



**PrepsNG**  
***Learning Center***

**AHMADU BELLO UNIVERSITY**  
**SCIENCE POST UTME PAST QUESTIONS**

# ABU ZARIA POST UTME PAST QUESTIONS FOR SCIENCE

## 2017/2018 POST-UTME SCREENING EXERCISE

*Time allowed: 1 hour*

*Read the following instructions carefully:*

1. Use HB pencil to shade your answers. Ensure that any shading in error is thoroughly erased.
2. Candidates should indicate the question Paper Type given to them in the appropriate space in the Answer Sheet.
3. Write your JAMB registration numbers on the question paper in the space provided at the top of page 1.
4. Attempt all questions.
5. The use of calculator and or similar electronic devices is NOT allowed

### ENGLISH

1. An autobiographical novel is \_\_\_\_\_.
  - A. A novel written about another novelist
  - B. A true account of a novelist's life by himself
  - C. A novel in which the novelist draws mainly on materials from his own life
  - D. A novel using the 'I' pronoun
2. Plot in prose fiction is best defined as:
  - A. The cause and - effect sequence of events
  - B. The brief summary of events
  - C. The central event
  - D. The subject - matter of a novel
3. Which of these is not true about unity of action in a novel?
  - A. Action may be unified through a single main character
  - B. Action may be unified by being set in one place
  - C. Action maybe unified by many characters
  - D. Action may be unified by having one consistent point of view
4. Action in a novel is best defined as:
  - A. The summary of the novel's story
  - B. What the characters do or say in the novel

- C. The numerous sub - plots of the novel put together
  - D. The totality of all the episodes in a novel leading to the conclusion
5. Suspense in a novel means \_\_\_\_\_.
    - A. the postponement of the hero's death till the last possible moment
    - B. the intense emotions that the author conveys
    - C. the inconclusive end of a novel
    - D. when we are curious about what happens next in a novel
  6. A realistic novel is one in which the characters are \_\_\_\_\_.
    - A. real
    - B. historic
    - C. just of above average intelligence
    - D. the types that we meet in everyday life
  7. Theme is best defined as:
    - A. The subject matter of a novel or play
    - B. central idea in a play or novel
    - C. The point of view in that novel
    - D. The sum - total of all the characters experiences
  8. What figure of speech does the following quotation contain? Life's but a walking shadow (Macbeth)
    - A. A metaphor
    - B. An image
    - C. A synecdoche
    - D. An allusion
  9. Which of the following statement is most true about poetry?
    - A. the meaning of words is more important than their sounds
    - B. the sounds of words are more important than their meanings
    - C. the sound of words is often more important than their meanings
    - D. sounds and meanings of words are of Little consequence
  10. Which of these bests define exposition in drama?
    - A. the author's own general introduction to the play

- B. the author's early exposure of his dramatis personae to conflict
- C. introduction to the characters and the general problem with which the play deals
- D. the first performance of the play on stage

11. When the speaker in a poem cannot be identified with the poet, that speaker is called:

- A. a persona
- B. a dramatis persona
- C. a soliloquist
- D. a ventriloquist

12. Which of these definitions best describes a lyric?

- A. A short poem
- B. a short poem in which the poet himself is speaking
- C. a poem expressing a personal idea, feeling or mood
- D. a poem divided into stanzas

**Read the following extract from a poem to answer questions 13 and 14.**

Among rocks, I am the loose one, among arrows, I am the heart among daughters, I am the recluse, among sons, the one who dies young

13. What kind of repetition is used in the extract?

- A. anaphora
- B. single word repetition
- C. line repetition
- D. phrase repetition

14. Apart from emphasis, what other effect does the repetition have?

- A. makes the poem rhythmical
- B. makes the poem tedious
- C. makes the poem monotonous
- D. makes the poem exhilarating

15. The following line from poem Western wind, when will thou blow? Is an example of:

- A. rhetorical question
- B. caesura
- C. alliteration
- D. nature imagery

16. Identify the odd one out of these types of imagery.

- A. visual imagery

- B. tactile imagery
- C. synaesthesia
- D. literal imagery

17. When a poet uses mainly soft vowel sounds in a poem, the texture of the poem is:

- A. mellifluous
- B. harsh
- C. assonantal
- D. neutral

18. The sounds in the following lines may be described as an example of: The moan of doves in immemorial elms, and murmuring of innumerable bees

- A. Alliteration
- B. Euphony
- C. Cacophony
- D. A mixture of all above

19. The man dies in him who keeps silent in the face of tyranny". This statement can be described as:

- A. Metaphoric
- B. Literal
- C. Tragic
- D. a simile

20. The literary technique in which a reader is taken to the past of a current action is known as:

- A. rewinding
- B. fast-forward
- C. flashback
- D. repetition

### PHYSICS

21. A piece of rubber 1 Dem long stretches 6mm when a load of 100N is hung from it What is the area stretched if the young modulus is 50N/m<sup>2</sup>.

- A. 60m<sup>2</sup>
- B. 150 m<sup>2</sup>
- C. 33.33 m<sup>2</sup>
- D. 15 m<sup>2</sup>

22. To determine the weight of an object you would \_\_\_\_.

- A. use a balance
- B. use a spring balance
- C. find the force necessary to give it a certain acceleration
- D. use none of these methods
- E. use any of these methods

23. A gas at pressure  $P$ N/m and temperature  $27^\circ\text{C}$  is heated to  $77^\circ\text{C}$  at constant volume.

The new pressure is \_\_\_\_\_.

- A.  $0.85P$ N/m
- B.  $0.86P$ N/m
- C.  $1.16P$ N/m
- D.  $1.18P$ N/m
- E.  $2.85P$ N/m

24. Two lamp rated  $40\text{w}$  and  $220\text{w}$ , each are connected in series. The total power dissipated in both lamps is \_\_\_\_\_.

- A.  $10\text{w}$
- B.  $20\text{w}$
- C.  $40\text{w}$
- D.  $80\text{w}$
- E. none

25. A magnet is moved through a coil of wire. The emf produced in the wire depends on \_\_\_\_\_.

- A. the number of turns in the coil
- B. the strength of the magnet
- C. the speed at which the magnet is moved
- D. all of the above
- E. none of the above

26. A potential difference of  $6\text{v}$  is used to produce a current of  $5\text{A}$  for  $200\text{s}$  through a heating coil. The heat produced is \_\_\_\_\_.

- A.  $4800\text{cal}$
- B.  $6000\text{cal}$
- C.  $2400\text{j}$
- D.  $240\text{kcal}$
- E.  $600\text{j}$

27. Two boys are communicating with each other by stretching a string passing through a hole punched in the bottom of each of the two tin cans. The physical principle employed is that sound travels \_\_\_\_\_.

- A. mainly through air
- B. fainter in stretched string
- C. faster through gasses than in solids and liquids
- D. with greater ease through a string than in air
- E. none of the above is correct

28. The hatch door of a submarine has an area of  $0.5\text{ m}^2$ . The specific gravity of sea water is  $1.03$ . Assume that  $g = 10\text{m/s}^2$  and neglect the atmospheric pressure. The force

exerted by the sea water on the hatch door at a depth of  $200\text{m}$  is

- A.  $1.03 \times 10^5\text{ N}$
- B.  $1.03 \times 10^4\text{ Nm}^2$
- C.  $2.6 \times 10^3\text{ Nm}^2$
- D.  $2.06 \times 10^{11}\text{ N}$
- E.  $1.03 \times 10^3\text{ N}$ .

29. When equal weights of iron and water are subjected loan equal supply of heat, it is found that the piece of iron becomes much hotter than water after a short time because \_\_\_\_\_.

- A. The specific heat or iron is higher than water
- B. Iron is in solid form
- C. water is in liquid form
- D. the specific heat of water is higher than that of iron
- E. the specific heat of iron is infinite

30. The speed of light in is  $3.0 \times 10^8\text{m/s}$ . its speed in glass having a refractive index of  $1.65$  is \_\_\_\_\_.

