

**UNIVERSITY OF BENIN, BENIN CITY, NIGERIA**  
**POST UNIVERSITIES MATRICULATION EXAMINATION SCREENING TEST**  
**27<sup>th</sup> OCTOBER, 2005**

**Subject: USE OF ENGLISH**

**Time allowed: 30 minutes**

**INSTRUCTIONS**

**Read the following instructions carefully**

1. Use a **HB pencil** and shade in your answers. Ensure that any shading in error is thoroughly erased.
2. Candidates should write their full **Names** (Surname first). **JAMB Registration number. Paper code. Sex. JAMB score.** Faculty **of first choice and second choice** and the **Question Paper Option** given to them in the appropriate spaces on the **Answer sheets**.
3. Attempt all questions each candidate must submit the answer sheet with the question paper.
4. The use of calculators and/or similar electronic devices is **NOT allowed**.

**Read the passage I below carefully and answer the questions that follow**

Farming is the most important aspect of agriculture that has attracted attention within the last few years. Agriculture has several other aspects like fishery, livestock and poultry. All these are also very important in that they have to do with the production of items which humans consume for survival.

In many parts of the world today, farming has been regarded as the mainstay of the economy. Crops such cocoa, rubber and cotton have been produced in such commercial quantity that they are sold to other countries. Some countries have better comparative advantage in producing certain crops than other countries. In these other countries, there is the need to spend a lot of money on agriculture, particularly farming. Most farmers use outmoded tools. A lot of them have no place to store their crops, most of which are always destroyed by insects and pests before harvest time. All these have adverse effects on productivity.

The government can do a lot to help farmers. Farmers co-operative societies can be encouraged and loans can be made available to farmers through Government institutions like banks and finance corporations. Farmers can be taught how to build good storage structures for their produce. All these can help to improve the conditions of farming in these countries.

1. The most important aspect of agriculture mentioned in the passage is  
A. Poultry    B. Fishery    C. Livestock    D. Farming
2. Farming in many countries today is    A. an alternative to poultry    B. of great assistance to the economy  
C. for those who are out of job    D. for the illiterates
3. Some countries produce more and better crops than others because the farmers in the former  
A. are more educated    B. have greater manpower    C. have more modern equipment  
D. have more fertile land

4. In order to help improve the state of farming, the Government should
  - A. give all farmers enough money to work with
  - B. Sell enough fertilizers to all farmers
  - C. find ways of financing and modernizing the farming system
  - D. help farmers with the storage of their crops
5. A lot of crops harvested are wasted because farmers
  - A. allow insects and pests to destroy their crops
  - B. do not have enough money to invest in harvesters
  - C. do not have storage facilities
  - D. harvest too much at a time

**Read the passage below carefully and answer the questions that follow. Each question carries 2 marks**

**PASSAGE II**

Developments in electronic science has transformed the art of record keeping in the modern age. Traditionally, records of events were kept only in people's minds. It depended very much on the retentive power of the human memory. This was extremely dangerous as people either forget events wholly or in part, or deliberately falsified details to suit their various interests. Interminable arguments were thus the order of the day. Even writing, which replaced mental reading was not entirely free from these shortcomings as untruths could be written as true records either willingly or inadvertently. With the advent of the electronic memory, however, these dangers have been largely overcome. Recordings on audio or video cassettes now show not only what happened, but also who did or said what including how and when.

6. The author believes that electronic recording is
  - A. superior only to mental recording
  - B. inferior to both mental recording and writing
  - C. superior to both mental recording and writing
  - D. inferior to only writing
7. The writer believes that the art of record keeping has
  - A. improved over the years
  - B. endangered the art of writing
  - C. changed human memory
  - D. overcome all the problems facing human
8. How many stages of development did the writer mention while discussing the art of record keeping?
  - A. Two
  - B. Three
  - C. Four
  - D. Five
9. According to the author, human memory is unreliable because people
  - A. die and we forget what they said
  - B. forget events or tell lies
  - C. do not always know when events happen
  - D. do not always know who did what and when
10. From the passage, we gather that writing is almost
  - A. as unreliable as human memory
  - B. as reliable as electronic memory
  - C. more reliable than electronic memory
  - D. not to be compared to any other recording system

**In each of questions 11 to 13, identify the option that has a STRESS PATTERN different from the rest**

11. A. Factory B. Distinctive C. Regular D. National
12. A. Interpret B. Period C. Destructive D. Forever
13. A. Unless B. Enact C. Useless D. Combine

**In each of question 14 to 26, choose the option NEAREST IN MEANING to the word(s) or phrase(s) underlined**

14. The singer's popularity is beginning to decline.  
A. slope      B. disappear      C. wane      D. darken
15. Ade is at the verge of nervous breakdown, so he must be very careful. A. brink  
B. margin      C. avenue      D. fringe
16. An open car gives no protection against the elements.  
A. weather      B. atoms      C. dust      D. atmosphere
17. He has never been a good mediator even in minor family disputes because, in most cases his views are jaundiced. A. coloured      B. prejudiced      C. suspicious      D. unscrupulous
18. In some parts of our society, people are ostracized purely on the basis of their parentage.  
A. hated      B. disrespected      C. locked up      D. shut off from others
19. My friend will hate his uncle forever because he left him in the lurch at his hour of need.  
A. abandoned him      B. punished      C. disrespected him      D. despised him
20. All the efforts made to settle the quarrel were futile  
A. successful      B. fruitless      C. wicked      D. reasonable
21. Kelechi hardly ever falls sick A. most often      B. very seldom      C. frequently      D. sometimes
22. It is sheer fantasy to believe that there could never be a miscalculation by any nation that has atomic weapon A. dream      B. hope      C. nonsense      D. joke
23. The ingenious scheme of the robber broke down because of the efficiency of the police officer.  
A. suspicious      B. ambitious      C. deceitful      D. clever
24. Our town is so small that we are always meeting our school master accidentally  
A. falling into      B. finding      C. running into      D. stepping on
25. One has to score not less than 200 marks in the UME together with meeting other conditions to be qualified to write the Uniben post UME screening test.  
A. to be exempted      B. to become a candidate for      C. to be considered      D. to seek permission for
26. He went through fire before he qualified as a doctor  
A. a fire accident      B. a hilarious experience      C. some purification      D. some "tough" time

**In questions 27 to 40, choose the option opposite in meaning to the word underlined**

27. The chairman's verdict redressed the injustice meted out by the secretary  
A. corrected      B. restored      C. aggravated      D. addressed
28. Uche could not travel last December because of the severity of the harmattan  
A. cold      B. mildness      C. warmth      D. moderation
29. Travelling in the night can be an ordeal  
A. a great exercise      B. a great fear      C. a great endurance      D. a great pleasure
30. Bola is very provocative in her style of dressing,

- A. modest    B. happy    C. angry    D. beautiful
31. Joke thought that her father was very callous  
A. indifferent    B. compassionate    C. wicked    D. careless
32. "The Lions" of Cameroun is really an indomitable team  
A. a powerful    B. a compassionate    C. a weak    D. an unyielding team
33. To almost everyone in the little village, Ada's behaviour was almost odious  
A. repulsive    B. difficult    C. interesting    D. charming
34. Aduma was vociferous during the meeting of the congregation that he succeeded in incurring wrath of the chairman    A. anger    B. admiration    C. displeasure    D. sympathy
35. It was an inopportune for you to make that suggestion.  
A. ideal    B. a wrong    C. a exact    D. a sad
36. He deviated too much to the peripheral aspects.  
A. unimportant    B. superficial    C. minor    D. main
37. The climate of Nigeria is an enervating one.  
A. a weakening    B. an energy sapping    C. an invigorating    D. a sluggish
38. The girl's idiosyncrasy was a passion for bread and butter    A. stupid outburst    B. general tendency  
C. singular characteristics    D. occupational calling
39. Once he has decided that something needs doing, my brother is very unswerving of purpose  
A. erratic    B. tenacious    C. stubborn    D. simple
40. Those were the days of the fallacy that some languages are primitive while others are not.  
A. argument    B. exercise    C. misconception    D. truth

**Subject: GENERAL PAPER**

**Time allowed: 1 hour**

**INSTRUCTIONS**

- Sodium chloride may be obtained from brine by  
A. Decantation B. Distillation C. Evaporation D. Sublimation
- Which of the following is a chemical compound? A. Soap B. Milk C. Urine D. Gold
- Crystallization is a separation method used  
A. where purity of the product is important B. where beauty of the product is important  
C. where one of the products is a solid D. where the salt cannot be destroyed by heat
- Which of the following is not a mixture? A. sea water B. Iron II sulphide C. Petroleum D. Urine
- Carbon forms two oxides. Ratio of oxygen in both oxides is 1:2, if one mole of carbon separately combines with oxygen, deduce the formula of the oxides  
A. CO:CO<sub>2</sub> B.CO<sub>2</sub>:CO<sub>3</sub> C. CO<sub>2</sub>:C<sub>2</sub>O D. CO<sub>2</sub>:CO<sub>3</sub>
- If 50cm<sup>3</sup> of CO<sub>2</sub> gas and 50cm<sup>3</sup> of SO<sub>2</sub> gas are measured, at S.T.P., calculate the amount of each gas in moles (Molar volume = 22.4dm<sup>3</sup>)  
A. 0.023 mol B. 0.0222 mol C. 0.0002 mol D. 0.0022 mol
- How much volume of ethane would be required to produce 1.12 dm<sup>3</sup> of carbon (IV) oxide on combustion in sufficient oxygen?  $2C_2H_6(g) + 7O_2 \rightarrow 4CO_2(g) + 6H_2O$   
A. 56 dm<sup>3</sup> of ethane B. 2.24 dm<sup>3</sup> of ethane C. 0.56 dm<sup>3</sup> of ethane D. 5.6 dm<sup>3</sup> of ethane
- By how much would the volume have increased when 10 dm<sup>3</sup> of ozone were converted to oxygen  $2O_3(g) \rightarrow 3O_2(g)$  A. 15dm<sup>3</sup> B.40dm<sup>3</sup> C. 0.5 dm<sup>3</sup> D. 5 dm<sup>3</sup>
- The pressure exerted by a gas is as a result of  
A. The continuous random motion of its particles  
B. Bombardment of the walls of the container by its molecules  
C. The collision between the gas molecules D. The elastic nature of the gas molecules
- Which of the following gas will diffuse at the slowest rate?  
A. Ammonium B. Sulphur (IV) oxide C. Carbon (II) oxide D. Nitrogen
- Element P has an electronic configuration of 2,8,6. Element R has an electronic configuration of 2,8,8,1. What is likely to form if P and R combine?  
A. A covalent compound PR B. An ionic compound PR<sub>2</sub>  
C. An ionic compound PR D. An ionic compound P<sub>2</sub>R

12. Which is the atomic structure of phosphorus with mass number 31?
- |    | Protons | Neutrons | Electrons |
|----|---------|----------|-----------|
| A. | 15      | 16       | 15        |
| B. | 15      | 16       | 16        |
| C. | 16      | 15       | 15        |
| D. | 16      | 15       | 16        |
13. Which metal has the least tendency to form positive ions?
- A. Iron B. Aluminium C. Sodium D. Calcium
14. What is the number of pairs of shared electrons in a methane molecule?
- A. 1 B. 2 C. 4 D. 8
15. The percentage by volume of nitrogen in air is high because
- A. Nitrogen is relatively inactive B. Nitrogen supports life C. Nitrogen prevents corrosion of metals  
D. Nitrogen increases the rate of combustion
16. Natural water includes the following except
- A. rain water B. spring C. pure water D. lake water
17. Which of the following methods cannot be used to remove permanent hardness in water?
- A. addition of washing soda B. addition of caustic soda C. Permanent method  
D. adding alum to water
18. If the solubility of sodium tetraoxosulphate (VI) at 30°C is 18g per 100g. How much is this in gramme per kilogram?
- A. 18kg per 1000g B. 180kg per 100g C. 180g per 1000kg D. 180g per kg
19. The following are examples of colloid except A. milk B. starch in water C. aerosol  
D. ammonium chloride solution
20. Oil spillage in ponds and creeks cleaned by A. Burning off the oil layer B. Spraying with detergent  
C. Spraying with common salt D. Spraying with hot oil
21. The pH of the solutions M, N, O and P are 1, 6, 8 and 10 respectively, therefore
- A. None of the solution is acidic B. the pH of O is made neutral by water  
C. P is the most acidic solution D. M is the most acidic solution
22. Which hydroxide dissolves in water to alkaline solution? A. Aluminium hydroxide  
B. Calcium hydroxide C. Copper (II) hydroxide D. Iron (III) hydroxide
23. Starch molecules can be broken down into smaller molecules by heating in a dilute acid  
What is this type of reaction called
- A. Cracking B. Hydrolysis C. Oxidation D. Reduction
24. Which of the following cannot be used as an oxidizing agent?
- A.  $K_2Cr_2O_2$  B.  $CO_2$  C.  $H_2S$  D.  $HNO_3$

25. What quantity of copper will be deposited by the same quantity of electricity that deposited 18g of aluminium [Al = 27, Cu= 64] A. 64g B. 32g C. 16g D. 8g
26. Which of the following is not true about semi-conductors?  
 A. Moving holes are equivalent to moving positive charges  
 B. There are two kinds of charge carriers, a free electron and a hole  
 C. The escape of a valence electron from atom produces electron-hole pair of charge carriers  
 D. Increase in temperature increases electrical resistance
27. A wire carrying a current of 10A and 2.5m in length is placed in a field of flux intensity 0.14T. What is the force in the wire if it is placed at 60° to the field?  
 A. 30.3N B. 20.5N C. 15.3N D. 10.5N
28. In the transformer, the magnetization of the core is repeatedly reversed by the alternating magnetic field resulting in energy dissipation as heat. This loss is called  
 A. Eddy currents loss B. Hysteresis loss C. Flux linkage loss D. Joule heat loss
29. A step-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 connected to 240V. 100W lamp  
 A. 5.0A B. 4.0A C. 2.5A D. 2.0A
30. Which of the following pairs consist of fundamental quantities only?  
 A. Velocity and gravitational potential B. Acceleration and field strength  
 C. Momentum and work done D. Moment and force
31. One of the limitations of Thompson's model of the atom is that it does not explain,  
 A. small angle scattering B. stability of the atom C. ionization progress  
 D. the variation of the effective atomic radius
32. An atom is said to be excited if an electron of the atom is A. in the ground state B. At infinity  
 C. promoted to an energy level higher than its original Level D. having an energy level of 0.0eV
33. The minimum energy necessary to remove an electron from a given atom to infinity is called  
 A. Excitation energy B. Ground state energy C. Ionization energy D. Binding energy
34. Find the de Broglie wavelength of a 0.01 Kg pellets having a velocity of 10m/s [ $h = 6.63 \times 10^{-34} \text{ Js}$ ]  
 A.  $6.63 \times 10^{31} \text{ m}$  B.  $6.63 \times 10^{32} \text{ m}$  C.  $6.63 \times 10^{33} \text{ m}$  D.  $6.63 \times 10^{30} \text{ m}$
35. What happens to the proton number Z and the nucleon number A of a nuclide which emits a  $\gamma$ -radiation? A. Z increases by 1 while A does not change B. Z increases by 1 and A increases by 1  
 C. Z and A neither increase or decrease D. Z increases by 1 while A decreases by 1
36. A note that is an OCTAVE higher than a given note of frequency 256Hz would have a frequency of  
 A. 2048Hz B. 1024Hz C. 128Hz D. 512Hz
37. The QUALITY and PITCH of a musical note depends respectively on A. Frequency and harmonics  
 B. Overtones and intensity C. Intensity and frequency D. Overtones and frequency

38. A sound wave of frequency 130Hz and wavelength 2.0m was produced at a distance,  $d$ , from a target and echo was heard at the source 0.5 second later, calculate the value of  $d$ .  
A. 65.0m B. 130m C. 260m D. 520m
39. In an experiment, lead shot contained in a vertical cardboard cylinder falls through 100cm when the cylinder is inverted. Calculate the rise in temperature caused by 100 such inversions, [specific heat capacity of lead =  $130\text{JKg}^{-1}\text{K}^{-1}$ ;  $g = 10\text{ms}^{-2}$ ] A. 3.3K B. 4.4K C. 5.5K D. 7.7K
40. A body is projected with a velocity  $V\text{ms}^{-1}$ , inclined at an angle  $\beta$  to the vertical. Which of the following gives the CORRECT expression for the horizontal component of velocity  $V_x$  after time  $t$ ?  
A.  $V\cos\beta$  B.  $V\sin\beta$  C.  $Vg\cos\beta$  D.  $Vt\sin\beta$
41. An object of mass 0.2Kg and density  $600\text{Kg m}^{-3}$  is suspended with a string so that 1/10 of it is immersed in paraffin of density  $900\text{Kg m}^{-3}$ . Find the tension in the string.  
A. 0.2N B. 2.0N C. 1.0N D. 0.1N
42. A rocket burns fuel at the rate of  $20\text{Kgs}^{-1}$  and ejects it with a velocity of  $5.0 \times 10^3\text{ms}^{-1}$  Calculate the thrust exerted by the 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.  $5.0 \times 10^5\text{ms}^{-1}$
43. A converging lens has radius of curvature 16.0cm, calculate the power of the lens  
A. 0.0625 B. 0.125 C. 0.250 D. 0.500
44. If the velocity of light in air is  $3.0 \times 10^8\text{ms}^{-1}$ , find the velocity of light in a medium whose refractive index is 1.5 A.  $5.0 \times 10^8\text{ms}^{-1}$  B.  $5.0 \times 10^7\text{ms}^{-1}$  C.  $2.5 \times 10^8\text{ms}^{-1}$  D.  $2.5 \times 10^7\text{ms}^{-1}$
45. When an object is at infinity to the pole of a concave mirror the image formed is at  
A. Principal focus, real and diminished B. Centre of curvature, real and inverted  
C. Centre of curvature, virtual and erect D. Principal focus, real and erect
46. A total eclipse of the sun is seen when the observer is in the  
A. Umbra region of the sun's shadow B. Penumbra region of the sun's shadow  
C. Umbra region of the moon's shadow D. Penumbra region of the moon's shadow
47. A long drawn sound arising from overlapping reflections together with the original sound which gives rise to the reflections is called A. Beat B. Echo C. Diffraction D. Reverberation
48. Which of the following radiations is used for examining the freshness or staleness of eggs in the poultry? A. Ultraviolet rays B. X-rays C.  $\gamma$ -rays D. Radio waves
49. Which of the following statements is not correct about electromagnetic waves?  
A. They are quantized energies B. They are transverse waves C. They are polarizable  
D. They may be deflected in an electric magnetic field
50. A simple cell with mercury-amalgamated Zinc plate minimizes  
A. Sparking B. Local action C. Back e.m.f. D. Polarization
51. When two genes for the same character (alleles) are contained in the same individual. The character that shows is known as



