jackfruit
- 32.** Pneumatic bones are present in
 a) Fish b) Reptile c) Bird d) Mammal
- 33.** The full form of UV rays is.
 a) Ultraviolet b) Ultra-violent
 c) Ultra valve d) Ultimate violet
- 34.** Which of the following statements is not true for plastic waste?
 a) Can be used to make compost b) It lasts for a longer period of time
 c) Toxic fumes are produced when burnt d) All of the above
- 35.** The position of alkaline earth metal is
 a) I A b) II A c) III A d) IV A
- 36.** The electronic configuration of an element is [Ar] 3d⁶4s². The element is :
 a) Fe b) Cu c) Mn d) Cr
- 37.** The reaction, AgNO₃ + NaCl → AgCl + NaNO₃ is
 a) Neutralization b) decomposition
 c) single displacement d) double displacement
- 38.** Galena is the ore of
 a) Pb b) Cu c) Hg d) Fe
- 39.** Brass is an alloy of
 a) Cu and Zn b) Cu and Fe c) Zn and Fe d) Cu and Mg
- 40.** The producer gas is
 a) CO + H₂ b) CO + N₂ c) CO + O₂ d) CO + H₂O
- 41.** To impart red color in the glass, the metallic oxide used is
 a) Cupric oxide b) Cuprous Oxide c) Chromium Oxide d) Both a and b
- 42.** In the mortar, the ratio of cement and sand is
 a) 1: 1 b) 1: 2 c) 1: 3 d) 1: 4
- 43.** Which of the following element is tetravalent?
 a) Na b) C c) Al d) K
- 44.** The milk of magnesia is
 a) Mg(OH)₂ b) MgSO₄ c) MgCl₂ d) MgO
- 45.** The slaked lime is:
 a) MgCl₂ b) CaO c) Ca(OH)₂ d) Mg(OH)₂
- 46.** Glycerol is also called as:
 a) phenol b) methanol c) glycerine d) glycol
- 47.** The Nature of ZnO is
 a) acidic b) basic c) amphoteric d) neutral
- 48.** When water is heated from 0°C to 10°C, its volume
 a) increase b) decrease
 c) remains the same d) first decrease than increase
- 49.** A cooking pot should have
 a) high specific heat and low conductivity
 b) high specific heat and high conductivity
 c) low specific heat and low conductivity
 d) low specific heat and high conductivity
- 50.** Which of the following is derived unit?
 a) mass b) velocity c) length d) time
- 51.** If electric field is uniform, then the electric lines of force are
 a) divergent b) convergent c) circular d) parallel
- 52.** SI unit of temperature is
 a) Kelvin b) Degree Celsius
 c) Degree Fahrenheit d) Degree Reaumur

53. If a ball is released from a bus, the ball will appear to hit the ground following a.....path.
 a) circular b) parabolic c) straight d) hyperbolic
54. Rocket works on a principal conservation of
 a) mass b) energy
 c) angular momentum d) linear momentum
55. The temperature of gas is measure of
 a) average kinetic energy of the gas b) average potential energy of gas
 c) distance between its molecules d) size of the molecules
56. Temperature of 27°C into Kelvin scale is
 a) 300 kelvin b) 295 Kelvin c) 298 kelvin d) 30 kelvin
57. A convex mirror gives an image, which is
 a) real and inverted b) virtual and erect
 c) real and magnified d) virtual and magnified
58. The image of distant object formed by a long – sighted person is
 a) at the retina b) behind the retina
 c) in front of the retina d) no image is formed
59. Two magnetic field lines:
 a) Intersect at the neutral point
 b) Never intersect each other
 c) Intersect near the north -pole or south pole
 d) Intersect at the midpoint of the magnet
60. A semiconductor has generally valance electrons
 a) 2 b) 3 c) 6 d) 4

SUBJECT: MATHEMATICS

F.M.: 40

P.M.: 20

61. If $\text{mean} = [3 \text{ median} - \text{mode}] \cdot y$ then value of y is
 a) 2 b) $\frac{1}{4}$ c) $\frac{1}{2}$ d) 4
62. The mean of first n natural numbers is
 a) $\frac{n+1}{2}$ b) $\frac{n(n+1)}{2}$ c) $\frac{n}{2}$ d) $\frac{n^2+1}{2}$
63. Subi's average (arithmetic mean) on 4 tests is 80. What does she need on his fifth test to raise his average to 84?
 a) 82 b) 84 c) 92 d) 100

64. The number of all possible subsets of $\{\{a\}, \{b, c\}, \{a, b, c\}\}$ is
 a) 4 b) 6 c) 8 d) 64
65. If Rs 1800 = \$ 25 and Rs 1584 = £12, how many pounds (£) can be exchanged from \$ 33?
 a) £ 18 b) £ 25 c) £ 33 d) None
66. A sum of money in simple interest doubles itself in 6 years. In how many years, it becomes 5 times?
 a) 12 years b) 24 years c) 10 years d) 15 years
67. At what rate of compound interest will a sum of money become $\frac{125}{64}$ times of itself in 3 years?
 a) 10% b) 15% c) 20% d) 25%
68. The amount of money return back to the tourists while leaving the country is called?
 a) VAT amount b) Discount amount
 c) Profit amount d) Loss amount
69. What is the length of a diagonal of a cube whose edges are 1?
 a) 1 b) 2 c) $\sqrt{3}$ d) $\sqrt{2}$
70. What is the volume of a right circular cylinder with a radius of 2 and a height of 4?
 a) 8π b) 12π c) 16π d) 32π
71. HCF of two numbers is 101 and their sum is 1212. How many pairs of such numbers are possible?
 a) 3 b) 2 c) 1 d) None
72. The product of two expressions is $x(y+z)^2(y-z)$ and their HCF is $(y+z)$. What is their LCM?
 a) $(y^2 - z^2)$ b) $x(y^2 - z^2)$ c) $(y+z)^3$ d) None
73. $0.\overline{47} = ?$
 a) $\frac{47}{99}$ b) $\frac{47}{90}$ c) $\frac{46}{90}$ d) $\frac{47}{100}$
74. What value of y makes the expression $\frac{x^2y}{2x-y}$ undefined?
 a) 0 b) 1 c) x d) $2x$
75. The rationalizing factor of $\sqrt[5]{16}$ is
 a) $\sqrt{2}$ b) $\sqrt[5]{16}$ c) $\sqrt[5]{2}$ d) $\sqrt{16}$