- A.  $1.82 \times 10^8\text{m/s}$
- B.  $3 \times 10^8\text{m/s}$
- C.  $6.0 \times 10^8\text{m/s}$
- D.  $1.82 \times 10^2\text{m/s}$

### BIOLOGY

31. Which of the following is an excretory organ in flatworms?

- A. Malpighian tubules
- B. Kidney
- C. Nephridium
- D. flame cells

32. Which of the following is not an excretory organ in mammals?

- A. Anus
- B. Liver
- C. Lung
- D. Skin

33. Which of the following is not freshwater?

- A. Brackish water
- B. Puddle
- C. Pond
- D. River

34. Which of the following is a special organ for oxygen absorption in aquatic animals?

- A. Air bladder
- B. Lung

- C. Spiracle
- D. Gills

35. Which of the following is not a feature of Marshes?

- A. High oxygen content
- B. Water-logged soil
- C. Low light intensity
- D. Abundant saprophytic bacteria

36. Drought resistant plants are called?

- A. Hydrophytes
- B. Xerophytes
- C. Mesophytes
- D. Bryophytes

37. Primary succession on a terrestrial habitat is associated with \_\_\_\_\_.

- A. Bare soil
- B. Abandoned farmland
- C. Primary forest
- D. Secondary forest

38. Which of the following may not result in overcrowding?

- A. Limited space
- B. Scarcity of food
- C. Increased birth rate
- D. Tight immigration conditions

39. Which is the function of mitochondria? A. Gives cell rigid shape B. Site for energy release

- C. Manufactures protein
- D. Contains cell sap

40. Which is not a feature of animal cells?

- A. Presence of centrosome
- B. Absence of cell wall
- C. Presence of few, small vacuoles
- D. Presence of plastids

### CHEMISTRY

41. Which of the following in a molar solution would be the product conductor of electricity?

- A. ammonia
- B. sodium chloride
- C. hydrochloric acid
- D. zinc tetraoxosulphate (VI)

42. How many moles of oxygen atoms are presented in 4.0g of the gas. (O= 16)

- A. 0.25

- B. 0.50
- C. 1.00
- D. 4.00

43. In the periodic table, the entire element within the same group has the same

- A. atomic number
- B. number of electrons in the nuclei of their atoms
- C. number of electron available for bonding
- D. number of isotopes

44. How many atoms are there in 0.3mole of an element? {Avogadro's constant =  $6.0 \times 10^{23}$ }

- A.  $2.0 \times 10^{24}$
- B.  $1.8 \times 10^{24}$
- C.  $1.8 \times 10^{23}$
- D.  $3.0 \times 10^{22}$

45. Milk exposed to air for a few days tastes sour due to the presence of \_\_\_\_\_.

- A. ethanoic acid
- B. Citric acid
- C. lactic acid
- D. tartaric acid

46. A substance which produces the hydroxonium ion as the only positive ion when dissolved in water is

- A. an acid
- B. an acid salt
- C. a normal salt
- D. a base

47. Petrol can be obtained from fuel oil by A. hydrolysis

- B. Hydrogenation
- C. Dehydration
- D. cracking

48. Which of the following is not true of metals?

- A. they are good conductors of heat and electricity
- B. they are ductile and malleable
- C. their oxides are basic
- D. they can be used as insulators

49. Which of the following is not a property of chlorine?

- A. it is greenish yellow and has a choking smell
- B. it bleaches litmus paper

C. it is a liquid at room temperature and pressure

D. it has a higher density than air

50. If calcium has atomic number 20 and mass number 40, the constituent of the atom is \_\_\_\_\_.

A. 20 protons, 10 neutrons and 10 electrons

B. 20 protons, 20 neutrons and 20 electrons

C. 20 protons, 20 neutrons and no electrons

D. 10 protons, 10 neutrons and 20 electrons

**ANSWERS TO ABU 2017/2018  
POSTUTME EXAM**

**ENGLISH**

1. B 2. A 3. D 4. B 5. D 6. D 7. B 8. A 9. A

10. C 11. A 12. C 13. A 14. A 15. C 16. C

17. C 18. B 19. A 20. C

**PHYSICS**

21. C 22. B 23. C 24. E 25. A 26. B 27. D

28. E 30. A

**BIOLOGY**

31. D 32. A 33. D 34. B 35. A 36. 37. 38. D

39. B 40

**CHEMISTRY**

41. D 42. A 43. C 44. C 45. A 46. A 47. D 48. D

49. C 50. B

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## ENGLISH

### COMPREHENSION PASSAGE

Tony spends most of in spare time at his medium-sized farm located on the fringes of the capital City along Okigwe road, the farm haven for the lover of retreat. It occupies an undulating land, which stretches for a good distance. The farm enjoys a modest canopy formed by palm trees, banana branches and coconut trees. The barbed wired fence bends harmoniously with the surrounding lush of the green foliage. There on the heart of the farm.

Tony raises small animals that include rabbits, goats and pigs. He ensures that animals particularly the pigs that form the main Naira earners are always in peak condition This Tony does by seeing to it that they receive then regular clinical attention Similarly, they always insist that the pens are cleaned and sanitized. Not surprisingly, the droppings from the animals are constantly carted away by enthusiastic farmers They believe that the application should significantly boost their own harvest This in part explains why there has been a good hassle for the droppings from Tony's farm in some other ways, the patronage is emblematic Some of the fanners simply I earn through their inner thought to make a statement.

Whenever Tony is out of his station, the manager follows religiously the strictly gamin already established

1. The second sentence suggests that Tony's farm is good \_\_\_\_\_.
  - A. for religious camping and meditation
  - B. for escaping from city noise
  - C. as a rendezvous for layers
  - D. as a location for serious meeting
2. From the description of the farm and surrounding,
3. "They received their regular clinical attention" This means that
  - A. die animals are taken to the clinic regularly
  - B. the animals are under constraint observation
  - C. the animal is are given regular vaccination
  - D. the animals have a doctor at the clinic
4. The farmers who use animal droppings from Tony's farm think that \_\_\_\_\_.
  - A. their harvest with increase
  - B. their crops will remain healthy
  - C. their farm will be inexpensive
  - D. their farm will be a model
5. Tony's farm manager can be described as \_\_\_\_\_.
  - A. a good imitator
  - B. a religious person
  - C. a sympathetic individual
  - D. a responsible worker

***In question 6 and 7, an idiom is underlined in each of the sentences, find under each sentence the group of words that gave the nearest meaning to the idiom.***

6. He killed the goose that laid the golden egg when he decided to spend his capital on buying a car.
  - A. sacrificed future profit to sati sly present needs
  - B. was bad natured
  - C. became a poor person
  - D. became an important person
7. I laughed up my sleeve as he told the tales of his exploits.
  - A. was very pleased
  - B. was openly making him of him
  - C. was secretly amused

D. laughed myself helplessly

**In questions 8 and 9, choose the word or set of words that best lit the meaning of the sentence as a whole.**

8. \_\_\_\_\_ the long run, we will make enough profit.

- A. In
- B. On
- C. At
- D. For

9. The congregation \_\_\_\_\_ all sorts and conditions of men

- A. composes
- B. consists
- C. comprises
- D. conjectures

**In questions 10 and 11, select the option that is nearest in meaning to the underlined word.**

10. The effect of the new policy on the masses is rather negligible.

- A. unimportant
- B. useful
- C. insignificant
- D. negligent

11. When I returned to the cyber cafe a week later, my ticket had become invalid.

- A. inappropriate
- B. crippled
- C. discounted
- D. out of date.

**In question 12 and 14, choose from the options given in A-D the one which is opposite in meaning to the word.**

12. An expert will not be found waiting in this type of job hunting.

- A. A foreigner
- B. a jobber
- C. An applicant
- D. A novice

13. If you are not for lesbianism, it means you are for.

- A. celibacy
- B. homosexuality
- C. nun hood
- D. heterosexuality

14. The chairman's verdict redressed the injustice meted out by the secretary.

- A. corrected
- B. aggravated
- C. restored
- D. addressed

**Interpretation:**

15. My friend gambled about all day yesterday This means that he \_\_\_\_\_.

- A. was gambling with his money yesterday
- B. did nothing useful yesterday
- C. played cards for money
- D. was jumping in the field.

**From the words or group of words lettered A-D, choose the option that is most nearly opposite to the underlined words**

16. Our grandmother was very much loved for her altruism.

- A. benevolence
- B. selflessness
- C. kindness
- D. selfishness

17. The principal lost his usual good humour when his school was defeated in this year's cowbell mathematics quiz competition.

- A. provoked
- B. kept
- C. maintained
- D. obtained

18. Nkoli was the one who politely declined the invitation.

- A. turned off
- B. turned away
- C. accepted
- D. received

19. We quickly realized that a confrontation was inevitable.

- A. disastrous
- B. unavoidable
- C. desirable
- D. conditionally

20. Obiora's name was inadvertently omitted.

- A. unfortunately
- B. improperly
- C. intentionally



D. conditionally

## CHEMISTRY

21. In the reaction between sodium hydroxide and sulphuric acid solutions. what volume of 0.5molar sodium hydroxide would exactly neutralize 10 cm<sup>3</sup> of 1.25molar sulphuric acid?

