

POLYIBADAN PAST QUESTIONS AND ANSWERS (UP-TO-DATE)

FOR:

- ✓ SCHOOL OF ENGINEERING
- ✓ SCHOOL OF SCIENCE
- ✓ SCHOOL OF ENVIRONMENTAL
TECHNOLOGY
- ✓ SCHOOL OF AGRICULTURE
- ✓ SCHOOL OF MANAGEMENT
TECH
- ✓ SCHOOL OF HEALTH TECH

THE POLYTECHNIC, IBADAN

SCREENING TEST 2019

DAY 1

TYPE: M TIME: 45 MIN

- Withoutwords he accused him directly of treachery. A. amending B. modifying C. mixing D. mincing E. minimizing
- They tried to cash in the people ignorance A. under B. on C. against D. with E. at
- Always remember tothe lights before leaving the room A. put on B. put off C. switch off D. blow out E. remove
- I am disappointed the ways you conducted yourself at the party. A. by B. for C. due D. in E. at
- The proprietors should be blamed for such a deplorable condition in the nursery schools.....A. isn't it B. shouldn't they C. should they D. is it E. wouldn't they
- Do you mindanother minute or two? A. to wait B. wait C. waiting D. being waited F. waits
- It had been raining before the match startedA. isn't it B. hasn't it C. hadn't it D. wasn't it E. haven't it
- Mary goes to schoolbus A. in B. on C. with D. of E. by
- The plane overshot the.....in a minor accident A. read B. hanger C. runway D. tarmac F. railway
- Journalists always collect and publishA. information B. informations C. an information D. much information E. every information
- A micrometer is defined as one millionth of a millimeter. A length of 12,000 micrometer may be represented as? A. 0.00012M B. 0.0000012M C. 0.000012M D. 0.00000012M F. 0.000000012M
- Factorize $3x^3 + 4x^2 - 13x + 6$ completely, given that $x - 1$ is a factor. A. $(x - 1)(x - 3)(x + 2)$ B. $(x - 1)(x + 3)(x - 2)$ C. $(x + 1)(x + 3)(3x - 2)$ D. $(x - 1)(x + 3)(3x - 2)$ 2. $(x - 1)(x - 3)(x + 2)$
- If the price of oranges was raised by $\frac{1}{2}$ per orange, the number of oranges a customer can buy for N2.40 will be less by 16. what is the price of an orange? A. 21/2 k B. 31/2k C. 51/2k D. 20k 2. 25k
- Find all real numbers x which satisfies the inequality $\frac{1}{3}(x + 1) > \frac{1}{5}(x + 4)$. A. $x < 11$ B. $x < -1$ C. $x > 6$ D. $x > 11$ E. $x > -6$
- 7 pupils of average age 12 years leave a class of 25 pupils average age 14 years. If 6 new pupils of average age 11 years join the class, what is the average age of the pupils now in the class? A. 13 years B. 12 years 11/2 months C. 13 years 5 months D. 13 years 10 months E. 13 years 71/2 months
- Given a regular hexagon, calculate each interior angle of the hexagon A. 60° B. 120° C. 45° D. 135° E. 140°
- Without using tables solve the equation: $8x^2 = \frac{2}{5}$. A. 4 B. 6 C. 8 D. 10 E. 12
- A student measures a piece of rope and found that it was 1.26m long. If the actual length of the rope is 1.25m, what was the percentage error in the measurement? A. 0.40% B. 0.01% C. 0.25% D. 0.89% E. 2.080%
- Express the product of 0.21 and 0.34 in standard form A. 7.14×10^{-3} B. 7.14×10^{-1} C. 7.14×10^{-2} D. 7.14×10^{-4} E. 7.14×10^{-5}
- If 5, 8, 6 and 2 occur with frequencies 3, 2, 4 and 1 respectively, find the product of the modal and median number A. 36 B. 48 C. 30 D. 40 2. None of the above
- A plant which grows on another plant without apparent harm to the host plant is called A. a parasite B. an epiphyte C. a saprophyte D. a predator E. a hermaphrodite
- Which of these types of skeleton is most appropriate to the cockroach? A. hydrostatic skeleton B. exoskeleton C. endoskeleton D. cartilaginous skeleton E. bony skeleton
- Which of these is not true of the insect? The possession of A. two pairs of antennae B. jointed appendages C. exoskeleton D. three pairs of legs E. segmented body
- All living things A. photosynthesis B. respire C. move D. transpire E. feed
- A secchi disc is used in the determination of A. rainfall B. tides C. waves D. turbidity E. current velocity
- Which of the following is not an excretory product? A. urine B. sweat C. faeces D. salts E. carbon dioxide
- Which of the following organs produce bile? A. gall bladder B. pancreas C. spleen D. liver E. stomach
- Which of the following food substances is digested in the stomach? A. carbohydrates B. fats and oil C. fats and proteins D. proteins E. carbohydrates and fats
- For pollination and fruit formation, the essential part(s) of the flower should be the A. corolla B. ovary C. pistil (gynoecium's) D. ovules E. receptacle
- Which part of the human brain is concerned with reflexes controlling the rate of heart beat and breathing? A. medulla B. cerebrum C. cerebellum D. pineal body E. olfactory lobe
- Which of the following is not a consequence of a force filed? A. weight B. surface tension C. gravitational pull D. magnetic force E. electric force
- Which of the following is used to determine the relative density of the acid in a car battery? A. hypsometer B. hygrometer C. manometer D. hydrometer E. nanometer
- The motion of the prongs of sounding tuning fork is? A. random B. translational C. rotational D. vibration E. vibratory and rotational
- A simple microscope forms an image twice the size of an object If the focal length of the lens of microscope is 29cm, how far is the object from the lens? A. 10m B. 20m C. 30m D. 40m E. 60m
- An avocado fruit drops from the top of a tree 45m tall. How long does it take to reach the ground? A. 3.0s B. 4.5s C. 6.0s D. 8.6s E. 9.0s
- Which of the following is a scalar quantity? A. momentum B. Acceleration C. displacement D. Distance E. force
- A ball bearing is gently released from rest and allowed to fall through a viscous fluid. Which of the following statements about the motion is correct? A. its acceleration decreases before terminal velocity is attained B. when terminal velocity is attained the acceleration of the fluid becomes zero C. its velocity increases before terminal velocity is attained D. there is no resultant force on the ball before it attains terminal velocity

38. When the vapour of a substance is in equilibrium with its own liquid, it is said to be A. gaseous B. unsaturated C. saturated D. diffused E. liquefied
39. A man standing between two parallel mirrors in a barbers shop will see the following number of his own image A. eight B. two C. four D. one 2. Infinite
40. If the wave length of a wave traveling with a velocity of 360m/s is 60cm, the period of the wave is A. 6s B. 3.5s C. 0.17s D. 0.61s E. 3s
41. 120cm³ of hydrogen were sparked with 60cm³ of oxygen at 110°C. what was the volume of steam produced? The equation for the reaction is: $2\text{H}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2\text{H}_2\text{O}(\text{g})$ A. 30cm B. 60cm C. 90cm D. 120cm E. 150cm
42. Catalytic hydrogenation of oils results in the production of A. soaps B. detergents C. alkanes D. margarine E. Butter
43. Which of the following compounds will undergo additional reaction? A. ethyne B. butane C. pentane D. ethanol E. tetrachloromethane
44. The products of the electrolysis of dilute sodium chloride solution with platinum electrodes are A. hydrogen and oxygen B. oxygen and chlorine C. chlorine and water D. sodium amalgam and chlorine E. sodium hydroxide and water
45. When starch undergoes complete enzyme-catalysed hydrolysis, the resulting product is A. glucose B. maltose C. sucrose D. fructose E. cellulose
46. Compounds that have the same molecular formula but different structures are said to be A. allotropic B. polymorphic C. polymeric D. isomeric E. isotropic
47. The maximum number of electrons that can be accommodated in the shell having the principal quantum number 3 is A. 3 B. 9 C. 10 D. 18 E. 32
48. The following acids are non-basic except A. methanoic acid B. dioxinotrate iN acid C. ethanedoic D. oxochlorate I add E. hydrobromic acid
49. What is the quantity of electricity produced when a current of 0.5A is passed for 5 hours 45 mins? (F = 96500C). A. 0.11F B. 0.12F C. 0.22F D. 1.1F E. 2.2F
50. Which of the following pH values is likely to be that close slightly alkaline system? A. 2 B. 5 C. 7 D. 8 E. 13

SOLUTION TO POLYIBADAN SCREENING 2019 EXAM DAY 1

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

THE POLYTECHNIC, IBADAN

SCREENING TEST 2019

DAY 2

TYPE: T

TIME: 45 MIN

1. Ifeyinwa found that thieves had entered her house in her absence. She went to the police to report the A. breakout B. breakup C. break in D. breakthrough E. breakin
2. Gone are the days when he..... Enjoy patronage A. would B. will C. could D. used to E. can
3. All..... Well with Peter. A. are not B. have not been C. were not D. is not E. aren't
4. The villagers looked..... their leader for good examples. A. up to B. onto C. up at D. forward to E. into
5. Emeka failed because the examination was..... difficult for him. A. so B. very C. highly D. too E. much
6. The dancers were all in..... before their departure. A. good spirits B. good spirit C. high spirit D. high spirits E. high spirit
7. The suspect defrauded his..... victim of large sums of money. A. unsuspected B. unsuspecting C. unexpected D. unexpecting E. suspecting
8. The judge acquitted the accused all the eight counts. A. of B. in C. from D. upon E. on
9. My uncle is one of the of society A. elitists B. elites C. elite D. elitist.
10. all probability, the train will arrive today. A. in B. under C. for D. by E. upon
11. Which of the following solids has a network structure? A. diamond B. iodine C. sulphur D. graphite E. butter
12. The following gases decolorize bromine water except. A. C₂H₆ B. C₂H₄ C. C₂H₂ D. C₃H₄ E. C₄H₆
13. The alloy used for metal work and plumbing contains. A. lead and tin B. iron and carbon C. copper and tin D. aluminium and copper E. aluminum and iron
14. The components of universal indicator solution can best be separated by A. chromatography B. filtration C. evaporation C. fractional distillation B. transpiration.
15. The oxidation numbers of phosphorous in PO₄³⁻ is A.+1 B.+2 C.+3 D.+5 E.+7
16. Water can be obtained as the only product during A. combustion of hydrocarbons B. neutralization of an acid by a base C. combustion of hydrogen D. electrolysis of brine E. boiling water
17. The oxidation of ammonia in excess air produces A. N₂O₂ B. N₂O C. NO₂ D. N₂O₄ E. NO
18. The gasification of coke is used for the manufacture of A. producer gas B. natural gas C. synthetic gas D. industrial gas E. artificial gas.
19. The solubility curve shows the variation of solute concentration with A. volume B. temperature C. vapour D. pressure B. weight
20. The density of a certain gas is 1.98g/dm³ at s.t.p what is the molecular mass of the gas? (molar volume of gas at s.t.p. = 22.4dm³) A. 44.Og B. 54.Og C. 26.Og D. 31 .Og B. 39.Og
21. Simplify: Log6+log2-log12. A.-4 B.-1 C.0 D.8 E.10
22. The interior angles of a pentagon are (2x + 5)°, (x + 20)°, x°, (3x - 20)° and (x + 15)°. find the value of x. A.80° B.70° C.65° D.40° E.30°
23. A train travels 60km in M minutes. If its average speed is 400km per hour find the value of M, A.15 B.12 C.10 D.9 E.7

24. A baker used 40% of a 50kg bag of flour. If $\frac{1}{8}$ of the amount used was for cake, how many kilograms of flour was used for cake? A. $2\frac{1}{2}$ B. $6\frac{1}{4}$ C. $\frac{1}{2}$ D. $17\frac{1}{3}$ E. $19\frac{1}{3}$
25. Find the average of the first four prime numbers greater than 10. A. 20 B. 19 C. 17 D. 15 E. 13
26. Find the mean deviation of 6, 7, 8, 9, 10. A. 1.2 B. 1.5 C. 2 D. 8 E. 10
27. The variance of a given distribution is 25, what is the standard deviation? A. 125 B. 75 C. 75 lb.5 E. 3
28. Express $\frac{7}{19}$ as a percentage, correct to 1 decimal place. A. 2.7% B. 3.7% C. 27.1% D. 36.8% E. 42.2%
29. Given that $\log_4 x = -3$, find x. A. $\frac{1}{81}$ B. $\frac{1}{64}$ C. 0.64 D. 881 E. 102
30. A chord of a circle radius 26cm is 10cm from the center of circle. Calculate the length of the chord. A. 16cm - B. 27.86cm C. 32cm D. 40cm E. 48cm
31. Which of the following hormones is produced during fright or when agitated. A. Insulin B. adrenalin C. thyroxine D. pitiutrin
32. Which of the following animals is cold blooded? A. cat B. lizard C. whale D. Bird E. dog
33. Spirogyra reproduces vegetatively by A. spore production B. fragmentation C. multiple fission D. binary fission E. division
34. All the following are digestive enzymes except A. bile B. lipase C. maltase D. pepsin E. ptyalin
35. If a 26year old man married a one eyed woman and they had four children , how many of them would be blind like their father? A. all B. 3 C. 2 D. 1 E. none
36. A tapeworm has no alimentary canal because A. it is an antotrophic B. it does not feed C. it has no enzymes D. its body absorbs digested food E. it is long
37. Where is energy produced in the cell? A. nucleus B. nucleolus C. Lysosomes D. mitochondria
38. W Which of the following structure is not found in a female agama lizard? A. pre-anal pads B. eardrums C. nuchal crest D. gular fold E. chloroplast
39. Which of the following disease is NOT caused by a virus A. rinderpest B. maize rust C. Newcastle disease D. swine fever E. nasal scale
40. Plants which can survive in places where the water supply is limited are A. Bryophytes B. mesophytes C. xerophytes D. hyrophytes E. pteridophytes
41. Which of the following types of waves cannot travel through a vacuum? A. sound waves B. light waves C. infra-red waves D. x-radiation E. radio waves
42. The temperature at which the water vapour in the air saturates the air and begins to condense is known as A. boiling point B. melting point C. triple point D. dew point E. critical temperature
43. The motion of the moving skin of a talking drum can rightly be described as A. translational B. random C. rotational D. oscillatory E. transitory
44. What is the relative permittivity of a capacitor if its capacitance with a medium as dielectric is 16farads, and its capacitance with vacuum as dielectric is 2farads? A. -1 B. $-\frac{1}{2}$ C. 2 D. 6 E. 8
45. The activity of a radioactive substance depends on A. temperature and purity B. temperature and age C. age, purity and temperature D. purity and age E. none of the above
46. The principle of the transmissibility of pressure in fluids at rest in all directions is known as A. Achimedes principle B. Floatation principle C. Newton's law D. Pascal's law E. Boyle's law
47. Change of state is accompanied by change of A. temperature B. volume C. heat content D. temperature and volume E. volume and heat content
48. The lack of power of accommodation which is mainly due to the hardening of the eye is called A. myopia B. hypermetropia C. presbyopia D. eye ring E. astigmatism
49. The hatch door of a submarine has an area of 0.5m^2 . the specific gravity of sea water is 1.03. (assume that $g = 10/\text{s}$, and neglect the atmospheric pressure). The force exerted by sea water on the hatch door at a depth of 200m is A. $1.03 \times 10^5\text{N}$ B. $1.03 \times 10^3\text{N}$ C. $1.06 \times 10^5\text{N}$ D. $0.06 \times 10^6\text{N}$ E. $1.03 \times 10^4\text{N}/\text{m}^2$
50. The point beyond which a stretching spring does not return to its original length is called A. breaking point B. elastic limit C. spring constant D. elastic point E. release point