76. If $x^y = 64$ and x and y are positive integers, which of the following could be the value of $x + y$?

- a) 2 b) 6 c) 7 d) 12

77. If x and y are integers such that $x > y > 1$, which of the following can not be a multiple of either x or y ?

- a) $x - 1$ b) $y + 1$ c) $y - 1$ d) $x + y$

78. The number of distinct prime factors of 27 is

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

79. The graphs of the equation $3x + 6y = 9$ and $9x + 18y = 27$ are

- a) intersecting b) parallel c) coincident d) perpendicular

80. The value of c for which the equation $2x^2 - 9x + c = 0$ have equal roots is

- a) $\frac{81}{8}$ b) $\frac{8}{81}$ c) 9 d) 3

81. If $x + \frac{1}{x} = 15$, the value of $x^2 + \frac{1}{x^2}$ is

- a) 227 b) 225 c) 240 d) 223

82. Which of the following is equal to $x^{\frac{3}{2}}$?

- a) $x^2\sqrt{x}$ b) $x\sqrt{x}$ c) $\sqrt[3]{x^2}$ d) $(x^3)^2$

83. If $x = 2^{\frac{1}{3}} + 2^{\frac{2}{3}}$, what is the value of $x^3 - 6x$?

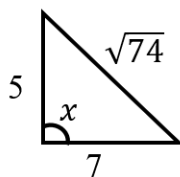
- a) 2 b) 4 c) 6 d) 18

84. If a and b are the lengths of the legs of a right-angled triangle whose hypotenuse is 10 and whose area is 20, what is the value of $(a + b)^2$?

- a) 100 b) 120 c) 140 d) 180

85. What is the value of x ?

- a) 30°
b) 60°
c) 45°
d) 90°



86. The circle is inscribed in the square. The area of the circle is 25π . The area of the square is

- a) 625 b) 100 c) 50 d) 2500

87. What is the area of regular hexagon with side length 2?

- a) $2\sqrt{3}$ b) $2\sqrt{6}$ c) $6\sqrt{2}$ d) $6\sqrt{3}$

88. A circle has an area of 4π . If the radius was doubled, the new area of the circle would be how many times the original area?

- a) 2 b) 3 c) 4 d) 5

89. The value of probability ranges from

- a) 0 to 1 b) -1 to 1 c) 0.5 to 1 d) 0.1 to 1

90. The probability of getting a bad egg in a batch of 400 is 0.035. How many bad eggs are there likely to be in a batch?

- a) 10 b) 14 c) 28 d) 40

91. What is the pre-image of 2 in the function $f(x) = \sqrt[3]{x}$?

- a) 2 b) 8 c) 6 d) 1

92. If polynomial $q(x)$ is divided by $(ax + b)$, what will be its remainder?

- a) $q\left(\frac{a}{b}\right)$ b) $q\left(\frac{b}{a}\right)$ c) $q\left(-\frac{a}{b}\right)$ d) $q\left(-\frac{b}{a}\right)$

93. The sum of two digit numbers which are divisible by 5 is

- a) 950 b) 1050 c) 945 d) 1200

94. What is the range of the parabola $y = x^2 - 4x + 3$

- a) $[-1, -\infty)$ b) $[-1, \infty)$ c) $[-2, \infty)$ d) $[-2, -\infty)$

95. $\lim_{x \rightarrow 2} 7 = ?$

- a) 0 b) 2 c) 1 d) 7

96. A square matrix $A = (a_{ij})$ is said to be lower triangular matrix if the element $a_{ij} = 0$ for,

- a) $i \leq j$ b) $i > j$ c) $i < j$ d) None

97. If $c \neq 0$ and the slope of the line passing through $(-c, c)$ and $(3c, a)$ is 1, which of the following is an expression for a in terms of c ?

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

98. $\sqrt{2 + \sqrt{2 + \sqrt{2 + 2\cos 8\theta}}} = ?$

- a) $2 \sec \theta$ b) $2 \cos \theta$ c) $2 \tan \theta$ d) None

99. If $|\vec{a} + \vec{b}| = |\vec{a} - \vec{b}|$, which of the following is true?

- a) $\vec{a} \cdot \vec{b} = 0$ b) $\vec{a} = \vec{b}$ c) $\vec{a} = k\vec{b}$ d) $\vec{a} = -\vec{b}$

100. If r_1 is the reflection about a line $x = y$ and r_2 is the reflection about the y -axis, what does $r_1 r_2$ represent?

- a) $R[O, +90^\circ]$ b) $R[O, -90^\circ]$ c) $R[O, -180^\circ]$ d) $R[O, +180^\circ]$

"Best of Luck"

Shade the appropriate circle (●) using black ink in the answer sheet.

