BE ENTRANCE MODEL QUESTION 2021

Answer Sheets

Roll No: ☐☐☐☐☐☐☐

Date: ☐☐-☐☐-2021

Section-A: Physics

	A	B	C	D	E
1.	☐	☐	☐	☐	☐
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25.	☐	☐	☐	☐	☐

Section-B: Mathematics

	A	B	C	D	E
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Section-C: Chemistry

	A	B	C	D	E
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20.	☐	☐	☐	☐	☐

Section-D: English

	A	B	C	D	E
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12.	☐	☐	☐	☐	☐
13.	☐	☐	☐	☐	☐
14.	☐	☐	☐	☐	☐
15.	☐	☐	☐	☐	☐

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For Office Use Only

Physics Score:_____ Math Score:_____ Chemistry Score:____ English Score:____

Total Score :_____ Status: Selected/Not Selected Remarks:_____ Evaluated by:_____

OXFORD
COLLEGE OF ENGINEERING & MANAGEMENT
(AFFILIATED TO POKHARA UNIVERSITY)
An ISO 9001:2015 Certified College
Gaindakot, Nawalpur

BE ENTRANCE MODEL QUESTION 2025

Entrance Code : _____ Date_____
(For office Use only)

Time: 2 hrs

Subject: Physics/ Mathematics /Chemistry /English

Instruction to the Candidate

1. *Occupy your seat only*
2. *Write your Entrance Roll Number clearly, both on the Entrance Test question Booklet and on the Entrance Test Answer Sheet.*
3. *Once the examination has started, no candidate will be allowed to leave the examination hall.*
4. *You are provided with a separate Answer Sheet in which you are required to darken (with the help of a HB pencil) the appropriate answer lettered choice box against the question number.*

   For example, if proper answer to question number 5 is choice b, then in the answer sheet provided, darken the lettered choice box B Against number 5 in the answer sheet.

   5. [A] [B] [C] [D] [E]

5. *For correction of a wrong answer choice, cross-mark the already darken wrong answer lettered choice box, and then re-darken the appropriate answer lettered choice box against the question number.*

   For example, later on, you found that the proper answer to question number 5 is choice d, not b, then in the answer sheet provided, cross-mark the previously darkened lettered choice box B and then darken the lettered choice box D against number 5 in the answer sheet

   5. [A] [~~B~~] [C] [D] [E]

6. *Use the blank pages given at the back for rough work. Do not use any paper other than the provided sheet*
7. *Subject and marks allocation:*

SN	*Subject*	*Marks*
1	*Physics*	*50*
2	*Mathematics*	*50*
3.	*Chemistry*	*30*
4.	*English*	*20*

8. *If there is no answer then darken the E option in the answer sheet.*

Entrance Roll No. :..... Entrance Code: .....
(For office use only)

Applicant's Name : ....

Address : ..... Phone Number : .....

Physics Model Question for BE Entrance 2025 *[25x2=50]*

1. Two bodies of masses m and 4m are moving with equal K.E. The ratio of their linear momentum is A. 4:1 B. 1:1 C. 1:2 D. 1:4

2. Two particles are projected simultaneously in the same vertical plane, from the same point, both with different speeds and at different angle with horizontal. The path followed by one, as seen by the other is A. a vertical line B. a parabola
   C. a hyperbola D. a straight line making a constant angle (≠90) with horizontal

3. Characteristic X-rays are produced due to
   A. transfer of momentum in collision of electrons with target atoms
   B. transition of electrons from higher to lower electronic orbits in an atom
   C. heating of the target
   D. transfer of energy in collision of electrons with atoms in the target

4. A slab consists of two portions of different material of same thickness and having conductivities K1 and K2. The equivalent thermal conductivity of the slab is
   A. K1 + K2 B. K1K2 / (K1+K2) C. 2K1K2 / (K1+K2) D. √(K1 + K2)

5. Quality of two sounds is different because
   A. Their frequencies are different B. Their intensities are different
   C. Their amplitudes are different D. Different overtones are present in them

6. If null point is observed at the equatorial line of a bar magnet then the north pole of bar magnet must have faced
   A. geographical north pole B. geographical South Pole
   C. east ... D. west

7. Three charges 2q, -q and –q are located at the vertices of an equilateral triangle. At the center of the triangle
   A. the field is zero but potential is non-zero B. the field is non-zero but potential is zero
   C. both field and potential are zero D. both field and potential are non-zero

8. A ray of light strikes a glass plate at an angle of 60°. If the reflected and refracted rays are perpendicular to each other, the index of refraction of glass is
   A. ½ B. √3/2 C. 3/2 D. 1.732

