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BASIC GENERAL KNOWLEDGE (NIGERIA & THE WORLD)

PART I: NIGERIA

TIMELINE OF NIGERIA HISTORY

18TH CENTURY

Year	Date	Event
1728		Oyo Empire invades Kingdom of Dahomey.
1767	June	British slave traders facilitate massacre on the Calabar River.
1800		Sokoto Caliphate established through jihad; goes to war against the Yoruba states.

19TH CENTURY

Year	Date	Event
1803		Escape to Igbo Landing in Georgia, USA.
1807	25 Mar.	Slave Trade Act 1807: Britain prohibits subjects from trafficking in slaves.
1833		End of Oyo empire.
1841		Niger Expedition of Christian missionaries.
1846		Church Missionary Society sets up mission at Abeokuta.
1851	1 Jan.	Treaty Between Great Britain and Lagos, 1 January 1852
1861	6 Aug.	Lagos Treaty of Cession: British annexes Lagos, with status of Crown Colony.
1864		Samuel Ajayi Crowther becomes first African Anglican Bishop.
1879		George Taubman Goldie amalgamated various British ventures to form the United African Company (later known as the Royal Niger Company).
1880		The conquest of Southern Nigeria by the British began.
1885		Other European powers acknowledged British sovereignty over Nigeria at the Berlin Conference.
1887		King Ja Ja of Opobo exiled to West Indies by British.
1891		John Payne Jackson becomes publisher of Lagos Weekly Record.
1892		British raid uses maxim guns to defeat Ijebu Kingdom, thereby moving towards complete dominance in the southwest area surrounding Lagos.
1893		British incorporate Yoruba lands in southwest into new protectorate.
1894		Brassmen revolt against Royal Niger Company.
1895	29 Jan.	King Koko leads successful attack on Royal Niger Company headquarters in Akassa.
	2 Feb.	Consul-general Claude Maxwell MacDonald receives letter from King Koko offering to release hostages in exchange for redress of grievances against the Company. This request is declined.
	20 Feb.	Royal Navy counter-attacks against King Koko, razes Nembe.
1897	4 Jan.	Covert foray of the Niger Coast Protectorate Force against Benin City is discovered and destroyed by the Kingdom of Benin.
	Feb.	Retaliatory Benin Expedition of 1897 leads to capture of Benin City.
1898		Beginning of Ekumeku Movement against British rule.
1900	1 Jan.	All Nigeria now under Crown rule. Protectorate of Northern Nigeria created from Company holdings.

20TH CENTURY

Year	Date	Event
1901		Anglo-Aro war: The war began. The Aro Confederacy began to decline. (to 1902)
1902		Anglo-Aro war: The war ended.
1903	Jan.	Capture of Kano The British conquered most of Northern Nigeria, including the Sokoto Caliphate.
1905		The British conquest of Southern Nigeria ended.
1906	1 May	Colonial Office amalgamates Lagos Colony with Southern Nigeria Protectorate.
1908		German-owned Nigerian Bitumen Company began searching for petroleum off coast.
		Protests against water fees in Lagos, encouraged by nationalistic journalism of Herbert Macaulay.
1912		Lord Frederick Lugard, Governor of Northern Nigeria, established a system of indirect rule. Creation of Southern Nigeria Civil Service Union; later, Nigerian Civil Servants' Union.
1914	Jan.	Northern Nigeria and Southern Nigeria were amalgamated into Nigeria. British Crown gained monopoly rights over mineral extraction.
		Nigerian soldiers fight under British command in World War I.
1918		The Adubi War is fought in Egba Land.
1920		National Congress of British West Africa founded in Accra.
1923		Clifford Constitution.
1925		West African Students' Union.
1928	April	British begin direct taxation.
1929 to	14 Oct.	New governor implements plans expand taxation.
	Nov.	"Women's War": Widespread revolt against taxation.
1931		Founding of Nigeria Union of Teachers.
1936		Founding of Nigeria Youth Movement.
1937		Shell D'Arcy Petroleum Development Company of Nigeria (later Shell-BP) granted petroleum exploration rights.
1944		National Council of Nigeria and the Cameroons founded by Nnamdi "Zik" Azikiwe. [1]
1945		Countrywide general strike. Adoption of first Ten Year Plan for

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economic development.

1946 Nigeria entered a period of decolonization and growing Nigerian nationalism.

1950 A conference of northern and southern delegates was held in Ibadan.

1951 MacPherson Constitution.
Yoruba-aligned Action Group founded; headed by Obafemi Awolowo.

1953 1 May Northern vs. Southern violence breaks out in the Northern city of Kano.

1956 Shell-BP expedition makes first discoveries of major petroleum deposits, at Oloibiri and Afam.

1957 Nigeria held a Constitutional conference.

1959 Nigeria holds its first national election to set up an independent government. Northern politicians won a majority of seats in the Parliament.

1959 Petroleum Profits Tax Ordinance establishes 5050 split of oil revenues between corporation and government. Socony Mobil receives offshore oil license.

1960 The period of nationalism and decolonization ended.
Tiv uprising.

1 Oct. Nigeria gained independence from Britain under Prime Minister Tafawa Balewa and President Nnamdi Azikiwe.

1962 Tennessee Nigeria receives offshore oil license.

1963 1 Oct. Nigeria severed its remaining ties to Britain, marking the birth of the Nigerian First Republic.
Amoseas and Gulf receive offshore oil licenses.

1964 1 Dec. National parliamentary election. SAFRAP and AGIP receive offshore oil licenses.
Another Tiv uprising heavily suppressed by police.

1965 Elections held in Western Region.
Refinery completed at Port Harcourt; owned 60% by Federal Government, 40% by Shell-BP.

1966 15 Jan. A military coup deposed the government of the First Republic. Balewa, Premier of Northern Nigeria Ahmadu Bello, and Finance Minister Festus Okotie-Eboh, were assassinated.

16 Jan. The Federal Military Government was formed, with General Johnson Aguiyi-Ironsi acting as head of state and Supreme Commander of the Federal Republic.

29 July A counter-coup by military officers of northern extraction deposed the Federal Military Government. Aguiyi-Ironsi and Adekunle Fajuyi, Military Governor of the Western Region, were assassinated. General Yakubu Gowon became President.

1967 Genocide against people of Eastern Nigerian origin claimed the lives of many thousands mostly Christian Igbo people. This was carried out by the Muslim Hausa and Fulani people. This triggered a migration of the Igbo back to the East.

27 May Gowon announces further subdivision of Nigeria, into twelve states. These include subdivisions of the Eastern Region which would undermine its political power.

30 May Nigerian-Biafran War: General Chukwuemeka Odumegwu Ojukwu, Military Governor of Eastern Nigeria, declared his province an independent republic called Biafra.