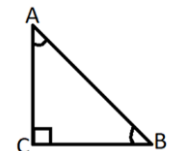
SUBJECT: MATHEMATICS

F.M.: 40

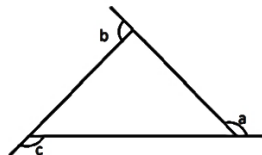
P.M.: 20

1. If x is an integer such that $0 \leq x \leq 20$, for how many values of x is $\frac{20}{x}$ an integer?
 a) 4 b) 6 c) 8 d) 10
2. If $x + y = 8$, $y + z = 11$ and $z + x = 5$, What is the value of $x + y + z$?
 a) 25 b) 12 c) 440 d) 220
3. The graphs of the equation $3x + 6y = 9$ and $9x + 18y = 27$ are
 a) intersecting b) parallel c) coincident d) perpendicular
4. The value of c for which the equation $2x^2 - 9x + c = 0$ have equal roots is
 a) $\frac{81}{8}$ b) $\frac{8}{81}$ c) 9 d) 3
5. If $5000 = 2^a 5^b$ and a and b are integers, what is $a + b$?
 a) 5 b) 6 c) 7 d) 8
6. If 12^x is odd and x is integer, what is the value of x^{12} ?
 a) 0 b) 1 c) -1 d) It can not be determined
7. The sum of squares of two consecutive natural number is 841. The smaller number is
 a) 20 b) 21 c) 19 d) none
8. What will be the ratio of $\frac{\pi^c}{3}$ and 10^0 ?
 a) 6 : 1 b) 1 : 6 c) 6 : 5 d) 5 : 6
9. In the data set $\{2, 5, 7, 8, x\}$, the arithmetic mean is same as the median. Determine the value of x .
 a) 8 b) 10 c) 13 d) 15
10. $(\overline{A \cup B})$ is equal to
 a) $\overline{A \cap B}$ b) $\overline{A \cap \overline{B}}$ c) A^c d) U
11. What is the value of n if $\sqrt[n]{a^5} = a^{10}$?
 a) 1 b) 2 c) 5 d) 10
12. If $\sqrt[4]{ax + b} = c$ then the value of x is
 a) c^4 b) $c^4 - b$ c) $\frac{c^4 - b}{a}$ d) $\frac{c^4 - b}{a^4}$
13. Which of the following pair is co-prime?
 a) (3, 9) b) (3, 7) c) (6, 2) d) (5, 25)

14. If $a = 16b$ and b is a prime number greater than 2, how many positive distinct factors does a have?
 a) 5 b) 10 c) 15 d) 20
15. Which one of the following is median?
 a) 5th decile b) 50th percentile c) 2nd quartile d) All of the above
16. The standard deviation of 25 numbers is 40. If each of the number is increased by 5 then the new standard deviation is
 a) 40 b) 45 c) $\frac{45}{2}$ d) None
17. If a rectangle is rotated about its length, which solid is formed?
 a) Cube b) Cuboid c) Cone d) Sphere
18. What is the perimeter of a semi-circle having its radius 'r'?
 a) πr b) $2\pi r$ c) $\pi r + d$ d) $2\pi r + d$
19. HCF of two numbers is 21 and their product is 2646. How many pairs of such numbers are possible?
 a) 3 b) 1 c) 2 d) None
20. What is the probability of getting composite number when a die is rolled one?
 a) $\frac{2}{3}$ b) $\frac{1}{3}$ c) 1 d) $\frac{5}{6}$
21. Find the probability of occurring the letter A or I while drawing a letter card from the cards of the word 'ASSOCIATIVE'.
 a) $\frac{1}{11}$ b) $\frac{2}{11}$ c) $\frac{3}{11}$ d) $\frac{4}{11}$
22. After 10% devaluation of Nepali currency, \$ 2000 can be exchanged by Rs 231000. Find the Nepali rupees equivalent to \$ 1 before devaluation.
 a) Rs. 115.5 b) Rs. 105 c) Rs. 110 d) Rs. 10.5
23. Find the compound interest on Rs 12500 at 8% p.a for 9 months compounded quarterly.
 a) Rs 1020 b) Rs 1428 c) Rs 510 d) None of above
24. What is the half of $\frac{x^2}{8}$?
 a) $\frac{x}{4}$ b) $\frac{x^2}{4}$ c) $\frac{x^2}{16}$ d) All of above
25. If $\frac{a}{b+c} = x$, $\frac{b}{c+a} = y$ and $\frac{c}{a+b} = z$ then, find the value of $\frac{1}{1+x} + \frac{1}{1+y} + \frac{1}{1+z}$
 a) 0 b) 1 c) 2 d) 3
26. ΔABC has an area 36. If side AC is twice as long as side BC, what is the length of AB?
 a) 6
 b) 12
 c) $6\sqrt{5}$
 d) 18



27. The point of intersection of angle bisectors of all three-interior angle of a triangle is called as
 a) centroid b) orthocenter c) incenter d) Circum-center.
28. A sector of a circle has a central angle of 270° . If the circle has a radius of 4, what is the area of the sector?
 a) 4π b) 8π c) 12π d) 16π
29. If the principal is one third the compound interest, how many times of compound interest is the compound amount?
 a) 3 times b) $\frac{1}{3}$ times c) $\frac{2}{3}$ times d) $\frac{4}{3}$ times
30. If a line is perpendicular to x-axis, its slope (m) is
 a) 0 b) 1 c) $\sqrt{3}$ d) undefined
31. If $\vec{a} \cdot \vec{b} = -|\vec{a}| \cdot |\vec{b}|$ then angle between \vec{a} and \vec{b} is
 a) 0° b) 60° c) 180° d) 90°
32. If $q \operatorname{cosec} \theta = p$ and θ is acute, then what is the value of $(\sqrt{p^2 - q^2}) \tan \theta$?
 a) p b) q c) pq d) $\sqrt{p^2 + q^2}$
33. If positive integer a is increased by 20%, decreased by 25% and then increased by 60%, the resulting number is what percent of a?
 a) 65% b) 80% c) 144% d) 150%
34. The range of the function $y = \cos x$ is
 a) (-1,1) b) [-1, 1) c) (-1, 1] d) [-1, 1]
35. For what value of m if (x-1) is a factor of $x^3 - 3x^2 + m + 1$?
 a) 0 b) 1 c) 2 d) None
36. If 1, x, y, z, 16 are in G.P, what is the value of $x + y + z$?
 a) 8 b) 12 c) 14 d) 16
37. The corresponding equation of $2x - y \leq 0$ is
 a) Parallel to x-axis b) Parallel to y-axis
 c) Passing through (0,0) d) All of above
38. Write the point where the function $f(x) = \frac{1}{x+1}$ is discontinuous?
 a) $x = 1$ b) $x = -1$ c) $x = 0$ d) $x = c$
39. Find the value of $a + b + c$ from the figure alongside.