SOLUTION TO POLYIBADAN SCREENING 2019 EXAM DAY 2

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

THE POLYTECHNIC, IBADAN

SCREENING TEST 2019

DAY 3

TYPE: X

TIME: 45 MIN

1. I have the of meeting him A. privilege B. privilege C. previledge D. priviledge E. privileges
2. My price for the shoes is fifty naira. I cannot anything less than that. A. bear with B. settle for C. agree with D. tolerate E. settle with
3. The eldest son took a foolish decision which made him his claim to the traditional title A. neglect B. yield C-disclaim D. forfeit E. neglected
4. The president's speech at 7pm yesterday. A. is broadcast B. has been broadcast C. were broadcast D. was broadcast E. have been broadcast
5. The students were-advised to look.....difficult words in the dictionary. A. in B. on C. out D. into E. Up
6. The buildingbecause of weak structural foundation. A. tumbled B. succumbed C. somersaulted D. collapsed E. collapsed

7. Since the writer did not indicate his name, the editor decided not to publish such.....article A. a discourteous B. an anonymous C. a cowardly D. a libellous E. unfriendly
8. He was charged with complicity the abortive coup. A. in B. for C. about D. on E. with
9. Of what he said made no sense. A. much B. majority C. plenty D. many E. much
10. things she had in the room were thrown out. A. so few B. the few C. all few D. very few E. a few
11. Pure solvents are obtained by A. distillation B. condensation C. extraction D. evaporation E. dissolution
12. Environmental pollution is worsened by the release from the automobile exhaust o A. water vapour B. steam C. smoke D. heavy metals E. steam and smoke
13. Sieving is a technique used to separate mixtures containing solid particles of A. small sizes B. large sizes C. different sizes D. the same size E. one size
14. Nitrogen obtained from the liquefaction of air has a higher density than that obtained from nitrogen containing compounds because the former contains A. water vapour B. oxygen C. carbon (iv)oxide D. rare gases
15. Hydrogen is used in oxy-hydrogen flames for melting metals because it A. involves a lot of heat when burnt B. combines explosively with oxygen C. is a very light gas D. is a rocket fuel E. it combines with air
16. Polyvinyl chloride is used to produce A. bread B. pencils C. ink D. pipes E. pots
17. The addition of water to calcium oxide leads to A. a physical change B. a chemical change C. the formation of a mixture D. an endothermic change
18. The metal that will react with water only in the form of steam to liberate hydrogen gas is A. calcium B. aluminum C. iron D. zinc E. platinum
19. 35cm^3 of hydrogen was sparked with 12cm^3 of oxygen at 110°C and 760mmHg to produce steam. What percentage of the total volume of gas left after the reaction is hydrogen? A. 11% B. 3.31% C. 35% D. 69% E. 80%
20. In the extraction of iron in the blast furnace, lime stone is used to A. release CO_2 for the reaction B. reduce the iron ore C. increase the strength of the iron D. remove impurities
21. The force with which an object is attracted to the earth is it's A. acceleration B. mass C. gravity D. weight E. momentum
22. A train has an initial velocity of 44m/s and an acceleration of -4m/s^2 . its velocity after 10s is A. 2m/s B. 4m/s C. 8m/s D. 12m/s E. 16m/s
23. A man of mass 50kg ascends a flight of stairs 5m high in 5seconds . If the acceleration due to gravity is 10m/s^2 , the power expended is A. 500W B. 400W C. 250W D. 200W E. 100W
24. Longitudinal waves do not exhibit A. refraction B. reflection C. diffraction D. polarization E. disagrigation
25. The unit of quantity of electricity is called A. amperes B. the volt C. the coulomb D. the ammeter
26. Which of the following is NOT a fundamental S.I. unit? A. metre B. ampere C. Kelvin D. radian
27. A simple pendulum with a period of 2.0s has its length doubled. Its new period is A. 1.00s B. 1.41s C. 0.35s D. 2.03s E. 2.83s
28. Which of the following will convert a milliammeter to a voltmeter? A. low series resistance B. low parallel resistance C. high series resistance D. high parallel resistance E. medium parallel resistance
29. The distance between the fixed points of a centigrade thermometer is 20cm . what is the temperature when the mercury level is 4.5cm above the lower mark? A. 22.5°C B. 29.0°C C. 90.0°C D. 100.0°C E. 110.0°C
30. The amount of heat needed to raise the temperature of 10kg of copper by 1K is it's A. specific heat capacity B. heat capacity C. latent heat D. internal heat E. specific latent heat
31. If $\sin(x+30)^\circ = \cos 40^\circ$, find x . A. 10° B. 3.20° C. 59° D. 0.65° E. 80°
32. Find the 9th term of the arithmetic progression, 18, 12, 6, 0, 6 A. -54 B. -30 C. 30 D. 42 E. 54
33. Solve the equation: $4/a + 1/5a = 3$ A. $2/5$ B. $1/2$ C. $1/3$ D. $1/15$ E. $2/5$
34. What is the number whose logarithm to base 10 is 3.47712 ? A. 3.0 B. 0.3 C. 0.03 E. 0.00003
35. The n th term of a sequence is given by $(-1)^{n-2}2^{n-1}$, find the sum of the second and third terms. A. -2 B. 1 C. 2 D. 6 E. -1
36. Evaluate $\log_{10}25 + \log_{10}32 - 10\log_{10}8$. A. 0.2 B. 2 C. 100 D. 409 E. 4
37. Which is the value of x satisfying the equation $4^{2x}/4^{3x} = 2$? A. -2 B. $1/2$ C. $1/2$ D. 0.2 E. 3
38. Solve for x if $25^x + 3(5^x) = 4$ A. 1 or -4 B. 0 C. 1 D. -4 or 0 E. -1
39. Teams P and Care involved in a game of football. What is the probability that the game ends in a draw. A. $1/4$ B. $1/3$ C. $1/2$ D. $2/3$ E. $2/5$
40. Find the value of m if $13_m + 24_m = 41_m$. A. 8 B. 6 C. 5 D. 2 E. 6
41. Hydra removes undigested food by A. passing it through the anus B. passing it through the mouth C. means of a contractile vacuole D. egesting it through the body surface E. passing it through the nose
42. A feature which adapts birds to flight is the possession of A. scaly legs B. light bones C. two walking legs D. a pointed beak E. combs
43. Physiological adaptation to very dry condition in animals is called A. hibernation B. aestivation C. rejuvenation D. xeromorphism
44. The organelle involved in tissue respiration is the A. endoplasmic B. ribosome C. golgi body D. mitochondrion
45. The blood vessel which carries blood from the alimentary canal to the liver is A. hepatic artery B. hepatic vein C. hepatic portal vein D. mesenteric E. hepatic mesenterism
46. Soil with the finest particle is called A. silt B. clay C. sand D. gravel E. latrite
47. Interveinal chlorosis is normally associated with the deficiency of A. magnesium B. potassium C. iron D. calcium E. iodine
48. In Amoeba, osmoregulation is carried out by the A. pseudopodium B. food vacuole C. contractile vacuole D. nucleus
49. In animals, meiosis comes A. after fertilization B. after every mitotic division C. before fertilization D. before every mitotic division E. during fertilization
50. Which of the following is transmitted through mosquito bite A. filariasis B. typhus C. plague D. schistomaisis E. leprosy

SOLUTION TO POLYIBADAN SCREENING 2019 EXAM DAY 3

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

THE POLYTECHNIC, IBADAN

SCREENING TEST 2018

TIME: 35 MIN

Answer all questions: shade the answer sheet as appropriate with HG pencil only,

CHEMISTRY

- A mixture contains 20cm^3 of hydrogen, 35cm^3 of oxygen, 15cm^3 of carbon dioxide and 10cm^3 of nitrogen at S.T.P, which of the following gives the mole fraction of hydrogen in this mixture? A.0.02 B.0.16 C.0.20 D.0.2 5 E.20
- 0.07g of a hydride of carbon occupies 56 at S.T.P when vapourised and contains 14.29% by mass hydrogen. The formula of the hydrocarbon is A. CH_4 B. C_2H_2 C. C_2H_4 D. C_2H_6 E. C_3H_8 [C=12,H=1]
- The pressure on 100cm^3 of oxygen gas at 35°C is 750mm of Hg. What would be the volume of the gas if the pressure is increased to 1000mm of Hg without changing the temperature. A. 133.3cm^3 B. 8.85cm^3 C. 75cm^3 D. 65cm^3 E. 58cm^3
- Which of the following bonds exist in crystalline ammonium chloride (NH_4Cl)? A. ionic and covalent B. ionic and co-ordinate C. ionic, covalent and co-ordinate D. covalent, co-ordinate and metallic E. ionic, covalent and metallic
- Which of the following is a neutralization reaction? Addition of A. nitric acid to hydrochloric acid B. nitric acid to sulphuric acid C. acid to distilled water D. nitric acid to sodium hydroxide E. sodium chloride to distilled water
- In the preparation of carbon monoxide by heating ethanedioic acid with concentrated sulphuric acid, the concentrated sulphuric acid acts as A. oxidizing agent B. reducing agent C. dehydrating agent D. reaction medium E. catalyst
- How many grammes of methyl acetylene (propane) $\text{CH}_3\text{-C}\equiv\text{CH}$ will completely discharge the colour of 8g of bromine?(Br=80,C=12,H=1) A.0.5 B.1.0 C.2.0 D.3.0 E.4.0
- Brass is an alloy containing copper and A. zinc B. tin C. aluminum D. silver E. lead
- 60cm^3 of hydrogen are sparked with 20cm^3 of oxygen at 100°C and 1 atmosphere. The total volume of the residual gases is A. 60cm^3 B. 10cm^3 C. 40cm^3 D. 30cm^3 E. 70cm^3
- If the rate of diffusion of oxygen gas is taken as 1, what will be the rate of diffusion of methane whose relative molar mass is 16? A. 2.0 B. 1.8 C. 1.4 D.1.0 E. 0.5

USE OF ENGLISH

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

- The sea wave continue to..... the cliff on the west coast constantly A. impair B. rub C. knock D. erode
- The college bus was traveling at a high when the accident occurred A. velocity B. acceleration C. rapidity

D. speed

- Note that only senior members of staff have the..... of using the toilet upstairs A. permission B. occasion C. privilege D. habit
- The chief priest will..... the main into the cut today. A. indoctrinate B. usher C. convert D. initiate
- Obi is noted for his..... attitude to his seniors at school. A. receptive B. respectful C. respective D. respectable
- The girl that my brother introduced to us last week is pretty ill-mannered A. and B. but also C. as well as D. respectable
- The police report wasto that of the eye witness. A. contrary B. inconsistent C. different D. congruent
- The African extended family system gives security to members. A. his B. her C. its D. their
- I know Iread more but lam tired A. may B. ought to C. would D. could
- Insects can becometo insecticides A. immunized B. resistant C. Reticent D. immobilized

PHYSICS

- Which of the following is a scalar quantity? A. momentum B. acceleration C. displacement D. distance E. force
- What change in velocity would produce a body of mass 4kg if a constant force of 16N acts on it for 2s ? A. 0.5m/s B. 2.0m/s C. 8.0m/s D. 32.0m/s E. 128.0m/s
- A body accelerates uniformly from rest at the rate of 3m/s^2 for 8s . calculate the distance covered by the body during the acceleration. A. 12m B. 24m C. 48m D. 72m E. 96m
- Which of the following has the same unit as the moment of a force? A. force B. power C. Work D. momentum E. charge
- Which of the following will reduce the frequency of oscillation of a simple pendulum? A. increasing the mass of the bob B. decreasing the mass of the bob C. increasing the length of the string D. decreasing the length of the string E. increasing the amplitude of oscillation
- A barometer can be used in determining the length of a i. mountain ii. Depth of a mine iii. Dew point. Which of the following is/are correct? A. i, H, iii B. H and iii only C. land iii only D. land ii only E. iii only
- Which of the following colours of surfaces will radiate heat energy best? A. red B. white C. black D. yellow E. blue
- Agas which obeys Charles law exactly has a volume of 283cm^3 at 10°C , what is its volume at 30°C ? A. 142cm^3 B. 293cm^3 C. 303cm^3 D. 566cm^3 E. 849cm^3