1970 8 Jan. Ojukwu fled into exile. His deputy Philip Effiong became acting President of Biafra

15 Jan. Effiong surrendered to Nigerian forces. Biafra was reintegrated into Nigeria.

1971 Nigeria joins Organization of Petroleum Exporting Countries.

1973 22 Jan. A plane crashed in Kano, Nigeria, killing 176 people.

1975 29 Jan. General Yakubu Gowon was overthrown in a bloodless coup. General Murtala Mohammed became Head of State.

1976 13 Feb. Mohammed was assassinated on his way to work. His deputy, Lieutenant-General Olusegun Obasanjo, became Head of State and set a date to end military rule.

1979 Shehu Shagari won election to the Executive Presidency of the American-style Second Republic.

1983 1 Oct. Shagari was sworn in as President.
Shagari won reelection.

31 Dec. Shagari's government was ejected from power in a palace coup, marking the end of the Second Republic. General Muhammadu Buhari became Head of State and Chairman of the Supreme Military Council of Nigeria.

1984 17 Apr. The Buhari regime promulgated Decree No. 4, the "Public Officer's Protection Against False Accusation" Decree, which made it an offence to ridicule the government by publication of false information.

1985 Aug. Buhari was overthrown in a palace coup. General Ibrahim Babangida became Head of State and President of the Armed Forces Ruling Council of Nigeria.

1990 Apr. Middle Belt Christian officers, led by Major Gideon Orkar, attempt to overthrow Babangida in an unsuccessful coup.

1992 Two political parties, the Social Democratic Party (SDP) and the National Republican Convention (NRC) were established by Babangida in an attempt to return to civilian rule.

1993 12 Jun. Moshood Kashimawo Olawale (MKO) Abiola won a presidential election. Babangida annulled the results.

26 Aug. Babangida stepped down due to

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pressure from the Armed Forces Ruling Council. Ernest Adegunle Oladeinde Shonekan assumed power as Interim Head of State.

17 Nov. Shonekan was forced to resign from office. Defence Minister Sani Abacha became Head of State and established the Provisional Ruling Council of Nigeria.

1995 13 Mar. The Abacha administration arrested Obasanjo for allegedly supporting a secret coup plot.

10 Nov. Human and environmental rights activist Ken Saro-Wiwa was hanged with eight others.

1998 8 Jun. Abacha died from a heart attack. Abdusalami Abubakar became Head of State and Chairman of the Provisional Ruling Council of Nigeria and lifted the ban on political activity.

15 Jun. Obasanjo was released from prison.

1999 10 Feb. Obasanjo was elected President.

29 May Obasanjo was sworn in, ushering in the Fourth Republic.

19 Dec. Obasanjo ordered the Nigerian Armed Forces to raid the town of Odi in the Niger Delta, in response to the murder of twelve policemen by local militia.

2000 27 Jan. Sharia was established in the predominantly Muslim state of Zamfara.

May Religious riots erupted in Kaduna over the implementation of sharia.

5 June The Obasanjo administration established the Niger Delta Development Commission (NDDC) to tackle human and ecological issues in the Niger Delta region of Southern Nigeria.

21ST CENTURY

Year	Date	Event
2002		Religious riots erupt over the Miss World pageant due to be hosted in Abuja.
	10 Oct.	The International Court of Justice (ICJ) ruled against Nigeria in favor of Cameroon over the disputed oil-rich Bakassi peninsula territory.
2003	April	Obasanjo won reelection as President.
	29 May	Obasanjo was sworn in for a second term as President.
2004		Obasanjo declared a state of emergency in response to the eruption of ethno-religious violence in Plateau State.
2006	16 May	The National Assembly of Nigeria voted against a Constitutional amendment to remove term limits.
	13 Jun.	Obasanjo met with Cameroonian President Paul Biya and Secretary General of the United Nations Kofi Anan in New York City to resolve a dispute over Bakassi.
	1 Aug.	Nigerian troops began to pull out of Bakassi.
2007	15 Mar.	The Independent National Electoral Commission (INEC) released the names of twenty-four approved candidates for the presidential elections.
	21 Apr.	Umaru Yar'Adua, Governor of Katsina State, was elected President of Nigeria.
2009	23 Nov.	President Umaru Yar'Adua travels to Saudi Arabia to receive treatment for a heart condition. This inspires constitutional crises and calls for him to step down as he was deemed unfit to carry on in power.
2010	5 May	Umaru Yar'Adua, President of Nigeria pronounced dead after a long illness. Goodluck Ebele Jonathan who was already the Acting President at that time succeeds him. The Government of Nigeria declares seven days of mourning.
	1 Oct.	Nigeria celebrates the Golden Jubilee of her independence (50 years). However, the celebrations are hindered by two car bombings close to the Eagles' Square in Abuja, where the elite had gathered to celebrate the golden jubilee.

AFRICAN COUNTRIES, THEIR YEARS OF INDEPENDENCE & COLONIAL MASTERS.

Algeria, a former French colony, gained her political freedom on July 3, 1962

Angola was a Portuguese colony but she became an independent nation on November 11, 1975

Benin Republic was colonized by France, and she was granted her political independent on August 18, 1960.

Botswana was a former British colony. She gained her independence on September30, 1966

Burkina-Faso became independent of France on August 5, 1960.

Burundi was under a Belgian Colony but she became Politically free on July 18, 1962

Cameroon was granted independence by France, her colonial master, on January 1st, 1960.

Cape Verde was colonized by France until July 5, 1975, when she became self-governing

Chad became independent of her colonial master, France, on August 11 , 1960.

Congo was colonized by France, and she became an independent state August 1 5, 1960.

Djibouti was under France until February 7, 1977, when she became an independent state.

Egypt, a former British colony, became independent in February 1922 .

Equatorial Guinea was under Spain as a colony until October 12, 1968, when she became politically free

Gabon was a former French colony, and she got her political freedom on August 17, 1960.

Gambia got her political independence from Britain on February 18, 1965

Ghana was a former British colony, and she got her political freedom on March 6 1957.

Guinea Bissau was a Portuguese colony but she gained her political independence on September 23, 1973

Guinea secured her political independence from France on Oct. 2, 1958.