- A. 5cm<sup>3</sup>
- B. 10cm<sup>3</sup>
- C. 20cm<sup>3</sup>
- D. 25cm<sup>3</sup>
- E. 50cm<sup>3</sup>

22. A small quantity of solid ammonium chloride (NH<sub>4</sub>Cl) was heated gently in a test tube. The solid gradually disappear to produce a mixture of two gases later a white cloudy deposit was observed on the cooler part of the test tube. The ammonium chloride is said to have undergone

- A. distillation
- B. sublimation
- C. precipitation
- D. evaporation
- E. decomposition

23. Elements P, Q, R, S have 6, 11, 15, & 17 electrons respectively. Therefore,

- A. P will form an electrovalent bond with R
- B. Q will form a covalent bond with S
- C. R will form an electrovalent bond with S
- D. Q will form an electrovalent bond with S
- E. Q will form a covalent bond with R

24. An element X forms the following compounds with chlorine NCl<sub>4</sub>, XC<sub>3</sub>, XC<sub>2</sub> this illustrates the

- A. law of multiple proportions
- B. law of chemical proportions
- C. law of simple proportion
- D. law of conservation of mass
- E. law of definite proportion

25. The oxidation state of chlorine in potassium chlorate is \_\_\_\_\_.

- A. 11
- B. 12
- C. 13
- D. 15
- E. 17

26. When carbon dioxide is bubbled into limewater, a white precipitate is formed. If

the passage of the gas is continued, the precipitate disappears. The reasons for this is \_\_\_\_\_.

- A. calcium carbonate is formed which on reaction dissolves
- B. calcium hydrogen carbonate is precipitated and then dissolves
- C. calcium carbonate is formed which on reaction with further carbon dioxide forms soluble calcium hydrogen carbonate
- D. concentration of solution has occurred with the deposition of calcium hydroxide
- E. the solution has become saturated and solid carbon dioxide has been deposited

27. The following reactions are stages in important industrial processes

- (i)  $N_{2(g)} + O_2 - 2 NH_{3(g)}$   $\Delta H$  is negative
- (ii)  $2SO_{2(g)} + O_{2(g)} - 2SO_{3(g)}$   $\Delta H$  is negative
- (iii)  $N_{2(g)} + O_{3(g)} - 2NO_{(g)}$   $\Delta H$  is positive.

Which of the above forward reactions is favoured by

- (i) a decrease in the concentration of the pressure and
- (ii) an increase in temperature?

- A. i
- B. ii
- C. iii
- D. i & ii
- E. i & iii

28. Methanoic acid mixes with water in all proportions and has about the same boiling point as water. Which of the following methods would you adopt to obtain pure water from a mixture of sand, water and methanoic acid A. fractional distillation  
B. filtration followed by aeration  
C. neutralities with sodium hydroxide followed by distillation.  
D. neutralization with sodium hydroxide followed by filtration  
E. etherification with ethanol followed by distillation

29. Which of the following statements applies during the electrolysis of sodium hydroxide solution using platinum electrodes?

- A. anions are discharge at the cathode
- B. hydrogen ions are discharge at the anode
- C. the concentration of sodium hydroxide decreases at both electrode compartments
- D. the concentration of sodium hydroxide increases at the cathode only

E. the concentration of sodium hydroxide increases at the anode only

30. Which of the following statement is true?

When the potassium atom forms its ion

- A. it gains one electron and becomes neutral
- B. its atomic number decreases
- C. it achieves electronic configuration of argon
- D. it loses one proton
- E. it loses one neutron.

### PHYSICS

31. The slope of a straight-line displacement time graph indicates \_\_\_\_\_.

- A. distance travelled
- B. uniform velocity
- C. uniform acceleration
- D. instant acceleration
- E. uniform speed

32. A ball of mass 0.5kg moving at 10m/s collides with another ball of equal mass at rest. If the two balls move off together after the impart, calculate their common velocity

- A. 0.2m/s
- B. 0.5m/s
- C. 10m/s
- D. 3m/s

33. How much heat is given out when a piece of iron mass 50g and specific heat capacity  $460\text{Jkg}^{-1}\text{K}^{-1}$  cools from  $85^\circ\text{C}$  to  $25^\circ\text{C}$ ?

- A.  $1.38 \times 10^6 \text{ J}$
- B.  $2.53 \times 10^2 \text{ J}$
- C.  $1.98 \times 10^4 \text{ J}$
- D.  $1.38 \times 10^3 \text{ J}$
- E.  $1.27 \times 10^3 \text{ J}$

34. Which of the following is not a suitable method of reducing loss of heat from a piece of hot iron?

- A. wrapping it in cotton wool
- B. painting it black
- C. placing it in a vacuum
- D. placing it in a rubber support
- E. keeping it in a closed wooden box

35. A bat emits a sound wave at a speed of 1650.00m/s and receives the echo 0.15s later. Calculate the distance of the bat from the reflector

- A. 8.75m
- B. 16 .60m

C. 87 .75m

D. 123.75m

E. 330.00m

36. Which of the following is/are characteristics of sound?

- i. pitch
- ii. Loudness
- iii. Quality
- iv. Noise

- A. i only
- B. ii only
- C. i & ii only
- D. i, ii & iii only
- E. I, ii, iii and iv

37. An image which can be formed on a screen is said to be \_\_\_\_\_.

- A. virtual
- B. blurred
- C. inverted
- D. erect
- E. real

38. A ray of light is incident at an angle of  $30^\circ$  on a glass prism of refractive index 1.5. Calculate the angle through which the ray is minimally deviated in the prism (the medium surrounding the prism is air)

- A.  $10.5^\circ$
- B.  $5.5^\circ$
- C.  $21.1^\circ$
- D.  $38.9^\circ$
- E.  $40.5^\circ$ .

39. At which of the following distances from the lens should a s Ii de be placed in a slide projector if the focal length of the projection lens?

- A. less than f
- B. greater than 2f
- C. greater than f but less than 2f
- D. equal to f
- E. equal to 2f

40. What of the camera corresponds to the iris of the eye?

- A. shutter
- B. film
- C. lens
- D. diaphragm
- E. focusing ring

**BIOLOGY**

41. The nucleus is considered the control organelle of a cell because it \_\_\_\_\_.  
 A. Contains the genetic material  
 B. Contains the nuclear sap  
 C. is bounded by the nuclear membrane  
 D. is located at the centre of the cell
42. Regulation of blood sugar level takes place in the \_\_\_\_\_.  
 A. pancreas  
 B. Ileum  
 C. Liver  
 D. Kidney
43. The heart of the adult frog consists of \_\_\_\_\_.  
 A. two auricles and two ventricles  
 B. one auricle and one ventricle  
 C. two ventricle and two auricles  
 D. one ventricle and two auricles
44. A group of organisms of different species living in a particular area is described as a \_\_\_\_\_.  
 A. colony  
 B. community  
 C population  
 D. niche
45. A freshwater plant such as water lily can so live the problem of buoyancy by the possession of \_\_\_\_\_.  
 A. parenchymatous tissue  
 B. dissected leaves  
 C thin cell walls of the epidermis  
 D. water repelling epidermis
46. Soil micro-organisms are beneficial because of their involvement in  
 A. photosynthesis B. translocation  
 C. cycling of nutrients  
 D. respiration using soil air
47. One of the ways in which body eel Is differ from gamete cells is in the \_\_\_\_\_.  
 A. type of centromeres they contain  
 B. number of chromosomes pair they contain  
 C. type of chromatids they contain  
 D. number of chromosomes they contain
48. In the blood transfusion. agglutination occurs when \_\_\_\_\_.