- A. Important character B. Dominant character C. Superior character D. Controlling character
52. In Nigeria, a tropical rain-forest can be found in A. Sokoto B. Kaduna C. Abuja D. Abuja
53. The sum total of the biotic factors that affect living things is referred to as:  
A. Environment B. Lithosphere C. Hydrosphere D. Atmosphere
54. Hygrometer is an ecological instrument that measures  
A. Rainfall B. Humidity C. Temperature D. Light
55. Which of the following air pollutant causes acid rain?  
A. Sulphur dioxide B. Lead oxide C. carbon dioxide D. Hydrogen sulphide
56. Which of the following does not have a well developed tissue?  
A. Moss B. Fern C. Whispering tree D. Maize
57. Which of the following is air borne?  
A. Malaria B. Yellow fever C. Cholera D. Tuberculosis
58. *Candida albicans* is a ? A. Bacterium B. Fungus C. Virus D. Protozoan
59. All of these are vertebrates except A. Lizard B. Rat C. Star fish D. Tilapia
60. Which of the following deaminates A. Duodenum B. Ileum C. Liver D. Kidney
61. A stable self-sustaining environment produced by an interaction between the biotic and abiotic components is best described as A. niche B. community C. an ecosystem D. a habitat
62. Which of the following is not present in the nucleus of cell?  
A. Chromosome B. Nucleolus C. Genes D. Mitochondria
63. The cervical vertebrae invariably number A. 4 B. 7 C. 12 D. 5
64. What force is responsible for the movement of water to the top of tall trees?  
A. Transpiration pull B. Root pressure C. Diffusion D. Capillary pressure
65. Antibodies are mammalian blood are formed by  
A. Platelets B. White blood cells C. Red blood cells D. Liver
66. Which of the following liquids supplies cells in the tissues of a mammal with oxygen and nutrients A. Blood B. Plasma C. Serum D. Lymph
67. The fly and grasshoppers have mouth parts adapted for  
A. sucking B. piercing and sucking C. lapping and chewing D. biting and lapping
68. The sponging and lapping mouth parts occurs in  
A. Butterfly B. Cockroach C. Housefly and lapping D. Mosquito
69. The following is not an example of character  
A. baldness B. colour blindness C. haemophilia D. height
70. Which of the following is a vestigial organ A. appendix B. liver C. pancreas D. proventriculus
71. In which of the following flower parts does meiosis occur?  
A. Anther B. Petal C. Receptacle D. Style

72. When an organism moves its whole body towards a stimulus, the organism is said to exhibit  
A. tropic movement B. trophic movement C. tactic movement D. Nastic movement
73. The release of useful substances from cells of an organism is called  
A. excretion B. evacuation C. metabolism D. secretion
74. A box was left in the lawn for two days. When the box was removed the grass under it turned yellow due to lack of  
A. Carbon dioxide B. Light C. Oxygen D. Water

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**POST UNIVERSITY MATRICULATION EXAMINATION SCREENING**  
**WEDNESDAY OCTOBER 11<sup>TH</sup> 2006**

**TIME Allowed: 1 hour**

**INSTRUCTION**

**Section A: English**

**Read passage 1 and answer the questions that follow:**

When we survey all known human societies, we find everywhere a form of the family, some set of permanent arrangement by which males assist females in caring for children while they are young. The distinctively human aspect of the enterprise lies not in the protection the male affords the females and the young - this we share with the primates. Nor does it lie in the lordly possessiveness of the male over the females for whose favour he contends with other males this too we share with the primates. Its distinctiveness lies instead in the nurturing behaviour of the male who among human beings everywhere help provide food for women and children.

Among our structurally closest analogues - the primates - the male does not feed the female. He may fight to protect her or to possess her, but he does not nurture her. She has to fend for herself. Somewhere at the dawn of human history some social invention was made under which males started nurturing and their young'. In every known human society, everywhere in the world, the young male learns that he is grown up, one of the things which he must do in order to be a full member of society is to provide food for some females and her young. Even in very simple societies a large number of men may escape burden of feeding females and the young by entering monasteries - and feeding each other - or by entering some profession that their society will classify as giving them a right to be fed, like the Army and the Navy, or the Buddhist order of Burma. But in spite of such exceptions, every known human society rests firmly on the learned nurturing behaviour of men.

1. Man differs from other animals because (a) he forms a family (b) he cares for children (c) he cares for women and children provides food for women (d) he provides food for women
2. The lordly possessiveness of the male over the female means that the male (a) shows mastery over the female (b) is most aggressive towards the female (c) claims right over the female (d) protects the female
3. "Somewhere at the dawn of history" refers to (a) the beginning of creation (b) the creation of man (c) the time when man was yet a monkey (d) the beginning of civilization
4. Man makes it upon himself to feed the females except when (a) he takes up the gun to fight (b) he becomes religious (c) joins a religion (d) enters some profession
5. According to the passage a common feature of all human communities is (a) the family (b) caring mothers (c) aggressiveness fathers (d) nurtured women and children

**Read passage 2 carefully and answer the questions that follow:**

From ancient times, people commonly believed that life arose repeatedly by spontaneous generation from non-living materials in addition to parental reproduction. For example frogs appeared to arise from damp earth, mice

from putrefied matter, insects from dew and maggots from decaying meat. Warmth, moisture, sunlight and even starlight often were mentioned as factors that encourage spontaneous generation of living organism.

Among the account of early efforts to synthesize organisms in the laboratory is a recipe for making mice given by the Belgian plant nutritionist Jean Baptiste van Helmont (1648). "If you press a piece underwear soiled with sweat together with some wheat in an open jar. after about twenty one days the odour changes and it ferment ... changes the wheat into mice. But what is more remarkable is that the mice which came out of the wheat and underwear were not small mice, not even miniature adults or aborted mice but adult mice emerged".

In 1861, the great French scientist Louis Pasteur convinced science that living organisms cannot arise spontaneously from non-living matter. In his famous experiments, Pasteur introduced fermentable materials into a flask with a long S-shaped neck that was open to air. The flask and its contents were then boiled for long time to kill any micro-organisms that might be present. Afterward the flask was cooled and left undisturbed. No fermentation occurred because all organisms that entered the open end were deposited in the open neck and did not reach the fermentation material. When the neck of the flask was removed, microorganisms in the air promptly entered the fermentable material and proliferated. Pasteur concluded that life could not originate in the absence of previously existing organisms and their reproductive elements such as eggs and spores. Announcing his results to the French Academy, Pasteur proclaimed, "Never will the doctrine of spontaneous generation arise from this moral blow. All living organisms share a common ancestor, most likely a population of colonial micro-organisms that lived almost four billion years ago. This common ancestry was a product of a long period of prebiotic assembly by non-living matter, including organic molecules and water, to form self-replicating units. All living organisms retain a fundamental chemical composition inherited from their ancient common ancestor.

6. Throughout the passage the words spontaneously can best taken to mean  
(a) without reproductive elements (b) in a medium (c) unthinking (d) freed spirited
7. In Pasteur's experiment, why was the neck of the flask removed?  
(a) to allow air to escape (b) to provide access to micro-organism (c) to kill any micro-organism that may be present (d) to permit the heating of the flask
8. In the third paragraph, the word "moral" most nearly means (a) human (b) impermanent (c) fatal (c) earthly
9. The expression "when the neck of the flask was removed" found in the third paragraph can be described as (a) adverbial clause of time (b) adjectival clause (c) noun clause (d) adverbial phrase of time
10. In what sense is the use of the word "water" in the last paragraph ironic?  
(a) it is a medium in which many living organism thrive (b) it has a relatively low boiling point (c) Pasteur did not mention it specifically in his description of his experiment (d) it was not one of the ingredients in Helmont's recipe.

***Read the following passage and select the best option that fills the corresponding gap in the text.***

By the 28<sup>th</sup> week, that is the end of the 7<sup>th</sup> 11. the foetus moves around vigorously within the 12 and its heartbeat can be heard by the 13. Its length is 38cm (15inchcs) and its weight 100grams. Its body is thin, its skin reddish and covered with 14 coating of a creamy, waxy substance, which is manufactured by small in the skin. It can open up its eyes and the 15 covering the pupils of the 16 has gone. If it is 17 at this stage, it can 18 but with difficulty. It can also cry 19. but 20 its legs energetically.

	(a)	(b)	(c)	(d)
11	Day	Week	Month	Year
12	Stomach	Uterus	Bladder	Belly
13	Audience	Women	Crowd	Doctor
14	Defensive	Kicking	Plastic	Protective
15	Membrane	Hand	Glass	Rubber
16	Eyes	Class	Month	Uterus
17	Left	Sent	Discharged	Born
18	Breathe	See	Hear	Eat
19	Angrily	Weakly	Loudly	Strongly
20	Walk	Wove	Wraps	Fold

**In questions 21-25 choose among the option the one that has the opposite meaning to the word or group of words underlined in the sentence to fill the missing word(s).**

21. One would have expected the students to take to consultation with the school authorities instead of resorting to\_\_\_\_\_ (a) mediation (b) confrontation (c) arbitration (d) exultation
22. It is surprising that one of the identical twins is an alcoholic but the other is (a) teetotaller (b) dipsomaniac (c) agoraphobic (d) saboteur
23. While the man is parsimonic his wife is obviously\_\_\_\_\_ (a) ingenious (b) curious (c) judicious (d) extravagant
24. The lackadaisical student failed the test but the \_\_\_\_\_ one passed it well  
(a) enthusiastic (b) listless (c) classical (d) obtuse
25. While a sinner will incur the wrath of God, a saint will enjoy the----- of God  
(a) anger (b) anointing (c) favour (d) pleasure

**Question 26 to 35 from the words lettered A to D choose the one that best completes the sentence**

26. The rich man \_ money to his wives and children every Monday  
(a) disperses (b) dispensed (c) discusses (d) dispenses
27. If I had known that the man was not a genuine pastor, I would not have \_\_\_ too much confidence in him (a)imposed (b) reposed (c) inputted (d) disposed
28. The poor woman has\_\_\_\_\_ herself to fate (a) consigned (b) concerned (c) resigned (d) reposed
29. The clergy \_\_\_\_ everyday for the success of the present government  
(a) are praying (b) is praying (c) pray (d) prays
30. The young girl \_\_\_\_mind her language (a) has better (b) had better (c) have best (d) had best
31. Many a secondary school student\_\_\_\_\_ afraid of English language examination nowadays  
(a) are (b) is (c) was (d) were

32. The man with his three wives and seventeen children\_\_\_ just travelled abroad  
(a) is (b) are (c) has (d) have
33. The lecturer does not\_\_\_his real age (a) seem (b) look (c) appear (d) resemble
34. During the recent communal crisis, the palace of the monarch was \_\_\_\_\_amulets  
(a) decorated (b) fortified (c) embellished (d) ensured
35. I\_\_\_your father to stop going out with politicians, then I changed my mind  
(a) had told (b) have told (c) was going to tell (d) have being telling

**In question 36 to 40 a list of options is given below every sentence, choose from the option nearest in meaning to the word or phrase underlined in the sentence.**

36. Are they expecting celestial blessing?  
(a) terrestrial (b) heavenly (c) religious (d) sacrificial
37. The indigent boy is my younger brother's friend (a) indolent (b) diligent (c) efficient (d) needy
38. Adults seldom visit the new amusement centre (a) frequently (b) rarely (c) usually (d) reluctantly
39. Really, life is ephemeral (a) enjoyable (b) difficult (c) transient (d) permanent
40. I want to tell you that Felix has an eclectic mind (a) shocking (b) versatile (c) narrow (d) critical

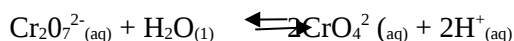
## **SECTION B - GENERAL PAPER**

**In question 1 to 50 choose the correct answer from option (a) to (d) that follow each question**

1. A sample of orange juice has pH of 3.80. What is the molar concentration of hydrogen ion in the juice? (a)  $1.588 \times 10^4$  (b)  $1.58 \times 10^{-2}$  (c)  $1.58 \times 10^3$  (d)  $1.58 \times 10^4$
2. Which of the following solutions is NOT acidic?  
(a) Aluminium chloride (b) Zinc chloride (c) Copper (II) tetraoxosulphate (VI) (d) Silver chloride
3. Calculate the current in ampere required to produce 18.0g of aluminium in 1.50hours  
(Al = 27, F = 96500C) (a) 33.65 amperes (b) 35.74 amperes (c) 37.85amperes (d) 39.25 amperes
4. Calculate the oxidation number of chlorine in  $\text{Cl}_2\text{O}_2$  (a)+7 (b)+2 (c)+5 (d)+1
5. The two nuclei in the hydrogen molecule are held together by  
(a) mutual attraction (b) mutual sharing of the electron charge (c) dative covalent bond  
(d) the two electrons having the same spin
6. Which of the following statements about catalysis is correct?  
( 1 ) A small amount of catalyst often affects the rate of a reaction for a long time  
(2) A catalyst is always chemically unchanged at the end of a reaction  
(3) The effect of a catalyst is often enhanced by adding promoters  
(4) A catalyst always physically unchanged at the end of a reaction  
(5) A catalyst always speeds up the rate of a chemical reaction

(a) 1,2,3,4,5 (b) 1,2,3 only (c) 2,3,4 only (d) 2,4 only

7. When  $\text{K}_2\text{Cr}_2\text{O}_7$  dissolves in water, the following equilibrium is established



Orange

yellow

State the colour observed on adding a few drops of dilute  $\text{H}_2\text{SO}_4$  in the system (a) orange (b) yellow (c) pink (d) colourless

8. Which of the following statements is NOT true of hydrogen sulphide?  
(a) it is a liquid at temperature (b) it is a covalent compound (c) it is weak dibasic acid in aqueous solution (d) it is a much stronger reducing agent than water
9. Which of the following are products of acid hydrolysis of sucrose? (a) fructose and maltose (b) glucose and cellulose (c) maltose and cellulose (d) glucose and fructose
10. What is the concentration (in  $\text{mol}\cdot\text{dm}^3$ ) of a solution containing 0.38g of potassium hydroxide  $100\text{cm}^3$  of solution? (K = 39, H = 1, O = 16) (a) 0.028 (b) 0.04 (c) 0.05 (d) 0.07
11. Determine the distance between point P (8, 5, 3) and Q (2, 1, -2) (a) 3.87 (b) 3.32 (c) 15.00 (d) 8.77
12. One person walks south-east at 4m/s and another heads north at 3m/s. How far apart are they in 10 seconds if they started from the same point simultaneously?  
(a) 80.3m (b) 28.3m (c) 64.7m (d) 419.7m
13. The centre of gravity of a rectangular object is at (a) the intersection of the median (b) the middle of the rectangle (c) the intersection of the diagonals (d) any of the vertices
14. A uniform meter rule of weight 1.0N is pivoted at the 40cm mark. A weight of 2.0N is hung at the 15cm mark. Where must a weight of 2N be placed to balance the rule? (a) 60cm (b) 45cm (c) 55cm (d) 35cm
15. Two plane mirrors inclined at an angle of  $60^\circ$  to each other. Determine the number of images in the two mirrors (a) 6 (b) 2 (c) 5 (d) 11
16. When an oil drop is placed gently on a clean water surface of area  $100\text{cm}^3$   
(a) the drop spreads until the film is 50 molecules thick (b) the drop spreads to fill exactly an area of  $100\text{cm}^2$  (c) volume of the drop decreases as it spreads (d) the oil film formed is not less than one molecule thick
17. When illuminated by a light beam, a smoke particle in oxygen gas can be seen moving in different directions all the time when viewed in a microscope. This is because  
(a) the light beam is not constant (b) the smoke particle is affected by gravity (c) oxygen molecules hit the smoke particles in different directions (d) the smoke particle has a high speed in oxygen.
18. A siren having a ring of 200 holes makes 132 revolutions per minute. A jet of air is directed on the set of holes. Calculate the frequency of the note produced. (Take the speed of sound in air as 350m/s) (a) 26.40Hz (b) 1.52Hz (c) 440Hz (d) 0.66Hz