Ivory Coast was a French colony, and became an

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independent state on Oct.1, 1960.
Kenya, the home of Arap Moi, was a British colony but political freedom came her way on December 12, 1963
Lesotho was colonially governed by Britain until she became free on October 4, 1966
Liberia got her independence from the United States of America on July 26,1847
Libya was a former Italian colony. She became independent on December 24,1951.
Madagascar became independent of France, her colonial master, on June 30, 1960.
Malawi was under Britain as a colony until July 6, 1964, when political independence came her way
Mali gained her political independence from France on August 20, 1960
Mauritania became self-governing on Nov. 28, 1960, having been under Franc for years.
Morocco became independent of France on March 2, 1956.
Mozambique was governed during the colonial era by Portugal but independence came her way on June 25, 1975
Niger was under France, and she became independent on August 3, 1 960.
Nigeria, a former British colony, became independent on October 1 , 1960.
Rwanda was colonized by France but had her independence on July 18, 1962
Senegal, a former French colony, became an independent state on August 1960.
Sierra Leone, the home of returnee slaves, became an independent state from Britain on April 27, 1961
Somalia was a former French territory. She became an independent state on July 1st,1 960.
South Sudan seceded from Sudan by a referendum to become an independent country on July 9th 2011
Sudan was colonized by France, and she became independent on July 4, 1956.
Swaziland was colonized by Britain but she gained her political independence on September 6, 1968
Tanzania, the country of Julius Nyerere, was a former British colony, but became independent on December 9, 1961
The **Central African Republic** became politically independent of her colonial master, France, on August 13, 1 960.
Togo was a former Belgian colony, and she became independent on April 27 1960
Tunisia got her independence from France on March 26, 1956.
Uganda was under a Belgian colony but she became independent on July 18, 1962
Zaire was colonized by France, and she became an independent state on June 30,1960.
Zambia, the home of Kenneth Kaunda, became independent of Britain, her colonial master, on October 24, 1963
Zimbabwe became politically independent of Britain, her colonial master, on April 17, 1980

CENSUS IN NIGERIA

The first census in Nigeria was conducted between 1952 and 1953. The second was in 1963, while the third and fourth were in 1973 and 1991, respectively. The 1963 Census put Nigeria at 55.66 million, and the 1973 Census put Nigeria at 79.8 million. November 1991 census put Nigeria at 88,992,220, while October 2006 census put in Nigeria at 140,003,542

2011	April	INEC conducts general elections across the country.
2011	May	President Goodluck Jonathan was sworn-in for a fresh term of four years on the 29th of May
2012	1 Jan.	President Goodluck Jonathan announced the removal of fuel subsidy. The reaction from Nigerians culminated in protests and strikes (Occupy Nigeria)
2012	3 June	Dana plane crash killing 153 people onboard.
2013		Nigeria won its third Africa Cup of Nations championship with a 10 victory over Burkina Faso
2015	28 Mar.	President Mohammadu Buhari won the presidential election on the platform of the All Progressives Congress (APC), defeating President Goodluck Jonathan of the Peoples Democratic Party.
2015	May	President Mohammadu Buhari was sworn-in for a four year on the 29th of May

NIGERIA'S SIX GEO-POLITICAL ZONES AND THEIR POPULATION

NORTH CENTRAL: Niger, Benue, Nasarawa, Kwara, Kogi, Plateau and the Federal Capital Territory. (20,266,257)

NORTH-EAST: Borno, Yobe, Bauchi, Adamawa and Taraba and Gombe (18,971,965)

SOUTH-EAST: Anambra, Imo, Abia, Enugu and Ebonyi (16,381,729)

SOUTH-SOUTH: Bayelsa, Cross river, Delta, Edo, Rivers, Akwa Ibom, (21,014,655)

NORTH-WEST: Sokoto, Katsina, Kano, Jigawa, Kaduna, Zamfara, and Kebbi (35,786,944)

SOUTH WEST: Lagos, Ekiti, Ogun, Ondo, Osun and Oyo (27,581,992)

NIGERIAN CURRENCY AND LEADERS WHO APPEARED ON IT

Paper money was introduced in Nigeria in 1918 Pounds, shillings and pence were introduced in 1945.
On January 1, 1973, the Nigeria currency was changed to naira and kobo.

1. The N5 bill (October, 1984) bears the head ofAlhaji Tafawa Balewa
2. The N 10 bill (October, 1984) bears the head Dr Alvan Ikoku, a front-line educationist
3. The N20 bill, (March, 1979) bears the head of Gen. Murtala Mohammed.
4. The N50 bill (August 27, 1991) bears the three Nigerian principal ethnic groups (WAZOBIA)

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5. The N100 bill (December, 1999) / the centenary N100 bill (November, 2014) head of Chief Obafemi Awolowo.
6. The N200 bill (introduced in 2000) has the head of Sir. Ahmadu Bello
7. The N500 bill (introduced in April, 2001) has the head of Dr Nnamdi Azikwe.
8. The N1,000 bill (introduced in October 12, 2005) has Alhaji Aliyu Mai-Bornu and Dr Clement Isong appear on it. They were Nigeria's first indigenous CBN Governors.

STATE CREATION

Nigeria was divided into 12 states by Gen. Yakubu Gowon on May 27, 1967.
General Murtala Mohammed divided Nigeria into 19 states on February 3, 1976.
General Ibrahim Babangida gave Nigeria a 24-State structure on Sept. 17, 1987.
On August 27, 1991, Gen. Babangida increased Nigeria's state structure to 30.
On October 1, 1996, Gen. Sani Abacha gave Nigeria its present 36-state structure.

COMMON ABBREVIATIONS AND THEIR FULL MEANINGS

AIDS Acquired Immune Deficiency Syndrome
ASUU Academic Staff Union of Universities
AU African Union
BBC British Broadcasting Corporation
CAN Christian Association of Nigeria
CNN Cable News Network
ECOWAS Economic Community of West African States
EFCC Economic and Financial Crimes Commission
EMG Ecowas Monitoring Group
FIFA Federation Internationale de Football Association
FRSC Federal Road Safety Commission
GSM Global System of Mobile Commission
HIV Human Immune Deficiency
ICAN Institute of Chartered Accountants of Nigeria
ICPC Independent Corrupt Practices Commission and Other Related Offences
IMF International Monetary Fund
INEC Independent National Electoral Commission
ITF Industrial Training Fund
NAFDAC National Agency for Food & Drug Administration and Control
NAMA Nigeria Airports Management Authority
NBA Nigeria Bar Association
NCC Nigeria Communication Commission
NDA Nigeria Defence Academy
NSCDC Nigeria Security and Civil Defence Corps
NDDC Nigeria Delta Development Commission
NDLEA National Drug Law Enforcement Agency
NNPC Nigeria National Petroleum Corporation
NPA Nigeria Ports Authority
NPF Nigeria Police Force
NSC National Sport Commission
NUC National University Commission
NUJ Nigeria Union of Journalists
NUPENG National Union of Petroleum and Natural Gas
NUT Nigeria Union of Teachers
NYSC National Youth Service Corps
OPEC Organization of Petroleum Exporting Countries
OPEC Organization of Petroleum Exporting Countries
PENGASSAN Petroleum and Natural Gas Senior Staff Association of Nigeria
SAN Senior Advocate of Nigeria
SARS Special Anti Robbery Squad
UN United Nation
UNESCO United Nation Education Scientific and Cultural Organization
UNO United Nationals Organization
VOA Voice of America
VON Voice of Nigeria
WHO World Health Organization
www World Wide Web