9. Bohr's postulates correctly measures
   A. radius of an atom B. angular momentum C. Rydberg's constant D. None

10. Boron rods in nuclear reactors are used for
    A. absorb excess electrons B. absorb alpha particle
    C. slow down reaction D. speed of reaction

11. Two waves y1 = a sin (ωt -kx) and y2 = a cos (ωt -kx) are superposed. Then amplitude of resultant wave is
    A. 2a B. 0 C. a D. √2 a

12. A glass convex lens placed in liquid behaves like a concave lens. If μg and μl be the refractive indices of glass and liquid w.r.t. air respectively, then
    A. μg =μl B. μg > μl C. μg < μl D. μg = 2μl

13. A particle of charge q and mass m is suspended from a massless string in a horizontal electric field of magnitude E, then angle θ made by string with vertical is
A. $\cot^{-1}$ (qE/mg) B. $\tan^{-1}$ (qE/mg)
C. $\tan^{-1}$ (qE/m) D. $\tan^{-1}$ (mg/mE)

14. In a circuit, the value of alternating current measured by ammeter is 10A. It's amplitude will be
A. 10A B. 20A C. 14.14A D. 7.07A

15. If the magnetic moment of the atoms of substance is zero, then the substance is called
A. diamagnetic B. ferromagnetic C. paramagnetic D. antiferromagnetic

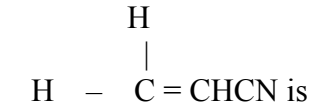
16. An intrinsic semiconductor is doped with acceptor impurities, then
A. Electron concentration increases. B. Electron concentration decreases.
C. Hole of concentration increases. D. Hole concentration decreases.

qE

17. Bohr's atomic theory can be applied to
A. Hydrogen atom only B. Hydrogen and singly ionized Helium atom
C. Hydrogen and its isotopes D. All types of atoms

18. Organic compounds are very large in number. This is due to
A. small size of carbon B. valency of carbon
C. special property of carbon known as catenation D. all of these

19. IUPAC name of



A. Ethenenitrile B. Vinyl cyanide
C. Cyanoethene D. 2-propenenitrile

20. Number of isomeric forms of C_7H_9N having benzene ring will be
A. 7 B 6 C. 5 D. 4

21. For which of the following species Bohr's theory is not applicable?
A. Be^{3+} B. Li^{2+} C. He^{2+} D. H

22. Which of the following is largest ion?
A. Na^+ B. Mg^{2+} C. O_2 D. F

23. The oxidation number of cobalt in K [Co(CO)4] is
A. +1 B. -1 C. +3 D. -6

24. When one ampere current flows for 1 second through a conductor the quantity of electricity is called.
A. Faraday B. Coulomb C. EMF D. 1 ohm

25. What is the volume of water to be added to N/2 HCI to prepare 500cm^3 of N/10 solution?
A. 200cm^3 B. 300cm^3 C. 400cm^3 D. 500cm^3

Mathematics Model Question for BE Entrance 2025 *[25x2=50]*

1.

a) b) c) d)

2. The value of tan9-tan63-tan27+tan81=
a) 2 b) 4 c) 1 d) 0

3. The expression $\sin^2\theta$ is positive if

a) x= -y b) x=y c) x>y d) x<y

2q

4. Which of the following is true?
a) $\sin 1^c > \sin 1^o$ b) $\sin 1^c < \sin 1^o$ c) $\sin 1^c = \sin 1^o$ d) None

5. The minimum value of /sinx/ and /sec x/ are
a) 1,1 b) -1,1 c) 0,1 d) 2,1

6. The period of $\sin^4 x + \cos^4 x$ is

a) π b) c) d)

7. Derivative of an even function f(x) is
a) even function b) odd function c) neither even nor odd d) none

8. The value of $16R^2 rr_1r_2r_3$=
a) Δ^2 b) $a^2b^2c^2$ c) abc d) s^2

9. In ΔABC, if a=13, b=14 and c=15 then the radius of Ex-circle(r_1) is :
a) 4 b) 10.5 c) 13.5 d) 7.5

10. The value of

a) b) c) d)

11. The value of

a) R^2 b) S^2 c) r^2 d) Δ^2

12. The side of a Δ are a,b, then the greatest angles is:
a) 30^o b) 60^o c) 90^o d) 120^o

13. If the angle of a triangle are in the ratio 1:2:3 then the ratio of the sides are
a) b) c) d) 1:2:3

14. In ΔABC, CosecA=

a) b) c) d)

15. In any triangle

a) $\frac{b-c}{b^2+c^2}$ b) $\frac{y}{x}$ c) $-\frac{x}{y}$ d) $\frac{b^2-c^2}{a^2}$