19. A concave mirror of focal length 20cm form image 1/2 the size of the object. Determine the object distance (a) 20cm (b)60cm (c) 100cm (d)80cm
20. A pool of water is 12m deep, what is its apparent depth (Reactive index of water is 4/3) (a) 6.0m (b) 48.0m (c)9.0m (d) 36.0m
21. In the optical system of the eye and lens camera, which statements is NOT true?  
(a) the ciliary muscle controls the focal length of the eye lens (b) the focal length of the camera lens is fixed (c) the retina and camera film have similar purpose (d) the focal length of the eye lens is fixed
22. A cell needed 0.30m of the wire of a potentiometer to balance its e.m.f. but only 2.0m of its p.d. when a resistance of  $4\Omega$  was connected across its terminals. Calculate the internal resistance of the cell. (a)  $1.0\Omega$  (b)  $0.5\Omega$  (c)  $1.5\Omega$  (d)  $2.0\Omega$
23. When a steady current move in a long solenoid P, it said that  
(a) P settles in a north-south direction if freely suspended (b) both end of P arc south poles (c) both ends of P are north poles (d) there is only a magnetic field at the end of P.
24. A transformer has a primary coil of 400 turns and a secondary coil of two hundred turns. If the primary coil is connected to 240 a.c. mains, calculate the efficiency given that the current in the primary coil is 3A and in the secondary 5A.  
(a) 60% (b) 50% (c) 83% (d) 62.5%
25. When a P-n junction of a semi conductor is forward biased  
(a) a large current is obtained (b) a small is obtained (c) no current is obtained (d) the current value remains the same
26. Which of the following is the largest single cell in the body? (a) the neuron (b) the ovum (c) liver cell (d) muscle cell
27. Blue-green algae belong to the phylum (a) cyanophyta (b) schizophyta (c) chlorophyta (d) chrysophyta
28. The concept of antibiotic started with the work of  
(a) Gregor Mendel (b) Mary S lessor (c) Fouis Pasteur (d) Alexander Fleming
29. The botanical name for yellow yam is  
(a) *Dioscorea cayenensis* (b) *Dioscorea rotundata* (c) *Dioscorea alata* (d) *Dioscorea dumentorum*
30. Which of the following tissues are made of dead cells? (a) xylem vessels (b) cambium (c) mesophyll (d) palisade
31. Which of the following is not a function of the liver (a) storage of iron (b) formation of bile (c) breakdown of excess amino acid (d) excretion of urine from the blood
32. Alkaline pyrogallol was used in an experiment. That experiment must have been connected with  
(a) respiration (b) photosynthesis (c) transpiration (d) excretion
33. The enzyme that breaks down cane sugar is (a) lipase (b) ptyalin (c) invertase (d) peptidase
34. The large single bone in the body is the (a) scapula (d) humerus (c) femur (d) skull



35. Auxins are produced in the  
(a) root and stem apices (b) young leaves and nodes (c) flower bud and leaf apices.
36. The hormone which tones up the muscles of a person in time of danger is from the (a) thyroid gland  
(b) pancreas (c) adrenal gland (d) sebaceous gland
37. A diet with a high concentration of iodine will probably be needed by a patient suffering from a malfunction of the (a) thyroid gland (b) adrenal gland (c) nervous system (d) circulatory system
38. The sampling method is most often used in ecological study of a habitat because \_\_\_\_\_,  
(a) the area to be studied is usually large (b) some areas are more important than others (c) it enable the use of quadrants (d) plants and animals live in small communities
39. Which of the following groups of factors is completely abiotic  
(a) soil water, bacteria salinity (b) salinity, tide, plankton, turbidity (c) wind, altitude, humidity, light (d) confers, wind, pH, rainfall
40. Nitrogen-fixing bacteria and cowpea demonstrate an ecological association known as  
(a) predation (b) parasitism (c) mutualism (d) commensalism
41. Plants that live in salty water are called  
(a) hydrophytes (b) xerophytes (c) halophytcs (d) salinophytcs
42. A sample of soil was put into a measuring cylinder and water was added to it. After the mixture was shaken the cylinder was left undisturbed for one hour. This experiment was probably performed to:  
(a) compare the capillarity of different samples (b) find out the relative densities of different soil particles (c) find out the water retaining capacity of soil (d) demonstrate the presence of air in the soil sample
43. A farmer X working in a swamp, did not eat any food nor drank any water. Which of these diseases can he not contract? (a) bilharziasis (b) malaria (c) cholera (d) sleeping sickness
44. Which of the following elements may be added to drinking water to lessen dental decay  
(a) chlorine (b) phosphorus (c) fluorine (d) hydrogen
45. A man with normal haemoglobin gets married to a woman who has sickle cell haemoglobin. They have a child who has a sickle cell train, which of the following genotype could be associated with the child's haemoglobin? (a)SS (b)AS (c)AO (d)AA
46. Trichloromethane is a solvent used to remove grease from clothing. How after use is the solvent separated from the grease?  
(a) by chromatography (b) by crystallization (c) by distillation (d) by filtration
47. Arrange the following elements of the second period in the order of increasing atomic radius : lithium, beryllium, boron, carbon (a) carbon, boron, beryllium, lithium (b) lithium, beryllium, boron, carbon (c) lithium, carbon, boron, beryllium (d) carbon, lithium, beryllium, boron

48. Argon is used in gas filled electric lamps because (a) it is radioactive (b) it has low pressure (c) is combustible (d) it helps to prevent oxidation
49. If 250cm<sup>3</sup> of a saturated solution of potassium trioxonitrate (V) at 30°C produced 3.4g of the dry salt, calculate the solubility of the salt at 30°C (K = 39, N = 14, O = 16)  
(a) 0.112 mol.dm<sup>3</sup> (b) 0.118 mol.dm<sup>3</sup> (c) 0.124 mol.dm<sup>3</sup> (d) 0.134 mol.dm<sup>3</sup>
50. Calculate the mass of ZnSO<sub>4</sub> produced where excess of ZnCO<sub>3</sub> is added to 50.0cm<sup>3</sup> of 4mol.dm<sup>3</sup> H<sub>2</sub>SO<sub>4</sub>. The equation for the reaction is:  
ZnCO<sub>3</sub> + H<sub>2</sub>SO<sub>4</sub> → ZnSO<sub>4</sub> + CO<sub>2</sub> + H<sub>2</sub>O (Zn = 65, S = 32, O = 16)  
(a) 32.2 (b) 37.5 (c) 38.6 (d) 34.3

**UNIVERSITY OF BENIN, BENIN CITY, NIGERIA**  
**POST UNIVERSITIES MATRICULATION EXAMINATION SCREENING**  
**WEDNESDAY SEPTEMBER 19<sup>TH</sup> 2007**

Time allowed : 1hour 10 minutes

**INSTRUCTIONS**

**Read the following instructions carefully:**

1. Use an **HB pencil** to shade in your answers. Ensure that any shading in error is thoroughly erased.
2. Candidates should write their names, **JAMB Registration numbers** and the **Question Paper Option** given to them in the appropriate spaces in the **Answer Sheet**.
3. Write your JAMB Registration number on the Question Paper in the space provided at the top of Page 1.
4. The use of calculators and/or similar electronic devices is **NOT** allowed.

**Attempt all questions.**

**SECTION A: ENGLISH.**

**Read the passage below and answer questions 1 to 5 that follow**

Cloning creates serious issues of individuality. The cloned person may experience concerns about his or her distinctive identity, not only because the person will be in genotype (genetic make up) and appearance identical to another human being, but, in this case, because he or she may also be twin to the person who is the “father” or “mother”- if one can still call them that. What would be the psychic burdens of being the “child” or “parent” of your twin? The cloned individual, moreover, will be saddled with a genotype that has already lived. He or she will not be fully a surprise to the world.

People will likely always compare a clone’s performance in life with that of the original. True, a cloned person’s nurture and circumstances in life will be different; genotype is not exactly destiny. Still, one must also expect parental and other efforts to shape this new life after the original or at least to view the child with original vision always firmly in mind. Why else then would they clone from the star basketball player, mathematician and beauty queen or even dear old dad- in the first place?

Since the birth of dolly, there has been a fair amount of doublespeak on this matter of genetic identity. Experts have rushed in to reassure the public that the clone would in no way be the same person, or have any confusion about his or her identity; they are pleased to point out that the clone of film star Julia Roberts would not be Julia Roberts. Fair enough. But one is short changing the truth by emphasizing the additional importance of the environment, rearing, and social setting: genotype obviously matters plenty. That, after all, is the only reason to

clone, whether human beings or sheep. The odds that the clones of basketball star Larry Bird will play basketball are, I submit, infinitely greater than they are for clones of Jockey Willie Shoemaker.

## QUESTIONS

1. The author agrees that
  - (a) genetic characteristics alone cannot determine a person's behavior
  - (b) people who are cloned from others may have greater professional opportunities
  - (c) cloning human beings is a greater technological challenge than cloning sheep
  - (d) a formal code of ethical rules will be needed once human beings can be cloned.
2. The author uses the word "True" to indicate
  - (a) acknowledgement that the passage's opening arguments are tenuous
  - (b) distrust of those who insist on pursuing cloning research
  - (c) recognition of a potential counterargument
  - (d) conviction about the accuracy of the facts presented
3. The question at the end of paragraph 2 ("why else.... First place?") chiefly serves to
  - (a) suggest that some issues are not easily resolved
  - (b) argue for the importance of parents in the life of children
  - (c) imply that cloning might displace more familiar means of reproduction
  - (d) suggest the value perceived in a person who might be selected for cloning
4. In line 1 of paragraph 3, "fair" most nearly means
  - (a) pleasing
  - (b) considerable
  - (c) promising
  - (d) ethical
5. The author mentions two sports stars in order to
  - (a) distinguish between lasting fame and mere celebrity
  - (b) highlight the need for greater understanding of the athlete's genetic data
  - (c) suggest that athletes' special skills have a genetic component
  - (d) argue against genetic analysis of any sports star's physical abilities

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

6. Let us now get down to brass tacks
  - (a) dodge the facts
  - (b) tell a lie
  - (c) change the iron tacks to the brass one
  - (d) face the actual fact
7. He talked my head off when I visited him
  - (a) wearied me with talking
  - (b) pushed off his heat
  - (c) had nothing to say
  - (d) gave himself a headache

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

8. The magazine was..... by the government for an offensive publication
  - (a) suspended
  - (b) proscribed
  - (c) condemned
  - (d) sealed
9. Your mobile phone has ..... many times in the last thirty minutes
  - (a) rang
  - (b) rung
  - (c) been ringing
  - (d) being rung

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

10. Can you mention any two inimical acts? (a) economical (b) dangerous (c) encouraging (d) fantastic  
11. Do your parents always decry insubordination? (a) speak against (b) tolerate (c) embrace (d) overlook

**In questions 12 and 13, choose from the options given in A-D, the one which is opposite in meaning to the word underlined in each of the following sentences**

12. I know you will prefer a colossal amount as a monthly salary to a \_\_\_\_\_ amount even though you are a bachelor (a) fantastic (b) meagre (c) few (d) huge  
13. I think the manager should have embarked on actions that would soothe the feelings of the striking workers instead of uttering statements that could \_\_\_\_\_ them (a) incense (b) placate (c) stimulate (d) sensitize

**After each of the sentences in questions 14 and 15, is a list of possible interpretations. Choose the interpretation most appropriate for each sentence**

14. For all he cared, the match was as good as lost. This means that (a) he didn't care if the match was lost (b) he was almost certain that the match would be lost (c) he was afraid that the match would be lost (d) he cared very much about losing the match  
15. It is possible that he has not read that book yet. This means that he (a) has certainly not read that book yet (b) has probably read that book (c) may not have read that book yet (d) has still not read that book

## **SECTION B: GENERAL PAPER**

**Answer all questions**

1. Which of the following consists of a pair of fundamental quantities only? (a) luminous intensity, time (b) current, weight (c) mass, velocity (d) length, speed  
2. Which of the following type of motion is least exhibited by the toy top? (a) random (b) rotational (c) oscillatory (d) translational  
3. A cube of side 20cm floats in water with 15cm of its height submerged. What is the density of the material of the cube? (a)  $1.85\text{gcm}^{-3}$  (b)  $0.85\text{gcm}^{-3}$  (c)  $0.75\text{gcm}^{-3}$  (d)  $0.65\text{gcm}^{-3}$   
4. Which one of the following is not a contact force? (a) gravity (b) viscosity (c) tension (d) reaction  
5. The motion of the prongs of a tuning fork can rightly be described as (a) oscillatory (b) translational (c) random (d) rotational  
6. The path described by a projectile motion is (a) convex (b) concave (c) parabolic (d) a straight line  
7. Which of the following sources of energy is renewable? (a) petroleum (b) coal (c) nuclear (d) ocean waves  
8. Which of the following instruments has a pure tone? (a) vibrating string (b) tuning fork (c) siren (d) violin

9. Hot water is added to four times its mass of water at 20°C and the resulting temperature is 30°C. What is the initial temperature of the hot water? (assume constant specific heat capacity)  
(a) 50°C (b) 60°C (c) 70°C (d) 80°C
10. A certain radioactive source emits radiations that were found to be deflected by both magnetic and electric fields. The radiations are (a) infra-red rays (b) x-rays (c) gamma rays (d) beta rays
11. Which does not decolorize bromine water? (a) C<sub>2</sub>H<sub>2</sub> (b) C<sub>2</sub>H<sub>4</sub> (c) C<sub>2</sub>H<sub>6</sub> (d) C<sub>3</sub>H<sub>6</sub>
12. What is formed when starch is completely hydrolyzed? (a) fructose (b) glucose (c) lactose (d) maltose
13. Aluminium materials should not be exposed to alkalis because aluminium is  
(a) basic (b) acidic (c) amphoteric (d) a reducing agent
14. Sulfur (a) forms two alkaline oxides (b) spontaneously flammable (c) burns with a blue flame  
(d) conducts electricity in the molten state
15. The bleaching action of chlorine in water is because  
(a) of its reducing property (b) of its oxidizing power (c) it is an oxygen acceptor  
(d) it is a weak acid
16. What change will occur during the electrolysis of brine using carbon electrodes?  
(a) chlorine will be given off at the cathode (b) oxygen gas will be given off at the anode  
(c) sodium will be deposited at the cathode (d) the resulting solution after electrolysis will be acidic
17. A certain mass of gas has a volume of 241cm<sup>3</sup> at 18°C and 753mmHg pressure.  
What would its volume be at s.t.p? (a) 224cm<sup>3</sup> (b) 2.24cm<sup>3</sup> (c) 22.4cm<sup>3</sup> (d) 0.0224cm<sup>3</sup>
18. If the solubility of a salt at 25°C is 45g per 1000g of water, how much of the salt will be obtained from 50g of the solution? (a) 2.15g (b) 20g (c) 12g (d) 25g
19. What is not found in an atom? (a) electron (b) molecules (c) neutron (d) proton
20. If the pH of a solution of dilute hydrochloric acid is given as 2. The concentration of this solution in mol dm<sup>-3</sup> is (a) 0.01 (b) 0.02 (c) 1.0 (d) 2.0
21. Hydra is able to perform all the following except  
(a) feeding (b) photosynthesis (c) moving (d) egestion
22. Spherical bacterial cells in long chains are called  
(a) staphylococci (b) streptococci (c) cocci (d) bacilli
23. One of the factors that must be considered for safe blood transfusion is  
(a) social class of the donor (b) rhesus factors of the donor and the recipient  
(c) age of the recipient (d) nationality of the donor
24. The theory of use and disuse of organs was propounded by  
(a) Charles Darwin (b) Jean Lamerck (c) Louis Pasteur (d) Robert Hooke
25. Which of these is not a function of the kidney?  
(a) production of urine (b) production of bile (c) osmo-regulation (d) removal of urea

26. Auxins are produced in the  
(a) petiole of leaves (b) epidermis of roots and shoots (c) parenchyma of roots and shoots  
(d) apical regions of roots and shoots
27. Which of the following mammalian features acts as a shock absorber to the developing embryo?  
(a) umbilical cord (b) amniotic fluid (c) placenta (d) amnion
28. The maintenance of a constant internal environment is called  
(a) environmental regulation (b) balance in nature (c) peristalsis (d) homeostasis
29. People in the blood group which receive blood from any other group fall into  
(a) AB blood group (b) O blood group (c) A blood group (d) B blood group
30. Which of the following crop diseases is caused by a fungus?  
(a) groundnut rosette (b) blackpod disease of cocoa (c) yam mosaic (d) cassava blight

**UNIVERSITY OF BENIN, BENIN CITY, NIGERIA**  
**POST UNIVERSITIES MATRICULATION EXAMINATION SCREENING**  
**WEDNESDAY, AUGUST 27<sup>th</sup> 2008.**

**Time allowed: 1 hour**

**INSTRUCTIONS**

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 write their **Names, JAMB Registration numbers and the Question Paper Option** given to them in the appropriate spaces 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 calculators and /or similar electronic devices is **NOT** allowed

**SECTION A: ENGLISH.**

**From the words lettered A – D choose the word which best completes each of the following sentences.**

1. The solution to the problem is, happily, \_\_\_\_\_A at hand    B on hand    C within hand    D near hand
2. My grandmother told a story that made me\_\_\_\_\_ A laughing B laugh    C laughed    D to laugh
3. The principal, with all the teachers and students \_\_\_\_A has arrived    B were arriving C have arrived    D were to arrive
4. The triplets love \_\_\_\_\_very much. A each other    B one another    C the other    D the others
5. The man asked if she \_\_\_\_\_her race.    A have run    B had ran    C have ran    D had run
6. Please \_\_\_\_\_the light before you sleep.    A extinguish    B put out    C put off    D switch off
7. The woman \_\_\_\_\_ the sharp knife from the baby in a subtle way.  
A wrested    B rested    C wrestled    D arrested

**INSTRUCTION: After each of the sentences below, a list of possible interpretations of all or part of the sentence is given. Choose the interpretation that you consider most appropriate for each sentence.**

8. The elders felt it was a forlorn hope and vehemently opposed it.  
A. a dangerous plan    B. a plan which would not favour the elders  
C. a planless course of action. D. a plan which had very little likelihood of success.
9. The sword of Damodee will be hanging over the council if that party gains control  
A. the sword of justice    B. imminent danger in the midst of prosperity  
C. the man's influence    D. the curse of God.
10. Bisi stole a march on us by beating the gun at the race  
A gained an advantage    B came last    C came first    D was disqualified



11. Because the Principal still refused his permission his staff finally took the bit between their teeth.  
 A. carried placards B. got out of control C. tore up the timetable D. refused to go to work.
12. I took time by the forelock and succeeded in getting a scholarship.  
 A used force B did a clever thing C acted promptly D used a cunning means
13. I laughed up my sleeve as he told the tales of his exploits.  
 A. was openly making fun of him B. was very pleased C. laughed D. was secretly amused.