- A. white blood eel Is from two individuals meet  
 B. two different antibodies meet  
 C. two different antigens meet  
 D. contrasting antigens and antibodies meet

49. The richest sources of vitamin A are \_\_\_\_\_.

- A. palm oil and groundnut oil  
 B. palm oil and carrots  
 C rice and groundnut oil  
 D. oranges and carrots

50. Yellowing of leaves is a symptom associated with deficiency of \_\_\_\_\_.

- A. iron, calcium and magnesium  
 B. nitrogen, sulphur and potassium  
 C. sulphur, phosphorous and iron  
 D. magnesium, nitrogen and iron

**ANSWERS TO ABU 2015/2016 POST UTME**

1. B 2. A 3. C 4. A 5. D 6. A 7. C 8. A 9.C  
 10. C 11. D 12. D 13. B 14. B 15. B 16. D  
 17. B 18. C 19. D 20. C

**CHEMISTRY**

21. E 22. B 23. D 24. A 25. C 26. C 27. C  
 28. B 29. B 30. C

**PHYSICS**

31. C 32. C 33. D 34. A 35. D 36.D 37. E  
 38. B 39. C 40. D

**BIOLOGY**

41. A 42. A 43. D 44. B 45. A 46. C 47. B  
 48. D 49. B 50. B

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# 2014/2015 POST-UTME SCREENING

Time allowed: 1 hour

## ENGLISH

**Choose the correct option to fill the blank spaces.**

1. The guest \_\_\_\_\_ breakfast by the time the bus arrives.

- A. shall have finished
- b. have finished
- C. had finished
- D. are finishing

2. You can go on I \_\_\_\_\_ what you are saying.

- A. will understand
- b. an understanding
- C. understanding
- D. waste understanding

3. When he was knocked on the head, he fell \_\_\_\_\_ to the ground.

- A. fainted
- B. Unconscious
- C. collapsed
- D. noisily

4. It so \_\_\_\_\_ hard that all the cars have stopped moving

- A. will rain
- B. rained
- C. rain
- D. rains

5. The principal will be going away on leave, in his absence the vice-principal will \_\_\_\_\_ school.

- A. overlook
- B. take over
- C. look after
- D. care for

**Choose the word that is nearly opposite in meaning to the underlined word.**

6. The able-bodied should take care of the \_\_\_\_\_.

- A. feeble
- B. weak-minded
- C. Suffering
- D. soft-hearted

7. The chairman ordered him either to withdrew or to \_\_\_\_\_ his allegations

- a. affirm
- B. drew
- C. express
- D. complete

8. He shows plenty of goodwill to his neighbours, but they bear nothing except \_\_\_\_\_ towards him.

- A. bad luck
- B. malice
- C. anger
- D. unhappiness

9. I supported what you said but I \_\_\_\_\_ the way you said it

- A. argued about
- B. objected to
- C. interfered with
- D. investigated

10. Though many of us were poor quite a few were \_\_\_\_\_.

- A. arrogant
- B. Prodigal
- C. Affluent
- D. Luxurious

## MATHEMATICS

1. A fair coin is tossed ten times. What is the probability of getting at least two heads?

- A.  $\frac{513}{1024}$
- B.  $\frac{615}{1024}$
- C.  $\frac{968}{1024}$
- D.  $\frac{1011}{1024}$

2. A man bought 220 mangoes at ₦5x. he sold each for 3x kobo and made a gain of ₦8. Find the value of x

- A. 2
- B. 5
- C. 10
- D. 6

3. Calculate the sum of infinity of

- $$1 + \frac{1}{3} + \frac{1}{9} + \frac{1}{27}$$
- A. 0 .33
  - B. 0 .67

- C. 1.5  
D. 2.5

4. If  $P + C^2$ , then n can be \_\_\_\_.

- A. 1  
B. 2  
C.  $\frac{3}{2}$   
D. 3

5. Express  $\tan 22\frac{1}{2}^\circ$  in the surd form

- A.  $\sqrt{2}-2$   
B.  $1-\sqrt{2}$   
C.  $\sqrt{2}-1$   
D.  $+\sqrt{2}+1$

6. If  $\sin(x-a) = \cos(x+a)$ , then tan is

- A. 0.8  
B. 0.75  
C. 1.0  
D. 6.28

7. Simplify  $11011_3$

- A.  $10100_3$   
B.  $1100_2$   
C.  $1110_3$   
D.  $1011_2$

8. A binary operation x is defined on R, the set read numbers by  $xy = \sqrt{XY} = \sqrt{YX}$  for all X,Y ER. If  $X*(2*8)=6$ , find x

- A. 2  
B. 4  
C. 9  
D. 10

9. Find the mean deviation of 5,8,7 and 2.

- A. 0  
B. 2  
C. 5  
D. 10

10. The volume of two similar solid cubes are  $729\text{cm}^3$  and  $512\text{cm}^3$ . Find the ratio of their lengths

- A. 4:3  
B. 9:7  
C. 3:2  
D. 9:8

## PHYSICS

1. Which of the following is not true about semi-conductor?

- A. moving holes are equivalent to moving positive charges  
B. there are two kind of charges carrier; free electron and hole  
C. the escape of a valence electron from an atom produces electron holes pair of charge carrier  
D. Increase in temperature increases its electrical resistance

2. The minimum energy necessary to remove an electron from a given atom at infinity is called \_\_\_\_\_.

- A. excitation  
B. ground state energy  
C. ionizing energy  
D. binding energy

3. Find the de Broglie wavelength of a 0.01 kg pallet having a velocity of 10m/s and energy:  $663 \times 10^{34}\text{js}$

- A.  $6.63 \times 10^{31} \text{ m}$   
B.  $6.63 \times 10^{-32} \text{ m}$   
C.  $6.63 \times 10^{-33} \text{ m}$

4. A set-up transformer is designed to operate from a 25v supply. If the transformer is 80% efficient, determine the current in the primary coil when the output terminals are not connected to 240v 100w lamp

- A. 5.0A  
B. 4.0A  
C. 2.5A  
D. 2.0A

5. An object of mass 0.2kg and density  $600\text{kgm}^{-3}$  is suspended with a string so that it is immersed in paraffin of density  $900\text{kgm}^{-3}$ . Find the tension in the string

- A. 0.2 N  
B. 2.0 N  
C. 1.0 N  
D. 0.1 N

6. A rocket burns fuel at the rate of  $20\text{kgs}^{-1}$  and eject it with a velocity of  $5.0 \times 10^3 \text{ m/s}^{-1}$ . Calculate the thrust exerted by gas on the rocket.

- A.  $1.0 \times 10^5 \text{ms}^{-1}$   
B.  $2.0 \times 10^5 \text{ms}^{-1}$   
C.  $3.0 \times 10^5 \text{ms}^{-1}$   
D.  $5.0 \times 10^5 \text{ms}^{-1}$

7. Which of the following pairs consist fundamental quantities only?

- A. velocity and gravitational potential
  - B. acceleration and field strength
  - C. momentum and work done
  - D. moment and mass.
8. One of the limitations of Thomson's model of the atom is that it does not explain.
- A. Small angle
  - B. stability of the atom
  - C. ionization process
  - D. the variation of the effective atomic radius
9. A wire carrying a current of 10A and 2.5m length is placed in a field of flux density 0.14T. what is the force of the wire if it is placed at 60° to field?
- A. 30.3N
  - B. 20.5N
  - C. 15.3N
  - D. 10.5N
10. In the transformer, the magnetism of the core is repeatedly reverse by the magnetic field resulting in energy as heat. The loss is called \_\_\_\_\_.
- A. Eddy current
  - B. hysteresis loss
  - C. flux linkage
  - D. joule heating loss

### BIOLOGY

1. In bird. the following feathers possess after shaft
- A. Quill and filoplumes
  - B. Down and filoplumes
  - C. Covert and down
  - D. Quill and covert
2. The nutritive layer of the eye in mammals is \_\_\_\_\_.
- A. refracting media
  - B. conjunctiva
  - C. Cornea
  - D. Sclera
3. Ultra-filtration in the Kidney takes place in the \_\_\_\_\_.
- A. Bowman's Capsule
  - B. Pelvis
  - C. Loop of Henle
  - D. Proximal Convoluted Tubule
4. Which of the following bones is not a component of the fore limb?

- A. Olecranon
  - B. Ulna
  - C. Tibia
  - D. Humerus
5. The condition in which the anthers mature before the stigma is called \_\_\_\_\_.
- A. protandry
  - B. Epigyny
  - C. Hypogyny
  - D. protogyny
6. In most true ferns, sporangia are grouped into \_\_\_\_\_.
- A. indusium
  - B. fronds
  - C. sori
  - D. Prothallis
7. The ratio of carriers to suckers in the F<sub>2</sub> generation derived from a parental P cross at two carriers of haemoglobins S gene is \_\_\_\_\_.
- A. 3:1
  - B. 1:3
  - C. 2:1
  - D. 1:2
8. In which part of a leguminous plant can bacteria like Azotobacter be found?
- A. Spongy mesophyll
  - B. Root nodules
  - C. stem internodes
  - D. Stem nodes
9. In a dicotyledonous stem, companion cells are found close to the \_\_\_\_\_.
- a. Endodermal cells
  - B. Silver tubes
  - C. Xylem vessels
  - D. Pericyclic fibres
10. The position occupied by an organism in a food chain is referred to as \_\_\_\_\_.
- A. Trophic level
  - B. Niche Level
  - C. Energy level
  - D. feed level

### CHEMISTRY

1. Natural water include the following except \_\_\_\_\_.
- A. Rain water
  - B. Spring water
  - C. pure water



D. Lake water

2. Which of the following methods cannot be used to remove permanent hardness from water?

- A. Adding of washing soda
- B. addition of caustic soda
- C. perunit method
- D. adding alum to water