29. A real image of an object formed by a converging lens of focal length 15cm is 3times the size of the object. What is the distance of the object from the lens? A.30cm 8.25cm C.20cm D. 15cm E. 10cm
30. How far from a cliff should a boy stand to hear the echo of his clap 0.9s later? (speed of sound in air = 330m/s) A. 36.67m B. 74.25m C. 148.5Dm D. 297.00m E. 366.67m

MATHEMATICS

31. Find n if $34_n = 10011_2$ A.5 B.6 C.7 D.8
32. The radius of a circle is given as 5cm subject to an error of 0.1cm. What is the percentage error in the area of the circle? A.1/25 B. $\frac{1}{4}$ C.4 D.25
33. What is the value of x satisfying the equation $4^{2x}/4^{3x} = 2$ A. -2 B. $-\frac{1}{2}$ C. $\frac{1}{2}$ D. 2
34. If $x=3$ find x^2+36/x^2 A.9 B.18 C.24 D.27
35. Solve the equation $y - 11y + 24 = 0$ A. 8,3 B. 64,9 C. 6,4 D.9,-8
36. A man invested a sum of N280.00 partly at 5% and partly at 4%. If the total interest is N12.80 per annum, find the amount invested at 5%. A. N14.00 B. N120.00 C. N140.00 D. N160.00
37. Ice forms on a refrigerator ice box at the rate of 4.06g per minute after 1 minute. If initially there were 2g of ice, find the mass of ice formed in 5 minutes A. 19.5 B.17.0 C.14.5 D.12.5
38. Obtain a maximum value of the function $f(x) = x^3 - 12x + 11$ A. -5 B. -2 C.2 D.27
39. Two perfect dice were thrown together. Determine the probability of obtaining a total score of 8. A.1/12 B. 5/36 C. 1/6 D. 7/36
40. The probability of an event P is $\frac{3}{4}$ while that of another event Q is $\frac{1}{6}$ If the probability of both P and Q is $\frac{1}{12}$, what is the probability of either P or Q? A. $\frac{1}{96}$ B. $\frac{1}{8}$ C. $\frac{5}{6}$ D. $\frac{11}{12}$

BIOLOGY

41. Which of the following organelles is used for locomotion in paramecium? A. pseudopodium B. irichocyst C. cilium D. pellicle E. contractile vacuole
42. Which of the following is not true of the nucleus of a living cell? It contains A. Chromosomes B. nucleus C. nucleoplasm D. chromatids E. ribosomes
43. The cell membranes consists of A. carbohydrates and lipids B. vitamins and proteins C. lipids and proteins D. water and sugar E. starch and cellulose
44. Which of the following is not likely to be found in the cell of a ripe tomato fruit? A. plastids B. chlorophyll C. cellulose cell wall D. mitochondrion E. mineral salts
45. Osmosis can be defined as diffusion ofA. atoms and molecules through a membrane to an area of higher concentration B. water molecules for a dilute solution to a concentrated solution across a permeable membrane C. water molecules from area of high concentration to an area of low concentration D. water molecules from a dilute solution to a concentrated solution through a semi-permeable membrane E. perspiration and excretion
46. The movement of diaphragm is a characteristics of gaseous exchange in A. insect B. Fish C. toad D. mammal E. plants
47. In cellular respiration, energy is stored in the form of A. adenosine di-phosphate (ADP) B. adenosine mono-phosphate (AMP) C. adenosine tri-phosphate (ATP) D. heat energy E. electrical energy
48. The medium in which dissolved nutrient are transported in the body of vertebrates is called A. latex B. urine C. cell sap D. blood E. haemoglobin
49. Which of the following structures of the leaf contains air? A. guard cell B. palisade layer C. intercellular space D. vascular bundle E. upper epidermis
50. Which of the following organs is specially adapted for gaseous exchange in aquatic organisms? A. lungs B. trachea C. gills D. tracheoles E. Alveoli

SOLUTION TO POLYIBADAN SCREENING 2018 EXAM

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

THE POLYTECHNIC, IBADAN
SCREENING TEST 2017

THURSDAY, 29TH JULY 2017 TIME: 35 MIN

1. Shadows and eclipses result from the [A] refraction of light [B] rectilinear propagation of light [C] diffraction of light [D] reflection of light.
2. An object, which is 3cm high is placed vertically 10cm in front of a concave mirror If this object produces an image 40cm from the mirror, the height of the image is [A] 0.75cm [B]4.00cm [C] 8.00cm [D] 12.00cm
3. A boy looks at the image of an object in a plane mirror He observes two images, a main bright one and the other faint. The observed images result from [A] reflection only [B] refraction only [C] diffraction and interference [D] reflection and refraction.
4. What must be the distance between an object and a converging lens of focal length 20cm to produce an erect image two times the object height? [A] 20cm [B] 15cm [C] 10cm [D] 5cm.
5. For a shortsighted person, light ray from a point on a very distant object is focused. [A] in front of the retina [B] on the retina by a converging lens [C] behind the retina by a diverging lens [D] in front of the retina at a distant of 2F from the lens.
6. When light is incident on an object, which is magenta in

- color, which of the following colors would be absorbed? [A] red and blue [B] green only [C] red and green [D] red only.
- In a resonance tube experiment, the effective length of the air column for the first resonance is 20cm when set into vibration by a tuning fork of frequency 480Hz. Neglecting end effect, the velocity of sound in air is [A] 96m/s [B] 255m/s [C] 340m/s [D] 384m/s,
 - A sonometer wire of length 100cm under a tension of 10N, has a frequency of 250Hz. Keeping the length of the wire constant, the tension is adjusted to produce a new frequency of 350Hz. The new tension is [A] 5.1 N [B] 7.1 N [C] 14.0N [E] 19.6N.
 - One of the properties of the earth's magnetic field is that the [A] north pole lies in the northern hemisphere [B] geographic and magnetic meridians coincide [C] earth's magnetic flux is entirely horizontal at a place where the magnetic dip is zero [D] earth's magnetic flux is entirely vertical at a place where the magnetic dip is zero.
 - Three cells each of e.m.f 1.5V and an internal resistance of 1.0 are connected in parallel across a load of resistance 2.67. Calculate the current in the load [A] 0.26A [B] 0.41A [C] 0.50A [D] 0.79A.
 - A government spokesman announced that efforts the release of the hostages are continuing [A] to obtain [B] in obtaining [C] for obtaining [D] of obtaining.
 - I know you think I am talking nonsense, Shehu, but you'll realize that I was right [A] at one time [B] on time [C] in time [D] at times.
 - The inspector of Education who made several trips on the bad road returned yesterday completely by fever [A] brought down [B] put down [C] worn down [D] worn off.
 - The vice principal asked the students to always their answers only from the textbooks recommended for the course [A] look out [B] search out [C] look up [D] bring up.
 - I know that your friend will not accept the proposal, [A] and you neither [B] and neither you [C] neither do you [D] neither will you.
 - Mark is a very handsome fellow who informs me that he has for pretty girls [A] a heart [B] a lip [C] an eye [D] a check.
 - Wale Agun, in creating his characters, draws freely his experience in life [A] by [B] in [C] on [D] of.
 - When I have an appointment with someone, I hate waiting [A] to be keeping [B] for being kept [C] being kept [D] in being kept.
 - It's no good about the result until you have sat for the examination [A] to worry [B] for worrying [C] worrying [D] to have worried.
 - If you don't want to your car to robbers, then don't travel in the night [A] loose [B] loss [C] lose [D] lost.
 - The number 25 when converted from the tens and units base to the binary base (base two) is one of the following. [A] 10011 [B] 111011 [C] 111000 [D] 11001 [E] 110011.
 - Evaluate $(6.3 \times 10^5) / (81 \times 10^3)$ to 3 significant figures [A] 77.80 [B] 778.0 [C] 7.870 [D] 8.770 [E] 88.70.
 - The positive root of t in the following equation, $4t^2 + 7t - 1 = 0$, correct to 4 places of decimal, is [A] 1.0622 [B] 10.6225 [C] 0.1328 [D] 0.3218 [E] 2.0132.
 - The difference between the length and width of a rectangle is 6cm and the area is 135cm². What is the length? [A] 25cm [B] 18cm [C] 15cm [D] 24cm [E] 27cm.
 - The first term of an Arithmetic Progression is 3 and the fifth term is 9. Find the number of the terms in the progression if the sum is 81. [A] 12 [B] 27 [C] 9 [D] 4 [E] 36.
 - The difference between $4^{5/7}$ and $2^{3/4}$ greater than the sum of $1/\sqrt{a}$ and $1/\sqrt{b}$ [A] 23/28 [B] 24/28 [C] 50/56 [D] 27/28 [E] 48/56.
 - Multiply $2^2 + 1$ by $2^2 + 1$. [A] $4^4 + 32$ [B] $4^4 + 32$ [C] $4^4 + 4^2 - 6$ [D] $4^4 - 6^2 - 4 + 1$ [E] $4^4 - 3^2 + 1$
 - A baking recipe calls for 2.5 kg of sugar and 4.5 kg flour with this recipe some cakes were baked using 24.5 kg of a mixture of sugar and flour how much sugar was used? [A] 12.25 g [B] 6.5 kg [C] 8.75 kg [D] 15.75kg [E] 8.25 kg.
 - The sum of the root of a quadratic is 5/2 and then product of its root is 4, the quadratic equation is [A] $2^2 + 5 + 8 = 0$ [B] $2^2 - 5 + 8 = 0$ [C] $2^2 - 8 + 5 = 0$ [D] $2^2 + 8 - 5 = 0$ [E] $2^2 - 5 + 8 = 0$.
 - Solve the given equation $(\log_3)^2 - 6\log_3 + 9 = 0$ [A] 27 [B] 9 [C] $1/\sqrt{27}$ [D] 18 [E] 81.
 - In which order are the following salts sensitive to light? [A] AgI AgCl AgBr [B] AgCl AgI AgBr [C] AgBr AgCl AgI [D] AgCl AgBr AgI.
 - The pOH of a solution of 0.25 mol dm³ of hydrochloric acid is [A] 12.40 [B] 13.40 [C] 14.40 [D] 14.60.
 - $MnO_4^- + 8H_{(aq)}^+ + 5e^- \rightarrow Mn^{2+}_{(aq)} + 4H_2O_{(l)}$ in the equation represents [A] 2e⁻ [B] 3e⁻ [C] 5e⁻ [D] 7e⁻
 - Given that M is the mass of substance deposited in an electrolysis and Q the quantity consumed, then Faraday's law can be written as [A] Z/Q [B] Q/Z [C] Z/2Q [D] M = QZ.
 - 0.46g of ethanol when burned raised the temperature of 50g of water by 14.3K. Calculate the heat of combustion of ethanol. [A] +33000KJ mol⁻¹ [B] +300KJ mol⁻¹ [C] 300KJ mol⁻¹ [D] 300KJ mol⁻¹ C=12, O=16, H=1, Specific heat capacity of water=4.2Jg K
 - Powdered marble reacts faster with hydrochloric acid solution than the granular form because the powdered form has [A] more molecules [B] more atoms [C] larger surface area [D] relatively large mass.
 - For a reaction in equilibrium, the species involved in the equilibrium constant expression are [A] gaseous and solid species [B] liquid and solid species [C] solid and dissolved species [D] gaseous and dissolved species.
 - A phenomenon where an element exists in different forms in the same physical state is known as [A] isomerism [B] amorphism [C] allotropy [D] isotropy.
 - The substance often used for vulcanization of rubber is [A] chlorine [B] hydrogen peroxide [C] sulphur [D] tetraoxosulphate (VI) acid.
 - A gas that is not associated with global warming is [A] CO₂ [B] SO₂ [C] CH₄ [D] H₂.
 - Which of the following structures is capable of producing more tissues in the stem of a herbaceous flowering plant? [A] Epidermis [B] pericycle [C] xylem [D] cambium.
 - The manufacture of carbohydrates by plants takes place only in [A] the leaves [B] the green stems [C] chlorophyll us parts [D] Flowering plants.
 - In water culture experiment, a plant showed poor growth

- and yellowing of the leaves. These may be due to deficiency of [A] copper [B] iron [C] magnesium [D] calcium.
44. In millon's test, when the reagent is added to a protein food item, a white precipitate is produced which turns [A] blue on heating [B] yellow on heating [C] green on heating [D] red on heating.
 45. Regulation of blood sugar level takes place in the [A] pancreas [B] ileum [C] liver [D] kidney.
 46. Unicellular organisms transport essential nutrients directly to all parts of their bodies by the process of diffusion because they have [A] a large volume to surface area ratio [B] a large surface area to volume ratio [C] their bodies immersed in the nutrients [D] their outer membrane made of cellulose.
 47. The heart of the adult frog consists of [A] two auricles and two ventricles [B] one auricle and one ventricle [C] two ventricles and one auricle [D] one ventricle and two auricles.
 48. In adult mammalian blood, the cells, which lack nuclei, are the [A] erythrocytes [B] lymphocytes [C] leucocytes [D] phagocytes.
 49. Which of the following movements occur during exhalation? [A] the diaphragm and intercostals muscles relax [B] the thoracic cavity increases in volume [C] the diaphragm and intercostals muscles contract [D] the diaphragm contract and the intercostals muscles relax.
 50. In which of the following groups of animals is the Malpighian tubule found? [A] lizards, snakes and frogs [B] crickets, houseflies and grasshoppers [C] millipedes, centipedes and scorpions [D] earthworms, roundworms, and flatworms.