**INSTRUCTION: From the words lettered A – D, choose the word or group of words that is nearest in meaning to the underlined expression as it is used in the sentence.**

14. The rioters despoiled the main markets. A looted B destroyed C burnt D desecrated
15. What happened last night was a novelty. A. a happy occurrence B. a usual occurrence  
 C. an unusual occurrence D. a sad occurrence
16. Some people believe that it is ominous for the dog to bark at night.  
 A. giving an evil B. frightful C. sad D. evil
17. In a section of the town many people were living in abject poverty.  
 A. degraded B. despicable C. shameless D. objectionable
18. The contribution of the engineer was priceless. A. invaluable B. worthless C. nice D. exorbitant
19. The young man surmounted all the oppressive measures to break his will.  
 A. overcame B. fought C. renounced D. defeated

**Read the passage below and answer questions 20-24 that follow.**

The premise behind the question seems to be that if one does not unhesitatingly assert belief in evolution, then one must necessarily believe that God created the world and everything in it in six 24-hour days. But limiting this question to a stark choice between evolution and creationism does a disservice to the complexity of the interaction between science, faith and reason.

The heart of the issue is that we can not drive a wedge between faith and reason. I believe wholeheartedly that there can not be any contradiction between the two. The scientific method, base on reason seeks to discover truths about the nature of the created order and how it operates, whereas faith deals with spiritual truths. The truths of science and faith are complementary: they deal with very different questions, but they do not contradict each other because the spiritual order and the material order were created by the same God.

People of faith should be rational, using the gift of reason that God has given us. At the same time, reason itself cannot answer every question. Faith seeks to purify reason so that we might be able to see more clearly, not less. Faith supplements the scientific method by providing and understanding of values, meaning and purpose. More than that, faith – not – science can help us understand the breadth of human suffering or the depth of human love. Faith and science should go together, not be driven apart.

The question of evolution goes to the heart of this issue. If belief in evolution means simply assenting to microevolution, small changes over time within a species, I am happy to say, as I have in the past, that I believe

it to be true. If, on the other hand, it means assenting to an exclusively materialistic, deterministic vision of the world that holds no place for a guiding intelligence, then I reject it.

20. In this passage, the writer seeks to (a) portray the superiority of science over faith  
(b) show the compatibility of faith and science (c) show the complexity of evolution and creationism  
(d) show the contradictions of faith and reason
21. The writer's attitude to the subject of the passage could be described as  
A. cynical B. ambivalent C. disapproving D. conciliatory
22. From the passage, which of the following does the writer support?  
A. evolutionary changes within a small group of organisms  
B. the creation of the world in a six 24-hour day  
C. without the scientific method, faith cannot be practiced  
D. those who believe in creation cannot be good scientists.
23. A possible title for this passage is A. the absurdity of faith without reason  
B. science, faith and reason C. the complementarity of evolution and creation  
D. a deterministic vision of the world.
24. Which of the following idea is NOT true according the passage?  
A. both science and faith express various truths  
B. to believe in evolution is to deny the existence of God  
C. the world could be better understood by bridging the gap between reason and faith  
D. both science and faith express various truths

**INSTRUCTION: From the words lettered A-D choose the word or group of words that is opposite in meaning to the underlined expression as it is used in the sentence.**

25. Do you know that the \_\_\_\_ is different from the latter? A. former B. beginning C. latest D. later
26. While some animals are still extant, some are \_\_\_\_ today A. distant B. infant C. extinct D. domestic
27. Your brother always speaks euphemistic words to address us but it is characteristic of your sister to speak \_\_\_\_ words to us A. few B. rash C. harsh D. polite
28. While some activities are enervating, some other activities are \_\_\_\_\_  
A. invigorating B. exacerbating C. immunizing D. embarrassing
29. We expect the boy to show remorse for the offence he committed, but he remained \_\_\_\_\_ to the surprise of all. A. indifferent B. respectful C. unrepentant D. reserved
30. Whereas Bello's behaviour is erratic, Tito's manner of doing things is \_\_\_\_\_  
A. predictable B. allergic C. assertive D. eccentric

## GENERAL PAPER

**INSTRUCTION: From the words lettered A-D choose the appropriate answer.**

- Which of the following is not a general characteristic of waves?  
A. Diffraction      B. Polarization    C. Reflection    D. Refraction
- The thermometric substance of an absolute thermometer is:  
A Platinum    B Mercury      C Alcohol      D Helium
- Which one of the following has the highest specific heat capacity?  
A. Water    B. Liquid hydrogen    C. Copper      D. Lead
- Which of the following sources of energy is non-renewable?  
A Tides      B Solar    C Ocean waves      D Biomass
- What type of electromagnetic radiation can be used to take photographs in the haze?  
A. Radio waves      B. Visible rays    C. Ultraviolet rays    D. Infrared rays
- The difference in mass number (A) of atoms of the same element is due to a difference in  
A. Proton number    B. Number of electrons    C. Neutron number    D. Proton and electron number
- A man hears his echo from a nearby hill 2 seconds after he shouted. If the frequency of his voice is 260Hz and the wavelength is 1.20m, how far away is the hill? A 312m      B 315m    C 335m      D 340m
- The colour of the positive column in a gas discharge tube is characteristic of the  
A. Gas and the coating in the tube    B. Pressure of the gas only  
C. Temperature of the gas only      D. Pressure and potential difference
- Which of the following pairs of particles each have the same number of electrons as argon? [Ar = 18]  
A.  $\text{Li}^+$  and  $\text{F}^-$     B.  $\text{Na}^+$  and  $\text{F}^-$       C.  $\text{Na}^+$  and  $\text{Cl}^-$     D.  $\text{K}^+$  and  $\text{Cl}^-$
- A mixture of 0.20 mole of Ar, 0.20mole of Na and 0.30 mole of He exerts a total pressure of 2.1 atmosphere. What is the partial pressure of He in the mixture. A. 0.70 atmosphere      B. 0.80 atmosphere  
C. 0.90 atmosphere    D. 0.65 atmosphere
- The POH of a solution is 12.23; calculate the hydrogen ion concentration of the solution.  
A  $1.52 \times 10^{-2}$       B  $1.69 \times 10^{-2}$       C  $1.74 \times 10^{-2}$     D  $1.87 \times 10^{-2}$
- Which of the following is an 'artificial' element? A Plutonium      B Lanthanum    C Uranium    D Lutetium
- One common fraction may be represented ionically by the equation,  $\text{Ba}^{2+} + \text{SO}_4^{2-} \rightarrow \text{BaSO}_4$  This occurs during  
A. Hydrolysis    B. Synthesis    C. Thermal association    D. Double decomposition
- White phosphorus is stored under water because it    A. is corrosive    B. has a low ignition temperature  
C. reacts with carbon (IV) oxide      D. is hydrolyzed by atmospheric moisture
- When aluminium tetraoxosulphate (VI) reacts with excess sodium hydroxide, the formula of one of the compounds formed is  
A.  $\text{Al Na O}_2$     B.  $\text{Al (OH)}_3$       C.  $\text{Na Al (OH)}_4$     D.  $\text{Na}_3 \text{Al O}_3$
- An alloy of copper and tin used in electrical contracts is  
A. Brass      B. Solder    C. Bronze    D. Type metal
- Kerosene and petrol (gasoline) are

- A. Hydrocarbons, with kerosene having bigger molecules  
 B. Hydrocarbons, with petrol having bigger molecules  
 C. Hydrocarbons with the same size molecules but of different shape  
 D. Compounds of carbon and hydrogen, and sulphur for kerosene, but nitrogen for petrol.
18. The preparation of ethoxyethane ( $C_2H_5OC_2H_5$ ) from ethanol can be considered as  
 A. Dehydration    B. Oxidation reactions    C. Hydrolysis reactions    D. Dehydrogenation reactions
19. Which of the following gives the correct formula of the fatty acid present in palm oil?  
 A.  $CH_3(CH_2)_{14}COOH$     B.  $CH_3(CH_2)_{16}COOH$     C.  $CH_3(CH_2)_{15}COOH$     D.  $CH_3(CH_2)_{17}COOH$
20. Glycerol has the typical properties of    A. An acid    B. A base    C. An alcohol    D. An ester
21. A certain natural product contains the ester glycerol palmitate soap can be made from this by  
 A. Passing over activated charcoal    B. Boiling with sodium hydroxide  
 C. Mixing with hydrogen    D. Heating with glycerine
22. Which of the following is NOT a thermosetting plastic?    A. Terylene products  
 B. Phenol – methanol products    C. Carbamide – methanol products    D. Melamine – methanol products
23. The trajectory of a projectile motion is    A. Ellipsoidal    B. Trapezoidal    C. Parabolic    D. Spherical
24. A body accelerates from rest with an acceleration of  $8ms^{-2}$  for 10 seconds. Calculate the distance covered in the 10<sup>th</sup> second    A 76m    B 97m    C 324m    D 400m
25. Which of the following infections is unlikely to respond to antibiotics treatment?  
 A. Tetanus    B. Measles    C. Typhoid fever    D. Ringworm
26. Pest can be controlled without the subsequent danger of polluting the ecosystem by  
 A. Spraying the ecosystem with pesticide  
 B. Keeping the population of natural enemies constant  
 C. Increasing the population of natural enemies of the pest  
 D. Eliminating the natural enemies of the pests
27. Autotrophs are also described as    A. Consumers    B. Carnivores    C. Producers    D. Decomposers
28. Which of the following bones is NOT a component of the appendicular skeleton?  
 A. Tibia    B. Sacrum    C. Radius    D. Humerus
29. If two parents are sickle cell carriers then their genotypes would be    A.  $Hb^A Hb^A$  and  $Hb^A Hb^A$   
 B.  $Hb^S Hb^S$  and  $Hb^S Hb^S$     C.  $Hb^A Hb^A$  and  $Hb^S Hb^S$     D.  $Hb^A Hb^S$  and  $Hb^A Hb^S$
30. Prokaryotic cells are found in    A. Monerons    B. Algae    C. Tracheophytes    D. Spirogyra
31. The correct order of classification of human being is  
 A. Animalia, Chordata, Vertebrata, Mammalia, Primate, Hominidae, Homo and Sapiens  
 B. Animalia, Vertebrata, mammalia, chordata, Primate, Homo, sapiens and Hominidae  
 C. Chordata, Animalia, Vertebrata, Mammalia, Primate, Hominidae, Homo and sapiens  
 D. Animalia, Chordata, Vertebrate, Primate, mammalia, Homo and sapiens.
32. Deficiency of sulphur causes    A. Poor, weedy growth    B. Extremely stunted growth

- C. Yellowing of leaves, stems become slender      D. Weak, stunted growth.
33. Vitamin K is important in the
- Formation of enzymes involved in synthesis of amino acids
  - Formation of red blood cells
  - Synthesis of blood clotting factors
  - Formation of co-enzymes involved in cellular respiration
34. The following are the components of nucleotides except
- A five-carbon sugar
  - A six-carbon sugar
  - A phosphate group
  - An organic nitrogen-containing
35. Which of the following inherited conditions usually shows incomplete dominance?
- Baldness
  - Tongue rolling ability
  - Haemophilia
  - Sickle cell anaemia
36. Which of the following is not a theory under Darwin's theory of organic evolution
- Over production
  - Struggle for existence
  - Mutation
  - Offspring show variations
37. Which of the following does not cause mutation?
- X-rays
  - Mutant
  - Ultra-violet light
  - Cosmic radiation
38. Which of the following organisms has homodont dentition?
- Lizard
  - Sheep
  - Cat
  - Man
39. Which of the following habitats cannot be used for the study of succession?
- A pond
  - Savanna grassland
  - Well cultivated land
  - Abandoned farm land.
40. Which of the following statements is/are correct
- One mole of sodium atoms contains  $6.02 \times 10^{23}$  atoms and weighs 23g
  - One mole of magnesium atoms contains  $6.02 \times 10^{23}$  atoms and weighs 24g
  - One mole of oxygen atoms contains  $6.02 \times 10^{23}$  atoms and weighs 16g
- I and II
  - II and III
  - I and III
  - I, II and III

**UNIVERSITY OF BENIN, BENIN CITY, NIGERIA**  
**POST UNIVERSITIES MATRICULATION EXAMINATION SCREENING**  
**WEDNESDAY, AUGUST 26<sup>th</sup> 2009. 9AM**

**Time allowed: 1 hour**

**INSTRUCTIONS**

Read the following instructions carefully,

- Use **HB pencil** to shade your answers. Ensure that any shading in error is thoroughly erased.
- Candidates should write **the Question Paper Option** given to them in the appropriate space in the *Answer Sheet*.
- Write your **JAMB Registration numbers on the Question Paper** in the space provided at the top of Page 1.
- **Attempt all questions.**
- The use of calculators and /or similar electronic devices is **NOT** allowed

**From the options A — D, choose the word that has the same sound as the one underlined.**

1. Poor. A. More B. Tore C. Dour D. Door
2. Great A. Cake B. Break C. Team D. Beam
3. Clothe A. Cloth B. Tooth C. Wordy D. Forth
4. Sing A. Goose B. Game C. Banged D. Jungle
5. Machine A. Chancellor B. Bishop C. Character D. Measure

**From the options A - D provided, choose the one nearest in meaning to the underlined word(s).**

6. Many tourists say this country has a bracing climate A. harsh B. invigorating C. benevolent D. sane
7. After the race, some of the athlete felt completely done in. A. strained B. satisfied C. disappointed D. exhaled
8. My sister's husband is very fastidious about his food. A. careful B. hygienic C. ravenous D. particular
9. Because the student failed to obey the regulation restricting movement in the school compound, he was expelled. A. answer B. observe C. notice D. understand.
10. Peter's breathing soon became difficult in the thin air of the hills, and there had to be regular pauses for recreation. A. rewarded B. rest C. recovery D. restoration.

**From the words lettered A-D choose the interpretation that gives the correct meaning of the idiom in the sentence or phrase.**

11. The teacher said that it was bad to cook the books. This means to..... A. write good books for the public to read and enjoy B. falsify figures dishonestly C. willfully destroy a document which contains vital information D. publish books as a means of living.

12. He is in the first flight of footballers, this means he is A. in the first team  
B. always the first footballer to score a goal C. among the best footballers D. the first footballer to run away from camp.
13. To say that 'a rolling stone gather no moss' means A. an unsteady person is bound to encounter failure  
B. a young person cannot succeed easily in life C. a person who runs every time cannot live long  
D. it is not good to make a stone roll.
14. Osazee scored a brilliant hat trick in the final march of the world cup fiesta, This means that he ...  
A. won the price for the best player B. failed to score the winning goal C. had a hat on during the game  
D. scored three successive goals in the match
15. The judge 'had his hands tied' in the case in which his son was arraigned for a charge of murder. This means that the judge. A. was withdrawn from the case B. was handcuffed while the trial lasted  
C. could not help convicting his son D. was conspicuously partial.

**In the following sentences, choose from the options A-D that best completes the sentences**

16. Among the books in the library, he found .... Bible. A. an old family brown leather  
B. an old brown leather family C. a brown leather old family D. an old leather brown family.
17. The poor man lived in ---- house. A. an old mud-brick large broken-down B. a large old mud-brick broken-down  
C. a large old broken-down mud-brick D. a broken-down old large mud-brick.
18. The man donated a ---- machine to our school. A. Modern duplicating large red B. Modern large red duplicating  
C. Large modern red duplicating D. Red duplicating large modern.
19. The beauty pageant was won by a ... girl. A. beautiful dark and tall B. tall dark and beautiful C. dark tall and beautiful  
D. beautiful tall and dark.
20. The house ---- the kidnappers were kept is being watched by the police A. which B. where C. in where  
D. of which
21. A respectable person should not ---- on an agreement A. renege B. disagree C. honour D. dispute
22. The little boy ---- to the occasion when he was asked to make a speech at his mother's funeral.  
A. rose B. lifted C. stood D. fell
23. Do you know the story about the ---- A. the president's of Nigeria plane B. the president's plane of Nigeria  
C. the president of Nigeria's plane D. the plane of the president's of Nigeria.

**Read this passage carefully and then answer the questions that follow.**

There is always a hustle and bustle of people in a typical city, especially at closing period when shops and offices were closing and workers were hurrying home, some in their private cars, others trying to catch a commercial vehicle, while those who couldn't stand the rush to enter a bus or a cab jump on motorcycles popularly called Okada. It was at the peak of that rush hour that Oshoke arrived in Lagos.

Oshoke had never seen so many people on the streets or so many vehicles on the road, and so when he dropped at the popular Yaba bus-stop, he felt suddenly lost like a man lifted from the ground without any warning or explanation.

Another observation that stupefied him was not just the number of motor-cycles that move like a swarm of ants, but the way each rider appears to be oblivious of any other vehicle or human being around them, posing a grave danger to life.

In his stupor, somebody tapped his shoulder and all of a sudden, he left empty, the way a young woman feels when her skirt unexpectedly falls in the middle of a busy street. But he managed to turn to meet the hard cold eyes of a man glaring at him. 'What is the problem?' the voice reminded him of a lions roar. As Oshoke later admitted it was a perfect voice with which to wake a dead man.

Oshoke was later to learn from the stranger that the taxis had the worst drivers even though drivers generally in the cities, see every other driver as a rival on the road - an enemy to be conquered. One minute they would be overtaking other cars, the next stopping in the middle of the road to pickup fares without any signal to other drivers or road users of their intentions.

Pedestrians seemed always in danger of their lives as they tried to run across the road whenever there was a lull in the traffic.

24. How did Oshoke feel as he arrived in Lagos? A. he was so elated that he felt he was walking on air  
B. he became so nervous at once C. he was simply dazed D. he was brimful of composure
25. Why was Oshoke bewildered? A. he thought the stranger would attack him B. he suddenly felt cold  
C. the rowdiness of Lagos D. he was frightened because of the car and people in Lagos.
26. According to the passage, the commuters A. were confused B. were very wicked C. were irrational  
D. lack discipline.
27. According to the passage. A. passengers are always in danger of crossing the road B. fares are always in danger of being knocked down  
C. people are always in danger crossing the road D. people are always crossing the road.
28. From the passage, we can infer that all road users. A. need education B. must be directed  
C. need the right orientation D. need to be monitored by the police.