3. If the solubility of sodium tetraoxosulphate (IV) at 30°C is 18g per 100g How much is this gram per kilogram?

- A. 18g per 100g
- B. 180g per 100g
- C. 180g per 1000g
- D. 180g per mg

4. The following are example of colloid except \_\_\_\_\_.

- A. Milk
- B. starch in water
- C. aerosol
- D. ammonium chloride solution

5. The pH of the solution M, N, O, and P are 4,6,8 and 10 respectively. Therefore

- A. none of the solution is acidic
- B. the pH of the O made neutral by adding water
- C. the most acidic solution is P
- D. Mis the most acidic solution

6. Sodium chloride may be obtained from brine by \_\_\_\_\_.

- A. detection
- B. distillation
- C. evaporation
- D. sublimation

7. Oil spillage in pond and creek can be cleared by \_\_\_\_\_.

- A. Burning of the oil layer
- B. spraying with detergent
- C. spraying with common salt
- D. spraying with oil

8. Which of the following is a chemical compound?

- A. Soap
- B. milk
- C. urine
- D. gold

9. Crystallization is a separation method used \_\_\_\_\_.

- A. where purity of the product is important
- B. Where beauty of the product is important
- C. where the product is a solid
- D. where the product cannot be destroyed by heat

10. Which hydroxide dissolves in water to form an alkaline

- A. Aluminium hydroxide
- B. Calcium hydroxide
- C. Copper hydroxide
- D. Iron hydroxide

### ANSWERS TO ABU POST UTME 2014/2015

#### ENGLISH

1. A 2. A 3. A 4. B 5. C 6. A 7. A 8. B 9. B  
10. C

#### MATHEMATICS

1. A 2. B 3. C 4. - 5. C 6. B 7. - 8. - 9. A  
10. D

#### PHYSICS

1. D 2. C 3. D 4. A 5. C 6. A 7. D 8. B 9. A  
10. B

#### BIOLOGY

1. C 2. C 3. A 4. C 5. A 6. B 7. C 8. B 9. B  
10. A

#### CHEMISTRY

1. C 2. A 3. D 4. D 5. A 6. C 7. A 8. A 9. A  
10. -

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# 2013/2014 Post-UTME SCREENING

Time allowed: 1 hour

Answer all questions: shade the answer sheet as appropriate with **HB** pencil only

## CHEMISTRY

1. A mixture contains  $20\text{cm}^3$  of hydrogen,  $35\text{cm}^3$  of oxygen,  $15\text{cm}^3$  of carbon dioxide and  $10\text{cm}^3$  of nitrogen at S.T.P which of the following gives the mole fraction of hydrogen in this mixture?

- A. 0.02
- B. 0.16
- C. 0.20
- D. 0.25
- E. 2.0

2.  $0.07\text{g}$  of a hydride of carbon occupies  $56$  at S.T.P when vaporized and contains  $14.29\%$  by mass of hydrogen. The formula of the hydrocarbon is

- A.  $\text{CH}_4$
  - B.  $\text{C}_2\text{H}_2$
  - C.  $\text{C}_2\text{H}_4$
  - D.  $\text{C}_2\text{H}_6$
  - E.  $\text{C}_3\text{H}_8$
- [C = 12, H = 1]

3. The pressure on  $100\text{cm}^3$  of oxygen gas at  $35^\circ\text{C}$  is  $750\text{mm}$  of Hg. What would be the volume of the gas if the pressure is increased to  $1000\text{mm}$  of Hg without changing the temperature?

- A.  $133.3\text{ cm}^3$
- B.  $85\text{ cm}^3$
- C.  $75\text{ cm}^3$
- D.  $65\text{ cm}^3$
- E.  $58\text{ cm}^3$

4. Which of the following bonds exist in crystalline ammonium chloride ( $\text{NH}_4\text{Cl}$ )?

- A. ionic and covalent
- B. ionic and co-ordinate
- C. ionic, covalent and co-ordinate
- D. covalent, co-ordinate and metallic
- E. ionic, covalent and metallic

5. Which of the following is a neutralization reaction? Addition of \_\_\_\_\_.

- A. nitric acid to hydrochloric acid
- B. nitric acid to sulphuric acid

- C. acid to distilled water
- D. nitric acid to sodium hydroxide
- E. sodium chloride to distilled water

6. In the preparation of carbon monoxide by heating ethanoic acid with concentrated sulphuric acid, the concentrated sulphuric acid acts as \_\_\_\_\_.

- A. oxidizing agent
- B. reducing agent
- C. dehydrating agent
- D. reaction medium
- E. catalyst

7. How many grams of methyl acetylene (propane)  $\text{CH}_3\text{-C}\equiv\text{CH}$  will completely discharge the colour of  $8\text{g}$  of bromine? (Br = 80, C = 12, H = 1)

- A. 0.5
- B. 1.0
- C. 2.0
- D. 3.0
- E. 4.0

8. Brass is an alloy containing copper and \_\_\_\_\_.

- A. zinc
- B. tin
- C. aluminium
- D. silver
- E. lead

9.  $60\text{ cm}^3$  of hydrogen are sparked with  $20\text{cm}^3$  of oxygen at  $100^\circ\text{C}$  and 1 atmosphere. The total volume of the residual gases is \_\_\_\_\_.

- A.  $60\text{ cm}^3$
- B.  $10\text{ cm}^3$
- C.  $40\text{ cm}^3$
- D.  $30\text{ cm}^3$
- E.  $70\text{ cm}^3$

10. If the rate of diffusion of oxygen gas is taken as 1, what will be the rate of diffusion of methane whose relative molar mass is 16?

- A. 2.0
- B. 1.8
- C. 1.4
- D. 1.0
- E. 0.5

**USE OF ENGLISH**

In each of questions 11 to 20, choose the word(s) or phrase(s) which best fill(s) the gap(s)

11. The sea wave continue to \_\_\_\_\_ the cliff on the west coast constantly.

- A. impair
- B. rub
- C. knock
- D. erode

12. The college bus was traveling at a high \_\_\_\_\_ when the accident occurred.

- A. velocity
- B. acceleration
- C. rapidity
- D. speed

13. Note that only senior members of staff have the \_\_\_\_\_ of using the toilet upstairs.

- A. permission
- B. occasion
- C. privilege
- D. habit

14. The chief priest will \_\_\_\_\_ the main into the cut today.

- A. indoctrinate
- B. usher
- C. convert
- D. initiate

15. Obi is noted for his \_\_\_\_\_ attitude to his seniors at school.

- A. receptive
- B. Respectful
- C. respective
- D. respectable

16. The girl that my brother introduced to us last week is pretty \_\_\_\_\_ ill-mannered.

- A. and
- B. but also
- C. as well as
- D. respectable

17. The police report was \_\_\_\_\_ to that of the eye witness.

- A. contrary
- B. inconsistent

- C. different
- D. congruent

18. The African extended family system gives security to \_\_\_\_\_ members.

- A. his
- B. her
- C. its
- D. their

19. I know I \_\_\_\_\_ read more but I am tired.

- A. may
- B. ought to
- C. would
- D. could

20. Insects can become \_\_\_\_\_ to insecticides

- A. immunized
- B. resistant
- C. Reticent
- D. immobilized

**PHYSICS**

21. Which of the following is a scalar quantity?

- A. momentum
- B. acceleration
- C. displacement
- D. distance
- E. force

22. What change in velocity would produce a body of mass 4kg if a constant force of 16N acts on it for 2s?

- A. 0.5m/s
- B. 2.0m/s
- C. 8.0m/s
- D. 32.0m/s
- E. 128.0m/s

23. A body accelerates uniformly from rest at the rate of  $3\text{m/s}^2$  for 8s. Calculate the distance covered by the body during the acceleration.

- A. 12m
- B. 24m
- C. 48m
- D. 72m
- E. 96m

24. Which of the following has the same unit as the moment of a force?

- A. force
- B. power

- C. Work
- D. momentum
- E. charge

25. Which of the following will reduce the frequency of oscillation of a simple pendulum?

- A. increasing the mass of the bob
- B. decreasing the mass of the bob
- C. increasing the length of the string
- D. decreasing the length of the string
- E. increasing the amplitude of oscillation

26. A barometer can be used in determining the length of a

- i. mountain
- ii. Depth of a mine
- iii. Dew point.

Which of the following is/are correct?