ORDERS, DECORATIONS, AND MEDALS OF NIGERIA

Nigerian National Honours are a set of orders and decorations conferred upon Nigerians and friends of Nigeria every year. They were instituted by the National Honors Act No. 5 of 1964, during the First Nigerian Republic, to honour Nigerians who have rendered service to the benefit of the nation.
The Nigerian National Honours, in descending order of importance, are:
Grand Commander of the Order of the Federal Republic (GCFR)
Grand Commander of the Order of the Niger (GCON)
Commander of the Order of the Federal Republic (CFR)
Commander of the Order of the Niger (CON)
Officer of the Order of the Federal Republic (OFR)
Officer of the Order of the Niger (OON)
Member of the Order of the Federal Republic (MFR)
Member of the Order of the Niger (MON)

BASIC GENERAL KNOWLEDGE PART II: WORLD

FIRST IN WORLD

The first persons to reach Mount Everest Sherpa Tenzing, Edmund Hillary
The first person to reach North Pole Robert Peary
The first person to reach South Pole Amundsen
The first religion of the world Hinduism
The first country to print book China
The first country to issue paper currency China
The first country to commence competitive examination in civil services China
The first President of the U.S.A George Washington
The first Prime Minister of Britain Robert Walpole
The first Governor General of the United Nations Trigveli (Norway)
The first country to prepare a constitution U.S.A
The first country to host NAM summit Belgrade (Yugoslavia)
The first European to attack India Alexander, The Great
The first European to reach China Marco Polo
The first person to fly aeroplane Wright Brothers
The first person to sail round the world Magellan
The first country to send man to the moon U.S.A
The first country to launch Artificial satellite in the space Russia
The first country to host the modern Olympics Greece
The first city on which the atom bomb was dropped Hiroshima (Japan)
The first person to land on the moon Neil Armstrong followed by Edwin E. Aldrin
The first shuttle to go in space Columbia
The first spacecraft to reach on Mars Viking-I
The first woman Prime Minister of England

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Margaret Thatcher
The first woman to climb Mount Everest
Mrs. Junko Tabei (Japan)
The first woman cosmonaut of the world
Valentina Tereshkova (Russia)
The first woman President of the U.N. General Assembly –Vijaya Lakshmi Pandit
The first man to have climbed Mount Everest twice – Nawang Gombu
The first U.S. President to resign Presidency
Richard Nixon
Chinese Traveller to India Fahein
Foreign Invader to India Alexander the Great
Person in Space Yuri Gagarin
The first European to visit China Marco Polo
The first woman Prime Minister of a country
Mrs. Srimavo Bhandarnaike
The first woman President of a country
Maria Estela Peron
The first woman to Command a Space Mission
Colonel – Eileen Collins (U.S.A.)
The first blind man to scale Mt. Everest
Erik Weihenmayer (USA, May 25, 2001)
The first space astronaut to go into space seven times till date – Jerry Ross (U.S.A.)
The first South African to become the second space tourist – Mark Shuttleworth
The first woman Prime Minister of South Korea
– Ms. Chang Sang
The first youngest grandmaster of the world in chess – Sergey Karjakin (Ukraine)
China's first man in space – Yang Liwei
The first Muslim woman to receive Nobel Prize
– Shirin Ebadi (Nobel Peace Prize 2003)
The first woman of the world to climb Mt. Everest four times – Lakpa Sherpa (Nepali)
First Asian city to host Olympics – Tokyo, Japan (1964)
First woman black tennis player to win a singles title at Wimbledon – A Gibson (1957)
First woman to win a Grand Slam
– Maureen Catherine (195 3)
First woman to win an Olympic Gold Medal
– Charlotte Cooper, UK, Tennis singles (1900)
First ascent of Everest without bottled oxygen
– Peter Habeler (Austria) and Reinhold Messner, (Italy) (1978)
First woman to set foot on North Pole
– Ann Bancroft, USA (1986)
– Jointly developed by Sony and Philips (1978)
First Atom Bomb
– "Little Boy" dropped over Hiroshima by the US during the second world war (1945)
First manned space vehicle
– Vostok 1, USSR (1961)
First human to walk on the Moon
– Neil Armstrong, Apollo 11 (1969)

First human to walk in space
– Alexei Arkhovich Leonov (1965)

GEOGRAPHICAL DISCOVERIES

DISCOVERER **DISCOVERY**

Christopher Columbus (Italian)..... America Vasco da Gama (Portuguese) ..... Sea route to India John Cabot (British) ..... New foundland
Pedro Alvarez Cabral (Portuguese)..... Brazil
Tasman (Dutch) Island of Tasmania & New Zealand
Captian Cook (British) . Sandwich (Hawaiin) Islands
Robert Peary (USA) ..... North Pole
Amundsun (Norway) ..... South Pole
Ferdinand de Lesseps (Designed) ..... Suez Canal David Livingstone (British) ..... Victoria Falls
BartholomewDiaz (Portuguese)..... Cape of Good Hope
Norseman Eric ..... Greenland
Leif Ericsson ..... North America
Mungopark ..... Nigeria river in Africa
Richard Francis Burton ..... Lake Tanganyika
Henry Hudson ..... Hudson Bay
Gobot Sebastian ..... New Found land Marco Polo ..... China
Kepler ..... Planets

COUNTRIES AND CURRENCIES

Brazil .....:Cruzeiro Real
Bulgaria.....: Lev
Belgium .....:Euro
China .....: Yuan/Renminbi
Columbia .....: Peso
Cuba .....: Peso
Costa Rica .....: Colon
Croatia .....:Kuna
Cyprus .....:Cyprus pound
Czech Republic.....:Koruna
Denmark .....: Krone
Egypt .....: Egyptian Pound
Afghanistan .....: Afghani
Argentina.....: Peso
Australia .....: Australian Dollar
Bahrain .....: Dinar
Bangladesh .....: Taka
Bhutan .....: Ngultrum
Hungary.....: Forint
Iran .....:Rial
Switzerland.....: Swiss Franc
Thailand .....: Bhat
U.K. .....: Pound Sterling
U.S.A. .....: Dollar
Norway .....:Krone
Vatican City State .....: Lira
Iraq .....: Iraqi Dinar
Israel .....: Shekel
Japan .....: Yen
Kazakhstan .....:Tenge
Korea .....:Won
Kuwait .....: Kuwaiti Dinar
Malaysia .....:Ringgit
Mexico .....: Peso
Myanmar .....: Kyat
Russia .....: Rouble
Saudi Arabia.....: Riyal
Vietnam .....: Dong
Mongolia .....: Tugrik
Algeria .....:Algeria Dinar
Angola .....:New Kwanza
Armenia .....:Dram
Azerbaijan .....:Manat
Austria .....:Schilling
Bahrain .....:Dinar
Georgia .....:Lari
Ghana .....:Cedi
Indonesia .....:Rupiah
Canada .....:Canadian Dollar
Australia .....:Australia Dollar
Sweden .....:Swedish Krona
South Africa .....:Rands
India .....:Rupee
UAE .....:Deran

16 European Countries with Euro as currency are: Austria, Belgium, Cyprus, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, the

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Netherlands, Portugal, Slovakia, Slovenia and Spain.