**From the words lettered A-D choose the word or group of words that is opposite in meaning to the underlined word or group of words.**

29. Girls these days dress provocatively but the culture requires ..... dressing A. Prodigious  
B. Preventive C. Modest D. Productive
30. He did the work perfunctorily instead of A. perfectly B. carefully C. permanently D, especially



## GENERAL PAPER

**INSTRUCTION: From the words lettered A-D choose the appropriate answer.**

1. Which of the following best describes viruses? A. they grow only inside living cells  
B. they possess only characteristics of living things C. they can grow on dead cells  
D. they cannot be crystallized.
2. Loss of nitrogen in the soil is caused by a process known as A. putrefaction B. nitrogen fixation C. denitrification D. nitrification
3. Which of the following represents the Watson-Crick DNA base pair model?  
A. G-T B. T-C C. T-A D. G-A
4. The liver performs all the following functions EXCEPT A. regulation of heat  
B. formation of cholesterol C. removal of red blood cells D. synthesis of vitamins
5. All but ONE of the following are atmospheric pollutants. A. diesel B. carbon II oxide C. sulphur (iv) oxide D. hydrogen sulphide
6. On what part of the tongue do we perceive salty taste? A. front B. sides C. back D. sides and front
7. Maintenance of homeostasis in mammals is a function of all the following EXCEPT  
A. ovaries B. skin C. lungs D. kidneys
8. Biotechnology has helped to produce plants and animals of these desirable features, EXCEPT  
A. greater resistance to pests and diseases B. higher susceptibility to infections C. better nutritional value D. early yielding varieties
9. Insects which undergo complete metamorphosis are those that A. have the four distinct stages in their life cycle B. do not have the larval stage C. have larva and pupa which resemble the adult D. their eggs hatch to produce nymphs
10. The type of storage organ found in ginger is called A. bulb B. cutting C. tuber D. rhizome
11. The geotropic response of a seedling is detected with A. a clinostat B. a thermostat C. a Secchi disc D. an auxanometer
12. The substrate in cellular respiration is A. sucrose B. glucose C. glycogen D. adenosine diphosphate
13. A good example of roughage - containing food material is; A. orange juice B. cornflour C. Carrot D. egg yolk.
14. The World Health Organisation defines good health as A. a state of physical and mental well-being B. the absence of deformities C. absence of disease D. a state of physical, mental and social well-being
15. The stage at which chromosomes move towards to opposite poles during mitosis is  
A. prophase B. metaphase C. telophase D. anaphase

16. Which of the following can sublime? A water B. ink C. iodine D. hydrogen
17. A certain compound on analysis gave 2.02 g of carbon, 0.35 g of hydrogen and 2.68 g of oxygen. If the molecular mass is 90, calculate the molecular formula A.  $\text{CH}_2\text{O}$  B.  $\text{C}_2\text{H}_4\text{O}_2$  C.  $\text{C}_3\text{H}_6\text{O}_3$  D.  $\text{C}_4\text{H}_8\text{O}_4$
18. Isotopy is due to differences in the number of A. atomic mass B. molecular mass C. protons D. neutrons
19. Chlorine is a .... A. colourless gas B. greenish liquid C. yellow gas D. greenish yellow gas
20. Calcium carbide reacts with water to form ethyne. What mass of calcium carbide (grams) would react to give  $1.12 \text{ dm}^3$  of ethyne at STP? [Ca - 40, C - 12, H - 1] A 60g B. 64g C. 32g D. 3.2g
21. 5.3g of silver trioxonitrate (V) was dissolved in  $50 \text{ cm}^3$  of water at  $25^\circ\text{C}$ . Calculate the solubility of the salt in  $\text{mol dm}^{-3}$  [Ag = 108, N = 14, O = 16]  
A  $0.312 \text{ mol dm}^{-3}$  B.  $0.031 \text{ mol dm}^{-3}$  C.  $0.062 \text{ mol dm}^{-3}$  D.  $0.623 \text{ mol dm}^{-3}$
22. Which of the following decomposition equation is correct?  
A  $\text{Ag}_2\text{CO}_{3(s)} \rightarrow \text{Ag}_2\text{O}_{(s)} + \text{CO}_{2(g)}$  B.  $2\text{PbCO}_{3(s)} \rightarrow 2\text{Pb}_{(s)} + 2\text{CO}_{2(g)} + \text{O}_{2(g)}$   
C.  $2\text{NaNO}_{3(s)} \rightarrow 2\text{NaNO}_{2(s)} + \text{O}_{2(g)}$  D.  $\text{Ag}_2\text{CO}_{3(s)} \rightarrow \text{AgO}_{(s)} + \text{CO}_{2(g)}$
23. In the reaction of aqueous solution of HCl and NaOH, the heat change is heat of  
A solution B. neutralization C. formation D. displacement
24. Which of the following gas is colourless and odourless? A.  $\text{NO}_2$  B.  $\text{N}_2\text{O}$  C.  $\text{O}_2$  D. b and c
25. The two hydrocarbon used as lower and upper standards for petrol are A. isooctane and benzene  
B. heptane and 2,2,6-trimethylpentane C. heptane and 2,2,4-trimethylpentane  
D. heptane and neopentane
26. Benzene commonly undergoes-----reactions A. addition B. elimination C. substitution D. amendment
27. Under high pressure, real gases deviate from compliance with gas laws because their molecules  
A. experience repulsive forces B. have become more energetic C. have become less energetic  
D. collide inelastically
28. Which of the 3d, 4s, 4p, 4d has the lowest energy? A. 3d B. 4s C. 4p D. 4d
29. One of the causes of algae growth in rivers is the presence of A. heavy metals B. pesticides  
C. Phosphates from detergents D. High particulate loading
30. Phenolphthalein solution at pH 2.5 is A. yellow B. pink C. red D. colourless
31. Which of the following is a vector quantity? A. Distance B. Speed C. Energy D. Weight
32. Calculate the work done by a bricklayer who lifted cement block of mass 10 kg from the floor to a height of 2.5m (acceleration due to gravity =  $9.8 \text{ ms}^{-2}$ ). A. 294.0 J B. 245.0 J C. 30.0 J D. 25.0 J
33. Find the potential energy of a diver of mass 75kg at a height of 10m above a swimming pool (acceleration due to gravity =  $9.8 \text{ ms}^{-2}$ ). A. 7.35KJ B. 9.41KJ C. 8.82KJ D. 0.75KJ.
34. Determine the wavelength of fundamental note of a guitar string of length 65cm long  
A. 65cm B. 260cm C. 195cm D. 130cm

35. Find the combined resistance of two wires each of resistance 8-ohms when they are connected in parallel A. 16-ohms B. 4-ohms C. 20-ohms D. 12.-ohms
36. A force of 300N was used to pull a load of mass 40kg at a steady speed up an inclined of length 6.2m and vertical height 3.5m. Determine the velocity ratio A. 0.57 B. 1.31 C. 1.57 D. 1.77
37. Which of the following is NOT TRUE about pressure? A. Unit of pressure is  $\text{Nm}^{-1}$   
B. Pressure in a liquid increases with depth C. Pressure at any point in a liquid acts in all directions  
D. Pressure is the ratio of force acting normally per unit area.
38.  $120\text{cm}^3$  of gas was collected at  $20^\circ\text{C}$  and 745mm of mercury pressure. Find the volume of gas at standard temperature and pressure A.  $1605.7\text{cm}^3$  B.  $917.8\text{cm}^3$  C.  $305.1\text{cm}^3$  D.  $109.6\text{cm}^3$
39. A metal of length 30cm is heated until its temperature rises by  $60^\circ\text{C}$  to a new length of 30.04 cm. Calculate its linear expansivity.  
A.  $4.44 \times 10^{-5} \text{K}^{-1}$  B.  $2.22 \times 10^{-5} \text{K}^{-1}$  C.  $3.33 \times 10^{-5} \text{K}^{-1}$  D.  $1.52 \times 10^{-5} \text{K}^{-1}$
40. Which of the following statements is NOT correct?  
A. Molecules of a liquid are stationary B. Atoms combine to form molecules C. The molecules of matter are in constant motion D. Brownian motion is an evidence of particle nature of matter.
41. Determine the elastic constant of a spring if a force of 1N stretches it by 2.7cm  
A.  $0.4 \text{Nm}^{-1}$  B.  $40.4 \text{Nm}^{-1}$  C.  $37.0 \text{Nm}^{-1}$  D.  $40.0 \text{Nm}^{-1}$
42. Which of the following objects is NOT in stable equilibrium?  
A. A car with wide base and low centre of gravity B. A ball in the middle of a bowl C. A car with narrow base and high centre of gravity D. A cone resting on its base
43. Which of the following is not true of boiling?  
A. Temperature is constant during boiling B. Occurs throughout the entire volume of the liquid  
C. Takes place at all temperatures D. It is change from liquid to vapour at the boiling point.
44. A swimming pool viewed directly from above its surface appears to be 12m deep. Find the real depth.  
(Refractive index of water =  $\frac{4}{3}$ ). A. 16 m B. 20 m C. 10 m D. 24 m
45. A transformer has 500 turns in the primary coil and 400 turns in the secondary coil. Find the voltage in the secondary coil when the primary coil is connected to a 220V main.  
A. 132V B. 160V C. 176V D. 182V

**UNIVERSITY OF BENIN, BENIN CITY, NIGERIA**  
**POST UNIVERSITIES MATRICULATION SCREENING**  
**SATURDAY 24<sup>TH</sup> JULY, 2010; 9.00AM**

**Time allowed: 1H 15min**

**INSTRUCTIONS**

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 calculators and /or similar electronic devices is **NOT** allowed.

**SECTION A: ENGLISH**

**Read (the passage below and answer questions 1 -5 that follow.**

The tunes are familiar. Across our beautiful motherland, rascals are beating the drums of hooliganism and gangsterism. The Armed Forces which is adept at this were again asked to pay an exemplary fine for brutality. This time they shifted their criminality down South where the crime of their victim was for asking an innocuous question. The law lecturer at the gate of a Navy Barracks asked a naval rating if guests at an expected wedding would be permitted to park their cars along the road. The rating perhaps felt insulted that a bloody civilian had the nerve to ask him a stupid question right at the barracks gate. He dragged the lecturer out from his car and hit him with the butt of his gun.

The man passed out but that was not the end of his ordeal; other naval personnel poured out to hit and whip him with belts. When other citizens expressed fears that the man might be killed, they were also attacked by the 'gallant' men of the disciplined force. It is good that the Honourable Judge of the High Court has awarded N150 million damages to the man. The Judge lamented that Nigerians are gradually becoming endangered species in their own country.

1. What was the 'offence' that led to the beating of the man?  
A. He parked his car along the road B. He drove as far as the barracks gate  
C. He asked the naval rating a question D. He mocked the naval rating
2. An innocuous question' in the passage means... A. an offensive question B. an upsetting question  
C. an indirect question D. a question that is not intended to offend
3. The man 'passed out' means.... A. the man died B. the man became unconscious  
C. the man ran away D. the man fell clown
5. From the passage the writer is.... A. happy with military-civilian relationship

- B. unhappy with military-civilian relationship C. unhappy that civilians do not respect the military  
D. happy that the military displays force when necessary
5. The message of the writer is that... A. the Nigerian Navy is a gallant and disciplined force  
B. the civilians often deserve the treatment they get from the military  
C. the Nigerian Navy is a force of hooligans and gangsters  
D. The fine handed down by the honourable judge was unnecessary

**INSTRUCTION:**

After each of the sentences below, a list of possible interpretations of all or part of the sentence is given. **Choose the interpretation that you consider most appropriate** for each sentence.

6. The problem with Fatai is that he has a finger in every pie. This means that...  
A. Fatai loves eating all kind of pies B. Fatai is involved in too many activities  
C. Fatai prepares good pies D. Fatai steals things
7. Peter's grandmother has kicked the bucket. This means that....  
A. Peter's grandmother is dead B. Peter's grandmother is on admission in a hospital  
C. Peter's grandmother is very strong D. Peter's grandmother has retired from work
8. I had a night out with Dickson. This means that.... A. Dickson and I spent the night reading  
B. Dickson and I had an evening of fun and enjoyment C. Dickson and I were awake all night  
D. Dickson and I quarrelled all night
9. I am going for a work out this evening. This means that.... A. I am planning to steal this evening  
B. I am going back to my office for work this evening C. I am going for physical exercise this evening  
D. I am going to visit a friend this evening
10. Regarding admission into University of Benin, I resign myself to fate. This means that....  
A. I am prepared for whatever happens B. I am prepared to consult fortune tellers  
C. I am prepared to contest the outcome D. I depend on what my pastor tells me
11. Michael took the English Language examination for granted. This means that...  
A. he assumed the examination would be easy B. he expected the examination would be difficult  
C. he did not worry about the out of the examination D. he knew he was going to fail the examination
12. I can say that our Governor is angling for a second from his party. This means that ....  
A. the Governor is rejecting a second term B. the Governor is indirectly asking for a second- term  
C. the Governor is being asked to run for a second term by his party against his will  
D. the Governor is angry over a second term issue
13. Moses has been booted out of his job by his employers. This means that...  
A. Moses has been transferred by his employers to another location  
B. Moses has been promoted by his employers  
C. Moses has been sacked by his employers D. Moses has been commended by his employers

**INSTRUCTION:** Choose the word or group of words that is **nearest in meaning** to the underlined expression as it is used in the sentence.

14. He has been inundated with work.  
A. overwhelmed with B. unhappy with C. unconcerned about D. interested in
15. The Vice Chancellor has approved a new allowance, an incentive for the all lecturers.  
A. an advance B. a package C. an encouragement D. a reward
16. Although the speech was impromptu, it was very well received.  
A. prepared B. advertised C. read out D. not prepared for
17. My appeal to the lecturer for help was futile.  
A. successful B. accepted C. without success D. realistic
18. What happened last week at the meeting vindicated my earlier position.  
A. disagreed with B. proved C. dismissed D. voided
19. Tonia was accused of immodest dressing. A. loud B. poor C. indecent D. costly
20. Let me tell you, David is one student with an impeccable character.  
A. faultless B. bad C. interesting D. deviant

**INSTRUCTION:** Choose the word or group of words that is **opposite in meaning** to the underlined expression as it is used in the sentence.

21. He was very discreet about the number of university entrance examinations he has written.  
A. secretive B. open C. sure D. uncertain
22. Ofure told the congregation that she married a doting man.  
A. a loving B. a funny C. uncaring man D. nagging
23. My pastor preaches humility without matching it with action.  
A. salvation B. pride C. kindness D. modesty
24. He gave a nebulous description of the university campus.  
A. clear B. vague C. short D. detailed
25. I was intrigued by the manner in which the goal was scored.  
A. fascinated by B. uninterested in C. embarrassed by D. disappointed by

**INSTRUCTION:** Choose the option which **best completes** each of the following sentences.

26. The President visited the town with a view to ----- things for himself.  
A. see B. seen C. seeing D. having seen
27. Jide and Kemi quarrelled last week and haven't ----- yet.  
A. made it out B. made up C. made out D. made it up
28. It's time we ----- away with poor leadership.  
A. do B. done C. did D. have done
29. It was ----- on the evening news.  
A. broadcasted B. being broadcasted C. been broadcast D. broadcast

30. The pepper was poorly -----A. ground B. grinded C. grounded D. grind

**SECTION B: GENERAL PAPER**

1. On the induction of new students in a certain school, 800 students turned up at the opening ceremony, 600 students turned up for the novelty match and there is a total of 1234 students altogether in the school. How many students attended both ceremonies if a student attended at least one of the functions?  
A.1400 B. 1660 C.140 D.166
2. In how many ways can a committee of 5 comprising of 3 males and 2 females be formed from 6 males and 4 females? A. 20 ways B. 6 ways C. 12 ways D. 120 ways
3. Which of the following is not an exterior angle of a regular polygon?  
A.  $24^\circ$  B.  $18^\circ$  C.  $15^\circ$  D.  $18^\circ$
4. If the square root of  $x^2 + 9 = x + 1$ , solve for x A. 5 B. 4 C. 3 D.1
5. Simplify  $3/5 \div (2/7 \times 4/3 \div 4/9)$  A.  $4/5$  B.  $7/10$  C.  $6/7$  D.  $21/6$
6. Which of these animals is radially symmetrical?  
A. Squid B. Snail C. Hydra D. Earthworm
7. A food substance was treated with a few drops of Sudan II solution and red colouration was obtained. The food contained....  
A. starch B. vitamins C. protein D. fat
8. Members of the phylum protozoa use the contractile vacuole to  
A. reproduce B. remove excess food C. digest food D. remove excess water
9. The primary and secondary hosts of Bilharzia are....  
A. man and dog B. man and snail C. fish and snail D. snail and dog
10. Which of the following statements is true of blood group and blood transfusion?  
A. Group B can donate to group B only B. Group AB can donate to all  
C. Group A can donate to Group A only D. Group AB is the universal recipient
11. Which of the structures listed below is peculiar to the axis vertebra?  
A. Centrum B. Prezygapophysis C. Lateral spine D. Odontoid
12. A plant which has a horizontal underground stem is a ----  
A. rhizome B. creeper C. tuber D. bulb
13. Epigeal germination can be found in -----  
A. groundnut B. sorghum C. millet D. maize
14. The mammalian organ which acts both as a digestive and as an endocrine organ is the....  
A. liver B. pancreas C. spleen D. adrenal gland
15. Which of the following does a virus have in common with animal cell?  
A. Glycogen B. Starch C. Nucleus D. DNA