40. A square matrix $A = (a_{ij})$ is said to be upper triangular matrix if the element of $a_{ij} = 0$ for
 a) $i \leq j$ b) $i > j$ c) $i < j$ d) $i \geq j$

41. One likes to do it oneself,?
 a) doesn't he b) don't they c) does one? d) doesn't one?
42. When I asked her, "Did you have a good journey?" She replied, "Yes I a good journey."
 a) had had b) have c) have had d) had
43. He generally sings Nepali songs. The underlined word is
 a) a noun b) a verb c) an interjection d) an adverb
44. She won't help us.....we request her.
 a) because b) since c) if d) unless
45. The plural form of analysis is
 a) analysis b) analyses c) analyses d) analys
46. That girl is too.....to be a model.
 a) tall b) short c) tall enough d) short enough
47. 'I love my children to the moon and back.' It means
 a) I love my children unconditionally.
 b) I love my children a lot.
 c) I love my children till the moon stays.
 d) I love my children as I love to see the moon.
48. She does not want to go for any act of retaliation. The underlined word cannot be replaced by.....
 a) reprisal b) vengeance c) revenge d) forgiveness
49. He stopped.....chocolates as he promised to her daughter
 a) eating b) eaten c) eat d) to eat
50. She has been waiting for her son for eons. The underlined word is.....
 a) noun b) verb c) adverb d) preposition
51. The negative form of 'Some of them are in the hall' is.....
 a) Nobody is in the hall. b) None of them are in the hall.
 c) Some of them are not in the hall. d) No one from them are in the all.
52. What would you be doing there if youselected for the job?
 a) had been b) have been c) are d) were
53. She said to him, "....."is the direct speech of 'She asked him whether she could use his phone to call her parents'.
 a) I can use your phone to call my parents.
 b) Can I use your phone to call my parents?
 c) Can I use his phone to call her parents?
 d) Could he allow her to use his phone to call her parents?

83. Which of the following is not alkali metal?
 a) Na b) Ca c) K d) Fr
84. The specific heat of substance depends on a substance
 a) heat supplied b) mass
 c) material of substance d) temperature difference
85. The twinkling of distant stars is because
 a) stars are non-luminous body
 b) stars do not emit light continuously
 c) of fluctuation of refractive index of earth atmosphere
 d) of dispersion of light by water droplets in atmosphere
86. The chief ore to extract the copper is
 a) Copper pyrite b) Cuprite c) azurite d) malachite
87. Abnormal and uncontrolled mitosis in an organ will result in:
 a) new organ b) Cancer c) Zygote d) gamete
88. Which of following is not unit of length
 a) radian b) angstrom c) light year d) micron
89. A frictionless machine has an efficiency of
 a) 100 % b) < 100 % c) 200 % d) 75 %
90. Transpiration take place through
 a) Ostiole b) Stomata c) Hydathode d) Wound
91. In Rhizopus, thread-like structures bearing sporangia at their tips are called.
 a) Filaments b) Hyphae c) Rhizoids d) Roots
92. RNA contains repeating units of
 a) deoxyribonucleotides b) ribonucleotides
 c) deoxyribonucleosides d) ribonucleosides
93. The natural place of an organism or community is known as
 a) Niche b) Biome c) Habitat d) Habit
94. How many isotopes does Hydrogen have?
 a) 1 b) 2 c) 3 d) 4
95. In myopia image is formed
 a) at the retina b) behind the retina
 c) in front of retina d) no image is formed
96. The group of molluscs, which possess eyes like vertebrates.
 a) Bivalvia b) Gastropoda c) Cephalopoda d) pelecypoda
97. Earthworms belongs to
 a) coelenterate b) Porifera c) Annelida d) Platyhelminthes
98. Genotype ratio in Mendel's Dihybrid cross is
 a) 1:2:1 b) 3:1 c) 9:3:3:1 d) 1:2:2:1
99. Double fertilization is the characteristic of
 a) Algae b) Gymnosperms c) Bryophyta d) Angiosperms
100. Which of the following is meristematic tissue
 a) Cambium b) Parenchyma c) Collenchyma d) Sclerenchyma

"Best of Luck"

Shade the appropriate circle (●) using black ink in the answer sheet.

Subject: Science

F.M.: 40

1. What is the colour of blue litmus paper in acidic solution?
a. red b. blue c. yellow d. colourless
2. The reaction between strong acid and weak base gives:
a. acidic salt b. basic salt c. neutral salt d. normal salt
3. ZnO is an example of:
a. amphoteric oxide b. acidic oxide
c. neutral oxide d. basic oxide
4. Which metal can be extracted from bauxite?
a. Fe b. Zn c. Al d. Cu
5. Pneumatic bones are found in
a. reptiles b. aves c. mammals d. insects
6. Which of the following statement is correct?
a. Na is more reactive than K b. Ca is less reactive than Mg
c. O has larger atomic size than S d. none of the above
7. Swimming is possible on account of
a. law of gravitation b. first law of motion
c. second law of motion d. third law of motion
8. What is the pH value of products of neutralization reaction?
a. 5 b. 6 c. 7 d. 8
9. A spring balance carrying mass 20kg in a lift registered 200N. During free fall of lift, balance records
a. 200N b. 20N c. 200N d. zero
10. What is the molecular weight of Na₂SO₄?
a. 140 b. 141 c. 142 d. 143
11. What is the boiling point of mercury?
a. -39^oc b. 100^oc c. 212^oc d. 357^oc
12. Phenotypic ratio of Mendel's monohybrid cross is
a. 9:3:3:1 b. 1:2:1 c. 3:1 d. 3:2
13. The frequency of direct current is
a. 0Hz b. 100Hz c. 1000Hz d. 10000Hz
14. *Rhizobium*, (a bacterium) takes part in
a. N₂ assimilation b. nitrification c. denitrification d. N₂ fixation
15. Ozone layer is present in
a. troposphere b. stratosphere c. mesosphere d. thermosphere
16. 1 pascal is equal to
a. 1 Dyne/cm² b. 1 Newton/m² c. 1 Newton/m d. 1 Joule/m
17. – COOH is the functional group of :
a. alcohol b. ether c. aldehyde d. carboxylic acid
18. The reaction between ammonia and carbon dioxide gas gives:
a. urea b. dry ice c. liquor ammonia d. none of these
19. CuSO₄.5H₂O is the molecular formula of :
a. green vitriol b. blue vitriol c. white vitriol d. none of these
20. Which colour get imparted in the glass by using chromium oxide?
a. Black b. Blue c. Green d. Yellow
21. Female reproductive part of angiospermic flower is
a. corolla b. androecium c. calyx d. gynoecium
22. Which one of the following is a form of energy?
a. pressure b. momentum c. light d. power
23. Gametophyte of fern is
a. spore b. gamete c. plant body d. prothallus
24. Which group of plants have naked seeds?
a. Bryophytes b. Pteridophytes
c. Gymnosperms d. Angiosperms
25. Which doesn't belong to primary consumer of pond ecosystem?
a. Phytoplanktons b. Zooplanktons c. Crustaceans d. Mosquito
26. The non-living component of blood is
a. plasma b. corpuscles c. stroma d. matrix
27. The change in Celsius scale corresponding to the change in Fahrenheit scale of 20^oF is
a. $\frac{50}{9}$ b. 100^oC c. $\frac{100}{9}$ °C d. $\frac{200}{9}$ °C
28. O₂ transportation from lungs to the body tissues is the function of
a. erythrocytes b. leucocytes c. thrombocytes d. platelets
29. A concave lens give an image which is
a. real and erect b. real and inverted
c. virtual and erect d. virtual and inverted
30. The thick paste of cement and sand in the ratio of 1:3 with water is called
a. cement concrete b. cement clinker
c. cement mortar d. cement powder
31. Which of the following is not unit of length?
a. radius b. angstrom c. light year d. micron
32. Which of the following is not unit of energy?
a. kwh b. nm c. kgms⁻¹ d. joule
33. A person suffering from hypermetropia requires which type of spectacle lenses?
a. concave b. convex c. concave-concave d. cylindrical
34. Growth movement in plants in response to external stimulus is known as
a. taxis b. tropism c. stimulation d. reaction
35. Which gland is heterocrine in nature?
a. Thyroid b. Pancreas c. Adrenal d. Pituitary
36. Chromosome divides into two daughter chromosomes in of mitosis.
a. prophase b. metaphase c. anaphase d. telophase
37. Pairing of homologous chromosomes is known as
a. synapsis b. tetrads c. dyads d. crossing over