FAMOUS FATHERS

Father of Psychology..... Sigmund Freud Father of Cloning ..... Ian Wilmut
Father of Printing ..... Guttenberg
Father of History ..... Herodotus
Father of Economics ..... Adam Smith
Father of Philosophy ..... Socrates Father of Sociology ..... Augustus Comte Father of English Poetry ..... Geoffrey Chaucer Father of Biology.....Aristotle
Father of Essay..... Montaigne
Father of Medicine..... Hippocrates Father of Homeopathy ..... Samuel Haniman Father of Socialism..... Robert Owen Father of Scientific Socialism ..... Karl Marx
Father of Co-operation ..... Robert Owen
Father of Jurisprudence..... John Locke Father of Atom Bomb..... Otto Hahn
Father of Genetics..... Gregor Mendel
Father of Motor Car ..... Henry Ford
Father of Reformation ..... Martin Luther
Father of Greek Democracy ..... Clesthenes Father of Bangladesh . Sheikh Mujibur Rehman Father of Pakistan ..... Muhammed Ali Jinnah Father of Tanzania ..... Julius Nyerere
Father of Mathematics ..... Pythagorus Father of Modern Cartoon ..... William Hogarth Father of Modern Computer .....Charles Babbage
Father of Nuclear Physics ..... : Ernest Rutherford Father of Modern Drama ..... Henrik J. Ibsen Father of Modern Tourism ..... Thomas Cook Father of Painting ..... Leonardo Da Vinci Father of Green Revolution ..... Norman Borlaug Father of Renaissance ..... Petrarch

INVENTIONS AND DISCOVERIES

Air Brake..... George Westinghouse
Aniline Dyes ..... Hoffman
Adding Machine ..... Balise Pascal
Aeroplane ..... Wright Brothers
Air Conditioner ..... : Carrier
Atom Bomb..... : Otto Hahn
Aspirin ..... : Dreser
Alcohol Thermometer ..... : Farenheit
Atomic Thermometer ..... : Bohr
Atomic Theory ..... : Dalton
Atomic Number ..... Mosley
Atomic Structure ..... Bohr and Rutherford
Automobile ..... : Daimler
Antiseptic Surgery ..... Lord Joseph Lister
Archimedean Screw..... Archimedies
Avogadro's Hypothesis ..... Avogadro Ball Pen ..... : Loud
Balloon ..... : Montogolfier
Blood Circulation ..... : Harvey
Barometer ..... : Torricelli
Bicycle ..... : Mac Millan
Braily System ..... : Louis Braille Beri - Beri ..... Eijkman
Blood Circulation ..... Harvey Boson ..... S.N.Bose
Boyle's law ..... Boyle
Braille ..... Louis Braille
Computer ..... : Charles Babbage
Chloroform ..... : James Young Simpson
Cinema ..... : Lumiere Brothers
Cinema Projector ..... : Thomas Alva Edison
Crescograph..... : J.C. Bose
Celluloid ..... Parkes
Chloroform ..... James Harrison and James Young Simpson
Cholera Bacillus ..... Robert Koch
Coloured Photography ..... Lippman
Cosmic Rays ..... R.A.Millikan
Cyclotron ..... Lawrence
Diesel Engine ..... : Rudolf Diesel
Dynamo ..... : Michael Faraday
Dynamite..... : Alfred Nobel
Deuterium (Heavy Water) ..... H.C.Urey
Diesel Oil Engine ..... Rudolf Diesel
Discovery of Solar System ..... Copernicus (1540)
Discovery of Specific Gravity ..... Archimedes Electric Battery ..... Volta
Electric Lamp ..... Edison
Electricity..... Faraday
Electron Theory ..... Bohr
Electrical Waves ..... Heitz
Electric Measurement ..... Gauss
DDT ..... : Dr. Paul Muller
Electron ..... : J.J. Thompson
Electric Lamp ..... : Thomas Alva Edison
Elevator ..... : Elisha G Otis
Fountain Pen ..... : Waterman
Fahrenheit Scale ..... Fahrenheit Film & Photographic goods ..... Kodak Glider ..... : George Cayley
Generator ..... : Piciontti
Gramaphone ..... : Thomas Alva Edison Gun Powder ..... : Roger Bacon
Geometry..... Euclid
Hydrogen ..... : Cavendish
Helicopter ..... Broquett
Helium Gas ..... Lockyer
Homoeopathy ..... Hahnemann
Hovercraft ..... Cockrell
Hydrophobia ..... Louis Pasteur
Jet Engine ..... : Sir Frank Whittle
Intelligence Tests ..... : Binet
Insulin ..... : F. Banting
Induction of Electric Current ..... Faraday
Incandescent Bulb ..... Edison
Induction Coil ..... Rohm Korff Insulin ..... F.Banting
Intelligence test ..... Binet
Jet Propulsion ..... Frank Whittle
Law of Gravitation ..... : Issac Newton Law of Heredity..... : Gregor Mendal
Laser ..... : Theodore Maiman
Lightning Conductor ..... : Benjamin Franklin
Logarithm ..... : John Napier
Laughing Gas ..... Priestley
Life Boat ..... Henry Great Head
Lift (Elevators) ..... Otis
Linotype ..... Mergenthaler Line of demarcation (ship) ..... Plimsoll
Laws of Electrical Resistance ..... Ohm
Law of Electrolysis ..... Faraday
Law of gases ..... Gay Lussac
Laws of Gravitation ..... Newton
Laws of Heredity ..... Gregory Mandel Laws of Motion ..... Newton
Laws of Natural Selections ..... Darwin
Laws of Multiple Proportion ..... Dalton Liquid Oxygen ..... Dewar
Machine Gun ..... : Dr. Richard Gattling Maser ..... : Charles H. Townes
Microphone ..... : Graham Bell
Measurement of Electrical Energy..... Joule,