- A. i, ii, iii
- B. ii and iii only
- C. i and iii only
- D. i and ii only
- E. iii only

27. Which of the following colours of surfaces will radiate heat energy best?

- A. red
- B. white
- C. black
- D. yellow
- E. blue

28. A gas which obeys Charles law exactly has a volume of  $283\text{cm}^3$  at  $10^\circ\text{C}$ . What is its volume at  $30^\circ\text{C}$ ?

- A.  $142\text{ cm}^3$
- B.  $293\text{ cm}^3$
- C.  $303\text{ cm}^3$
- D.  $566\text{ cm}^3$
- E.  $849\text{ cm}^3$

29. A real image of an object formed by a converging lens of focal length  $15\text{cm}$  is 3 times the size of the object. What is the distance of the object from the lens?

- A.  $30\text{cm}$
- B.  $25\text{cm}$
- C.  $20\text{cm}$
- D.  $15\text{cm}$
- E.  $10\text{cm}$

30. How far from a cliff should a boy stand to hear the echo of his clap  $0.9\text{s}$  later? (speed of sound in air =  $330\text{m/s}$ )

- A.  $36.67\text{m}$
- B.  $74.25\text{m}$
- C.  $148.50\text{m}$
- D.  $297.00\text{m}$
- E.  $366.67\text{m}$

### MATHEMATICS

31. Find  $n$  if  $34_n = 100112$

- A. 5
- B. 6
- C. 7
- D. 8

32. The radius of a circle is given as  $5\text{cm}$  subject to an error of  $0.1\text{ cm}$ . What is the percentage error in the area of the circle?

- A.  $\frac{1}{25}$
- B.  $\frac{1}{4}$
- C. 4
- D. 25

33. What is the value of  $x$  satisfying the equation  $4^{2x}/4^{3x} = 2$

- A. -2
- B.  $-\frac{1}{2}$
- C.  $\frac{1}{2}$
- D. 2

34. If  $x = 3 - \sqrt{3}$ , find  $x^2 + \frac{36}{x^2}$

- A. 9
- B. 18
- C. 24
- D. 27

35. Solve the equation  $y^2 - 11y + 24 = 0$

- A. 8, 3
- B. 64, 9
- C. 6, 4
- D. 9, -8

36. A man invested a sum of ₦280.00 partly at 5% and partly at 4%. If the total interest is ₦12.80 per annum, find the amount invested at 5%.

- A. ₦14.00
- B. ₦120.00
- C. ₦140.00
- D. ₦160.00

37. Ice forms on a refrigerator ice box at the rate of  $4.06\text{ g}$  per minute after 1 minute. If initially there were  $2\text{g}$  of ice, find the mass of ice formed in 5 minutes

- A. 19.5
- B. 17.0
- C. 14.5
- D. 12.5

38. Obtain a maximum value of the function  $f(x) = x^3 - 12x + 11$

- A. -5
- B. -2
- C. 2
- D. 27

39. Two perfect dice were thrown together. Determine the probability of obtaining a total score of 8.

- A.  $\frac{1}{12}$
- B.  $\frac{5}{36}$
- C.  $\frac{1}{6}$
- D.  $\frac{7}{36}$

40. The probability of an event P is % while that of another event Q is  $\frac{1}{6}$ . If the probability of both P and Q is  $\frac{1}{12}$ , what is the probability of either P or Q?

- A.  $\frac{1}{96}$
- B.  $\frac{1}{8}$
- C.  $\frac{5}{6}$
- D.  $\frac{11}{12}$

### BIOLOGY

41. Which of the following organelles is used for locomotion in paramecium?

- A. pseudopodium
- B. irichocyst
- C. cilium
- D. pellicle
- E. contractile vacuole

42. Which of the following is not true of the nucleus of a living cell? It contains \_\_\_\_\_.

- A. Chromosomes
- B. nucleus
- C. nucleoplasm
- D. chromatids
- E. ribosomes

43. The cell membranes consists of \_\_\_\_\_.

- A. carbohydrates and lipids
- B. vitamins and proteins
- C. lipids and proteins
- D. water and sugar
- E. starch and cellulose

44. Which of the following is not likely to be found in the cell of a ripe tomato fruit?

- A. plastids
- B. chlorophyll
- C. cellulose cell wall
- D. mitochondrion
- E. mineral salts

45. Osmosis can be defined as diffusion of \_\_\_\_\_

- A. atoms and molecules through a membrane to an area of higher concentration
- B. water molecules for a dilute solution to a concentrated solution across a permeable membrane
- C. water molecules from area of high concentration to an area of low concentration
- D. water molecules from a dilute solution to a concentrated solution through a semi-permeable membrane
- E. perspiration and excretion

46. The movement of diaphragm is a characteristic of gaseous exchange in \_\_\_\_\_.

- A. insect
- B. Fish
- C. toad
- D. mammal
- E. plants

47. In cellular respiration, energy is stored in the form of \_\_\_\_\_.

- A. adenosine diphosphate (ADP)
- B. adenosine mono phosphate (AMP)
- C. adenosine triphosphate (ATP)
- D. heat energy
- E. electrical energy

48. The medium in which dissolved nutrient are transported in the body of vertebrates is called \_\_\_\_\_.

- A. latex
- B. urine
- C. cell sap
- D. blood
- E. haemoglobin

49. Which of the following structures of the leaf contains air?

- A. guard cell
- B. palisade layer
- C. intercellular space
- D. vascular bundle
- E. upper epidermis

50. Which of the following organs is specially adapted for gaseous exchange in aquatic organisms?

- A. lungs
- B. trachea
- C. gills
- D. tracheoles
- E. Alveoli

**ANSWERS TO ABU POST UTME  
2013/2014 EXAM**

1. D 2. 3. C 4. C 5. D 6. C 7. C 8. A 9. E  
10. D

**USE OF ENGLISH**

11. D 12. D 13. A 14. D 15. D 16. B 17. A  
18. C 19. B 20. B

**PHYSICS**

21. C 22. C 23. E 24. C 25. C 26. E 27. C  
28. C 29. C 30. C

**MATHEMATICS**

31. A 32. A 33. B 34. C 35. A 36. D 37. D  
38. D 39. B 40. C

**BIOLOGY**

41. C 42. D 43. C 44. B 45. D 46. D 47. C  
48. D 49. C 50. C

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# 2012/2013 POST-UTME SCREENING

**Time allowed: 1 hour**

- Dimension of absolute viscosity is \_\_\_\_\_.
  - $ML^{-1}T^{-1}$
  - $MLT^{-1}$
  - $ML^{-1}T$
  - $MLT$
- Turbulent flow generally occurs for cases involving \_\_\_\_\_.
  - highly viscous fluid
  - very narrow passages
  - very slow-motion
  - none of these
- Forces acting on a particle setting in fluid are \_\_\_\_\_ forces.
  - gravitational and buoyant
  - centrifugal and buoyant
  - gravitational or centrifugal buoyant drag
  - external, drag and viscous
- Which of the following equations applies at terminal viscosity?
  - $mg - V - U = 1$
  - $mg - V - U = 0$
  - $V + mg - U = ma$
  - $U - ma + mg = 0$
- Which of the following is not a high viscous fluid?
  - kerosene
  - glue
  - grease
  - glycerine
- Mercury is an ideal barometric fluid mainly due to its \_\_\_\_\_.
  - high density
  - low compressibility
  - low capillary action
  - very low vapour pressure
- Dimension of surface tension is \_\_\_\_\_.
  - $FL^{-1}$
  - $F^{-1}L$
  - $FL^{-2}$
  - $F^{-2}L$
- Which of the following has the smallest least effect on the solubility of a solute into the solvent?
  - nature of the solute
  - nature of the solvent
  - temperature
  - pressure
- Which of the following is insensitive to changes in pressure?
  - Heat of vaporization
  - melting point
  - heat of fusion
  - both B and C
- Vapour pressure of water at  $100^{\circ}C$  is about \_\_\_\_\_ bar.
  - 0.1013
  - 1.013
  - 10.13
  - 101.3
- If  $w$  is the mode and  $z$  is the median of the following set of numbers: 2.4, 2.1, 1.6, 2.6, 2.6, 3.7, 2.1 and 2.8. then  $(3w, 2z)$  is \_\_\_\_\_.
  - (2.6, 2.5)
  - (21, 2.5)
  - (7.8, 5.0)
  - (52, 5.0)
- A trapezium has two parallel sides of length 6cm and 8cm. if the area is 42cm, find the distance between the parallel sides.
  - 6cm
  - 7cm
  - 8cm
  - 5cm
- An arc of a circle of length 22cm subtends an angle of  $3y^{\circ}$  at the centre of the circle. Find the value of  $y$ , if the radius of the circle is 7cm.
  - $30^{\circ}$
  - $60^{\circ}$
  - $120^{\circ}$
  - $150^{\circ}$
- Find the locus of a point which moves such that its distance from the line  $y = 3$  is a constant  $k$ .
  - $y = 3 + k$

- B.  $y = 3 - k$
- C.  $y = 3 + k$
- D.  $y = k - 3$

15. From the following list of type vi mutation. Identify the one that is hereditary.

- A. genetic mutation
- B. somatic mutation
- C. germinal mutation
- D. gametic mutation

16. Which of these would not be a limiting factor in photosynthesis?

- A.  $O_2$
- B.  $CO_2$
- C. chlorophyll
- D. light

17. In a cell digestive enzyme mostly occur in \_\_\_\_\_.

- A. ribosome
- B. lysosome
- C. mitochondria
- D. plastids

18. Which of the following factors is not associated with aquatic habitat?

- A. temperature
- B. light intensity
- C. humidity
- D. turbidity

19. Terrestrial organisms which are capable of maintaining their body temperatures constant within fairly close limits are referred to as \_\_\_\_\_.