38. The solution of calcium hydroxide is also called as
 a. quick lime b. slaked lime c. lime water d. both 'b' and 'c'
39. Audible range of frequency is
 a. 20Hz to 20KHz b. 200Hz to 2000Hz
 c. 20Hz to 10KHz d. 2000Hz to 20KHz
40. Which of the following is the unit of electric charge
 a. Volt b. Newton c. Coulomb d. Ampere

SUBJECT: ENGLISH

F.M.:20

41. Choose the correct spelling from the given alternatives.
 a) adminstration b) admistration c) administration d) administraton
42. Choose the correct option that shows the correct order of the phrases to make a sensible sentence. "....."
 P- is over Q- I have to R- after the break S- meet my friend
 a) PRQS b) PQSR c) QSRP d) RSQP
43. Bill hasn't had his breakfast,?
 a) hasn't he b) has he c) have he d) haven't he
44. Select the word which is similar in meaning to the word "ADEQUATE".
 a) extra b) sufficient c) maximum d) less
45. Choose the one which best expresses the meaning of the idiom in italics in the sentence "The victory of Nepal over Namibia hit the headlines last month."
 a) changed the headline b) got into the news
 c) spoilt the headline d) news with no headline
46. Choose the correct sentence.
 a) Tom had a tooth filled. b) Tom have a tooth filled.
 c) Tom had a tooth fill. d) Tom had a tooth to filled.
47. I and my brother went to meet her.....
 a) myself b) himself c) ourselves d) ownself
48. What is the passive form of: There is no money to waste.
 a) There has been no money to waste. b) There is not money to wasted.
 c) There wasn't money to be wasted. d) There is no money to be wasted.
49. The box weighs 100 kg.
 a) for b) above c) after d) at
50. He done this task yet.
 a) did not b) does not c) has not d) had not
51. I bought a car, I was in financial crises.
 a) why b) that c) then d) when
52. The indirect form of: Ann asked 'Which team is winning?' is
 a) Ann asked which team has been winning.
 b) Ann said which team is winning.
 c) Ann told to me which team was winning.
 d) Ann asked which team was winning.

53. You are very young. You can't have a front door key. Which sentence has the same meaning?
 a) You are too young to have a front door key
 b) You are too old to have a front door key
 c) You are not old to have a front door key
 d) You are not young enough to have a front- door key
54. My sister lives in London
 a) so did mine b) mine also c) so does mine d) mine did also
55. All is well,?
 a) is there b) isn't it c) aren't they d) are they
56. The feminine gender of the word "HEADMASTER" is.....
 a) headmonster b) headteacher
 c) headmistress d) headteacheress
57. I will get you my work.
 a) does b) to do c) do d) did
58. If I find your passport I you at once.
 a) phoned b) will phone c) will have phoned d) phone
59. He comes here everyday. What is the negative form of this sentence?
 a) He didn't come here everyday. b) He doesn't come here everyday.
 c) He not came here everyday. d) He does not comes here everyday.
60. If the plural of man is men, the plural of sheep is
 a) sheep b) sheeps c) sheeves d) sheepes

Subject: Mathematics

F.M.: 40

61. If $x - \frac{1}{x} = 10$, find the value of $x + \frac{1}{x}$
 a. 104 b. $2\sqrt{26}$ c. 100
 d. $\sqrt{26}$
62. Find the sum of money when increases $\frac{1}{10}$ of itself every year amount to Rs. 600 in 5 years.
 a. Rs 380 b. Rs. 280 c. Rs.480 d. Rs.400
63. A man bought 5 oranges for a rupee. How many for a rupee should he sell to gain 25%?
 a. 4 b. 6 c. 3 d.9
64. If $4A = 5B$ and $6B = 7C$, find A:B:C.
 a. 28:30:35 b. 35:30:28 c. 35:28:24 d. None
65. Let U be the set of all triangles in a plane and if A is the set of all triangles with at least one different angle from 60° then A^c is
 a. a set of all right triangles b. a set of all isosceles triangles
 c. a set of all equilateral triangles d. None of these
66. L.C.M of two numbers is 16 times the H.C.F. The sum of LCM and HCF is 850.
 If one number is 50, then what is the other number?
 a. 800 b. 1200 c.1600 d. 2400
67. A colorless cube is painted blue and then cut parallel to sides to form two rectangle solids of equal volume. What percentage of surface area of each of new solids is not painted blue?
 a. 25 b. 16 c. 20 d. 18