16. Spirogyra, Euglena and Chlamydomonas share many characteristics except.....  
 A. growth      B. mobility      C. reproduction      D. irritability
17. Parasitic forms are not found among.....  
 A. molluscs      B. nematodes      C. annelides      D. plathyhelminthes
18. A good example of diploblastic organism is....  
 A. hydra      B. insect      C. roundworm      D. amoeba
19. What is the number of an element if its atom contains 10 protons, 10 electrons and 12 neutrons?  
 A. 32      B. 22      C. 20      D. 10
20. The loss of water of crystallization to the atmosphere by some crystalline salts is known as....  
 A. efflorescence      B. effervescence      C. deliquescence      D. phosphorescence
21. Carbon is often deposited in the exhaust pipe of cars because of the.....  
 A. dehydrogenation of petrol      B. incomplete combustion of petrol      C. presence of additives  
 D. presence of carbon in petrol
22. Plastics are polymers whose production techniques involve all except....  
 A. high pressure      B. low pressure      C. salting      D. high temperature
23. Which of the following gases is produced when ammonium trioxonitrate (v) is heated with sodium hydroxide?  
 A. Oxygen      B. Ammonia      C. Nitrogen (IV) oxide      D. Hydrogen
24. How many grammes of HCl will be required to react with 10 g of NaOH (H = 1, Cl = 35.5, N = 23, O = 16)?  
 A. 9.125g      B. 4.6g      C. 10.1g      D. 18.4g
25. The bond formed between  $H_2O$  and  $H^+$  to form the hydroxonium ion is ---  
 A. co-ordinate covalency      B. electrovalent      C. covalent      D. ionic
26. Common salt is dissolved in water and the mixture is evaporated. The vapour given off is condensed. The condensed vapour is a...  
 A. solute      B. suspension      C. solvent      D. solution
27. When some substances are heated, they change directly into gases without appearing in the liquid state. An example is....  
 A. copper      B. iodine      C. sodium      D. sulphur
28. What is the IUPAC name of the compound  $KMnO_4$ ?  
 A. Potassium manganate      B. Potassium tetraoxomanganate  
 C. Potassium trioxomanganate (IV)      D. Potassium oxomanganate (IV)
29. Which of the following is the dimension of pressure?  
 A.  $MLT^{-2}$       B.  $ML^{-1}T^2$       C.  $ML^{-3}$       D.  $ML^{-2}T^{-2}$
30. Which of the following statements is or are correct about a car moving round a circular track at a uniform speed? (i) Its velocity is uniform (ii) It undergoes an acceleration (iii) The friction between its tyres and the ground provides necessary centripetal force.  
 A. (i) and (iii) only      B. (i)only      C. (iii) only      D. (ii)only
31. A body initially at rest is accelerated at a rate of  $0.2 \text{ ms}^{-2}$  for 5s under a constant force of 50N. The work done on the body is....  
 A. 50J      B. 2.5J      C. 125J      D. 250J



32. The formation of clouds results directly from....  
A. vaporization      B. fusion      C. condensation      D. sublimation
33. Replenishing soil nutrients involves one of the following:  
A. Leaching      B. Cover cropping      D. Bush burning      D. Grazing
34. For a wire of a specific material, which of the following will give the lowest resistance in a circuit?  
A. A short, thick wire    B. A short, thin wire    C. A long thin wire    D. A long thick wire
35. A change in temperature of 45°C is equivalent to a change in temperature on the Kelvin scale of....  
A.25K      B.318K      C.45K      D.81K
36. A disease that causes abortion in cattle at the stage of pregnancy is.....  
A. milk fever    B. brucellosis      C. pneumonia      D. foot and mouth disease
37. Which of the following instruments is used to measure relative humidity?  
A. Barometer      B. Hydrometer      C. Manometer      D. Hygrometer
38. Which of these statements is correct about cathode rays? They are fast moving.....  
A. atoms      B. protons      C. neutrons      D. electrons
39. On a day when humidity of the air is very high, evaporation from a water pond will be...  
A. rapid      B. slow      C. zero      D. fast
40. The cells that surround the stomata are called.....  
A. stomatal cells    B. epidermal cells      C. guard cells    D. pilifcrous layer

**UNIVERSITY OF BENIN, BENIN CITY, NIGERIA**  
**POST UNIFIED TERTIARY MATRICULATION SCREENING**  
**SATURDAY 3<sup>RD</sup> SEPTEMBER, 2011 9.00AM**

**Time allowed 1Hr 15mins**

**INSTRUCTIONS**

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 number on the Question Paper in the space provided at the top of page 1.
4. The use of calculators and/or similar electronic devices is **NOT** allowed

**SECTION I: ENGLISH**

**Read the passage and answer the questions that follow**

This book consists of lectures given by me at Cambridge. Though they have been largely rewritten. I have kept a good deal of their original lecture-form, as being (I hope) rather less formal and less dogmatic. For to dogmatism, those who write on language seem, for some reason, particularly prone; and I should like to make it clear at once that, If at times I have put my views strongly, I do not forget that such matters of taste must remain mere matters of opinion. In addition, I have included a good many specimen passages from various authors. Perhaps I have quoted too much. But a book on style without abundant examples seems to me as ineffectual as a book on art, or biology, without abundant illustrations. Many of these passages are in French. That may be Gallomania on my part: and I must apologize if they trouble some readers. But some ability to read French prose does seem to me most desirable for anyone who would write –well in English. I have tried to choose pieces not too difficult in syntax or vocabulary. And in these days less than ever can we afford to be insular.

1. According to the author (in this preface) the book is (a) the original version of his Cambridge lectures (b) a revised version of his Cambridge lectures (c) an imitation of his Cambridge lectures (d) a negation of his Cambridge lectures
2. The author says that writers on language are (a) inclined to be dogmatic (b) Opposed to dogmatism (c) unlikely to be dogmatic (d) resolved to be dogmatic
3. In the author's opinion, a book on style (a) can do with few examples (b) need not have any examples (c) is a book on art (d) will be ineffectual with insufficient examples

4. To write English well, the author says it is helpful to (a) be able to write French fairly well (b) be able to read French fairly well (c) know French thoroughly (d) be able to read English well
5. Our understanding of the last sentence in the passage is that we (a) can now afford to be insular (b) can be insular in future (c) cannot afford to be insular (d) must never be insular

**Each of the following sentences has a list of option A-D following it. Choose which option best interprets the sentence**

6. Would you have helped him if he had asked you? This implies that (a) he did not ask you so you didn't help him (b) he asked you (c) he asked you and you helped (d) he asked you but you didn't help
7. If Musa applies for scholarship, he will be able to go to law school. This means that Musa (a) is attending law school (b) has the opportunity of attending law school (c) could not attend law school (d) has applied for a scholarship to attend law school.
8. Had Mr. Opoku not changed the manager, his business would not have been ruined. This tells us that : (a) Mr. Opoku changed his manager and his business was not ruined (b) the new manager ruined Mr. Opoku's business (c) the new manager almost ruined Mr. Opoku's business (d) Mr Opoku changed his manager after his business had been ruined.
9. Ade told George that if he were as rich as him, he would have travelled overseas. This means that (a) That Ade is not as rich as George therefore he did not travel overseas (b) Ade is not as rich as George but he traveled overseas (c) Ade is not rich therefore he stole to travel (d) George is rich but did not travel overseas
10. Had her father not died, Ede would have left for London. This implies that Ede (a) Went to London after the death of her father (b) did not go to London because her father had died (c) Would like to go to London when her father dies (d) Would like to go to London after her father dies

**In Question 11-14 choose the option nearest in meaning to the underlined**

11. Had she know he was a high way robber she would not have married him This means (a) she married him before she knew he was a robber (b) she knew he was a robber when she married him (c) she did not marry him because he was a robber (d) she refused to marry the man when she knew he was a robber.
12. Jide is being forced to go to Lagos tomorrow. This means that Jide ----- (a) will go to Lagos (b) must go to Lagos (c) wishes to go to Lagos (d) is going to Lagos
13. It is sheer Fantasy to believe that there could never be a miscalculation by any nation that has atomic weapons. Fantasy here means (a) dream (b) hope (c) nonsense (d) joke
14. The ingenious scheme of robber broke down because of the efficiency of the police office. Ingenious here means (a) suspicious (b) ambitious (c) deceitful (d) clever

**In questions 15- 17 select the wrongly spelt word**

15. (a) disappointed (b) embarassed (c) equipped (d) rhythm  
16. (a) occurence (b) surprise (c) personnel (d) possess  
17. (a) quiet (b) beleive (c) proceed (d) precede

**In each of the following sentences there is one word underlined and one gap. From the list of words lettered A to D, choose the word or group of words that is most nearly opposite in meaning to the underlined word**

18. False Modesty is really a form of -----  
(a) arrogance (b) humility (c) extravagance (d) incompetence
19. Cameras were once as Unwieldy as are now -----  
(a) attractive (b) cheap (c) compact (d) efficient
20. Although Paul had been accused of the crime he was later  
(a) discharged (b) released (c) exonerated (d) dismissed
21. The testimony of the witness was so vague that it was difficult to learn..... details of the case.  
(a) real (b) true (c) factual (d) specific
22. Although I have forgotten the title of the book, I ----- the story very well.  
(a) can recognize (b) can reconstruct (c) can recollect (d) can review
23. Obiora was a notorious hunter who defied the ----- king's orders not to hunt near the city.  
(a) Illustrious (b) brave (c) anonymous (d) intelligent
24. The man's speech is rather verbose. it needs to be more ----  
(a) detailed (b) concise (c) reduced (d) interesting

**Select the best option (from A –D) to complete each of the following sentences**

25. A diligent scholar, she devoted herself to the completion of the book.  
(a) assiduously (b) ingenuously (c) theoretically (d) voluminously
26. He was ----- success, painting not for the sake of fame or monetary reward, but for the sheer love of art  
(a) indifferent to (b) destined for (c) avid (d) enamored of
27. When the news of his ----- the enemy became known , he was hanged in an effigy  
(a) contempt for (b) enmity toward (c) collusion with (d) conspiracy against
28. At the height of the storm, the savages tried to ----- the angry gods by offering sacrifices (a) instigate  
(b) appall (c) vilify (d) propitiate
29. You should ---- this paragraph in order to make your essay more ----- (a) delete .... Succinct (b)  
enlarge ... redundant (c) remove ... discursive (d) revise ... abstruse
30. Only the fear of immediate ---- prevents the country from launching an attack  
(a) reprisal (b) surrender (c) truce (d) surveillance

**Choose the option that has the same vowel sound as the one underlined in the given word**

31. done (a) gone (b) dove (c) burn (d) born  
32. eak (a) tape (b) stick (c) peak (d) hard  
33. ewel (a) fluent (b) dare (c) wear (d) few  
34. after (a) black (b) about (c) last (d) baker  
35. erk (a) have (b) back (c) search (d) palm

**Fill the blank spaces with the most appropriate of options A- D**

36. I am disappointed ---- the way you conducted yourself at the party. (a) by (b) for (c) due to (d) at  
37. When we were coming back from the picnic last Friday, there ---- on Eko Bridge  
(a) were many traffics (b) was much traffic (c) were plenty traffic (d) were lots of traffic  
38. I have refused to give him my pen because I don't want him to ---- it again  
(a) loss (b) loose (c) lose (d) lost

**SECTION II: GENERAL PAPER**

1. Calculate  $\sin(A+B)$  if  $\sin A = \frac{3}{5}$  and  $\cos B = \frac{5}{13}$  where both A and B are acute  
(a)  $\frac{33}{65}$  (b)  $\frac{48}{65}$  (c)  $\frac{15}{65}$  (d)  $\frac{63}{65}$
2. Find  $\tan x$  given that  $\tan(x+45) = 2$   
(a)  $\frac{\sqrt{3}}{2}$  (b)  $\frac{1}{3}$  (c)  $\frac{2}{3}$  (d)  $\frac{2}{\sqrt{3}}$
3. If  $\frac{x+7}{(x+3)(x-4)} = \frac{m}{x+3} + \frac{n}{x-4}$  what is  $3n-4m$  ? (a) 7 (b) 5 (c) 8 (d) 6
4. Express  $\frac{5x-12}{(x-2)(x-3)}$  in partial fractions (a)  $\frac{2}{x-3} + \frac{3}{x-2}$  (b)  $\frac{2}{x-2} + \frac{3}{x-3}$   
(c)  $\frac{1}{x-3} + \frac{2}{x+2}$  (d)  $\frac{2}{x-2} - \frac{3}{x-3}$
5. Evaluate  $\int_1^6 (2x+3)dx$  (a) 18 (b) 50 (c) 12 (d) 36
6. Find the coordinate of the minimum point for the equation  $y = 4t^2 - 40t + 300$  (a) (15,100) (b) (5,200) (c) (4,100) (d) (4,300)
7. Find the variance of the numbers K, K+1, K+2, (a)  $\frac{2}{3}$  (b) 1 (c) K+1 (d)  $(K+1)^2$
8. Find the positive value of x if the standard deviation of the number 1, x+1, 2x+1 is  $\sqrt{6}$   
(a) 1 (b) 12 (c) 3 (d) 4

9. a – Rattus rattus                      b- Agama agama      c-Bufo regularis      d- Tilapia zilli      The order of evolutionary advancement of the above vertebrates is  
(a) d → c → b → a (b) d → b → a → c (c) c → b → a → d (d) b → c → d → a
10. Which of the following is likely to have a higher concentration of mitochondria?  
(a) white blood cell (b) egg cell (c) sperm cell (d) Red blood cell
11. Which of these diseases is **not** caused by virus?  
(a) maize rust (b) Rinder pest (c) New castle (d) cassava mosaic
12. Metabolic production of urea is carried out the (a) kidney (b) Pancreas (c) Liver (d) spleen
13. If a nursing mother is not producing enough milk, her hormonal system is probably deficient in  
(a) Prolactin (b) Oestrogen (c) Insulin (d) Thyroxine
14. Nervous control differs from hormonal control in that the former (a) is a slower process (b) involves only chemical reaction (c) produce short-term changes (d) has no specific pathway
15. The two key cations involved in the action potential of nervous transmissions are  
(a)  $Mg^{2+}$  and  $K^+$  (b)  $Na^+$  and  $Fe^{2+}$  (c)  $Na^+$  and  $K^+$  (d)  $Na^+$  and  $Mg^{2+}$
16. A boy who is fond of swimming in a pond finds himself passing urine with traces of blood. He is likely to have contacted (a) Onchocerciasis (b) Poliomyelitis (c) Tetanus (d) Schistosomiasis
17. The presence of a large number of mitochondria in a cell indicates that (a) it has little cytoplasmic content (b) the cell is dormant (c) the cell is very active (d) the respiration is poor
18. If the cerebellum of a person is slightly damaged, which of the following will be impaired?  
(a) vision (b) walking (c) Digestion (d) Breathing
19. Herbs differ from shrubs because they (a) are only perennials (b) useful to herbalists (c) do not produce fruits (d) do not become woody
20. Which of the following represents the evolutionary sequence in these plants? (i) mango plant (ii) mosses (iii) spirogyra (iv) ferns (v) whistling pine (a) iii, ii, iv, v and i (b) iii, iv, v, i and ii (c) ii, iv, i, ii and v (d) iv, ii, iii, v and i
21. By which process in man does oxygen pass from the alveoli of the lungs into the blood?  
(a) excretion (b) osmosis (c) diffusion (d) transpiration
22. The aspects of growth in living organisms include all the following processes except  
(a) reversible increase in size (b) increase in dry weight (c) increase in number of cells (d) irreversible increase in length
23. Which of these excretory products is not found in mammals  
(a) Carbon dioxide (b) Mineral salt (c) ammonia (d) urea
24. Which of the following organism is a producer (a) yeast (b) fungus (c) Rhizopus (d) spirogyra
25. Changes in energy flow between organisms in a habitat can be represented by a  
(a) Pyramid of biomass (b) flow chair (c) food web (d) Pyramid of energy

26. Important abiotic factors which affect all plant and animals in the habitat are (a) rainfall and relative humidity (b) temperature and rainfall (c) salinity and relative humidity (d) temperature and turbidity
27. Which of the following factors many not affect living organisms in an aquatic habitat (a) light (b) Turbidity (c) pH (d) Humidity
28. Which of the following is not an evidence of evolution? (a) Anatomy (b) Genetics (c) Behaviour (d) Fossils
29. What mass of sodium hydroxide is required to make  $500\text{cm}^3$  of  $0.2\text{m}$  solution? ( $\text{Na} = 23, \text{O} = 16, \text{H} = 1$ ) (a) 20g (b) 10g (c) 4g (d) 2g
30. Calculate the current that must be passed into a solution of Chromium (iii) salt for one hour in order to deposit 1.2g of Chromium {  $\text{Cr} = 51$  } (a) 3.50 amperes (b) 2.30 amperes (c) 1.89 amperes (d) 1.52amp
31.  $2\text{NH}_4\text{Cl} + \text{Ca}(\text{OH})_2 \longrightarrow 2\text{NH}_3 + \text{CaCl}_2 + 2\text{H}_2\text{O}$  From the equation, calculate the mass of calcium hydroxide needed to decompose 50g of ammonium (a) 20.00g (b) 34.57g (c) 75.10g (d) 42.13g
32. 0.0075mole of Calcium trioxocarbonate (iv) is added to 0.015 mole of a solution of hydrochloric acid. The volume of gas evolved at s.t.p is (molar volume of gas at stp =  $22.4\text{dm}^3$ ) (a)  $224\text{cm}^3$  (b)  $168\text{cm}^3$  (c)  $112\text{cm}^3$  (d)  $100\text{cm}^3$
33. What is the general formula of carbohydrates (a)  $\text{C}_n\text{H}_{2n}\text{O}_n$  (b)  $\text{C}_x(\text{H}_2\text{O})_y$  (c)  $\text{C}_6\text{H}_{10}\text{O}_5$  (d)  $\text{C}_6\text{H}_{12}\text{O}_6$
34. A neutral water molecule ( $\text{H}_2\text{O}$ ) has an electric dipole moment of  $6.2 \times 10^{-30}\text{C.m}$ . How far apart are the molecules centers of positive and negative charge? (a) 4.9Pm (b) 2.9Pm (c) 3.9Pm (d) 1.9Pm
35. Find the angle between  $\vec{P}$  and  $\vec{E}$  when the torque on a dipole is a maximum (a)  $180^\circ$  (b)  $90^\circ$  (c)  $45^\circ$  (d)  $30^\circ$
36. An electron in the atmosphere is moved upward through displacement 520m by an electrostatic force due to an electric field 150N/C. Take the charge on the electron to be  $1.6 \times 10^{-19}\text{C}$ . Calculate the work done on the electron (a)  $-1.2 \times 10^{-14}\text{J}$  (b)  $1.2 \times 10^{-14}\text{J}$  (c)  $1.6 \times 10^{-16}\text{J}$  (d)  $-1.6 \times 10^{-16}\text{J}$
37. Choose the correct statement (a) Electric potential is a scalar (b) Electric potential is a vector (c) Electric potential is neither a scalar nor a vector (a) a and b (b) b (c) a (d) b and c
38. Which country has just produced the fastest moving train in the world (a) U.S.A. (b) Germany (c) China (d) Japan
39. The full meaning of the WWW in internet surfing is (a) wide wide web (b) world wide web (c) wide world web (d) world web wide
40. Who was the Nigeria's eight military ruler? (a) Olusegun Obasanjo (b) Muhammadu Buhari (c) Abdulsalam Abubakar (d) Sanni Abacha
41. The accepted concept for the theory of Natural selection does not include (a) tendency for organism to overproduce (b) struggle for existence (c) survival of the fittest (d) Use and disuse of body parts
42. Which of the following pair of structure does not perform the similar function (a) Lungs and Spiracles (b) Root hair and mammalian hairs (c) feathers and scales (d) contractile vacuole and kidney