- A. thermoclines
- B. protothemes
- C. poikilotherms
- D. eurytherms

20. Which of the following statements is not true of a climax vegetation?

- A. is ecological phenomenon
- B. is as table community
- C. eliminates competition
- D. results from succession

21. The causative organisms of sleeping sickness is the \_\_\_\_\_.

- A. trypanosome
- B. plasmodium
- C. vibrio bacterium
- D. penicillin

**From the words lettered A to D, choose the word or group of words that best completes each of the following sentences.**

22. Adamu is a very good friend on \_\_\_\_\_ I can rely on.

- A. who
- B. whose
- C. which
- D. whom

23. I ought the letter by now.

- A. to be sent
- B. to have being sent
- C. to have sent
- D. to have to send

24. Edna's fever was so acute that she an injection

- A. had to have
- B. had to had
- C. must have
- D. ought to have

25. I know of a cow\_has only three legs.

- A. whom
- B. which
- C. who
- D. of which

26. Ranti: This is not my key. Ayo: Then Is it?

- A. of which
- B. whose
- C. who's
- D. whom

27. There was no meat in the market\_Ada bought some fish.

- A. so
- B. unless
- C. since
- D. whereas

28. The police vehicles raced full speed with their sirens blaring.

- A. on
- B. with
- C. at
- D. in

29. Tutu liked to read detective novels to take his mind\_his worries.

- A. off

- B. away
- C. out of
- D. from

30. I don't know what to do with these children. They are always fighting.

- A. themselves
- B. myself
- C. one another
- D. each of them

31. Wale couldn't have said a thing like that

- A. could he?
- B. did he?
- C. can he?
- D. would he?

32. If she had known, she wouldn't have come \_\_\_\_\_.

- A. would she?
- B. wasn't it?
- C. wouldn't it?
- D. couldn't she?

33. The separation of oil and water with different boiling points can best be achieved by:

- A. fractional distillation
- B. decantation
- C. evaporation
- D. using a separating funnel

34. Calculate the minimum volume of oxygen that is required for the complete combustion of a mixture of 20cm<sup>3</sup> of CO and 25cm<sup>3</sup> of hydrogen.

- A. 45 cm<sup>3</sup>
- B. 22.5cm<sup>3</sup>
- C. 20 cm<sup>3</sup>
- D. 10 cm<sup>3</sup>

35. An increase in temperature causes an increase in the pressure of a gas because there is an increase in the \_\_\_\_\_.

- A. average velocity of the gas molecules
- B. number of collisions between the gas molecules
- C. density of the gas molecules
- D. free mean path between each molecule and the other

36. A liquid begins to boil when \_\_\_\_\_.

- A. its vapour pressure is equal to the vapour pressure of its solid at a given temperature
- B. molecules start escaping from the surface

C. its vapour pressure equals the atmospheric pressure

D. its volume is slightly increased

37. If the relative rate of diffusion of a gas is 0.25 and that of Cl under the same condition is 0.20. calculate the relative molecular mass of the gas.

- A. 22.7
- B. 45.4
- C. 68.1
- D. 90.8

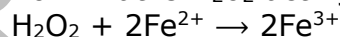
38. The following molecules contain hydrogen bonding EXCEPT \_\_\_\_\_.

- A. ammonia
- B. ethanoic acid
- C. hydrogen fluoride
- D. water

39. If 20 cm<sup>3</sup> of distilled water is added to 80cm<sup>3</sup> of 0.50mol/dm<sup>3</sup> HCl solution, the new concentration of the acid is \_\_\_\_\_.

- A. 0.10 mol/dm<sup>3</sup>
- B. 0.20mol/dm<sup>3</sup>
- C. 0.40mol/dm<sup>3</sup>
- D. 2.00mol/dm<sup>3</sup>

40. What is H<sub>2</sub>O<sub>2</sub> acting as in the equation?



- A. oxidizing agent
- B. reducing agent
- C. an acid
- D. a base

41. A 12V battery supplying a current of 20A was used to melt 1.5kg of ice at 0°C.

Calculate the time required if the latent heat of fusion of ice is 336 x 10J/kg

- A. 35.0 min
- B. 3.5 min
- C. 76 min
- D. 21.0 min

42. The light from the sun reaches the earth mainly by \_\_\_\_\_.

- A. convection
- B. conduction
- C. radiation
- D. reflection

43. One valid assumption of the kinetic theory of gases is that \_\_\_\_\_.

- A. the molecules are in random motion and the number of collisions is constant

- B. the number of molecules increases with the pressure
- C. the molecules of the gas are all identical and are very small in size
- D. the number of molecules increases with temperature

44. An astronomical telescope is said to be in normal adjustment when the \_\_\_\_.

- A. eye is accommodated
- B. focal length of the objective lens is longer than that of the eye piece
- C. final image is at the near point of the eye
- D. final image is at infinity

45. Which of the following parts of a cell is living?

- A. cell wall
- B. calcium oxalate
- C. food vacuole
- D. mitochondria

46. Cells without an organized nucleus are called \_\_\_\_.

- A. heterokaryote
- B. eukaryote
- C. prokaryote
- D. synkaryote

47. The sites for energy transfer within a cell are known as \_\_\_\_.

- A. Golgi apparatus
- B. parenchyma
- C. mitochondria
- D. nucleolus

48. Food and dissolved oxygen pass from the water directly into the amoeba by a process called \_\_\_\_.

- A. transport
- B. diffusion
- C. fission
- D. transpiration

49. Which one of these functions is not performed by the nervous system?

- A. receive sensory input from internal and external environment
- B. digestion
- C. integration
- D. response to stimuli

50. In man, gas exchange occurs in the \_\_\_\_.

- A. heart

- B. white blood cells
- C. lungs
- D. kidney

## ANSWERS TO ABU 2012/2013 POST-UTME

1. A 2. C 3. C 4. A 5. B 6. A 7. A 8. D 9. A  
10. D 11. C 12. A 13. B 14. C 15. B 16. A  
17. A 18. D 19. C 20. C 21. A 22. D 23. C  
24. C 25. B 26. B 27. A 28. A 29. A 30. A  
31. A 32. A 33. D 34. D 35. B 36. A 37. B  
38. C 39. C 40. A 41. D 42. D 43. D 44. B  
45. D 46. B 47. C 48. D 49. B 50. C

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# 2010/2011 POST-UTME SCREENING

Time allowed: 1 hour

## USE OF ENGLISH

**From the words or group of words lettered A to D, choose the word or group of words that best complete each of the following sentences**

1. \_\_\_\_\_ of the five boys was able to show me the way to the zoo.

- A. none
- B. neither
- C. any
- D. some

2. This \_\_\_\_\_ be David's handwriting; I know his handwriting well enough.

- A. may
- B. will
- C. ought
- D. can't

3. \_\_\_\_\_ thing she had in the room were thrown out.