94. The value of $\cos\left(22\frac{1}{2}\right)$ is
- a. $\frac{\sqrt{2-\sqrt{2}}}{2}$ b. $\frac{\sqrt{2+\sqrt{2}}}{2}$ c. $\sqrt{2}-1$ d. None
95. If $f(4x+5) = 12x+18$ then find $f(x)$
- a. $3x+3$ b. $\left(\frac{3x+13}{4}\right)$ c. $\left(\frac{12x+18}{4x+5}\right)$ d. $3x$
96. In A.P, 5 times the 5^{th} term is equal to 8 times the 8^{th} term, its 13^{th} term is
- a. 2 b. 1 c. 12 d. 0
97. Which of the following transformation is represented by the matrix $\begin{pmatrix} 1 & 0 \\ 0 & -1 \end{pmatrix}$?
- a. Reflection in y-axis b. Reflection in $x = y$
c. Reflection in x-axis d. Reflection in $y = -x$
98. The maximum value of $\sin x \cdot \cos x$ is
- a. $\sqrt{2}$ b. 1 c. $\frac{1}{2}$ d. None
99. The general eq^n of 2^{nd} degree $ax^2 + 2hxy + by^2 + 2gx + 2fy + c = 0$ represents a circle if
- a. $a = b$ b. $h = 0$ c. both (a) and (b) d. None of above
100. What is the arithmetic mean of 2^{10} and 2^{20} ?
- a. 2^{15} b. $2^5 + 2^{10}$ c. $2^9 + 2^{19}$ d. 2^{29}

Best of Luck

ENTRANCE MODEL QUESTIONS

SCIENCE

Time: 1 hour 45 min.

SET E

F.M.: 100

Shade the appropriate circle (●) using black ink in the answer sheet.

SUBJECT: SCIENCE

F.M.: 40

- Antibody producing blood cells are
 - erythrocytes
 - monocytes
 - neutrophils
 - lymphocytes
- Phenotypic ratio of Mendel's monohybrid cross was
 - 9:3:3:1
 - 1:2:1
 - 3:1
 - 3:2
- Rhizobium*, (a bacterium) takes part in
 - N₂ assimilation
 - Nitrification
 - Denitrification
 - N₂ fixation
- A group of individuals with similar morphological and reproductive characters, capable of inbreeding freely and produce fertile off springs refers to
 - genus
 - species
 - family
 - class
- Sea-horse belongs to class
 - Pisces
 - Amphibia
 - Reptilia
 - Mammalia
- Pneumatic bones are found in
 - reptiles
 - aves
 - mammals
 - insects
- Growth movement in plants in response to external stimulus is known as
 - taxis
 - tropism
 - stimulation
 - reaction
- Male reproductive part of a flower is
 - gynoecium
 - androecium
 - calyx
 - corolla
- Which statement of the following is not true about fern?
 - Fern belongs to division Tracheophyta
 - Underground stem of the fern is called rhizoid.
 - Leaf of fern is feather-shaped and pinnately compound.
 - Leaves, bearing sori, are called sporophylls.
- Head of the virus is enclosed by protein coat known as
 - sheath
 - viroid
 - capsid
 - nucleoid
- Where are RBCs destroyed?
 - bone marrow
 - liver
 - heart
 - kidney
- Chromosome divides into two daughter chromosomes in of mitosis.
 - prophase
 - metaphase
 - anaphase
 - telophase
- Pairing of homologous chromosomes is known as
 - crossing over
 - tetrads
 - dyads
 - synapsis
- The dimension of gravitational constant G is
 - [M⁻¹L³T⁻²]
 - [M⁻¹L³T⁻¹]
 - [M⁻¹L⁻¹T⁻²]
 - [M⁻²L²T⁻²]
- A substance having more specific heat
 - gets heated slowly and store long time
 - gets heated quickly and store long time
 - gets heated quickly and store short time
 - gets heated slowly and store short time
- Which thermometer is used to measure the object having temperature 500°C?
 - Clinical
 - Lab
 - Alcohol
 - Pyrometer
- A convex lens can give virtual image of a real object when an object is
 - at the focus
 - at infinity
 - beyond focus
 - between pole and focus
- A projectile of mass 'm' is fixed with velocity 'u' at an angle ϕ with horizontal. The relation between K.E. and P.E. at the maximum height is
 - K.E. > P.E.
 - K.E. < P.E.
 - K.E. = P.E.
 - depends on both
- Swimming is possible on account of
 - law of gravitation
 - first law of motion
 - second law of motion
 - third law of motion
- Which one of the following is a form of energy?
 - Pressure
 - Momentum
 - Light
 - Power
- A body moves distance of 10m along a straight line under the action of the force 5N, if the work done is 25 Joule, the angle that force makes with direction of motion is
 - 0°
 - 45°
 - 30°
 - 60°
- Which is the most abundant metal in the earth crust?
 - Al
 - Fe
 - Cu
 - Pb
- Isotopes have the same
 - atomic number
 - mass no. and atomic no.
 - neutron number
 - mass number
- A person can't see objects clearly beyond 50cm. The power of the lens to correct the vision is
 - +5D
 - 0.5D
 - 2D
 - +2D
- The three dry cells each of emf 1.5v is connected in parallel. Their equivalent emf will be
 - 1.5v
 - 0.5v
 - 4.5v
 - 2v
- Fleming's left hand rule gives the direction of
 - current
 - field
 - force
 - thumb
- The frequency of Kantipur F.M. is 96.1 MHz. Its wavelength is
 - 2.1m
 - 3.1m
 - 4.1m
 - 5.1m
- Mercury is extracted from
 - cinnabar
 - haematite
 - bauxite
 - cuprite
- The molecular formula of slaked lime is,
 - CaO
 - Ca(OH)₂
 - Mg(OH)₂
 - MgO
- Which of the following is an amphoteric oxide?
 - CO₂
 - NO
 - NO₂
 - ZnO
- The reaction between strong acid and weak base gives:
 - acidic salt
 - basic salt
 - neutral salt
 - Normal salt
- The reaction between ammonia and CO₂ gas gives:
 - urea
 - dry ice
 - liquor ammonia
 - ammonium sulphate