16. tanA can be expressed as .

a) $\frac{\Delta}{a^2-b^2}$ b) $\frac{b}{2\Delta}$ c) $\frac{4\Delta}{b^2+c^2-a^2}$ d) none

17. The value of (a+b+c) (tanA/2+tanB/2)=

a) 2ccotC/2 b) 2bcotB/2 c) 2acotA/2 d) none

18. The value of $\frac{\cos^2 A/2}{a}+\frac{\cos^2 B/2}{b}+\frac{\cos^2 C/2}{c}=$

a) $\frac{R}{\Delta}$ b) $\frac{abc}{R}$ c) $\frac{b}{\Delta}$ d) $\frac{S}{abc}$

19. The value of sin ($\cot^{-1}$x)=

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

20. The value of Cosec^{-1} {1/2}=

a) 30^o b) 60^o c) 90o d) not defined

21. The principal value of $\tan^{-1}$ {tanπ/4)=

a) -π/4 b) π/4 c) 3π/4 d) -3π/4

22. The principal value of $\sin^{-1}$ $(-\sqrt{3}/2)$ is:

a) -2π/3 b) -π/3 c) 4π/3 d) 5π/3

23. The principal value of Cos-1 $\left\{\cos\left(\frac{7\pi}{6}\right)\right\}$

a) 7π/6 b) 5π/6 c) π/3 d) none

24. If A= {1,3,5,7,9} and B= {2,3,5,7,11} the (AΔB)=

a) {1,9} b) {2,11) c) {1,9,11} d) {1,2,9,11}

25. If A={x:x is a multiple of 3} and B= {x:x is a multiple of 5} then (A-B) is:

a) $\bar{A}\cap B$ b) $A\cap B$ c) $\bar{A}\cap B$ d) $A\cap B$

Chemistry Model Question for BE Entrance 2025 *[30x1=30]*

1. The no. of electronic in $[_{19}K^{40}]^{-1}$is
   a) 18 b) 19 c) 20 d) 40

2. The element used by Rutherford, in his famous scattering
   a) Tin b) Gold c) Lead d) Silver

3. According to Bohr's theory of hydrogen atom, which of the following is quantized for an electron?
   a) Velocity b) Acceleration
   c) Angular momentum d) angular acceleration

4. Generally, the limit of visible spectrum is
   a) 1000 to 3000A^o b) 3800 to 7600A^o
   c) 8000 to 10,000A^o d) 12,000 to 15,000A^o

5. The de Broglie wave length of a particle of mass 1g moving with a velocity of 100 m-s^{-1} is
   a) $6.63x10^{-33}$ b) $6.63x10^{-34m}$
   c) 6.63x10-35m d) $6.65x10^{-36}$m

6. A photon of energy 8eV is incident on a metal surface of threshold frequency 1.6x10.15Hz. The kinetic energy of photoelectrons emitted is (h=$6.63x10^{-34}$ J-s). Calculate frequency of photon.
   a) $1.9\times10^{15}H_z$ b) $2.\times10^{15}$Hz c) 3.1×10^{15}Hz d) 4×10^{15}Hz

7. The uncertainty in the momentum of a particle is 6x10-2kg-m-s-1. The uncertainty in its position is
   a) $4.4x10^{-14}$m b) $6.8x10^{-21}$m c) $7.8x10^{-30}$m d) $8.8x10^{-34}$m

8. For 1=3, corresponding values of magnetic quantum numbers would be
   a) -1, -2, -3 b) 0, +1, +2, +3 c) 1111111111 d) (-3 to +3)

9. Which of the following is not an amphoteric substance?
   a) NH_3 b) H_2O c) HCO_3 d) HNO_3

10. Which of the following is a polar compound?
    a) HF b) HCI c) HNO_3 d) H_2SO_4

11. H_2O is dipolar, whereas BeF- is not. It is because
    a) H_2O is linear and BeF_2 is angular
    b) H_2O is angular and BeF_2 is linear
    c) Electro negativity of F is greater than of O
    d) H_2O involves hydrogen bonding, whereas BeF_2 is discrete molecule. Molecule in ice, is

12. The maximum number of hydrogen bonds formed by a water molecule in ice, is
    a) 4 b) 3 c) 2 d) 1

13. Intra molecular H-bonding is present in
    a) Water b) Ammonia
    c) O-nitro phenol d) Hydrogen chloride

14. Ethanol is soluble in water due to
    a) Ethyl Group b) Hydrogen bonding
    c) Its neutral nature d) Dissociation in water

15. The conversion of sugar
    a) Oxidation b) Reduction
    c) Neither oxidation nor reduction d) both oxidation and reduction