**UNIVERSITY OF BENIN, BENIN CITY, NIGERIA**  
**POST UNIFIED TERTIARY MATRICULATION SCREENING**  
**SATURDAY 16<sup>th</sup> JUNE, 2012 9.00AM**

**Time allowed 1Hr**

**INSTRUCTIONS**

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 number on the Question Paper in the space provided at the top of page 1
4. The use of calculators and/or similar electronic devices is **NOT** allowed

**SECTION I - ENGLISH**

**Read the following passage carefully and answer the questions on it**

In order to approach the problem of anxiety in play. Let us consider the activity of building and destroying a tower. Many a mother thinks that her little son is in a 'destructive stage or even has a destructive personality' because after building a big tower, the boy cannot follow her advice to leave the tower for Daddy to see but instead, must kick it and make it collapse. The almost manic pleasure with which children watch the collapse in a second of the product of long play-labour has puzzled many, especially since the child does not appreciate it at all if his tower falls by accident or by a helpful uncle's hand. He, the builder, must destroy it himself. This game, I should think arises from the not so distant experience of sudden falls at the very time when standing upright on wobbly legs afforded a new and fascinating perspective on existence. The child who consequently learns to make a tower 'stand up', enjoys causing the same tower to waver and collapse. In addition to the active mastering over a previously passive event, it makes one feel stronger to know that there is somebody weaker and towers, unlike sisters, can't cry and call 'mummy'.

1. In the passage, 'manic pleasure' means ----  
(a) human pleasure (b) wicked pleasure (c) unlimited pleasure (d) Childish pleasure
2. According to the passage, it gives the child great pleasure (a) for daddy to see the tower he has built  
(b) to be helped to destroy the tower (c) to destroy his tower himself (d) to see his tower accidentally destroyed.



3. The expression 'must kick it and make it collapse' in this context means (a) Cannot resist the urge to demolish (b) Ought to kick it and make it collapse (c) is forced to kick it and demolish it (d) is obliged to kick it and make it collapse.
4. How does the author try to explain this destructive stage? (a) It is the last stage in child development (b) the child is just going through a destructive stage (c) The child wants to displease his parents (d) It grows out of the child's recent experience of sudden falls.
5. What other feelings does the child derive from the fall of his tower apart from pleasure?  
(a) pity (b) depression (c) Strength (d) anxiety

**Choose the word(s) or phrase that best fills the gaps**

6. A good government should try not to ..... the press (a) bind (b) gag (c) fetter (d) tie
7. Those who ..... policy must have facts at their disposal  
(a) instigate (b) fabricate (c) organize (d) formulate.
8. Because foul play was suspected, the dead man's body was ..... from the grave  
(a) examined (b) expelled (c) exhumed (d) extracted.
9. We reported the robbery, and a policeman was asked to ..... (a) probe (b) investigate (c) explore (d) inquire.
10. The Vice-Chancellor has set ..... up to study the complaints of the students  
(a) a tribunal (b) a brains trust (c) a panel (d) an inquest.
11. The president has refused to give his..... to the bill (a) ascent (b) assent (c) accent (d) asset.
12. The ..... of armed robbery has been on the increase  
(a) incident (b) accident (c) incidence (d) accident.
13. The.....of our troops was high (a) morale (b) moral (c) morals (d) morel
14. Age is the cause of .....(a) infirmity (b) infirmity (c) infinity (d) infertility.
15. We heard .....of laughter from inside the hall (a) pills (b) peels (c) piles (d) peals.

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

16. I want to tell you frankly that measles ----- no longer impossible to cure  
(a) are (b) were (c) is (d) was
17. I don't want to ----- your morale at this early stage of the competition (a) damping (b) dampen (c) damp (d) doubt.
18. The military..... contributed..... quota to the development of this state.  
(a) have/their (b) are/their (c) has/its (d) has/there.
19. The girl who ..... beautifully in the school hall every morning as if she ..... a professional

- singer is my cousin (a) sings/is (b) sings/will become (c) sing/has become (d) sings/were.
20. The class ..... into two before the teacher was transferred to another school (a) had been split (b) has been splitted (c) was split (d) had been splitted.
21. I cannot ..... the noise of the children any longer. (a) put up with (b) put of with (c) put out with (d) put on by
22. Many workers were ..... recently by the federal government  
(a) laid down (b) laid of (c) laid off (d) lay out
23. Lets go to the market to buy some food items.....?  
(a) don't we (b) Shall we (c) shouldn't we (d) can't we
24. It is useless .....over a loss (a) broading (b) brooded (c) bruding (d) brooding
25. Rice and beans ..... a kind of food I like in the morning nowadays (a) are (b) was (c) is (d) were.

**In each of questions below, choose the most appropriate option opposite in meaning to the words or phrase in italics.**

26. Good students can easily identify *spurious* arguments (a) genuine (b) interesting (c) false (d) illegal
27. Eze's skin now looks *flabby* as a result of his changed circumstances (a) neat (b) firm (c) weak (d) oily
28. He and his lieutenants have been accused of remaining *intransigent*  
(a) rigid (b) stubborn (c) compromising (d) popular
29. In the opinion of most observers, it was a *disinterested* decision (a) neutral (b) impartial (c) biased (d) candid.
30. We watch in wonder as she rattled away in that *esoteric* language. (a) inscrutable (b) familiar (c) secret (d) obscure

## **SECTION B: GENERAL PAPER**

- Which of the following structures are present in both the epidermis and the dermis of the skin?  
(a) Hair and sweat ducts (b) fatty tissues and sweat glands (c) hair and fatty tissues (d) sweat glands and sweat ducts.
- The number of individuals of a specie per unit area at a particular time is a  
(a) nich (b) population density (c) population (d) community
- Cockroach has been found to carry germs of dangerous diseases such as  
(a) AIDS, dysentery, cholera (b) leprosy, dysentery, typhoid fever (c) skin disease, heart attack, cholera (d) diabetes, typhoid fever, AIDS.
- Which of the following glands secretes a substance into the blood stream  
(a) Gastric glands (b) salivary glands (c) tear glands (d) Adrenal glands
- Which of the following substances from the mother's blood diffuse through the placenta into the blood vessels of the foetus?  
(a) Glucose and oxygen (b) Urea and Carbon (IV) oxide (c) Digested food and Carbon (IV) oxide  
(d) Carbon (IV) oxide and oxygen

6. Which of the following is not an abiotic factor  
(a) Precipitation (b) Grazing (c) Predation (d) Migration
7. To form ball and socket joint, the head of the humerus must fit into another structure in the scapula called the (a) acetabulum (b) glenoid cavity (c) Patella (d) Olecranon fossa
8. All are examples of alkaloids except (a) Morphine (b) Quinine (c) Cocaine (d) Cinnamon
9. Which of the following pairs of organelles are likely to be present in an actively respiring and photosynthesizing cell? (a) Food vacuoles and contractile vacuole (b) Lysosome and ribosomes (c) Chloroplast and mitochondria (d) Golgi bodies and endoplasmic reticulum
10. Spermatogenesis and Oogenesis are both terms used to describe  
(a) mitosis (b) gametogenesis (c) meiosis (d) Implantation
11. Which disease is sex-linked and mainly afflict male offspring?  
(a) Sickle cell anaemia (b) Haemophilia (c) diabetes (d) malaria
12. A genetic make-up of an organism is described as its (a) Phenotype (b) genotype (c) character (d) chromosome
13. During blood transfusion, agglutination may occur as a result of the reaction between  
(a) similar antigens and antibodies (b) contrasting antigens and antibodies (c) two different antigens (d) two different antibodies
14. Species can be defined as the group of organisms that  
(a) resemble each other and live in the same habitat (b) are of common origin and are always found together (c) resemble each other and can interbreed freely (d) resemble each other and occupy the same niche
15. Which of the following represents the phenotypic ratio, when a plant Rr is crossed with another plant Rr assuming that the gene R for round seed is dominant and wrinkled r is recessive?  
(a) 1:2:1 (b) 2:2:1 (c) 3:2 (d) 3:1
16. The theory that new organs or characteristics develop in organisms when there is a need for them was postulated by (a) Charles Darwin (b) Jean Lamarck (c) Gregor Mendel (d) Wallace
17. Which of the following parts of the mammalian brain is involved in taking the decision to run rather than walk (a) Cerebellum (b) Medulla oblongata (c) cranial nerves (d) Cerebrum
18. In testing for a reducing sugar, the food substance is usually warmed with  
(a) Sulphuric acid (b) Million's reagent (c) Sudan III (d) Benedict's solution
19. Which of the following statements about the circulation of blood is not correct? (a) Deoxygenated blood flows in the heart through the vena cavae (b) Blood is pumped out of the heart through the aorta (c) Oxygenated blood from the lungs is carried to the left auricle (d) The oxygenated blood enters the lungs through the pulmonary vein
20. The enzyme that acts on milk in the stomach is (a) invertase (b) trypsin (c) diastase (d) renin

21. Elements P,Q,R,S, have 6,11,15, and 17 electrons respectively, therefore (a) Q will form a covalent bond with S (b) Q will form an electrovalent bond with S (c) R. Will form an electrovalent bond with S (d) Q will form a covalent bond with R
22. The empirical formula of an oxide of nitrogen containing 30.4 percent of nitrogen is (a)  $N_2O_3$  (b) NO (c)  $NO_2$  (d)  $N_2O$
23. Given the mean atomic mass of chlorine prepared in the laboratory to be 35.5 and assuming that chlorine contains two isotopes of mass number 35 and 37, what is the percentage composition of the isotope of mass number 35? (a) 75 (b) 20 (c) 50 (d) 25
24. Which of the following types of reactions takes between  $C_2H_4$  and halogens? (a) Addition (b) Substitution (c) Polymerization (d) Oxidation
25. What is poured over a white solid and a colourless neutral gas is evolved which burns with a sooty flame. The white solid is (a) Calcium (b) Calcium Oxide (c) Calcium Carbide (d) Sodium peroxide
26. The reaction  $Mg + H_2O \longrightarrow MgO + H_2$  takes place only in the presence of (a) excess Mg ribbon (b) excess cold water (c) very hot water (d) steam
27. Increasing the pressure of a gas (a) lower the average kinetic energy of the molecules (b) decreases the density of the gas (c) decreases the temperature of gas (d) decreases the temperature of the gas
28. Which of the following solid will leave a black residue after being heated strongly (a) Iron (II) trioxonitrate (V) (b) Iron (II) trioxosulphate (IV) (c) Copper (II) trioxonitrate (V) (d) Calcium trioxocarbonate (IV)
29. Which of the following will undergo addition reaction (a) Ethyne (b) Butane (c) Pentane (d) tetrachloromethane
30. The scum formed when soap is mixed with hard water could be (a) Calcium hydrogen trioxo Carbonate (IV) (b) Propane – 1,2,3 –triol (c) calcium hydrogen trioxo carbonate (IV) (d) magnesium tetraoxosulphate (VI)
31. The headquarters of the World Health Organisation is located in which of the following (a) Geneva (b) Zurich (c) New York (d) Madrid
32. The Secretary General of the United Nations is one of the following (a) Kofi Annan (b) Banki Moon (c) Henry Kissinger (d) Ken Bank Annan
33. Nigeria became a Republic in (a) 1960 (b) 1964 (c) 1963 (d) 1962
34. A man stands on a spring scale placed in a lift. The lift descends at constant velocity as a result, the scale reads a weight (a) greater than the weight of the man (b) the same as the weight of the man (c) of zero (d) Less than the weight of the man
35. A load of 5N gives an extension of 0.56cm in a wire which obeys Hook's Law. What is the extension caused by a load of 20N (a) 2.14cm (b) 2.24cm (c) 1.12cm (d) 2.52cm
36. In what range of temperature is the expansion of water anomalous? (a)  $+ 208^\circ C$  (b)  $- 80^\circ C$  to  $76^\circ C$  (c)  $+ 96^\circ C$  to  $100^\circ C$  (d)  $- 4^\circ C$  to  $0^\circ C$

37. Change of state is accompanied by change of  
 (a) Temperature (b) Volume and heat content (c) Temperature and volume (d) Volume
38. A metal cube of volume  $V$  and linear expansivity  $\alpha$  is heated through a temperature rise of  $T$ . The increase in volume of the cube is (a)  $\alpha VT/3$  (b)  $2\alpha VT$  (c)  $3\alpha VT$  (d)  $\alpha VT$
39. Which of the following arrangements gives the electromagnetic radiation in their ascending order of wavelength ?  
 (a) Radio waves , ultraviolet rays, X-rays,  $\gamma$ -rays (b)  $\gamma$ -rays, X-ray, Ultraviolet rays, radio waves  
 (c) X-rays,  $\gamma$ -rays, Radio waves , ultraviolet rays (d) Ultraviolet rays,  $\gamma$ -rays, X-ray, radio waves
40. Which of the following is used to slow down fast moving neutrons in a nuclear reactor?  
 (a) Concrete shield (b) carbon dioxide gas (c) Boron rods (d) Graphite block
41.  $x$  is directly proportional to  $y$  and inversely proportional to  $z$ . If  $x = 9$  when  $y = 24$  and  $z = 8$ , what is the value of  $x$  when  $y = 5$  and  $z = 6$ ? (a)  $5/6$  (b) 11 (c)  $3^{3/5}$  (d)  $2^{1/2}$
42. If  $\sqrt{3x} = \sqrt[3]{9}$ , then the value of  $x$  is (a)  $3/4$  (b)  $4/3$  (c)  $1/3$  (d)  $1/2$
43. Find the missing numerator  $\frac{5}{x+1} - \frac{3}{1-x} - \frac{7x-1}{x^2-1} = \frac{\quad}{x+1}$  (a) -1 (b)  $x-1$  (c)  $\frac{3(1-5x)}{x-1}$   
 (d)  $3(1-5x)$
44. Solve the following equation  $4x - 3x = 3x + y = 2y + 5x - 12$   
 (a)  $x=5, y=2$  (b)  $x=2, y=5$  (c)  $x=-2, y=-5$  (d)  $x=5, y=-2$
45. If  $x = 1$  is a root of the equation  $x^3 - 2x^2 - 5x + 6$  find the root (a) -3 and 2 (b) -2 and 2 (c) 3 and -2 (d) 1 and 3
46. If  $x$  is jointly proportional to the cube of  $y$  and the fourth power of  $z$ . In what ratio is  $x$  increased or decreased when  $y$  is halved and  $z$  is doubled?  
 (a) 4:1 increase (b) 2:1 increase (c) 1:4 decrease (d) 1:1 no change
47. One interior angle of a convex hexagon is  $170^\circ$  and each of the remaining interior angles is equal to  $x^\circ$ . Find  $X$  (a)  $120^\circ$  (b)  $110^\circ$  (c)  $105^\circ$  (d)  $102^\circ$
48. List all integers satisfying the inequality  $-2 \leq 2x-6 < 4$  (a) 2,3,4,5 (b) 2,3,4 (c) 2,5 (d) 3,4,5
49. If the quadratic function  $3x^2 - 7x + R$  is a perfect square, find  $R$  (a)  $49/24$  (b)  $49/3$  (c)  $49/6$  (d)  $49/36$
50. The bearing of a bird on a tree from a hunter on the ground is  $N72^\circ E$ . What is the bearing of the hunter from the bird? (a)  $18^\circ W$  (b)  $S72^\circ W$  (c)  $S72^\circ E$  (d)  $S27^\circ E$

**UNIVERSITY OF BENIN, BENIN CITY, NIGERIA**  
**PUTME SCREENING TEST 2014/2015**

**Friday, July 25<sup>th</sup>, 2014**

**COURSE: Medicine, Dentistry, Basic Medical Sciences, Pharmacy, Life Sciences, Education – Life Sciences, Agriculture and Education Agriculture**      **Total Time Allowed: 1 hour**

**Name** \_\_\_\_\_ **JAMB Reg. No.** \_\_\_\_\_

Read the following instructions carefully:

- i. use HB pencil only and shade in your names. Ensure that any shading in error is thoroughly erased.
- ii. candidates should write their full names (surname first), JAMB registration number, sex, JAMB score, course of first choice and the paper type given to them, in the appropriate spaces on the answer sheet.
- iii. attempt all questions. Each candidate must submit the answer sheet with the question paper.
- iv. the use of calculators and/or similar electronic devices is NOT allowed.

**SUBJECT: ENGLISH LANGUAGE**

Read the passages below and answer the questions that follow.

**Passage I**

With the advent of projection in 1895 – 1896, motion picture became the ultimate form of mass consumption, the viewer's relationship with the image was no longer private, as the earlier peepshow devices, such as the kinoscope and the mutoscope, which was a similar machine that reproduced motion by means of successive images on individual photographic cards, instead of on strips of celluloid. It suddenly became public an experience that the viewer shared with dozens, scores and even hundreds of others. At the same time, the image that the spectator looked at expanded from the minuscule peepshow dimensions of one or two inches (in height) to the life-size proportions of six or nine feet.