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James Prescoft
Meson ..... Hideki Yakawa
Microscope..... Janes
Molecular Scattering of light in fluid . Ramanathan Neon
Gas ..... Ramsay, Travers
Neutron ..... Chadwick
Nuclear Fission ..... Otto Hahn, Bohr and Fermi Nylon
Plastic ..... Carothers
Oxygen ..... : J.B.Preistly
Origin of Species ..... Charles Darwin
Parachute ..... :A.J. Garnerian
Pencillin ..... :Alexander Fleming
Photography(Film)..... : John Carbutt Periodic
Law..... Mendeleef
Phonograph ..... Edison
Phonographic Shorthand ..... Pitman
Photograph ..... Dauguerre
Principle for lever (S.P.Gravity)..... Archimedes
Phototherapy ..... N.R.Finsen
Positive Electrons..... Anderson
Powerloom ..... Cartwright
Pneumatic Tyre..... Dunlop
Printing for the Blind ..... Braille
Printing Press ..... Caxton
Printing Types ..... John Guttenberg
Psycho-analysis ..... Dr.Sigmund Freud
Rayon ..... : Sir Joseph Swan
Radio-activityof Uranium ..... Henry Becquerel
Raman effect ..... C.V.Raman
Radium ..... Madame Curie
Railway Engine..... Stephenson
Radio transmitter ..... Alexanderson Rare
Gas ..... Cavandish
Replacing human heart ..... Christian Barnard
Revolver ..... Colt
Quantum Theory ..... Max plank
Refrigerator ..... : James Harrison
Safety Lamp ..... Humphry Davy
Safety Match ..... Land Strom
Safety Pin..... William Hunt
Safety Razor ..... Gillette
Sewing Machine..... Barthelling Thimonnier Short
Hand..... Pitman
Solar System ..... Copernicus
Steam Engine ..... James Watt
Steam Turbine ..... Parsons
Spectroscope ..... Bunsen
Stethoscope ..... Rene Laennee
Submarine .....David Bushnell
Seismograph .....Roberts Mallet
Sextant ..... Hadley
Steam boat ..... Fulton
Submarine ..... Bushwell
Talkies.....Lee-de-Frost
Tank ..... Swinton
Telegraphy .. William F.Cooke & Charles Wheatstone
Telegraph Code ..... Morse
Telephone ..... Alexander Graham Bell
Telescope..... Galileo
Television ..... J.L. Baird
Thermosflask ..... Dewar
Transistor ..... Shockly and Bardeen
Typewriter ..... Sholes
Theory of Evolution ..... Charles Darwin
Theory of Relativity ..... Albert Einstein
Uranium fusion ..... Oho Hahn
Uranus (Planet) ..... Herschel William
Vaccination ..... Jenner
Vaccum Flask .....Sir James Dewar
Vulcanisation ..... Good Year
Washing Soda ..... Lablanc
Wireless Communication .....Oliver Lodge
Wireless Telegraphy ..... Marcony
Wireless ..... Marconi
X-ray..... W.C. Rontgen

NEW AND OLD NAMES OF PLACES, COUNTRIES

New Name	Old Name
Ankara	Angora
Banjail	Bathurst
Bengalooru	Bangalore
Beijing	Peking
Belize	British Honduras
Bangladesh	East Pakistan
Benin Republic	Dahomey
Botswana	Bechuana Land
Burkino Faso	Upper Volta
Cape Kennedy	Cape Caneveral
Cambodia	Kampuchia
Cot'd Voire	Ivory Coast
Djibouti	French Somaliland
Ethiopia	Abyssinia
Ghana	Gold Coast
Guyana	British Guinia
Guianea Bissau	Portuguese Gayana.
Harare	Salisburry
Hawaiin Islands	Sandwich Islands
Indonesia	The Dutch East India
Iran	Persia
Iraq	Mesopotamia
Istanbul	Constantinople
Jakartha	Batavia
Japan	Nippon
Kinshasa	Leopoldville
Kiribati	Gilbert Island
Laos	Lanxang
Lesotho	Basitoland
Mexico	New Spain
Malavi	Nyasaland
Mali	French Sudan
Malaysia	Malaya
Malabo	Santa Isabet
Madhya Pradesh	Central Province
Manchuria	Manchuko
Myanmar	Burma
Mosambique	Potuguese East Africa
Mumbai	Bombay
Namibia	South West Africa
Nauru	Pleasant Island
Orissa	Kalinga
Papua New Guinea	Trust Territory of New Guinea
Portuguese	Lucitania
Sri Lanka	Ceylon
St. Petersburg	Leningrad
Surinam	Dutch Gayana
Taiwan	Formosa
Tasmani	Van Diemen's Land
Thailand	Siam
Togo	Togoland
Tuvalu	The Ellice Islands
Varanasi	Banares

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WORLD INSTITUTIONS AND THEIR FOUNDERS

United Nations	: Joseph Stalin (USSR), : Winston Churchill (UK) & : Franklin Delano Roosevelt (USA)
Red Cross	: Jean-Henri Dunant
Boy Scouts	: Baden Powell
Y.M.C.A.	: Sir George Williams
Kindergarten	: Froebel
Lion's Club	: Melvin John
Salvation Army	: William Booth
Nursing System	: Florence Nightingale
Fascism	: Benito Mussolini
Protestant Religion	: Martin Luther
Nazism	: Adolf Hitler
Montessori System	: Maria Montessori
Cubism	: Pablo Picasso
Amnesty International	: Peter Berenson

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UNILAG POST UTME PRACTICE QUESTIONS
2018/2019

MATHEMATICS

Algebra

1. $4^2 + |4| + |-4| - 4^2 = ?$

A.4 B.0 C.4 D.8

2. $\frac{3^5}{3^3} = ?$

A. 1 B.3 C.9 D.27

3. $3^2 \times 3^3 \times \frac{1}{3^4} = ?$

A. 1 B.3 C.9 D.27

4. $\sqrt[3]{\sqrt{64}} = ?$

A. $\sqrt{2}$ B.2 C. D.8

5. What is the value of x in the equation

$$\frac{x}{2} + \frac{x}{3} = 10$$

A. 12 B.14 C. D.18

6. What is the solution interval of the inequality

$$6x - 2 \geq 3x + 10$$

A. $(\infty,4)$ B.$(-\infty,4$

C.$(-4,\infty)$ D.$[4,\infty)$

7. What is the value of x in the equation

$$\frac{4}{3}\sqrt{10x-4} - 8 = 0$$

A. 0 B. 2C. 4D. 6

8. The price (in cents) of one orange is $5c$. What is the price (in dollars) of one dozen of oranges?

A. $30c$ B. $60c$ C. $\frac{3c}{5}$ D. $\frac{5c}{12}$

9. At present age of Alice is x-10 years. What will be her age after 12 years?

A. x+2 *B.*x-2 *C.*x+12 *D.*x-12

10. Mr. A can do a particular work in 6 hours, and Mr. B can do the same work in 14 hours. How much time it will take if they do the work together?

A. 4 hours and 6 minutes

B. 4 hours and 12 minutes

C. 4 hours and 18 minutes

D. 4 hours and 24 minutes

ANSWERS: ALGEBRA MCQS

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

SOLUTIONS: ALGEBRA MCQS

1. $4^2+|4|+|-4|-4^2$

$=16+4+4-16 \quad \because |-a| = a$

$=8$

NOTE: Any negative value inside modulus becomes positive.