SOLUTION TO POLYIBADAN SCREENING 2017 EXAM

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

THE POLYTECHNIC, IBADAN

SCREENING TEST 2016

Sat. 4th July, 2016 TIME: 1Hour

1. Which of the following is not an example of a force? (A) tension (B) Weight (C) friction (D) mass (E) thrust
2. A body moves along a circular path with uniform angular speed of 0.6 rad/s and at a constant speed of 3.0m/s calculate the acceleration of the body towards the centre of the circle (A) 25.0m/s (B) 5.4m/s (C) 5.0m/s (D) 1.8m/s (E) 0.2m/s
3. Which of the following is a derived unit? (A) Ampere (B) Kilogram (C) second (D) Ohm (E) Kelvin
4. A boy timed 20 oscillations of certain pendulum three times and obtained 44.3s, 45.5s and 45.7s respectively. Calculate the mean period of oscillations of the pendulum (A) 0.13s (B) 2.22s (C) 2.26s (D) 44.30s (E) 45.17s
5. A particle starts from rest and moves with a constant acceleration of 0.5m/s², Calculate the time by the particle to cover a distance of 25m (A) 2.5s (B) 7.1s (C) 10.0s (D) 50.0s (E) 100.0s
6. A block of material of volume $2 \times 10^{-5} \text{m}^3$ and density $2.5 \times 10^3 \text{kgm}^{-3}$ is suspended from a spring balance with half the volume of the block immersed in water. What is the reading of the spring balance? (Density of water = $1.0 \times 10^3 \text{kg}^{-3}$, $g = 10 \text{m/s}^2$). (A) 0.1 ON (B) 0.10N (C) 0.30N (D) 0.40N (E) 0.50N
7. An object is projected with a velocity of 100ms^{-1} from the ground level at an angle to the vertical. If the total time of flight of the projectile is 10s, calculate? ($g = 10 \text{ms}^{-2}$) (A) 0 (B) 30 (C) 45 (D) 60 (E) 90
8. How far will a body move in 4 seconds if uniform accelerate from rest at rate of 2m/s^2 ? (A) 32m (B) 24m (C) 16m (D) 12m (E) 8m
9. If the temperature of water is gradually increased from 0 to 40C, the density of the water within this range (A) Increase for a while and then decreases (B) decreases for a while and then increases (C) increases gradually (D) decreases gradually (E) remains the same
10. The expansion of solids can be considered a disadvantage in the (A) fire alarm system (B) thermostat (C) riveting of steel plates (D) balance wheel of a watch (E) fitting of wheels on rims
11. A solid metal cube of side 10cm is heated from 10c to 60c. If the linear expansivity of the metal is $1.2 \times 10^{-5} \text{K}^{-1}$, Calculate the increase in its volume (A) 0.6cm^3 (B) 1.2cm^3 (C) 1.8cm^3 (D) 3.6cm^3 (E) 6.0cm^3
12. A gas has a volume of 546cm^3 at 0c. What is the volume of the gas at 100c if its pressure remains constant? (A) 346cm^3 (B) 446cm^3 (C) 546cm^3 (D) 646cm^3 (E) 6.0cm^3
13. An image which cannot be formed on a screen is said to be (A) inverted (B) real (C) erect (D) blurred
14. Longitudinal waves cannot be (A) diffracted (B) refracted (C) polarized (D) reflected (E) superposed
15. The images formed by a diverging lens are always (A) diminish, virtual and inverted (B) diminished, virtual and erect (D) magnified, virtual and erect (E) magnified, real and inverted
16. In the normal use of a simple microscope, a person sees an (A) inverted, virtual and magnified image (B) erect, virtual and magnified image (C) erect, real and magnified image (D) magnified, real and magnified image (E) inverted and real image the same as the object
17. A lens of focal length 15.0cm forms an upright image four times the size of an object. Calculate the distance of the image from the lens (A) 11.3cm (B) 18.8cm (C) 37.5cm (D) 45.0cm (E) 75.0cm

18. An object is placed between two mirrors four which are inclined at an angle of 120 and facing each other Determine the number of images observed in two mirrors (A) 1 (B) 2 (C) 3 (D) 4 (E)5
19. In a ripple tank experiment, a vibrating plate is used to generate ripples in the water If the distance between two successive troughs in 3.5cm and the Wave travels a distance of 31.5cm in 1.5s, calculate the frequency of the of the vibrator (A) 30Hz (B)6.0Hz (C)12.0Hz (D)27.0Hz (E)73.5Hz
20. Which of the following have the longest wave lengths? (A) infra-red rays (B) gamma rays (C) x rays (D) ultra violet rays (E) radio waves
21. Simplify $12.5^{-1/3} \times 49^{-1/2}$ (A)350 (B)35 (C)1/35 (D)1/350 (E)0
22. If $3^{2x}=2$, what is x? (A)1 (B)1.5 (C)4.5 (D) 18 (E)40.5
23. Express 0.00562 in standard form (A) 5.62×10^{-3} (B) 5.62×10^{-2} (C) 5.62×10^{-2} (D) 5.62×10^2 (E) 5.62×10^3
24. Given that $\frac{1}{3} \log_{10} P=1$, find the value of P. (A)1/10 (B) 3 (C) 10 (D)100 (E)1000
25. Simplify: $\log_8(\log_8)$. (A) $\frac{1}{3}$ (B) $\frac{1}{2}$ (C) $\frac{1}{\log_2 2}$ (D) $3 \log_2 2$
26. If $\log x = 2.3675$ and $\log y = 0.9750$, find $x + y$, correct to three significant figures? (A)1.18 (B)9.31 (C)9.03 (D)9.44 (E)9.46
27. While doing his physics practical, Idowu recorded a reading as 1.12cm instead of 1.21 cm. Calculate his percentage error (A) 1.17% (B) 6.38% (C) 7.44% (D) 8.05% (E) 9.00%
28. Find the 4th term of an A.P whose first term is 2 and the common difference is 0.5 (A)0.5 (B)2.5 (C)3.5 (D)4 (E)4.5
29. An arc of length 22cm subtends an angle of? at the centre of the circle. What is the value of? if the radius of the circle is 15cm? (Take $\pi=22/7$) (A) 70 (B) 84 (C) 96 (D)156 (E)168
30. Find the sum of the first five terms of the GP 2,6,18. (A) 484 (B) 243 (C) 242 (D)130 (E)121
31. Let J be the set of positive integer If $H = \{x: x^2 < 3 \text{ and } x \neq 0\}$ then, (A) $H \subset J$ (B) H is an infinite set (C) $S \subset H$ (D) $H = J$ (E) $J \subset H$
32. In a class of 80 student had to study Economics or Geography, or both Economics and Geography. If 64 students studies Economics and 50 studied Geography, how many studied both subjects? (A) 15 (B)30 (C)35 (D)45 (E)50
33. Factorize $x^2 + 4x - 192$ (A) $(x - 4)(x + 48)$ (B) $(e + 1)$ (C) $(x - 12)(x - 12)$ (E) $(x + 1)6$
34. Factorize $2e^2 - 3e + 1$ (A) $(2e - 1)(e - 1)$ (B) $(e + 1)(2e + 1)$ (C) $(2e + 3)(3 - 2)$ (D) $(2e - 3)(e - 1)$ (E) $(e - 2 - 3)(2e - 1)$
35. Solve the equation $7y^2 = 3y$. (A) $y = 3$ or 7 (B) $y = 0$ or 7 (C) $y = 0$ or 9 (E) $y = 0$ or 10
36. Solve the equation $2a^2 - 3a - 27 = 0$ (A) $3/2, 9$ (B) $-2/3, 9$ (C) $3, 9/2$ (D) $-3, -9/2$ (E) $-3, 9/2$
37. A sector of a circle of radius 7cm has an area of 44cm². Calculate the angle of the sector, correct to the nearest degree.(A)6 (B)26 (C)52 (D)103 (E)206
38. If the shadow of a pole 7m high is 1/2 its length, what is the angle of elevation of the sun, correct to the nearest degree?(A)90 (B)63 (C)60 (D)26 (E)0
39. From the top of a building 1 0m high, the angle of depression of a stone lying on the horizontal ground is 69. Calculate, correct to 1 decimal point the distance of the stone from the foot of the building (A)3.6m (B)3.8m (C)6.0m (D)9.3m (E)26.1m
40. The bearing of a point X from Y is 074. What is the bearing of Y from X? (A)106 (B)148 (C)164 (D)254 (E)286
41. The nucleus is considered the central organelle of a cell because it (A) contains the genetic material (B) contains the nuclear sap (C) is bounded by the nuclear membrane (U) is located at the centre of the cell
42. In prokaryotic cell type is characterized by (A) complex cytoplasm in which different regions are poorly defined (B) localization of different regions of the cell into tissues (C) collection of organelles and macromolecular complexes (D) simple cytoplasm with well defined regions
43. The natural tendency of organism as they evolve is to (A) decrease in size (B) increase in (C) develop specialized structures (D) feed indiscriminately
44. In snails, the hard calcareous shells are secreted by the (A) radius (B) tenidium (C) pneumostome (D) mantle
45. The ability of the cockroach to live in cracks and crevices is enhanced by the possession of (A) wings and segmented body (B) compound eyes (C) claws on the legs (D) dorsa-ventrally flattened body
46. The caste of termites that lacks pigmentation is the (A) king (B) worker (C) soldier (D) queen
47. The structures that prevent food particles from escaping through the fish gill (A) arches (B) filaments (C) rakers (D) lamellae
48. A distinguishing feature of mammals is the possession of (A) skin (B) scale (C) nail (D) hair
49. Which of the following structures is capable of producing more tissues in the stem of a herbaceous flowering plant? (A) epidermis (B) pericycle (C) xylem (D) cambium
50. The manufacture of carbohydrates by plants takes place only in (A) the leaves (B) the green stems (C) chlorophyllous parts (E) flowering plants
51. In a water culture experiment, a plant showed poor growth and yellowing of the leaves. These may be due to deficiency of (A) copper (B) iron (C) magnesium (D) calcium
52. In million's test, when the reagent is added to a protein food item, a white precipitate is produced which turns (A) blue on heating (B) yellow on heating (C) green on heating (D) red on heating
53. Regulation of blood sugar level takes place in the (A) pancreas (B) ileum (C) liver (D) kidney
54. Unicellular organism transport essential nutrients directly to all parts of their bodies by the process of diffusion because they have (A) a large volume to surface area ratio (B) a large surface area to volume ratio (C) their bodies immersed in the nutrients (D) their outer membrane made of cellulose
55. The heart of the adult frog consists of (A) two auricles and two ventricles (B) one auricle and one ventricles (C) two ventricles and one auricle (D) one ventricle and two auricles
56. In adult mammalian blood, the cells which lack nuclei are the (A) erythrocytes (B) lymphocytes (C) leucocytes (D) phagocytes
57. Which of the following movements occur during exhalation? (A) the diaphragm and intercostals muscles relax (B) the thoracic cavity increases in volume (C) the diaphragm and intercostals muscles contract (D) the diaphragm contracts and the intercostals muscles relax