1. Which one of the following is mentioned in the passage as one of the ways the mutoscope differed from the kinoscope?  
(a) a different type of material was used to produce the images in the mutoscope  
(b) the mutoscope was a less sophisticated earlier prototype of the kinoscope  
(c) sound and motion were simultaneously produced in the mutoscope  
(d) more than one person could view the images at the same time with the mutoscope
2. According to the passage, the images seen by viewers in the earlier peepshows, compared with the images projected on the screen, were relatively  
(a) unfocused (b) small in size (c) limited in subject matter (d) inexpensive to create
3. The word "expanded" in the passage is closest in meaning to  
(a) was varied (b) was rejected (c) was enlarged (d) was changed
4. According to the passage, motion picture became the ultimate form of mass consumption because  
(a) the advent of projection (b) viewer's relationship with the image was no longer private (c) the viewers were tired of other peepshow devices (d) None of the above
5. The word 'it' in the passage refers to (a) the advent of projection

- (b) the viewer's relationship with the image (c) celluloid (d) a similar machine

## Passage II

I dare not lift the veil that protects our tribal marriage customs and ceremonies from the eyes of outsiders. There is already too little in this world that is sacred; and what Ngozi and I were required to go through during the next week must remain so. I was deeply in debt by the time everything was over, but I was absolutely satisfied with my mother's choice. Ngozi was indeed, an African queen and she had the teeth and smile of a goddess. The maiden tutors had done their job well; she was a completely efficient lover and mother. I brought her home with swelling pride, and began at once to save all I could spare towards the cost of acquiring my second wife. My anti-western revoli was gaining momentum.

6. Which of the following is not true of the passage?  
(a) the marriage was according to native law and custom (b) Ngozi never had an issue (c) the author wanted another wife (d) the marriage cost a lot of money
7. The evidence would seem to indicate that  
(a) the author thinks his wife is extravagant (b) she had not been properly brought up (c) he adores his wife (d) the author regrets the cause of his debt
8. What was the author referring to when he said "my anti-Western revoli was gaining momentum in the passage?"  
(a) he dislikes Europeans (b) he did not want to marry another wife  
(c) he admires everything about his wife (d) he revolted against European values
9. It would appear that the marriage had turned him into  
(a) a faithful husband (b) a good man (c) proud husband (d) an incurable debtor
10. 'Swelling' in the passage means (a) happy (b) remarkable (c) growing (d) great

In this section, a list of options is given below every sentence, and you are expected to choose, from among the options, the option nearest in meaning to the word or phrase underlined in the sentence.

11. The blow given by the boxer to his opponent threw him into hallucination  
(a) sterility (b) obesity (c) delusion (d) depravity
12. The counterfeit nature of the company's products will make it to fold up  
(a) laxity (b) primitive (c) fake (d) low production
13. The delinquent who violated the magistrate order was handed over to the police  
(a) cheat (b) culprit (c) trickster (d) drunkard
14. I am happy to stand before this august assembly  
(a) undignified (b) fake (c) popular (d) monthly
15. That there is vicissitude if life makes have-not to be optimistic for a better tomorrow  
(a) change (b) cosy (c) challenge (d) longevity

After each of the sentences below, a list of possible interpretations of the underlined part of the sentence is given. Identify the option that best explains the underlined part.

16. He didn't realise it but not many of even the more experienced employees could hold a candle to him  
(a) give him light (b) were more skilful than he was (c) experience really helps  
(d) were expert.
  
17. The cashier decided to alter the records in order to feather his own nest

- (a) deceive his colleagues (b) make himself rich (c) make the company get more profit  
(d) make the records clear
18. The chief used to dress quite expensively, but he is very down at heel now  
(a) is wearing sandals (b) doesn't bother about his appearance  
(c) is very poorly dressed (d) is much smarter than he used to be.
19. "You will soon get to know the ropes' the transport officer said to the new driver.  
(a) find out how ropes are made (b) find out how to move on ropes (c) become acquainted with what goes on in the department (d) become accomplished with how ropes are made.
20. It would be a shot in the dark if the conservative party wins the election  
(a) only a guess (b) only an attempt (c) a piece of surprising piece of new  
(d) no surprise

Choose from the options lettered A – D, the one that most appropriately completes each sentence.

21. Yawning in public without covering one's mouth shows lack of \_\_\_\_\_  
(a) etequete (b) ettequete (c) etiquette (d) etiquette
22. Obtaining visa these days is a rare \_\_\_\_\_  
(a) privilege (b) previlledge (c) priviledge (d) priviledged
23. You have to be very good at a language before you can \_\_\_\_\_ it  
(a) interpret (b) interpret (c) intaprete (d) intarprete
24. A teacher who is worth his salt is never ashamed of  
(a) ridicule (b) poor salary (c) criticism (d) joblessness
25. Correct measurement is not a guarantee for perfect \_\_\_\_\_  
(a) tailoring (b) design (c) sewing (d) tailor
26. No matter how long you may have concealed an evil deed, one day, such evil deed must be \_\_\_\_\_  
(a) confused (b) revealed (c) condemned (d) broadcasted
27. We do not want an amateur actor but a \_\_\_\_\_ one to play that role  
(a) famous (b) popular (c) famous (d) professional
28. John's frugality contrasts with his friend's \_\_\_\_\_  
(a) kindness (b) honesty (c) meanness (d) extravagance
29. Our economy which was depressed is now \_\_\_\_\_  
(a) gloomy (b) buoyant (c) bleak (d) unfavourable
30. The match was not as interesting as the \_\_\_\_\_ had expected.  
(a) congregation (b) referee (c) spectators (d) students
31. The life of an artisan is his \_\_\_\_\_  
(a) tools (b) work (c) money (d) family
32. He has been away from his family for a long time. He is seriously \_\_\_\_\_  
(a) depressed (b) elated (c) no stalgic (d) lonely
33. The teachers don't teach us \_\_\_\_\_?  
(a) do they (b) don't they (c) didn't they (d) isn't it
34. The teacher, as well as his students, \_\_\_\_\_ working very hard.  
(a) were (b) is (c) are (d) have
35. The lass and the \_\_\_\_\_ will get married next week.  
(a) wench (b) lad (c) spinner (d) whore

Fill in the blank spaces with the correct option

36. The teacher stopped by the roadside \_\_\_\_\_ to the boys



- (a) to talk (b) to have talked (c) talk (d) having to talk
37. The teacher told the girls \_\_\_\_\_ to do when they had finished their needlework  
 (a) when (b) where (c) whether (d) what
38. Peter asked for permission to go home \_\_\_\_\_ he didn't feel well  
 (a) while (b) as (c) and (d) but
39. Mrs. Ogbeide's sympathy with the poor little boy \_\_\_\_\_ a meal.  
 (a) gave him (b) mover her and gave him (c) moved her to give him (d) she gave him
40. I'd like this homework \_\_\_\_\_ this evening, please  
 (a) doing (b) to have done (c) done (d) do

**SUBJECT: GENERAL PAPER**

- The following are stringed instruments except  
 (a) violin (b) piano (c) guitar (d) xylophone
- If two  $2\mu F$  capacitors are connected in parallel with each other and the combination is then connected in series with a  $4\mu F$  capacitor, the net capacitance will be ..... (a)  $6.0\mu F$  (b)  $4.0\mu F$  (c)  $2.0\mu F$  (d)  $0.2\mu F$
- The limiting frictional force on a body of mass 4kg resting on an inclined plane is 20N. What is the angle of inclination  $\theta$  on the plane?  
 (a)  $75^\circ$  (b)  $60^\circ$  (c)  $45^\circ$  (d)  $30^\circ$
- Which of the following quantities has the same unit as the product of pressure and volume of a gas? (a) Power (b) Acceleration (c) Workdone (d) Force
- Given a body undergoing circular motion with angular velocity,  $\omega$  rad/s, and radius  $r$  m. Suppose the body has a mass,  $m$  kg. Then it will experience a centripetal force  $F$  of the form (a)  $m\omega r^2$  (b)  $m\omega^2 r$  (c)  $m\omega^2 r^2$  (d)  $m\omega^{-1} r^2$
- What is the efficiency of a cell with internal resistance of  $3\Omega$ , when it supplies current to a  $7\Omega$  resistor? (a) 70% (b) 30% (c) 20% (d) 10%
- Which of the following compounds is not obtained by polymerization?  
 (a) Plastic (b) Polythene (c) Petroleum (d) Cellulose
- A specimen of zinc contained zinc oxide. 0.80g of this specimen reacted with acid to give  $215\text{cm}^3$  of hydrogen collected dry at  $17^\circ\text{C}$  and 770mmHg. Calculate the percentage of zinc oxide in the mixture. [32.5g Zn  $\equiv$  1g H]. (a) 15% (b) 25% (c) 35% (d) 45%
- A measure of the degree of disorderliness in a chemical system is known as ..... (a) enthalpy (b) entropy (c) free energy (d) activation energy
- $\text{Cr}_2\text{O}_7^{2-} + 6\text{Fe}^{2+} \rightarrow 2\text{Cr}^{3+} + 6\text{Fe}^{3+} + 7\text{H}_2\text{O}$   
 In the equation above, the oxidation number of chromium changes from  
 (a) +7 to +3 (b) +6 to +3 (c) -6 to +3 (d) -2 to +6
- Which of the following metals will dissolve in aqueous sodium hydroxide?  
 (a) Calcium (b) Copper (c) Aluminium (d) Iron
- The component elements present in the alloy used for welding and plumbing are .....  
 (a) lead and tin (b) lead and antimony (c) iron and aluminium  
 (d) copper and tin
- A deficiency of vitamin B, (thiamine) in the diet of a child can lead to .....  
 (a) goitre (b) beri-beri (c) scurvy (d) pellagra
- Which of the following is not a component of guard cells?

- (a) Chloroplasts (b) Nucleus (c) thin inner wall (d) rough spike
15. The enzyme of the glycolytic pathway is located in the .....  
 (a) mitochondria (b) golgi apparatus (c) cytoplasm (d) Nucleus
16. Light is required in photosynthesis to ..... (a) oxidize water molecules (b) split water molecules (c) reduce carbon (IV) oxide (d) fix carbon (IV) oxide
17. The diploid number of chromosome in man is .....  
 (a) 46 (b) 23 (c) 48 (d) 26
18. The following are parts of the continental shelf of the marine habitat except ..... (a) splash zone (b) subtidal zone (c) intertidal zone (d) benthic zone
19. The part of the brain responsible for the coordination of involuntary actions such as heart beat peristalsis is .....  
 (a) medulla oblongata (b) cerebellum (c) pineal (d) cerebrum
20. When a velocity-time graph is a curve, it means that we have .....  
 (a) a uniform acceleration (b) a non-uniform acceleration (c) a uniform velocity (d) a non-uniform velocity
21. A ball of mass 1kg falls from a height of 3m and rebounds to a height of 2m after striking a horizontal surface. Calculate the loss in energy due to the impact. [Take  $g = 10\text{ms}^{-2}$ ]. (a) 100J (b) 50J (c) 10J (d) 1J
22. A projectile attains a maximum range of 40m when  $g = 10\text{m/s}^2$ . Calculate its velocity of projection. (a)  $400\text{ms}^{-1}$  (b)  $80\text{ms}^{-1}$  (c)  $20\text{ms}^{-1}$  (d)  $10\text{ms}^{-1}$
23. A ball of mass 10kg strikes a wall normally with a velocity of  $5\text{ms}^{-1}$  and travels back with the same velocity. Calculate its impulse on the wall.  
 (a) 0 (b)  $25\text{ms}^{-1}$  (c)  $50\text{ms}^{-1}$  (d)  $100\text{kgms}^{-1}$
24. Calculate the velocity of the wave represented by the following wave equation  
 $y = 20\sin(60\pi x - 0.5\pi t)$ ,  
 if all the distances are in metres. (a)  $30\text{ms}^{-1}$  (b)  $60\text{ms}^{-1}$  (c)  $80\text{ms}^{-1}$  (d)  $120\text{ms}^{-1}$
25.  $15\text{cm}^3$  of a gaseous hydrocarbon required for the complete combustion of  $75\text{cm}^3$  of oxygen and yielded  $45\text{cm}^3$  of carbon (IV) oxide. Calculate the molecular formula of the hydrocarbon. (a)  $\text{CH}_4$  (b)  $\text{C}_2\text{H}_6$  (c)  $\text{C}_3\text{H}_8$  (d)  $\text{C}_4\text{H}_{10}$
26. Which of the following reagents can be used to differentiate alkanals from alkanones? (a) Hydrogen cyanide (b) Sodium hydrogentrioxocarbonate (IV) (c) Fehling's reagent (d) 2,4 - dinitrophenylhydrazine
27. The products of photochlorination of ethanoic acid are .....  
 (a)  $\text{CH}_3\text{COCl} + \text{HCl}$  (b)  $\text{CH}_3\text{COCl} + \text{HOCl}$  (c)  $\text{ClCH}_2\text{COCl} + \text{HCl}$   
 (d)  $\text{ClCH}_2\text{COOH} + \text{HCl}$
28. What are the products of the reaction between ethyl ethanoate and ammonia?  
 (a) Aminoethane and ethanol (b) Aminomethane and propan-1-ol  
 (c) Ethanamide and ethanol (d) Methanamide and propan-1-ol
29. Effervescence occurs when water comes in contact with .....  
 (a) calcium (b) copper (c) sulphur (d) lead
30. Charring of sugar occurs when it is  
 (a) reduced (b) hydrolysed (c) dehydrated (d) fermented
31. How many moles of zinc would be deposited by passing 3F of electricity through a solution of  $\text{ZnSO}_4$ ? [1 F = 96500c]  
 (a) 1.5 moles (b) 2.3 moles (c) 3.4 moles (d) 0.15m
32. The colours seen in a rainbow are due to .....

- (a) polarization (b) absorption (c) refraction (d) interference
33. Coulomb's law for the electric force between two unlike charges each of magnitude  $q$ , separated by a distance  $x$  in air of permittivity  $\epsilon_0$  can be written as  
 (a)  $F = \frac{q^2}{4\pi\epsilon_0 x}$  (b)  $F = -\frac{q^2}{4\pi\epsilon_0 x}$  (c)  $F = \frac{q^2}{4\pi\epsilon_0 x^2}$  (d)  $F = -\frac{q^2}{4\pi\epsilon_0 x^2}$
34. Which of the following eye defects can be corrected with use of converging lenses?  
 (a) myopia (b) hypermetropia (c) astigmatism (d) night blindness
35. Which of the following arthropods lacks antennae?  
 (a) Spider (b) Prawn (c) Cockroach (d) Millipede
36. If red blood cells are placed in hypertonic solution for some time, the cells become ..... (a) crenated (b) plasmolysed (c) haemolysed (d) unaffected
37. What is the hydroxide ion concentration  $[\text{OH}^-]$  in a solution of sodium hydroxide of pH 10.0? (a)  $10^{-2}$  (b)  $10^{-4}$  (c)  $10^{-3}$  (d)  $10^{-1}$
38. The reagent that removes  $\text{CO}_2$  from a mixture of  $\text{CO}_2$  and  $\text{N}_2$  is.....  
 (a) aqueous potassium hydroxide (b) alkaline Pyrogallor  
 (c) concentrated  $\text{H}_2\text{SO}_4$  (d) calcium oxide
39. The group Protozoa includes the following organisms except  
 (a) Amoeba (b) Chlamydomonas (c) Plasmodium (d) Trypanosome
40. An example of a plant which has leaf specially modified to trap animals is .....  
 (a) garlic (b) cactus (c) sundew (d) hibiscus
41. Lukas belongs to blood group O while Mary belongs to blood group AB. If Mary gets married to Lukas, what is the probability that the couple can produce an offspring with blood group O? (a) 0% (b) 50% (c) 70% (d) 100%
42. Which of the following air pollutants can cause acid rain?  
 (a) Carbon monoxide (b) Sulphur dioxide (c) Smoke and Sooth  
 (d) Dust particles
43. The operation of a moving-coil galvanometer is based on .....  
 (a) electromagnetic induction (b) magnetic effect of electric current (c) force on a current-carrying conductor in a magnetic field (d) electrochemical effect
44. In a series  $R - L - C$  circuit, the current indicated by the ammeter is  $I$ . If  $X_L$  and  $X_C$  are the inductive reactance and capacitive reactance, respectively, and  $R$  is the resistance, then the expression for the power consumed in the circuit is  
 (a)  $I^2 \sqrt{R^2 + (X_L - X_C)^2}$  (b)  $I^2 \sqrt{R^2 + X_L^2 - X_C^2}$  (c)  $I^2 (R + X_L - X_C)$  (d)  $I^2 R$
45. The following are common to anaerobic respiration EXCEPT  
 (a) the by-products are water and carbon dioxide  
 (b) oxygen is not required for oxidation  
 (c) the by-products are alcohols or lactic acid  
 (d) it takes place in the cytoplasm
46. Which of the following life processes does not involve meiotic cell division?  
 (a) Cell division in the tip of the root or cambium cells (b) Oogenesis  
 (c) Spermatogenesis (d) Formation of pollens in flowering plants
47. Which of the following organisms possesses the homodont dentition?

- (a) Agama lizard (b) Rat (c) Cat (d) Man
48. The functional unit of the kidney is the .....
- (a) henle's loop (b) bowman's capsule (c) nephron (d) glumerulus
49. If the population of secondary consumers in a food web decreases what will happen to the population of the producers?
- (a) They will decrease because there will be more primary consumers eating them  
(b) They will decrease, then increase if the population of primary consumers change  
(c) They will not be affected because the primary consumers were not affected  
(d) They will attain climax population since there is no one to feed on them
50. The development of a flower into fruit without fertilization is referred to as .....
- (a) asexual reproduction (b) sexual reproduction  
(c) cloning (d) parthenocarpy