33. Which acid is found in Coca-Cola?
 a. Sulphuric acid b. Nitric acid
 c. Formic acid d. Carbonic acid
34. Dry ice is formed by cooling
 a. CO₂ gas b. O₂ gas c. N₂ gas d. SO₂ gas
35. The molecular formula of Gypsum is
 a. CaSO₄ $\frac{1}{2}$ H₂O b. CaSO₄.H₂O c. CaSO₄.2H₂O d. CaSO₄.3H₂O
36. The nature of soap is:
 a. bio-degradable b. non-biodegradable
 c. easily soluble in hard water d. carbonization
37. Which of the following is an organophosphorus insecticide?
 a. DDT b. BHC c. Baygon d. Malathion
38. MgSO₄.7H₂O is the molecular formula of,
 a. common Salt b. gypsum Salt c. ferrous salt d. epsom Salt
39. The molecular weight of K₂SO₄ is
 a. 171 b. 172 c. 173 d. 174
40. C_nH_{2n+2} is the molecular formula of,
 a. saturated hydrocarbon b. alkene
 c. alkyne d. alcohol

SUBJECT: MATHEMATICS

F.M.: 40

41. If $y^2 = 4$ and $x^2y = 18$, $x + y$ could equal to which of the following values?
 a) -5 b) -1 c) 1 d) 6
42. The average of a set of 18 consecutive integers is 22.5. What is the smallest integer in the set?
 a) 14 b) 16 c) 12 d) 28
43. The factors of $6x^2 + x - 12$ are
 a) $(3x + 4)(2x - 3)$ b) $(3x - 4)(2x + 3)$
 c) $(3x - 4)(2x - 4)$ d) $(3x + 4)(2x + 4)$
44. What must be added to $2x^3 + 3x^2 - 11x - 20$ to make $(x - 2)$ as one of the factors of the polynomial?
 a) 4 b) -4 c) 0 d) 1
45. If $\left(\frac{1}{a} + a\right)^2 = 100$, what is the value of $\frac{1}{a^2} + a^2$?
 a) 10 b) 64 c) 98 d) 100
46. If $a^x = b^y$, which of the following is true.
 a) $x = y$ b) $a = b$ c) $a = b^{\frac{x}{y}}$ d) $a = b^{\frac{y}{x}}$

47. If $n(A) = 75$, $n(B) = 40$ and $B \subseteq A$ find the value of $n(A \cup B)$.
 a) 35 b) 40 c) 75 d) 115
48. The vectors $\vec{a} = 2\vec{i} - 3\vec{j}$ and $\vec{b} = -4\vec{i} + 6\vec{j}$ are
 a) parallel b) perpendicular
 c) coincident d) neither parallel nor perpendicular
49. A function is said to be into if
 a) Range = Co-domain b) Range = Domain
 c) Range \subset Co-domain d) Range \subseteq Co-domain
50. $a^n + b^n$ is divisible by $a + b$
 a) For all value of n b) Only for even value of n
 c) Only for odd value of n d) For no value of n
51. What is the slope of the equation $\frac{x}{b} + \frac{y}{a} = 1$?
 a) a b) b c) $\frac{a}{b}$ d) $-\frac{a}{b}$
52. Inverse of $\begin{pmatrix} 5 & 2 \\ 3 & 1 \end{pmatrix}$ is
 a) $\begin{pmatrix} -1 & 2 \\ 3 & -5 \end{pmatrix}$ b) $\begin{pmatrix} 1 & -5 \\ -2 & -3 \end{pmatrix}$ c) $\begin{pmatrix} 1 & -2 \\ -3 & 5 \end{pmatrix}$ d) $\begin{pmatrix} -1 & 3 \\ 2 & -5 \end{pmatrix}$
53. Find the value of n if the sum of the arithmetic series $2 + \dots + 98$ is 2450.
 a) 49 b) 67 c) 117 d) 1129
54. A point (7, 4) is first reflected in the line $y = x$ and then in the line $y = b$ so that the final image is (4, 1). Find the value of b .
 a) 2 b) 3 c) 4 d) 0
55. The value of $\frac{\sin(90^\circ - \theta) \cdot \operatorname{cosec}(180^\circ - \theta)}{\sin(270^\circ + \theta) \cdot \sec(270^\circ + \theta)}$ is
 a) 0 b) -1 c) 2 d) 1
56. $\frac{5}{8}$ of 24 is equal to $\frac{15}{7}$ of what number?
 a) 7 b) 8 c) 15 d) $\frac{7}{225}$
57. $\frac{1000^2 + 100}{100} = ?$
 a) 100 b) 10000 c) 10001 d) 1010
58. 6 men can do a piece of work in 40 days working 10 hours a day. How many hours a day must 10 men work to do the same work in 24 days?
 a) 10 b) 15 c) 18 d) 20