58. In which of the following groups of animals is the Malpighian tubule found? (A) lizards, snakes and frogs (B) crickets, house flies and grasshoppers (C) millipedes, centipedes and scorpions (D) earthworms, roundworms and flatworms
59. Which of the following is not a function of the mammalian skeleton? (A) protection (B) respiration (C) transportation (D) support
60. The most reliable estimate of growth is by measuring changes in - (A) length (B) volume (C) surface area (D) dry weight
61. Which of the following is not a physical change? (A) the bubbling of chlorine into water (B) the bubbling of chlorine into a jar containing hydrogen (C) the dissolution of sodium chloride in water (D) the passing of steam over heated iron.
62. In the reaction $\text{SnO}_2 + 2\text{C} \rightarrow \text{Sn} + 2\text{CO}$, the mass of coke containing 80% carbon required to reduce 0.302 kg of pure tin oxide is (A) 40 kg (B) 0.20 kg (C) 0.06 kg (D) 0.04 kg. (Sn=119, O=16, C=12)
63. The Avogadro number of 24 g of magnesium is the same as that of (A) 1 g of hydrogen molecules (B) 16 g oxygen molecules (C) 12 g of carbon molecules (D) 35.5 g of chlorine molecules.
64. A gas occupies a container of volume 146 cm³ at 180°C and 0.971 atm its volume in cm³ at STP (A) 133 (B) 146 (C) 266 (D) 292
65. The volume occupied by 1.58 g of a gas at STP is 500 cm³. What is the relative molecular mass of the gas? (A) 28 (B) 32 (C) 44 (D) 71 (G.M.V. at S.T.P. = 22.4 dm³)
66. Equal volumes of CO₂, SO₂, NO₂ and H₂S were released into a room at the same point and time, which of the following gives the order of diffusion of the gases to the opposite corner of the room? (A) CO, SO₂, NO₂, H₂S (B) SO₂, NO₂, H₂S, CO (C) CO, H₂S, SO₂, NO₂ (D) CO, H₂S, NO₂, SO (S=32, C=12, O=16, N=14, H=1)
67. A basic postulate of the kinetic theory of gases is the molecules of a gas move in straight lines between collisions. This implies that (A) collisions are perfectly elastic (B) forces of repulsion exist (C) forces of repulsion and attraction are in equilibrium (D) collisions are inelastic
68. Which of the following terms indicates the number of bonds that can be formed by an atom? (A) oxidation number (B) valence (C) atomic number (D) electronegativity
69. X(g) → X(g) The type of energy involved in the above transformation is (A) ionization energy (B) sublimation energy (C) lattice energy (D) electron affinity
70. Chlorine, consisting of two isotopes of mass number 35 and 37, has an atomic mass of 35.5. The relative abundance of the isotopes of mass number 37 is (A) 20 (B) 25 (C) 50 (D) 75
71. 10.0 dm³ of air containing H₂S as an impurity was passed through a solution of Pb(NO₃)₂ until all the H₂S had reacted. The precipitate of PbS was found to weigh 5.02 g. According to the equation, $\text{Pb}(\text{NO}_3)_2 + \text{H}_2\text{S} \rightarrow \text{PbS} + 2\text{HNO}_3$ the percentage by volume of hydrogen sulphide (A) 50.2 (B) 47.0 (C) 4.47 (D) 207, S = 32, GMV at S.T.P. = 22.4 dm³)
72. A blue solid T, which weighed 5.0 g was placed on a table. After 8 hours the resulting pink solid was found to weigh 5.5 g it can be inferred that substance T (A) is deliquescent (B) is hygroscopic (C) has some molecules of water of crystallization (D) is efflorescent
73. The effluent of an industrial plant used on electrolysis of concentrated brine, with a flowing mercury cathode may contain impurities like (A) oxygen (B) hydrogen (C) mercury (D) chloride (E) hydrogen chloride
74. The solubility in moles per dm³ of 20 g of CuSO₄ dissolved in 100 g of water at 180°C is (A) 0.13 (B) 0.25 (C) 1.25 (D) 2.00 (Cu=63.5, S=32, O=16)
75. Smoke consists of (A) solid particles dispersed in liquid (B) solid or liquid particles dispersed in gas (C) gas or liquid particles dispersed in liquid (D) liquid particles dispersed in liquid.
76. $\text{Na}_2\text{C}_2\text{O}_4 + \text{CaCO}_3 \rightarrow \text{CaC}_2\text{O}_4 + 2\text{NaCl}$. Given a solution of 1.9 g of sodium oxalate in 50 g of water at room temperature, calculate the minimum volume of 0.1 M calcium chloride required to produce maximum calcium oxalate using the above equation. (A) 1.40 × 10² dm³ (B) 1.40 × 10² dm³ (C) 1.40 × 10² dm³ (D) 1.40 × 10² cm³
77. 2.0 g of a monobasic acid was made up to 250 cm³ with distilled water 25.00 cm³ of this solution required 20.00 cm³ of 1 M NaOH solution for complete neutralization the molar mass of the acid is (A) 200 g (B) 150 g (C) 100 g (D) 50 g
78. What is the concentration of H⁺ ions in moles per dm³ of a solution of pH 4.398? (A) 4.0 × 10⁻⁵ (B) 0.4 × 10⁻⁵ (C) 4.0 × 10⁻³ (D) 0.4 × 10⁻³
79. What volume of 11.0 M hydrochloric acid must be distilled to obtain 1 dm³ of 0.05 M acid? (A) 4.54 cm³ (B) 5.65 cm³ (C) 6.76 cm³ (D) 7.87 cm³
80. If 1.0 g of silver is deposited in a silver coulometer connected in series with a copper coulometer, the volume of oxygen liberated is (A) 0.56 dm³ (B) 5.60 dm³ (C) 11.29 dm³ (D) 22.40 dm³ (Ag=108; Cu=64; GMV at S.T.P. = 22.40 dm³)

Instruction: Choose the word opposite in meaning to the underlined words.

81. The young engineer is good at terminating other people's projects but has not been capable of ---- any of his own. (A) integrating (B) finishing (C) completing (D) initiating (E) organizing
82. The manager who is expected to be given respect was treated with ----- (A) dignity (B) scorn (C) shame (D) cruelty (E) disloyalty
83. Those who had invitation cards were admitted to the party while those who had none were ----- (A) barred (B) repelled (C) expelled (D) compelled (E) restricted
84. Nobody expects him to show ----- for his children but he certainly bestows too much affection on them (A) love (B) concern (C) intimacy (D) devotion (E) hatred
85. The challenger was crude and inexperienced in contrast to the champion who was ----- (A) great (B) exposed (C) celebrated (D) refined (E) strong

From the words lettered A to E, choose the word that best completes each of the following sentences. –

86. The fisherman threw a stone into the river and this caused a ----- (A) sprinkle (B) sparkle (C) splash (D) spring (E) storm
87. The play was so interesting that the ----- clapped for quite a long time at the end. (A) spectators (B) watchers

- (C)congregation (D)people (E)audience
88. The building-----because of weak structural foundation.
(A) tumbled (B) succumbed (C)somersaulted (D) collapsed
(E) caved
89. The magazine was-----by the government for an
offensive publication. (A) prescribed (B) proscribed
(C)suspended (D)condemned (E)persecuted
90. Many people reacted to the brutal murder of the popular
journalist with strong----- (A) Indignation (B) demonstrate
(C) mobilization (D) condemnation (6) accusation

From the words or groups of words lettered A - E below each of the following sentences, choose the word or group of words that is nearest in meaning to the underlined word or group of words as used in the sentence.

91. It takes a great deal of stamina to run the marathon race. (A)
courage (B) determine (C) energy (D) intelligence (E)
cleverness
92. But for the principal actor the play would have been dull. (A)
Important (B) head (C)master (D)famous (E)main
93. An open car has no protection against the elements
(A)weather (B) emergency (C)molecule (D)atoms
(E)atmosphere

94. He was reluctant to grant my request (A) disposed (B)
delight (C) reticent (D)unwilling (E) agreeable
95. The detective was perplexed when the clues in the murder
case pointed to at least a dozen different suspects (A)
surprised (B) confused (C) excited (D) discouraged (E)
disappointed
96. The Military Governor called for a concerted effort in solving
the problems of the state. (A) a dramatic (B) an agitated (C)a
joint (D)a direct (E)an unflinching
97. My financial situation is so precarious that very soon I may
be insolvent (A) borrowing (B)stealing (C)soluble
(D)dependent (E)bankrupt
98. The chairman is of the opinion that accepting the proposal
would be inimical to the objectives of the association. (A)
harmful (B) relevant (C) irrelevant (D)indispensable
(E)helpful
99. The famous politician was noted for his pragmatic approach
to national interest (A) idealistic (B) romantic (C)
compromising (D) practical (E) inconsistent
100. Kunle is very pessimistic about our chance of success (A) sad
(B) despondent (C) unconvinced (D) worried (E) concerned

SOLUTION TO POLYIBADAN SCREENING 2016 EXAM

1.D	2.D	3.B	4.C	5.C	6.B	7.B	8.E	9.C	10.C
11.E	12.A	13.C	14.C	15.C	16.B	17.D	18.D	19.*	20.C
21.C	22.B	23.A	24.E	25.B	26.B	27.E	28.C	29.*	30.A
31.A	32.C	33.*	34.D	35.C	36.E	37.D	38.B	39.E	40.D
41.A	42.A	43.C	44.A	45.D	46.B	47.C	48.D	49.*	50.C
51.B	52.D	53.A	54.B	55.D	56.A	57.A	58.B	59.C	60.C
61.C	62.*	63.C	64.A	65.D	66.*	67.A	68.B	69.*	70.B
71.C	72.B	73.C	74.C	75.B	76.*	77.*	78.A	79*	80*
81.D	82.B	83.A	84.E	85.D	86.C	87.E	88.D	89.B	90.A
91.C	92.E	93.A	94.D	95.B	96.C	97.E	98.A	99.D	100.B

**THE POLYTECHNIC, IBADAN
SCREENING TEST 2015**

PLEASE ENSURE THAT YOU HAVE SUBMITTED ONE DOWNLOADED
ONLINE REGISTRATION FORM BEFORE AND AFTER THE EXAMINATION

TIME: 1Hour 30 Mins.

Answer all questions

SCHOOL OF ENGINEERING AND ENGINEERING TECHNOLOGY

(EEE, CHM, MEE, MME, AGE, EVT, PET, PTE, CIE.).

- If $y=(1-2x)^3$, find the value of $\frac{dy}{dx}$ at $x=-1$. A. 57 B.27 C.-6 D.-54
- In how many ways can 6 colored chalks be arranged if 2 are of the same colour? A. 60 B. 120 C.240 D.360
- How many possible ways are there of seating seven people P, O, R, S, T, U, V at a circular table? A.360 B.720 C. 2520 D. 5040
- What is the probability that an integer x , ($1 < x < 20$) chosen at random is divided by both 2 and 3? A. $\frac{1}{20}$ B. $\frac{1}{3}$ C. $\frac{3}{20}$ D. $\frac{7}{10}$
- Find ${}_pP_4 - {}_pP_3 = 305$. A.117 B.114 C.116 D.115
- Find the sum to infinity of the series $\frac{1}{2} + \frac{1}{6} + \frac{1}{18}$. A. 1 B. $\frac{3}{4}$ C. $\frac{2}{3}$ D. $\frac{1}{3}$
- y is inversely proportional to x and $y = 4$ when $x = \frac{1}{2}$. Find x when $y=10$. A. $\frac{1}{10}$ B. $\frac{1}{5}$ C. 2 D. 10
- Given that $\sqrt[3]{4^{2x}} = 16$, find x . A.2 B.3. C.4 D.6
- Simplify $\frac{1}{\sqrt{3+2}}$ in the form of $a+b\sqrt{3}$. A. $-2-13$ B. $-2+\sqrt{3}$ C. $2-\sqrt{3}$ D. $\sqrt{3}$
- Find the derivation of $(2+3x)^2(1-x)$ with respect to x . A. $6x-1$ B. $1-6x$ C. 6 D. 3
- Find the derivative of the function of $y = 2x^2(2x-1)$ at the point $x = -1$. A. -16 B. -4 C.16 D.18
- Find the mean deviation of 1,2,3, and 4. A.1.0 B.2 C.3 D.4
- In how many ways can 2 students be selected from a group of 5 students in a debating competition? A. 10 ways B. 15 ways C. 20 ways D.25 years
- If the interest on N1 50.00 for 2 $\frac{1}{2}$ yrs is N4.50. Find the interest on N250.00 for 6month at the same rate. A.N1.50 B.N7.50 C.N15.00 D.N18.00
- What are the integral values of x which satisfy $A. -2,1,0,-1$

- B.-1, 0, 1, 2 C. -1,0,1 D. 0,1,2
16. If the 29th term of an AP is twice the third term and the sum of the first four term is 42. Find the common difference. A.6 B.3 C.2 D.1
17. Find the sum of the first 20 term of the series 8, 12,16 96
A. 1400 B.1500 C. 1040 D.960
18. Given the series 2,4,6 find the 4th term of the GP A.32 B.68 C.70 D.64
19. The sum of the interior angles of a regular polygon is 1800. Calculate the size of the exterior angle of the polygon.
A.30° B.24° C. 15° D.12°
20. Find the remainder when $3x^3 + 5x^2 - 11x + 4$ is divided by $x+3$
A. 4 B. 1 C. -1 D. -4
21. The first and last term of an AP is 6 and 42. If the sum of the Progression is 192, the number of the term in the AP is A.6 B.7 C.8 D.5
22. If $\sin \alpha = \frac{1}{2}$, $\tan \alpha$ is A. $\frac{1}{3}$ B. $\frac{\sqrt{3}}{2}$ C. $\frac{1}{2}$ D. $\frac{\sqrt{1}}{3}$
23. The real number x which satisfy the inequality $\frac{1}{3}(x \pm 1) - 1 > \frac{1}{5}(x+4)$. A. $x < 11$ B. $x = 1$ C. $x > 1$ D. $x = 11$
24. If β and α are the roots of $5x^2 - x = 10$, $\alpha + \beta$ is A. $\frac{1}{2}$ B. $\frac{1}{5}$ C. 10 D. 2
25. What is the 4th angle for the quadrilateral whose other three angles are 580, 1170, 122°? A.30 B.60° C.63° D.360°
39. The pitch of sound note depend on A. timber B. Harmonics C. Frequency D. Quality.
40. Satellite communication network makes use of A. Infra-red ray B. Sound wave C. Radio wave D. x-ray wave
41. If two inductors of inductance 3H and 6H are arrange in series, the total inductance H is A. 18.0H B. 9.0H C. 2.0H D. 5.0H
42. The charge carriers in gases are A. ions only B. electrons only C. electrons and ions D. protons only
43. The mode of heat transfer that do not require a material medium. A. conduction. B. convection C. radiation D. propagation
44. The unit for energy is A. Joule B. Ampere C. Watts D. Pascal
45. The magnetic field is produce at what angle A.0° D.30° C.180° D.90°
46. The frequency of a stationary wave of 100Hz has a wavelength of 2m. Find the velocity of waves A, 500m/s B. 200m/s C. 300m/s D. 40m/s
47. A battery of e.m.f 40V and internal resistance 5Ω is connected to a resistance of 15Ω. Calculate the terminal potential difference A. 40V B. 20V C. 30V D. 75V
48. A car moving round a circular racing track takes 120s to do a lap of 8km. what is the speed in km/h? A. 250km/h B. 240km/h C. 300kni/h D.280km/h
49. Filament is commonly used at home because of its A. high freezing point B. low melting point C. low boiling point D. high melting point.
50. Secondary cells are better referred to as A. cell B. accumulator C. battery D. charger