- A. so few
- B. the few
- C. all few
- D. very few

4. There are five boys \_\_\_\_\_.

- A. of which two were beaten
- B. whom two were beaten
- C. two of whom were beaten
- D. of whom two of them were beaten

5. This is the man \_\_\_\_\_ told me the story.

- A. whom I said
- B. who I said
- C. said that he
- D. who I said he

6. Many students find mathematics \_\_\_\_\_ than English.

- A. difficult
- B. too difficult
- C. very difficult
- D. more difficult

7. It is such a bad place \_\_\_\_\_ I will never dream of going there another time.

- A. therefore

- B. thus
- C. that
- D. then

8. He has not been seen by his parent \_\_\_\_\_ last month.

- A. since
- B. for
- C. getting
- D. since over

9. The \_\_\_\_\_, came here last week.

- A. handsome tall young man
- B. young tall handsome man
- C. tall handsome young man
- D. young handsome tall man

10. The activities marking the golden jubilee celebration of the club were \_\_\_\_\_ with a party.

- A. rounded off
- B. rounded over
- C. rounded through
- D. rounded up

**Choose the option that is most nearly opposite in meaning to the underlined word and that will, at the same time, correctly fill the gap in the sentence.**

11. To encourage productivity we must reward industry and laziness.

- A. with hold
- B. withdraw
- C. punish
- D. oppose

12. It is quite customary to introduce the guest speaker but \_\_\_\_\_ to insult him. A. illegally

- B. impolite
- C. unusual
- D. useless

13. I encourage my younger brothers to take on law as a profession while \_\_\_\_\_ my sister from doing so.

- A. warned
- B. dissuaded
- C. persuaded
- D. helped

14. Olu was able to kindle the fire which my father had to \_\_\_\_\_ later.

- A. switch
- B. extinguish
- C. destroy
- D. ignite

15. It is curious how Bayo can be so carefree in his ways when his brother is so \_\_\_\_\_.

- A. meticulous
- B. eccentric
- C. easy-going
- D. indifferent

**Choose the option that best explain the underlined idiomatic expression in each sentence.**

16. Mr. John has always managed to keep his head oppression.

- A. keep his head above water while swimming
- B. known the technique of swimming
- C. stay out of financial difficulty
- D. he is trying to pay up it borrowed money

17. The men eventually get their own back on their oppression.

- A. strike
- B. have their revenge on
- C. beat up
- D. abuse

18. He went off the rails as soon as he heard of his failure in the last examination.

- A. became annoyed
- B. wept bitterly
- C. became disorganized
- D. lost consciousness

19. She is eating her heart out for a sailor who is away at the sea.

- A. long for
- B. quarrelling with
- C. fuming about
- D. hating

20. You can't make bricks without straw.

- A. use a straw for making bricks
- B. afford not to have all the necessary materials
- C. seek a leader
- D. erect a brick without straws

## PHYSICS

21. Which of these statements is correct about cathode rays. They are fast moving

- A. atoms
- B. neutrons
- C. electrons
- D. ions

22. Which of the following has the highest surface tension?

- A. soapy water
- B. cold water
- C. warm water
- D. salt water

23. A truck traveling with a velocity of 40m/s applies the brakes and comes to a halt after 20s. what is the distance travelled by the truck before coming to a halt

- A. 40m
- B. 800m
- C. 400m
- D. 10m

24. If the linear expansivity of a metal rod is  $4 \times 10^{-5}$  per  $^{\circ}\text{C}$ , what will be the new length of the rod if it is heated from  $15^{\circ}\text{C}$  to  $95^{\circ}\text{C}$  from its original length of 20cm.

- A. 0.064cm
- B. 0.64cm
- C. 20.64cm
- D. 20 064cm

25. 44kJ heat was used in raising the temperature of 2kg of paraffin oil from 360k to 370k. calculate the specific head capacity of paraffin oil.

- A. 2.2J/kg/K
- B.  $2.2 \times 10^3$ J/kg/K
- C.  $2.2 \times 10^5$  J/kg/K
- D. 220J/kg/K

26. A simple machine overcomes a load 4000N when a force of 200N is applied. If the velocity ratio of the machine is 25, calculate the efficiency of the machine.

- A. 1.25%
- B. 80%
- C. 125%
- D. 0.8%

27. A long sighted person is to read a book held at a distance of 20cm from the eyes.



Which of the following will the person require to read the book with ease?

- A. nothing
- B. concave lens
- C. convex lens
- D. concave mirror

28. An object at the bottom of a pool of liquid 10 m deep is seen by an observer as if it is at 8m deep. What is the refractive index of the liquid?

- A. 0.25
- B. 0.20
- C. 1.25
- D. 0.8

29. Which of the following has the highest surface tension?

- A. soapy water
- B. cold water
- C. warm water
- D. salt water

30. The emf developed in a circuit is directly proportional to the rate of change of magnetic flux. The above was a finding from \_\_\_\_\_.

- A. Maxwell
- B. Faraday
- C. Ampere
- D. Lenz

### BIOLOGY

31. Which of these is a sense organ?

- A. spleen
- B. mouth
- C. eye
- D. heart

32. What is the function of the vas deferens in the male reproductive organ?

- A. transports sperm only
- B. transports urine and sperm
- C. transports urine only
- D. none of the above

33. Food materials manufactured in plants are transported through the \_\_\_\_\_.

- A. xylem
- B. phloem
- C. cambium
- D. cortex

34. When a red blood cell is placed in water, the process of water movement is \_\_\_\_\_.

- A. osmosis
- B. diffusion
- C. imbibition
- D. active transport

35. The enzyme contained in bile is \_\_\_\_\_.

- A. trypsin
- B. lipase
- C. ptyalin
- D. lactase

36. Which of these factors in the blood is responsible for blood clotting?

- A. fibrinogen
- B. heparin
- C. plasma
- D. red blood cells

37. Fat soluble vitamins are stored in \_\_\_\_\_.

- A. liver
- B. spleen
- C. pancreas
- D. skin

38. The unit of the nervous system is \_\_\_\_\_.

- A. neuron
- B. axon
- C. dendrite
- D. myelin sheet

39. Moulting involves the \_\_\_\_\_.

- A. shedding of exoskeleton in insects in order to replace with better ones
- B. shedding of exoskeleton in insects in order to grow new ones
- C. shedding of exoskeleton in insects in response to seasonal changes
- D. none of the above

40. Pepsin is a digestive enzyme which breaks \_\_\_\_\_.

- A. sucrose into glucose and fructose
- B. carbohydrates into simple sugars
- C. protein into peptones
- D. fats into glycerol and fatty acids

### CHEMISTRY

41. If the rate law obtained for a given reaction is given as rate =  $K[X]^n[Y]^m$ . what is the overall order of the reaction?

- A. nm
- B. n/m
- C. n + m
- D. n - m

42. A molecular formula shows \_\_\_\_\_ in a molecule.

- A. the elements present
- B. the number of atoms of each element
- C. cations and anions
- D. chemical symbols and number of atoms

43. Give the total mass of copper in 1 gram of copper (II) sulphate [Cu = 40, S = 32, O=16]

- A.025g
- B.050g
- C.10g
- D.25g

44.  ${}_{55}^{114}\text{Cs} \rightarrow {}_Z^A\text{E} + {}_2^4\alpha$ . Find the value of A and Z in the equation above.

- A. 119, 53
- B. 110, 57
- C. 11 0, 53
- D. 110, 58

45. How many moles of H<sub>2</sub> molecules are needed to convert 5mole of O<sub>2</sub> molecules to water?

- A. 5 mole H<sub>2</sub>
- B. 10 mole H<sub>2</sub>
- C. 15mole H<sub>2</sub>
- D. 20 mole H<sub>2</sub>

46.  ${}_{88}^{226}\text{Ra} \rightarrow {}_Z^A\text{Rn} + \alpha$ . What is the value of x in the nuclear reaction above?

- A. 220
- B. 222
- C. 226
- D. 227

47. When naphthalene on heating changes from solid state directly to the gaseous state, it undergoes

- A. sublimation
- B. evaporation
- C. combustion
- D. decomposition

48. Which of the following is an electrolyte?

- A. alcohol
- B. sodium ethanoate
- C. solid potassium hydroxide
- D. mercury

49. The equation  ${}_{7}^{14}\text{N} + {}_2^4\text{He} \rightarrow {}_8^{17}\text{O} + {}_1^1\text{P}$

- A. nuclear fusion
- B. nuclear fission
- C. artificial radioactivity
- D. nuclear fission using positron

50. Which of the following is a general method of preparing acids?

- A. direct combination of constituent elements
- B. double decomposition involving a salt solution
- C. reaction between an anhydride and water
- D. reaction between a base and an amphoteric oxide
- E. decomposition of hydroxides followed by neutralization

## ANSWERS TO ABU 2010/2011 POSTUTME

### ENGLISH

1. A 2. A 3. B 4. A 5. A 6. D 7. C 8. A 9. C  
10. A 11. C 12. C 13. B 14. B 15. A 16. C  
17. C 18. C 19. A 20. B

### PHYSICS

21. C 22. B 23. A 24. D 25. B 26. B 27. C  
28. C 29. B 30. B

### BIOLOGY

31. C 32. A 33. B 34. A 35. --- 36. A 37. A  
38. A 39. B 40. C

### CHEMISTRY

41. C 42. D 43. A 44. C 45. B 46. C 47. A  
48. B 49. C 50. A

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