2. $\frac{3^5}{3^3} = 3^{5-3}$

$= 3^2$

$= 9$

NOTE: When power of denominator goes upward, the sign is changed (positive 3 becomes negative three, -3).

3. $3^2 \times 3^3 \times \frac{1}{3^4} = 3^2 \times 3^3 \times 3^{-4}$

$= 3^{2+3-4}$

$= 3^1$

$= 3$

NOTE: When base is same (3 here), we simply add the powers.

4. $\sqrt[3]{\sqrt{64}} = \sqrt[3]{(64)^{1/2}} \quad \because \sqrt{a} = a^{1/2}$

$= \left((64)^{1/2}\right)^{1/3} \quad \because \sqrt[n]{a} = a^{1/n}$

$= (64)^{1/6}$

$= (2^6)^{1/6}$

$= 2$

NOTE: Powers of a power are always multiplied. Thus, (1/3)(1/2)=1/6

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5. $\frac{x}{2}+\frac{x}{3}=10$

The LCD of 2 and 3 is 6.

$(6)\frac{x}{2}+(6)\frac{x}{3}=(6)10$

$3x+2x=60$

$5x=60$

$x=12$

6. $6x-2\geq 3x+10$

$6x-3x\geq 10+2$

$3x\geq 12$

$x\geq \frac{12}{3}$

$x\geq 4$

Thus, the solution interval is $[4,\infty)$.

7. $\frac{4}{3}\sqrt{10x-4}-8=0$

$\frac{4}{3}\sqrt{10x-4}=8$

$\sqrt{10x-4}=8\times\frac{3}{4}$

$\sqrt{10x-4}=6$

$(\sqrt{10x-4})^2=(6)^2$

$10x-4=36$

$10x=40$

$x=4$

8. **Price of 1 orange:** $5c$

Price of 12 oranges: $5c\times 12$

Price of 12 oranges(in dollars): $\frac{5c\times 12}{100}$

$=\frac{3c}{5}$

NOTE: There are 100 cents in one dollar. So, to convert cents into dollars, we need to divide by 100.

9. **Age (now):** $x-10$

Age (after 12 years): $x-10+12$

$=x+2$

10. $\frac{1}{6}+\frac{1}{14}=\frac{1}{t}$

$\frac{7+3}{42}=\frac{1}{t}$

$\frac{10}{42}=\frac{1}{t}$

$t=\frac{42}{10}$

$t=4.2$ **hours**

$\Rightarrow$ $0.2\times 60=12$ **minutes**

Hence, $t=4$ hours and 12 minutes.

For these type of questions the simple equation is $1/t_1+1/t_2=1/t$

Numbers Systems

1. If $a=b$ and $b=c$, then $a=c$. This property is called ?
   A. Reflexive
   B. Transitive
   C. Trichotomy
   D. Symmetric

2. If $a>b$ and $b>a$, then ?
   A. $a=b$
   B. $a\neq b$
   C. cannot be evaluated
   D. impossible

3. π (pi) denotes the ratio of the _____ to the _____ .
   A. area of a circle, circumference of the circle
   B. area of a circle, length of its diameter
   C. circumference of a circle, length of its radius
   D. circumference of a circle, length of its diameter

4. The value of π (pi) is a/an _____ .
   A. rational number B .irrational number
   C. integer D. complex number

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5.If $x^2 + 1 = 0$, then $x = ?$

A.1 *B.* i C.± 1 D.$\pm I$

6. The product of complex numbers (4,3) and (5,-6) is ?

A. (18,3) B. (18,-3) C. (38,9) D. (38,-9)

7. $(2,6) \div (4,2) = ?$

A.(1,1) B.(1,2) C.(2,1) D.(2,2)

8. $(-i)^{-19} = ?$

A.1− B. 1 *C. I−* D. i

9. The multiplicative identity of a complex number is ?

A.(0,0) B.(1,0) C.(0,1) D.(1,1)

10.$\sqrt{-9} \times \sqrt{-9} = ?$

A.9 B.-9 C.9i D.-9i

ANSWERS: NUMBERS SYSTEMS MCQS

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

Sequence & Series

1. What comes next in the sequence: 1, 2, 6, 22, _____ ?

A.82 B.84 C.86 D.88

2. If $a_n = \frac{(-1)^n}{2n-1}$, then $a_n = ?$

A. $\frac{1}{3}$ B. $\frac{1}{5}$ C. $\frac{1}{7}$ D. $\frac{1}{9}$

3. What is the sum of the sequence

$$\sum_{k=0}^{4}(1+k!)$$

A. 36 B.37 C.38 D.39

4. What is the 31st term of the sequence: 1, 4, 7, 10, ... ?

A. 90 B.91 C.92 D.93

5. What is the 11th term of the sequence: *m-2n,m-n,m....?*

A. $m+n$ *B.* $m-n$

C. $m+6n$ *D.* $m+8n$

6. What is the sum of the sequence: 10, 20, 30, ..., 1000 ?

A. 50,000 B.50,250

C. 50,500 D.50,750

7. What is the sum of the sequence: 1, 10, 100, 1000, ... 1,000,000,000 ?

A. 11,111,111,11

B. 11,111,111,90

C. 99,999,999,11

D. 99,999,999,99

8.what is the 11th term of the sequence: 1, 3, 9, 27, ... ?

A.2^8 B.2^{10} C.3^8 D.3^{10}

9. What is the sum of the first 100 natural numbers?

A. 5,000 B.5,025

C. 5,050 D.5,100

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10. What is the sum of the first 100 odd numbers?

A. 9,000 B.10,000

C. 11,000 D.12,000

ANSWERS: SEQUENCE & SERIES MCQS

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

SOLUTIONS: SEQUENCE & SERIES

1. $1, 2, 6, 22, ____$.

$$1$$
$$1\times4-2 = 2$$
$$2\times4-2 = 6$$
$$6\times4-2 = 22$$
$$22\times4-2 = 86$$

2. $a_n = \dfrac{(-1)^n}{2n-1}$

$$a_4 = \frac{(-1)^4}{2(4)-1}$$
$$= \frac{1}{7} \qquad \because (-a)^{\text{even power}} = a^{\text{power}}$$

Here, we just need to put n = 4.

3. $\sum_{k-0}^{4} (1+k!) = (1+0!) + (1+1!) + (1+2!) + (1+3!) + (1+4!)$

$= 2+2+3+7+25 \qquad \therefore\ 0!=1$

$=39$

4. $1, 4, 7, 10, \ldots, a_{31}$

Here $a_1 = 1,\ d = 4-1 = 3\ ,\ n = 31$

$$a_n = a_1 + (n-1)d$$
$$a_{31} = 1 + (31-1)3$$
$$= 91$$

The sequence 1, 4, 7, 10, ... is an arithmetic sequence with common difference of 3 i.e. 4-1=3, 7-4=3 and son on....