PHYSICS TYPE A

26. In which of the following material would sound travel least.
A. water B. oil C metal D. gas
27. Suppose the direction of the refracted ray is required for the light incident in air at 50°, $n = 1.33$. Find the angle of refraction A. 45° B. 50° C. 70° D. 35°
28. The ability of the eye lens to focus point at different distance on to the retina is A. Binocular B. Accommodation C. Hypermetropia D. Colourization
29. When light is refracted which colour is the least refracted?
A.Red B.Blue C.Violet D.indigo
30. The frequency F of the fundamental note from plucked wire is given by A. $\frac{1}{4}\sqrt{\frac{1}{m}}$ B. $\frac{1}{2L}\sqrt{\frac{1}{m}}$ C. $\frac{1}{2L}\sqrt{\frac{1}{m}}$ D. $\frac{1}{2L}\sqrt{\frac{1}{m}}$
31. Suppose the potential difference of 2.4V at a current of 0.2A. Find the resistance A.14? B.12? C.16? D.20?
32. Which is correct for dimension of acceleration A. MLT^2 B. LT^3 C. LT^2 D. LT
33. Suppose a car of mass 1000kg is accelerating at $2m/s^2$ then the force F acting on it is A. 20000N B. 2000N C.40000N D.4500N
34. Which of the same quantities has same unit as Joules A. Newton X Force B. Force X acceleration C. Newton X meter D. Watt X Force
35. If the pile driver has a weight of 660N and is raised 20m, then energy of stationary pile is A.13200J B.134003 C.14200J D.15200J
36. The V.R is independent of A. Quality B. pulley C. friction D.frequency
37. The process whereby the molecules of different substance move more randomly is called A. surface tension B. Capillarity C. diffusion D. osmosis
38. The process whereby a liquid spontaneously changes into vapour is called A. evaporation B. regulation C. boiling D. sublimation

CHEMISTRY TYPE A

51. When sodium react with water, the resulting solution is A. weakly acidic B. neutral C. acidic D. alkaline
52. The gas that gives brown colouration in brown ring test is A.CO B.NO C. CO₂ D.NO₂
53. Which of the following polymer is suitable for packaging electrical insulator? A. polystyrene B. polyethylene C. polyamide D. polycarbonate
54. The boiling of fat and aqueous caustic soda is referred to as A. Acidification B. Hydrolysis C. Specification D. Etherification
55. Hydrogen is released when dilute hydrochloric acid react with A. Ag B. Au C. Cu D. Na
56. Which of the following chloride would exhibit the least ionic character? A. LiCl B. MgCl₂ C. CaCl₂ D.AlCl₂
57. When H₂S is passed into a solution of iron (ii) chloride, the solution turns A. Brown B. Palegreen C. Colourless D. Red
58. The property which makes alcohol soluble in water is the A. cooling B. wetting C. covalent nature D. bonding
59. Deliquescent substances are used for A. cooling B. boiling C. drying D. melting
60. What mass of water is produced when 8.0g of hydrogen react with excess oxygen? - A.36.0g B.8.0g C.720g D.16.0g (H=1.0=16)
61. Cancerous are cured by exposure to A. y-ray B, a-ray C.P-ray D. x-ray
62. An oxide XO₂ has vapour density of 32. What is the atomic

- mass of X? A. 32 B. 20 C. 14 D. 72.
63. Petroleum oil are separated by A. Crystallization B. Fractional Distillation C. Centrifugation D. Decantation.
64. How many moles of CaCO_3 will be required to produce 5.6g of CaO? (Ca 40, C= 12, O =16) A. 0.20mol B. 0.1mole C. 0.25mole D.0.40mole
65. The compound represented thus C_2H_2 is A. Alkane B. Ethyne C. Ethene D. Ethane
66. The shape of d-orbital is A. Spherical B. orthogonal C. polygonal D. dumbbell
67. The general formular for the alkanone is A. R_2CO B. ROH C. $\text{R}'\text{COOR}$ O. RCHO .
68. Which of the following metal burns with a brick-red flame A. Pb B. Ca C. Na D. Mg
69. A burning candle produces water and A. carbon (ii) oxide B. carbon (iv) oxide C. oxygen D. hydrogen
70. Proteins in acid solution undergo A. Polymerization B. Substitution C. Fermentation D. hydrolysis
71. Ethanoic acid is A. Tribasic B. Unionizable C. Monobasic D. Diabasic
72. What quantity will be deposited by a current of 2A at a time of 4s A. 9C B. 10G C. 8C D. 12C
73. Phosphorus is stored under water to prevent it from A. dehydrating B. becoming inert C. catching fire D. smelling
74. What is the product of bombarding $^{14}\text{C}_6$ nucleus with neutron? A. $^{22}\text{C}_6$ B. $^{15}\text{C}_6$ C. $^{15}\text{C}_7$ D. $^{16}\text{C}_7$
75. The element with the electronic configuration: $1\text{S}^2 2\text{S}^2 2\text{P}^6 3\text{S}^2 3\text{P}^2$? A. C B. Si C. N D. CO
82. Mr. Momohhard for many years before he got promotion A. had been worked B. had been working C. has worked ft has been working.
83. lam sorry to the meeting last night A. not come B. I didn't come C. to come D. I hadn't come
84. John felt sorry the poor people who hadn't enough to eat A. for B. because C. of D. that
85. Mary's was unable the work in time A. she completed B. she couldn't complete C. complete D. not to complete
86. Mr. Olayinka was delightedA. you to come B. that you come C. you not to come D. did you come
87. Food prices a lot since last year. A. have gone up B. had gone up C. went up D. go up
88. The Romans oncemost of Europe and North Africa for many years. A. have ruled B. had been ruling C. rule D. ruled
89. Eze has not heard anything of his sister Ada since she to the United Kindom. A. has gone B. had gone C. had been going D. went
90. Everyone looked to peter to give a lead A. to B. out C. up D. at
91. Everyone looked Peter as their leader A. at B. on C. for D. up
92. Mary would never have finished her homework if Patrick hadn't helped her A. in B. with C. out D. off
93. John spent hours looking his dictionary he couldn't find it. A. at B. in C. for D. to
94. Everyone looked to peter as a great leader A. up B. down C. on D. for
95. At the beginning of the period, the geography master fired a series of question about South EastAsia. A. up B. on C. away D. off

ENGLISH LANGUAGE TYPEA

76. The principal was not aware..... the visitors on their arrival A. to have met B. that he should have met C. that he met ID. to meet the visitors on their arrival
77. John was gladA. were the exams over B. the exams were over C. the exams to be over D. at the exams which over
78. Patrick was afraid A. whether he had failed 8. to have failed C. he has failed D. he had failed
79. Patrick was wrongA. he contradicted the teacher B. to contradict the teacher C. contradicted the teacher D. to be contradicted the teacher
80. Doing snippets of work each day is not anyone A. very satisfactory 8. really satisfactory to very C. really very satisfactory to D. very really satisfactory to
81. At last the aircraft was able to takeoff. It for two hours by a fault in the electrical system A. has been delayed B. delayed C. had been delayed D. is delayed

From each numbered list choose the word or expression which will complete the corresponding sentence c9rrectly.

96. The answer to this sum is wrong, you.....a mistake A. must make B. must have made C. can have made D. may have, made
97. "Hurry up, it's time to go". Surely, it A. can't be B. must be C. must's be D. can be
98. A Bridget: 'I'll have to go row Ada, Ada: surely you go yet A. mustn't B. need to C. don't need to D. have got to
99. When you are ready, you.....go. A. may B. can't C. ought not to D. would
100. I wonder where Okeke is he by now A. ought to arrive B. ought to have arrived C. must arrive D. can't have arrived

SOLUTION TO POLYIBADAN SCREENING 2015 EXAM

1.C	2.D	3.A	4.C	5.C	6.B	7.B	8.B	9.C	10.A
11.C	12.A	13.A	14.A	15.D	16.B	17.C	18.*	19.A	20.B
21.C	22.C	23.C	24.B	25.C	26.B	27.D	28.B	29.C	30.D
31.B	32.C	33.B	34.C	35.A	36.C	37.C	38.A	39.C	40.C
41.C	42.B	43.B	44.A	45.D	46.B	47.C	48.B	49.D	50.B
51.D	52.D	53.A	54.C	55.A	56.D	57.D	58.*	59.C	60.A
61.D	62.A	63.D	64.B	65.B	66.D	67.A	68.B	69.B	70.A
71.C	72.C	73.C	74.B	75.B	76.C	77.B	78.C	79B	80.C
81.B	82.C	83.B	84.A	85.C	86.B	87.C	88.D	89.D	90.C
91.B	92.C	93.C	94.A	95.B	96.B	97.C	98.C	99.A	100.B

THE POLYTECHNIC, IBADAN

SCREENING TEST 2014

TYPE AA TIME: 1 HOUR

INSTRUCTIONS TO CANDIDATES: Please ensure that you have submitted one downloaded on-line registration form before and after the examination. Calculators, cell phones and other electronics devices are not allowed. Any form of examination malpractice automatically disqualifies the candidate. Candidates may use logarithm tables. Answer all questions TIME ALLOWED: 1 hr30mm

Shade the answer sheet as appropriate: with HB pencil only

PHYSICS

- The slope of a straight line displacement time graph indicates A. distance travelled B. uniform velocity C. uniform acceleration D. instant acceleration E. uniform speed.
- A ball of mass 0.5kg moving at 10m/s collides with another ball of equal mass at rest. If the two balls move off together after the impact, calculate their common velocity A. 0.2m/s B. 0.5m/s C. 10m/s D. 3m/s
- How much heat is given out when a piece of iron mass 50g and specific heat capacity 460/kg/K cools from 85°C to 25°C? A. 1.38×10^6 J B. 2.53×10^2 J C. 1.98×10^4 J D. 1.38×10^3 J E. 1.27×10^3 J
- Which of the following is not a suitable method of reducing loss of heat from a piece of hot iron? A. wrapping it in cotton wool B. painting it black C. placing it in a vacuum D. placing it in a rubber support E. keeping it in a closed wooden box
- A bat emits a sound wave at a speed of 1650.00m/s and receives the echoes 0.15s later. Calculate the distance of the bat from the reflector A. 8.75m B. 16.6cm C. 87.75m D. 123.75m E. 330.00m
- Which of the following is/are characteristics of sound? i. pitch ii. Loudness iii. Quality iv. Noise A. I only B. ii only C. I & ii only D. I, ii & iii only E. i, ii, iii and iv
- An image which can be formed on a screen is said to be A. virtual B. blurred C. inverted D. erect E. real
- A ray of light is incident at an angle of 30° on a glass prism of refractive index 1.5. Calculate the angle through which the ray is minimally deviated in the prism. (the medium surrounding the prism is air). A. 10.5° B. 5° C. 21.1° D. 38.9° E. 40.5°
- At which of the following distances from the lens should a slide be placed in a slide greater than f but less than 2f D. equal to f E. equal to 2f
- What of the camera corresponds to the iris of the eye? A. shutter B. film C. lens D. diaphragm E. focusing ring
- Which of the following is not a mechanical wave? A. wave propagated in stretched ring B. waves in closed pipes C. radio waves D. water waves E. sound waves
- A catapult is used to project a stone. Which of the following energy conversions takes place as the stone is released? A. The kinetic energy of the stone is converted into gravitational potential energy B. The gravitational potential energy of the catapult is converted into the kinetic energy of the stone C. The elastic potential energy of the catapult is converted into elastic potential energy D. The elastic potential energy of the catapult is converted into the

gravitational potential energy of the stone

- Ball is thrown vertically upwards from the ground with an initial velocity of 50m/s. What is the total time spent by the ball in air? ($g=10\text{m/s}^2$) A. 2.5s B. 5.0s C. 10.0s D. 15.0s E. 20.0s
- Which of the following correctly gives the relationship between linear speed V and angular speed ω of a body moving uniformly in circle of radius r? A. $v = \omega r$ B. $v = \omega^2 r$ C. $v = \omega r^2$ D. $v^2 = \omega r$ E. $v = \omega r$
- Which of the following is used to determine the relative density of the acid in a car battery? A. hydrometer B. hygrometer C. manometer D. hydrometer E. spectrometer
- A block of material volume 20cm³ and density 2.3g/cm³ is suspended from a spring balance with half the volume of the block immersed in water. What is the reading of the spring balance? (Density of water = 1.0 g/cm³) A. 8g B. 25g C. 30g D. 40g E. 50g
- A piece of cork which is floating on water is acted upon by the forces of A. weight and viscosity B. weight and upthrust C. upthrust and viscosity D. weight only E. upthrust only
- Which of the following is derived unit? A. meter B. coulomb C. kilogram D. second E. ampere
- An engine raises 100kg of water through a height of 60m in 20s. What is the power of the engine? ($g = 10\text{m/s}^2$) A. 120.00w B. 3000.00w C. 333.00w D. 300.00w E. 30.00w
- If the temperature of a small quantity of water in a closed container is gradually increased from 0°C to 40°C then the density of water within its range A. increases for a while and then decreases B. decreases for a while and then increases C. increases gradually D. decreases gradually E. remains the same

MATHEMATICS

- Simplify: $125^{-1/3} \times 4^{-12} \times 10^0$ A. 350 B. 35 C. $1/35$ D. $1/350$ E. 0
- If $3^{2x} = 27$, what is x? A. 1 B. 1.5 C. 4.5 D. 18 E. 40.5
- Express 0.00562 in standard form. A. 5.62×10^{-3} B. 5.62×10^{-2} C. 0.562×10^{-2} D. 5.62×10^4 E. 5.62×10^3
- Given that $1/3 \log_{10} P = 1$, find the value of P A. 3 B. 1/10 C. 10 D. 100 E. 1000
- Simplify $(\log \sqrt{27}) / \log_8 1$ A. 1/6 B. 3/8 C. 1/2 D. 4 E. 6
- The population of a village is 5846. Express this number to three significant figures A. 5850 B. 5846 C. 5840 D. 585 E. 584
- Simplify $((1/4)^{-1})^{1/2}$ A. 1/6 B. 1 C. 2 D. 4 E. 8
- For what value of y is the expression $(y + 2)/(y^2 - 5y - 10)$ undefined? A. $y = 0$ B. $y = 2$ C. $y = 3$ D. $y = 5$ E. $y = 10$
- Simplify $\log_6 + \log_{12}$ A. -4 B. -1 C. 0 D. 1 E. 4
- Solve the equation $3a + 10 = a^2$ A. $a = 5$ or $a = 2$ B. $a = -5$ or