59. By selling 60 meter of a cloth, a merchant gains the selling price of 15 meter. Find his real gain percentage.
 a) $\frac{100}{9}\%$ b) $\frac{100}{3}\%$ c) 25% d) 30%
60. Find the simple interest on Rs.1020 at 5% p.a in 4 years.
 a) Rs. 408 b) Rs.210 c) Rs.200 d) Rs.204
61. One robot can pack a box in 15 minutes. Working together at the same constant rate. How many boxes can 16 robots pack in 1 hour?
 a) 4 b) 16 c) 24 d) 64
62. If there are 24 white marbles and 36 blue marbles in a bag, what is the ratio of blue to white marbles?
 a) $\frac{2}{3}$ b) $\frac{3}{2}$ c) $\frac{4}{9}$ d) $\frac{9}{4}$
63. A sum of money doubles itself in 6 years. In how many years, it becomes 5 times?
 a) 12 years b) 24 years c) 10 years d) 15 years
64. The value of $\frac{2}{3}\%$ of $\frac{3}{4}$ is
 a) 0.005 b) 0.5 c) 0.05 d) 5
65. What is the area of a circle whose radius is the diagonal of a square whose area is 4?
 a) 2π b) $2x\sqrt{2}$ c) 4π d) 8π
66. A Number when added to 14 times of the same number gives 75 as result. Find the number.
 a) 10 b) 15 c) 5 d) 20
67. The integer 'a' is even and the integer b is odd, which of the following is even?
 a) $2a+b$ b) $a+2b$ c) $(a+b)^2$ d) a^2-b^2
68. 616 divided by 6 yields remainder p, and 525 divided by 11 yields remainder q. What is p+q?
 a) 10 b) 12 c) 15 d) 20
69. If the reciprocal of the negative integer x is greater than the sum of y and z then which of the following must be true?
 a) $x > y + z$ b) y and z are positive
 c) $1 > x(y+z)$ d) $1 < xy + xz$
70. The angle in a semi-circle is
 a) 0° b) 30° c) 60° d) 90°
71. Two opposite angle of a cyclic quadrilateral are in ratio 1:2. The smaller angle is
 a) 60° b) 70° c) 80° d) 100°

72. The internal bisector of $\angle B$ and $\angle C$ of $\triangle ABC$ meet at I . Then $\angle BIC$ is
 a) $90^\circ - \frac{\angle A}{2}$ b) $90^\circ + \frac{\angle A}{2}$ c) $180^\circ - A$ d) $180^\circ + A$
73. Two events Q and R are mutually exclusive with $P(Q) = \frac{3}{5}$ and $P(R) = \frac{1}{5}$.
 Find the probability $P(\overline{Q \cap R})$.
 a) $\frac{4}{5}$ b) $\frac{3}{25}$ c) $\frac{1}{5}$ d) $\frac{8}{25}$
74. If a is increased by 25% and b is decreased by 25%, the resulting number will be equal. What is the ratio of a to b?
 a. $\frac{3}{5}$ b) $\frac{3}{4}$ c) $\frac{1}{1}$ d) $\frac{5}{3}$
75. In a continuous series, N=30 and cumulative frequency of the class 20-30 is 15. Find the median class.
 a) 10-20 b) 20-30 c) 30-40 d) 20.5-30.5
76. Maximum number of times repeated value of the variable is known as
 a) mean b) median c) mode d) Q_1
77. If mean of y and $\frac{1}{y}$ is M then what is the mean of y^3 and $\frac{1}{y^3}$?
 a) $\frac{M(M^2-3)}{3}$ b) M^3 c) M^3-3 d) $M(4M^2-3)$
78. From a deck of 52 cards, a card is drawn. The probability of getting a queen is
 a) $\frac{1}{4}$ b) $\frac{1}{26}$ c) $\frac{1}{13}$ d) $\frac{1}{52}$
79. What is the probability of getting 53 Sundays in a non-leap year?
 a) $\frac{1}{7}$ b) $\frac{2}{7}$ c) $\frac{3}{7}$ d) $\frac{4}{7}$
80. Two unbiased dice are rolled. Find the probability that the sum of the numbers on the two faces is either divisible by 3 or divisible by 4.
 a) $\frac{5}{9}$ b) $\frac{1}{3}$ c) $\frac{1}{4}$ d) $\frac{1}{36}$

SUBJECT: ENGLISH

F.M.:20

81. Choose the correct spelling from the given alternatives.
 a) adminstration b) admimistration
 c) administration d) administraton
82. Choose the correct option that shows the correct order of the phrases to make a sensible sentence. "....."
 P- is over Q- I have to R- after the break S- meet my friend
 a) PRQS b) PQSR c) QSRP d) RSQP

83. Bill hasn't had his breakfast,?
 a) hasn't he b) has he c) have he d) haven't he
84. Select the word which is similar in meaning to the word "ADEQUATE".
 a) extra b) sufficient c) maximum d) less
85. Choose the one which best expresses the meaning of the idiom in italics in the sentence "The victory of Nepal over Namibia hit the headlines last month."
 a) changed the headline b) got into the news
 c) spoilt the headline d) news with no headline
86. Choose the correct sentence.
 a) Tom had a tooth filled. b) Tom have a tooth filled.
 c) Tom had a tooth fill. d) Tom had a tooth to filled.
87. I and my brother went to meet her.....
 a) myself b) himself c) ourselves d) ownself
88. What is the passive form of: There is no money to waste.
 a) There has been no money to waste. b) There is not money to wasted.
 c) There wasn't money to be wasted. d) There is no money to be wasted.
89. The box weighs 100 kg.
 a) for b) above c) after d) at
90. He done this task yet.
 a) did not b) does not c) has not d) had not
91. I bought a car, I was in financial crises.
 a) why b) that c) then d) when
92. The indirect form of: Ann asked 'Which team is winning?' is
 a) Ann asked which team has been winning.
 b) Ann said which team is winning.
 c) Ann told to me which team was winning.
 d) Ann asked which team was winning.
93. You are very young. You can't have a front door key. Which sentence has the same meaning?
 a) You are too young to have a front door key
 b) You are too old to have a front door key
 c) You are not old to have a front door key
 d) You are not young enough to have a front- door key
94. My sister lives in London
 a) so did mine b) mine also c) so does mine d) mine did also
95. All is well,?
 a) is there b) isn't it c) aren't they d) are they
96. The feminine gender of the word "HEADMASTER" is.....
 a) headmonster b) headteacher
 c) headmistress d) headteacheress
97. I will get you my work.
 a) does b) to do c) do d) did
98. If I find your passport I you at once.
 a) phoned b) will phone c) will have phoned d) phone
99. He comes here everyday. What is the negative form of this sentence?
 a) He didn't come here everyday. b) He doesn't come here everyday.
 c) He not came here everyday. d) He does not comes here everyday.
100. If the plural of man is men, the plural of sheep is
 a) sheep b) sheeps c) sheeves d) sheepes

Best of Luck