16. The oxidation number of carbon in CH_2O is
    a) -2 b) +2 c) O d) +4

17. In which of the following compounds transition metal is in oxidation state zero?
    a) [Co $(NH_3)_6$] cI2 b) [Fe $(H_2O)_oSO_4$]
    c) [Fe $(CO)_5$] d)) [Fe $(H_2O)_3](OH)_4$

18. When KMnO4 is reduced with oxalic acid in acid medium, the oxidation number of Mn changes from
    a) 7 to 4 b) 6 to 4 c) 7 to 2 d) 4 to 2

19. In hemoglobin the iron is in
    a) +2 oxidation state b) +1 oxidation state
    c) +3 oxidation state d) +4 oxidation state

20. The root mean square velocity of one mole of a monoatomic gas having molar mass M is V r. m. s4 the relation between average kinetic energy (E) of the gas and V r. m. s is
    a) $V_{r.m.s}=\sqrt{\frac{3RT}{2M}}$ b)$V_{r.m.s}=\sqrt{\frac{2RT}{3M}}$ c) $V_{r.m.s}=\sqrt{\frac{3RT}{M}}$ d) $V_{r.m.s}=\sqrt{\frac{E}{3M}}$

21. The triple point of water is
    a) 172K b) 273K c) 298K d) 373K

22. The liquefied metal, which expands on sodifocation. Is
    a) Ga b) Al c)Zn d) Cu

23. Water is a/an
    a) Aprotic solvent b) Amphiprotic solvent
    c) Protophilic solvent d) Protophobic solvent

24. By increase the temperature of a liquid, its vapour pressure
    a) Increase b) Decrease
    c) Remains constant d) becomes zero

24. Van'thoff factor for an electrolyte is
    a) >1 b) <1 c) =1 d) none

26. Which of the following oxides is amphoteric in character?
    a) CaO b) CO_2 d) SiO_2 e) SnO_2

27. The PH of a solution, whose hydronium ion concentration is 6.2x 10-9, is
    a) 3.17 b) 5.15 c) 6:21 d) 8:21

28. The PH value of an acid is 5 and concentration is 1M. What is the value of $K_a$for the acid?
    a) 10-7 b) 10^{-5} c) 10^{-10} d) 10^{-8}

29. The solubility of $PbCl_2$ is
    a) $\sqrt{K_8}$ b) $\sqrt[3]{K_8}$ c) $\sqrt[3]{\frac{K_8}{4}}$ d) $\sqrt[3]{\frac{K\_8}{2}}$

30. Which of the following changes will shift the reaction in forward direction?
    a) Increase in total pressure
    b) Increase in temperature
    c) Increase in concentration of 1
    d) Decrease in concentration 1_2

English Model Question for BE Entrance 2025 *[15+5=20]*

1. She said to me, "let me go ".
   a) She said to me let me go. b) She requested me to let me go.
   c) she requested me letting her go. d) She requested me to let her go.

2. Nobody hurt him.
   a. He was hurt b. He was hurted
   c. he wasn't hurt by nobody d. he was not hurt

3. I'm to teach you.
   a. You have to be taught b. You should be taught.
   c. You are to be taught d. You are to be teached.

4. We make ……. Butter from …….. Milk.
   a. the, x b. x, the c. a, the d. no articles

5. Give Synonym of Perennial.
   a. Perpetual b. Stop c. Temporary d. Active

6. She beckoned to enter the room.
   a. told b. said c. signaled d. advised

7. She was baffled by the confusing road signs.
   a. confused b. nebulous c. perplexed d. all

8. A book of synonym's and antonym's is :
   a) Dictionary b) thesaurus
   c) encyclopedia d) autobiography

9. A person who wastes his money on luxury is…….
   a) luxuriant b) extravagant c) luxurious d) stingx

10. He has in the best of health; his death was really …….
    a) Pitiable b) natural c) surprising d) expected

11. Prabha's English is excellent. She speaks……..
    a. English perfect b. perfectly English
    c. perfect English d. English appropriately

12. Causes and effect relationship
    Example: Education : Development
    a. Man : Speech b. Game : Play
    c. Nutrition : Health d. Child : Growth

13. Creature and living place relationship.
    Example: Bee : Hive
    a. Duck : Drake b. Warm : Tepid
    c. Carcass : Corpse d. Monk : Monastery

14. Would you mind if I ……. You the monkey I owe your body.
    a. do not give b. did not give
    c. will not give d. wouldn't give

15. If the door is locked, what ……. i do ?
    a. have b. do c. can d. shall

16. Write a paragraph about the impact of COVID-19 in Education system in Nepal.