- $a = 2$ C. $a = 10$ or $a = 0$ D. $a = 5$ or $a = -2$ E. $a = -5$ or $a = -2$
31. Evaluate $(101.2)^2 - (100.5)^\circ$ A. 1 B. 2.02 C. 20.02 D. 141.19 E. 202
32. Express the product of 0.06 and 0.09 in standard form A. 5.4×10^{-3} B. 5.4×10^{-2} D. 5.4×10^6 D. 5.4×10^2 E. 5.4×10^3
33. Simplify $(36)^{-1/2} \times 5^2$ A. $3/4$ B. $1/24$ C. $2/3$ D. $11/2$ E. 2029
34. If $\cos(A)^\circ = \frac{1}{2}$ which of the following angles has a cosine $-\frac{1}{2}$? A. 30° B. 120° C. 150° D. 210° E. 330°
35. A ladder 9m long leans against a vertical wall making an angle of 64° with the horizontal ground. Calculate correctly the decimal place, how far the foot of the ladder is from the wall. A. 4.0m B. 5.8m C. 7.1m D. 8.1m E. 18cm
36. If $3 \log a + 5 \log a - 6 \log a$. What is a A. 1 B. 6 C. 8 D. G. 16 E. 32
37. If the second and fourth terms of a geometrical progression are 8 and 32 respectively, what is the sum of the four terms? A. 28 B. 40 C. 48 D. 60 E. 68
38. Factorize $35 - 2b - b^2$ A. $(35 - 2b)(b - 1)$ B. $(7 + b)(5 - b)$ C. $(3 + 7)(5 - b)$ D. $(35 - b)(3b + 7)$ E. $(7 + b)(5b)$
39. Evaluate $0.009 \div 0.012$. Leaving your answer in standard form. A. 7.4×10^2 B. 7.5×10^1 C. 7.5×10^{-1} D. 7.5×10^{-2} E. 7.5×10^3
40. Factorize the following expression: $2x^2 + x - 15$. A. $(2x + 5)(y - 3)$ B. $(2x - 5)(y + 3)$ C. $(2x - 5)(x - 3)$ D. $(2x - 3)(x + 5)$ E. $(2x + 5)(x + 3)$

CHEMISTRY:

41. Complete hydrogenation of oils results in the production of A. soaps B. detergent C. alkalines D. butter F. margarine.
42. A sample of orange juice is suspected to have been contaminated with a yellow dye. Which of the following methods can be used to detect the dye? A. decantation B. Chromatography C. distillation D. filtration E. evaporation
43. The heat accompanying the reaction represented by the equation $H_2O_{(g)}$ is described as the heat of A. Solution B. neutralization D. sublimation E. activation
44. Which of the following compounds will undergo addition reactions? A. ethyne B. butane C. pentane D. Tetrachloromethane E. ethanol
45. How many unpaired electrons are there in an atom whose atomic number is 8? A. 0 B. 1 C. 2 D. 3
46. A piece of metal object of mass 60 was analysed and found to contain 20% by weight of magnesium. Calculate the number of moles of magnesium present (Mg = 12) A. 0.5mol B. 1 mol C. 1.5mol D. 2mol E. 2.5mol
47. What is the maximum number of electrons that can be contained in the d-sub shell A. 6 B. 8 C. 10 D. 12
48. What is the oxidation number of zinc in $Zn(OH)_4^{2-}$ A. -2 B. 4 C. 2 D. -1 E. -4
49. Write the formula of the compound whose name is iron (ii) Tetraoxosulphate (vi) heptahydrate. A. $Fe_2SO_4 \cdot 7H_2O$ B. $2FeSO_4 \cdot 7H_2O$ C. $FeSO_4 \cdot 7H_2O$ D. $FeSO_4 \cdot (H_2O)_7$

50. Using exponential notation, express the quantity 72.8mg in terms of its basic S.I. unit A. 7.28×10^{-5} B. $72.8 \times 10^{-3} \text{kg}$ C. $7.28 \times 10^{-3} \text{g}$ D. $7.28 \times 10^{-5} \text{kg}$
51. A given mass at constant temperature occupies 5001 at 700mm pressure. What volume will it occupy at 200mm pressure? A. 1750 B. 1875 C. 1645 D. 5017
52. The expression $P_1 + P_2 +$

ENGLISH LANGUAGE

1. This is important your last essay. A. on B. with C. by D. for
2. The team has suffered defeat A. before B. with C. over D. after
3. Unemployment has been the increase since last year. A. of B. at C. on D. in
4. Cat sleep Day and hunt at night A. at B. by C. in D. during
5. I don't want anything to interfere My project A. with B. on C. over D. by
6. The two brothers came in The backdoor A. within B. along C. across D. through
7. the terms of agreement with your landlord, you should not sub-let the house. A. on B. under C. upon D. by
8. Nigeria's economy was buoyant the 1970s A. through B. in D. with
9. The musician waxed that record died fifty years ago A. who B. whom C. which D. whose
10. The author book you are reading now, won the Noble Price for literature last year A. which B. that C. whose D. whom
11. The lady you were talking about yesterday is here now A. which B. whom C. who's D. whose
12. The pencil you gave me yesterday is lost. A. whose B. whom C. that D. who
13. I honest don't understand you hate that man. A. When B. Where C. why D. how
14. I'd like to know....., he'll wriggle out of this ease A. how B. whenever C. where D. what
15. of the two pencil is yours? A. where B. who C. which D. whose
16. university is..... Institution of higher learning. A. An....an B. An... a C. A.....a D.A.....an
17. I'd give up smoking, if I you, A. am B. were C. was D. are
18. It is high time you visiting that friends of yours. A. should stop B. stopped C. stop D. must
19. had they entered when it started to rain A. hardly B. nearly C. almost D. fairly
20. All your like you very much. A. brother-in-law B. brother-in-laws C. brother-in-laws D. brothers-in-law

SOLUTION TO POLYIBADAN SCRENNIG 2014 EXAM

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

51.B 52.B

ENGLISH LANGUAGE

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

THE POLYTECHNIC, IBADAN

SCREENING TEST 2013

TIME: 11 ½ Hour

INSTRUCTIONS TO CANDIDATES

- * Answer all question
- * Affix 1 passport photograph to the answer sheet
- * Write your registration number UME score & state of origin only on the answer sheet
- * Calculators, cell phones and other electronics devices are not allowed.
- * Any form of malpractice automatically disqualifies the candidate
- * Ensure that you sign the attendance sheet before leaving the examination hall.

ENGLISH LANGUAGE

Fill the blank spaces making use of the best of the five options.

1. In the past his father used to walk but nowadays he to work by bicycle A. giving B. is going C. seldomly goes D. goes E. has gone
2. It might not look such a rosy proposition A. from his viewing proposal B. when he views the proposal C. having viewed the proposal D. from his point of view E. from his seeing it
3. Nuhu told me to go on till seven A. to work B. worked C. works D. working E. work
4. Don't study on the examination day What find he tell you? He told me on the examination day A. no studying B. don't study C. not study D. not to study E. to not study
5. I start writing this test at 8.00am. it is 1000am now by 11 .00 am I it for three hours. A. shall be writing B. have been writing C. shall have been writing D. am writing E. was writing
6. I shall travel to Lagos by next week A. air or with train B. aircraft or by road C. airways or by bus D. air or by road E. flight or by bus
7. Musa asked Asmart what she since he last saw her A. has been doing B. had been doing C. has done D. was doing E. might be doing
8. The evidence of all the accused person's by the judge sitting at no. 2 assizes last week A. were disbelieved B. was disbelieved C. in disbelieved D. are disbelieved E. has been disbelieved.

Choose the word or phrase from options A-E which has the same meaning to the underlined word or words in each sentence.

9. The minister bit on a plan to lain his past after many months of lobbying A. beat a plan B. drew up a plan C. discovered a plan D. selected a plan E. designed a plan
10. Ekwansi's account with the naira bank is in the red, his account A. was written in red ink B. is overdrawn C. is in danger D. is special E. is heavy
11. He should be able to do it alone A. he ought to be able to do it alone B. he may be able to do it alone C. he may be

able to do it alone D. he has been able to do it alone E. he will do it alone

12. you can talk to her A. you are permitted to talk to her B. you must talk to her C. you mustn't talk to her D. nothing prevents you from talking to her E. A & D
13. When you go to a foreign country to study, you will discover that life is not always a bed of roses after it is A. as pleasant as one thought B. a bed without roses C. an unmitigated disappointment D. expected E. uncomfortable
14. Ebun..... the edge of the cliff after his shoes had called to grip A. fell down B. fell off C. fell away D. fell from
15. The host insisted on what he called a little gift A. me to accept B. me accepting C. my accepting D. my acceptance
16. I know you think lam talking nonsense, Shehu, but.....you will realize that I was right A. at one time B. on time C. in time D. all times
17. The driver will all the students interested to going to lagos tomorrow at 7.00am outside the main building A. lift B. lift up C. pick D. pick up

Choose the option similar in meaning to the underlined word(s)

18. The government is making concerted efforts at providing essential social facilities in the rural areas A. dissipated B. unconcerted C. unsuccessful D. uncontrolled
19. We cannot but talk about his invaluable contributions to the affaire of the society A. worthless B. cost C. unrecognized D. incalculable
20. Men living in an extended family know that they have to be responsible for the ware fare of some other person's children A. externals B. nuclear C. neutral D. contracted

CHEMISTRY

21. In the reaction between sodium hydroxide and sulphuric acid solutions, what volume of 0.5molar sodium hydroxide would exactly neutralize 10cm³ of 1 .25molar sulphuric acid? A. 5cm³ B. 10cm³ C. 20cm³ D. 25cm³ E. 50cm³

22. A small quantity of solid ammonium chloride (NH_4Cl) was heated gently in a test tube. The solid gradually disappears to produce a mixture of two gases later a white cloudy deposit was observed on the cooler part of the test tube. The ammonium chloride is said to have undergone A. distillation B. sublimation C. precipitation D. evaporation E. decomposition
23. Elements P, Q, R, S have 6, 11, 15, & 17 electrons respectively. Therefore A. P will form an electrovalent bond with R B. Q will form a covalent bond with S C. R will form an electrovalent bond with S D. Q will form an electrovalent bond with S E. Q will form a covalent bond with R
24. An element X forms the following compounds with chlorine: NCl_4 , XCl_3 , XCl_2 . this illustrates the A. law of multiple proportions B. law of chemical proportions C. law of simple proportion D. law of conservation of mass E. law of definite proportion.
25. The oxidation state of chlorine in potassium chlorate is A. 11 B. 12 C. 13 D. 15 E. 17
26. When carbon dioxide is bubbled into limewater, a white precipitate is formed. If the passage of the gas is continued the precipitate disappears. The reasons for this is A. calcium carbonate is formed which on reaction dissolves B. calcium hydrogen carbonate is precipitated and then dissolves C. calcium carbonate is formed which on reaction with further carbon dioxide forms soluble calcium hydrogen carbonate D. concentration of solution has occurred with the deposition of calcium hydroxide E. the solution has become saturated and solid carbon dioxide has been deposited.
27. The following reactions are stages in important industrial processes: (i) $\text{N}_2(\text{g}) + \text{O}_2 \rightleftharpoons 2\text{NH}_3(\text{g})$ AH is negative (ii) $2\text{SO}_2(\text{g}) + \text{O}_2 \rightleftharpoons 2\text{SO}_3(\text{g})$ AH is negative (iii) $\text{N}_2(\text{g}) + \text{O}_3 \rightleftharpoons 2\text{NO}$ AH is positive. Which of the above forward reactions is favoured? by (i) a decrease in the concentration of the pressure and (ii) an increase in temperature? A. i B. ii C. iii D. i & ii E. i & iii
28. Methanoic acid mixes with water in all proportions and has about the same boiling point as water. Which of the following methods would you adopt to obtain pure water from a mixture of sand, water and methanoic acid A. fractional distillation B. filtration followed by azeotropic distillation C. neutralization with sodium hydroxide followed by distillation. D. neutralization with sodium hydroxide followed by filtration E. etherification with ethanol followed by distillation.
29. Which of the following statements applies during the electrolysis of sodium hydroxide solution using platinum electrodes? A. anions are discharged at the cathode B. hydrogen ions are discharged at the anode C. the concentration of sodium hydroxide decreases at both electrode compartments D. the concentration of sodium hydroxide increases at the cathode only E. the concentration of sodium hydroxide increases at the anode only.
30. Which of the following statement is true? When the potassium atom forms its ion A. it gains one electron and becomes neutral B. its atomic number decreases C. it achieves electronic configuration of argon D. it loses one proton E. it loses one neutron.
31. On heating under suitable conditions, 1 liter of a monoatomic gas X combines with 1.5 litres of oxygen forming an oxide. What is the formula of the oxide? A. X_2O_3 B. X_2O C. X_3O_2 D. XO E. none of the above
32. If 1 liter of 2M sulphuric acid is poured into a bucket containing 10 liters of water, and the resulting solution is 25cm³ of 0.1 M Na_2CO_3 , to neutralize it. What is the original volume of the acid? A. 2.2M B. 1.1M C. 0.22M D. 0.1M E. 0.20M
33. A solution of HCl contains 7.3g/dm³ of the acid. What volume of it will neutralize 0.25M solution of Na_2CO_3 of volume 20ml A. 250ml B. 50ml C. 750ml D. 10ml E. 25ml
34. Which one of the following reactions is correct as written? A. $\text{FeCl}_2 + \text{NH}_4\text{OH} \rightarrow \text{Fe}(\text{OH})_3 + \text{NH}_4\text{Cl}$ B. $\text{Pb}_2\text{O}_3 + 4\text{HCl} \rightarrow \text{PbCl}_2 + 2\text{H}_2\text{O}$ C. $\text{PbNO}_3 + \text{H}_2\text{S} \rightarrow \text{PbS} + 2\text{HNO}_3$ D. $\text{NaOH} + \text{H}_2\text{SO}_4 \rightarrow \text{NaHSO}_4 + \text{H}_2\text{O}$ E. $2\text{NH}_4\text{NO}_3 \rightarrow \text{N}_2 + 2\text{H}_2\text{O}$
35. How many grams of hydrogen gas will be liberated when 6g of magnesium ribbon dissolves in 500cm³ of 6M HCl? (Mg = 24, H = 1, Cl = 35.5). A. 2.2g B. 0.7g C. 0.5g D. 0.3g E. 1.2g
36. An example of a strong electrolyte is A. ethyl acetate B. ethanol C. glucose D. sodium formate E. formic acid
37. The oxidation state of manganese in KMnO_4 is A. 44 B. 13 C. 15 D. 17 E. 12
38. For iron to rust, these should be present A. oxygen B. moisture C. carbon dioxide D. oxygen and moisture E. oxygen, moisture and carbon dioxide.
39. The mass number of an atom is A. the mass number of electrons in the atom B. the number of protons in the nucleus of the atom.
40. Sodium and potassium belong to the same group of the periodic table. This is because A. both have identical electronic configuration B. both react with water vigorously.

MATHEMATICS

41. After getting an increase of 15%, a man's new monthly salary is N345. How much per month did he earn before the increase? A. N330 B. 396.75 C. N300 D. N393.25 E. N360
42. In base ten, the number 101101 (base 2) equals A. 20_{10} B. 45_{10} C. 15_{10} D. 13_{10}
43. The annual profits of a transport business were divided between the two partners A and B in the ratio 3:5. If B received N3000 more than A, the total profit was A. N5000 B. N18000 C. N12000 D. N24000 E. N8000.
44. A square of cardboard is taped at the perimeter by a piece of ribbon 20cm long. What is the area of the board? A. 20sq.cm B. 25sq.cm C. 36sq.cm D. 100sq.cm E. 16sq.cm
45. Simplify $\frac{5^x \times 25^{x-1}}{125^{x+1}}$ A. 62^{x-1} B. 5^{x+2} C. 5^{-5} D. 5^{x-2} E. 5^3
46. The median of the set of numbers 4, 9, 13, 7, 14, 10, 17 is A. 13 B. 7 C. $\frac{10}{2}$ D. 10 E. $\frac{30}{4}$
47. List all integer values of x satisfying the inequality: $1 < 2x - 5 = 5$ A. 2, 3, 4, 5 B. 2, 5 C. 3, 4, 5 D. 2, 3, 4 E. 3, 1.
48. Find the roots of the equation $10x^2 - 13x - 3 = 0$ A. $x = \frac{3}{8}$ or $-\frac{1}{2}$ B. $x = \frac{3}{10}$ or -1 C. $x = \frac{3}{10}$ or 1 D. $-\frac{1}{5}$ or $\frac{3}{2}$
49. A solid cylinder of radius 3cm has a total surface area of

- 366cm². find its height. A.2cm B.3cm C.4cm D.5cm E.8cm
50. If $\sin^2 x = a/b$, what is $\sin(90-x)$? A. a/b B. $1-a/b$ C. $\frac{\sqrt{b^2-a^2}}{b}$ &
D. $\frac{\sqrt{a^2-b^2}}{b}$ E. $\frac{\sqrt{b^2-a^2}}{b}$
51. 7 pupils of average age 12years leave a class of 25 pupils of average age 14years. If 6 new pupils of average age 11 years join the class, what is the average age of the pupils now in the class? A.13years B. 12years $\frac{1}{4}$ months C. 13 years 5months D. 13years E. 11 years
52. A sum of money invested at 5% per annum simple interest amounts to \$434.00 at 7 $\frac{1}{2}$ % per annum simple interest? A. 7%years B. 10years C. 5years D. 12years E. 14years.
53. By selling an article for N45.00 a man makes a profit of 8%. For how much should he have sold it in order to make a profit of 32%? A. N180.00 B. N59.00 C. N63.00 D. N58.00 E. N55.00
54. An isosceles triangle of sides 13cm, 13cm, 10cm is inscribed in a circle. What is the radius of the circle? A.71124cm B.12cm C. 5cm D.7cm E.69cm
55. A man bought a wrist watch for N150 but was only able to sell it for N120. Find the loss per cent on the transaction A.25% B.11 $\frac{1}{8}$ % C.20% D.80% E.30%
56. Find the median of the set of numbers 110,116,113,118,121,118,117,113. A.117.5 B.118 C.117 D.116 E.113.
57. Given a regular hexagon, calculate each interior angle of the hexagon. A. 600 B. 30° C. 120° D.45° E.135°
58. Solve the following equations: $4x-3 = 3x+y$ $2y+ 5x-12$; A. $x=5, y=2$ B. $x=2, y=5$ C. $x=2, y=-5$ D. $x=5, y=3$
59. If $x-1$ is a root of the equation: $x^3 - 2x^2 - 5x + 6$. Find the other roots, A. -3 & 2 B. 2 & C.3 &-2 D.1 &3 E.-3 & 1.
60. Which of the following lines is not parallel to the line $3y + 2x - 17 = 0$? A. $3y+2x7 = 0$ B. $9y + 6x + 17 = 0$ C. $24y + 16x + 19 = 0$ D. $3y-2x+70$ E. $15y+10x-10x-13=0$
- PHYSICS**
61. A piece of rubber 10cm long stretches 6mm when a load of 100N is hung from it. What is the area stretched if the young modulus is 50N/m². A. 60m² B. 150m² C. 33.33m² D. 15m²
62. To determine the weight of an object you would A. use a balance B. use a spring balance C. find the force necessary to give it a certain acceleration D. use none of these methods E. use any of these methods.
63. A gas at pressure PN/m and temperature 27°C is heated to 77°C at constant volume. The new pressure is A. 0.85PN/m B. 0.86PN/m C. 1.16PN/m D. 1.18PN/m E. 2.85PN/m
64. Two lamps rated 40w and 220w, each are connected in series. The total power dissipated in both lamps is A. low B. 20w C. 40w D. 80w E. none
65. A magnet is moved through a coil of wire. The emf produced in the wire depends on A. the number of turns in the coil B. the strength of the magnet C. the speed at which the magnet is moved D. all of the above E. none of the above
66. A potential difference of 6v is used to produce a current of 5A for 200s through a heating coil. The heat produced is A.4800ca1 B.6000cal C.2400j D.240kcal E.600j
67. Two boys are communicating with each other by stretching a string passing through a hole punched in the bottom of each of the two tin cans. The physical principle employed is that sound travels A. mainly through air B. fainter in stretched string C. faster through gasses than in solids and liquids D. with greater ease through a string than in air E. none of the above is correct.
68. The hatch door of a submarine has an area of 0.5m² the specific gravity of sea water is 1.03. Assume that $g = 10\text{m/s}^2$ and neglect the atmospheric pressure. The force exerted by the sea water on the hatch door at a depth of 200m is A. $1.03 \times 10^5\text{N}$ B. $1.03 \times 10^4\text{Nm}^2$ C. $2.6 \times 10^3\text{Nm}^2$ D. $2.06 \times 10^{11}\text{N}$ E. $1.03 \times 10^3\text{N}$.
69. When equal weights of iron and water are subjected to an equal supply of heat, it is found that the piece of iron becomes much hotter than water after a short time because A. The specific heat of iron is higher than water B. Iron is in solid form C. water is in liquid form D. the specific heat of water is higher than that of iron E. the specific heat of iron is infinite.
70. The speed of light in air is $3.0 \times 10^8\text{m/s}$. its speed in glass having a refractive index of 1.65 is A. $1.82 \times 10^8\text{m/s}$ B. $3 \times 10^8\text{m/s}$ C. $6.0 \times 10^8\text{m/s}$ D. $1.82 \times 10^2\text{m/s}$
71. An electric iron is rated at 100watts 250v. The corresponding maximum resistance and accompanying current is A. 62.5Ω, 4.0321 B. 16.0Ω, 6.251 C. 4.95 $\times 10^8\text{m/s}$ D. 4.0Ω, 62.51 E. 4.0Ω, 2501.
72. 250g of lead at 170°C is dropped into 0°C of water at 10°C if the final temperature is 12°C, the specific heat of lead is (specific heat capacity of water is 4,200/jkg°C) A. 39.5/jkg°C B. 50.4/jkg°C C. 127.5/jkg°C D. 154.6/jkg°C E. 173.4/jkg°C.
73. If the refractive index of a medium is $\sqrt{2}$, what is the critical angle? A. 45° B. 50012 C. 56°25' D. 75° E.90°
74. As a positively charged rod is brought nearer to the top cap of a positively charged gold leaf electroscope, the divergence of the leaves will A. decrease to zero B. steadily increase C. decrease to zero and then increase D. remain constant E. increase to a maximum and then decrease.
75. A rocket burns 0.01kg of fuel each second and ejects it as a gas with velocity of 5,000m/s. What force does the gas exert on the rocket? A. 500,000N B. 500N C. 50N D. 5,000N E. 50,000N.
76. Which of the following assumptions is made in a simple pendulum experiment? The A. suspending string is inextensible B. bob has a finite size C. bob has a definite mass D. initial angle of oscillation must be large.
77. A rectangular tank contains water to a depth of 2m. if the base is 4m x 3m, calculate the force on the base (density of water 10³kgm³, $g=10\text{m/s}$) A. $2.4 \times 10^5\text{N}$ B. $2.4 \times 10^4\text{N}$ C. $2.0 \times 10^4\text{N}$ D. $1.7 \times 10^4\text{N}$
78. The expansion of solids can be considered as disadvantage in the A. balance wheel of water B. fitting of wheels on our vehicle C. fire arm D. thermostat.
79. When two objects P & Q are supplied with the same quantity of heat, the temperature change in P is observed to be twice that of Q. the ratio of the specific heat capacity of P to Q is A. 1:4 B.4:1 C.1:1 D.2:1
80. A lens of focal length 12.0cm forms an upright image three times the size of a real object. The distance between the object and the images is A.8.0cm B.16.0cm C.24.0cm

D.32.0cm

BIOLOGY .

81. Anatomy is the study of and..... A. forms and structure B. forms and cell C. Tissue and organ D. system and structure E. A &
82. is the systematic study of the natural phenomena in the environment A. Anatomy B. cell C. Science D. botany E. polymer
83. Cell comes from pre-existing cell was a law given by A. Charles Darwin B. Charles Lams C. Robert Hooke D. Robert Korch E. A & B
84. Using the punnet square given by Whitaker, the genotypic ratio in the second law is A.3:1 B.1:3:1 C.1:2:1 D.2:1 E.4:3:1
85. Groups of cell grouped together link up to produce A. Cells B. Tissue C. Organ D. system E.A&B.
86. The Capacity of living organism to respond to internal and external stimuli is A. Excretion B. nutrition C. irritability D. respiration
87. Organism posses living and non living quality A. Viruses B. Fungi C. Algae D. A&B E. A&C
88. Carl Linnaeus proposed System of naming A. 10 B. 5 C. 6 D. 7 E. 12
89. The role of organism, in the environment is termed A. Biome B. Niche C. Ecosystem D. Catalyst E. A & C
90. Protoplasm + Nucleus +
91. The outer covering of plant cell is A. membrane B. cell wall C. cytoplasm D. plasma
92. The heart pumps blood to all part of the body True / False
93. Blood vessel carries blood away from the, heart. A. vein B. capillaries C. arteries D. Nodules
94. The shoulder blade is also called A. Scalp B. Tissue C. Scapular D. Tendon E. Ligament
95. Ribosomes is one of the organelle responsible for A. fighting foreign bodies B. synthesis of protein C. building of fats D. disintegrate lipids.
96. The study of how living organism interact in its environment is termed A. ecology B. ecosystem C. Niche D. Zoology
97. Mendel's law on genetics is termed as the law of A. Selection B. Assortment C. Segregation D. Build up E.A& C
98. Pairs of gene with alternating form is termed A. Pure line B. Chromosome C. Allele D. Genes
99. Strands of genetic materials are termed as A. Pure line B. Chromosome C. Autosome D. Manosomes
100. is not a vertebrae A. Cervical vertebrae B. Caudal vertebrae C. Kosal vertebrae D. Sacral vertebrae.

SOLUTION TO 2013 POLYIBADAN ADMISSIONS SELECTION TEST

1.D	2.A	3.D	4.D	5.A	6.D	7.D	8.B	9.C	10.C
11.C	12.E	13. A	14.D	15.D	16.C	17.A	18.A	19.A	20.C
21.E	22.B	23.D	24.A	25.C	26.C	27.C	28.B	29.B	30.C
31.B	32.C	33.B	34.D	35.C	36.E	37.D	38.D	39.E	40. A
41.C	42.B	43.C	44.B	45.C	46.A	47.C	48.D	49.*	50.C
51.*	52.B	53.B	54.E	55.C	56.C	57.C	58.B	59.C	60.B
61.B	62.B	63.C	64.E	65.A	66.D	67.D	68.E	69.A	70.A
71.A	72.C	73.A	74.B	75.C	76.A	77.A	78.B	79.D	80.A
81.A	82.C	83.C	84.C	85.B	86.C	87.A	88.B	89.B	90.**
91.B	92.TRUE	93.C	94.C	95.B	96.B	97.C	98.C	99.B	100.C

We which you success!