5. $m-2n, m-n, m, \ldots, a_{11} = ?$

Here $a_1 = m-2n\ ,\ d = n\ ,\ n = 11$

$$a_n = a_1 + (n-1)d$$
$$a_{11} = m-2n+(11-1)n$$
$$= m-2n+10n$$
$$= m+8n$$

This is also an arithmetic sequence with common difference n.

6. $10, 20, 30, \ldots, 1000$

Here $a_1 = 10\ ,\ a_n = 1000\ ,\ n = 100$

$$S_n = \frac{n}{2}(a_1 + a_n)$$
$$S_{100} = \frac{100}{2}(10+1000)$$
$$= 50,500$$

Summation of arithmetic sequence formula is used.

7. $1, 10, 100, 1000, \ldots, 1000,000,000$

Here $a_1 = 1,\ r = 10,\ n = 10$

$$S_n = a_1\left(\frac{1-r^n}{1-r}\right)$$
$$S_{10} = 1\left(\frac{1-10^{10}}{1-10}\right)$$
$$= \left(\frac{1-100,000,000,00}{-9}\right)$$
$$= \frac{99,999,999,99}{9}$$
$$= 11,111,111,11$$

This is a geometric sequence with common ratio 10 i.e. 10/1=10, 100/10=10, 1000/100=10 and so on....

8. $1, 3, 9, 27, \ldots, a_{11} = ?$

Here $a_1 = 1,\ r = 3,\ n = 11$

$$a_n = a_1 r^{n-1}$$
$$a_{11} = (1)(3)^{10}$$
$$= 3^{10}$$

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9. $\frac{n(n+1)}{2} = \frac{100(100+1)}{2}$

$= 5050$

NOTE: Natural numbers are: 1, 2, 3, 4, ... and their sum upto n numbers is calculated using the given formula.

10. $n^2 = (100)^2$

$= 10000$

NOTE: Odd numbers are: 1, 3, 5, 7 .... and the sum for the first n odd numbers is calculated by n^2. For example, the sum of the first 2 odd numbers is $2^2=4$ (1+3=4), and the sum of the first 3 odd numbers is $3^2=9$ (1+3+5=9).

Factorial

1. $0! = ?$

A. 0 B. 1

C. 10 D. undefined

2. $n(n-1)\times....\times 3\times 2\times 1 = ?$

A. $n!$ B. ${}^nC_r$

C. ${}^nP_r$ D. n

3. $7! = ?$

A. 70 B.120

C. 720 D.5040

4. $5\times 4! = ?$

A. 90 B.105

C. 120 D.135

5. $\frac{6!}{4!} = ?$

A. 24 B.26

C. 28 D. 30

6. $\frac{9!}{3!(9-2)!} = ?$

A. 12 B.22

C. 32 D.42

7. $\frac{10!}{9!(10-10)!} = ?$

A. 0 B.1

C. 10 D.100

8. $\frac{n!}{(n-3)!} = ?$

A. $n!$ B. $(n - 3)!$

C. $n(n-1)(n-2)$ D. $n(n-1)(n-2)(n-3)$

9. 7x6 = ?

A= $\frac{7!}{5!}$ B= $\frac{7!}{6!}$

C.6! D.7!

10. $\frac{(n-3)!}{(n-5)!} = ?$

A.$(n - 3)!$ B.$(n - 5)!$

C.$(n-3)(n-4)$ D.$(n-3)(n-4)(n-5)$

ANSWERS: FACTORIAL QUIZ

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

SOLUTIONS: FACTORIAL MCQS

1.

0!=1 $n! = n(n-1)\times....\times 3\times 2\times 1$

By definition zero factorial is always equal to 1.

2.

n!=n(n-1) x....x3x2x1

This is the definition of factorial. For example

4!=4x3x2x1

5!=5x4x3x2x1

3.

7!=7x6x5x4x3x2x1

=5040

4.

5x4!=5x4x3x2x1

=120

5.

$\frac{6!}{4!} = \frac{6x5x4!}{4!}$

= 6x5

=30

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6.

$$\frac{9!}{3!(9-2)!}=\frac{9!}{3!7!}$$
$$=\frac{9\times8\times7!}{3!7!}$$
$$=\frac{9\times8}{3!}$$
$$=\frac{72}{6}$$
$$=12$$

7.

$$\frac{10!}{9!(10-10)!}=\frac{10!}{9!0!}$$
$$=\frac{10\times9!}{9!\times1}$$
$$=10$$

8.

$$\frac{n!}{(n-3)!}=\frac{n(n-1)(n-2)(n-3)!}{(n-3)!}$$
$$=n(n-1)(n-2)$$

9.

$$7\times6=\frac{7\times6\times5!}{5!}$$
$$=\frac{7!}{5!}$$

10.

$$\frac{(n-3!)}{(n-5)!}=\frac{(n-3)(n-4)(n-5)!}{(n-5)!}$$
$$=(n-3)(n-4)$$

Exponential & Logarithm

1. If $2^x=32$, then $x=?$

A.2 B.3

C.4 D.5

2. If $a=b^y$, then $y=?$

A. $\log_b a$ B. $\log_a b$

C. $\log_a x$ D. $\log_a x$

3. What is the value of the logarithm

$$\log_{10}\frac{1}{100}$$

A.-2 B.2

C.-5 D.5

4. What is the value of x in the equation

$$\log_x\frac{1}{81}=4$$

A. 2 B.1/2

C. 3 D.1/3

5. $(\log_x xy)(\log_{xy} x^y)=?$

A. x B. y

C. x^y D. y^x

6. $\ln\frac{1}{\sqrt{e}}=?$

A. 1 B. -1

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

7. log4+log25 = ?

A. 2 B.3

C. 4 D.5

8. What is the value of x in the logarithmic equation

$$\log(x+2)-\log(x-1)=\log 2$$

A.2 B.3

C.4 D.5

9. What is the value of x in the exponential equation

$$9+e^{2x-4}=10$$

A. 2 B.3

C. 4 D.5

10. $\log_3\sqrt[8]{81}=?$

A. $\frac{2}{3}$ B. $\frac{1}{3}$

C. $\frac{2}{9}$ D. $\frac{4}{9}$

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ANSWERS: EXPONENTIAL & LOGARITHM QUIZ

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

SOLUTIONS: EXPONENTIAL & LOGARITHM QUIZ

1. $2^x = 32$

$2^x = 2^5$

Thus, $x = 5$

2. $a = b^y \Leftrightarrow y = \log_b a$

NOTE: This is the definition of logarithm.

3. $\log_{10}\frac{1}{100} \Leftrightarrow 10^x = \frac{1}{100}$

If $x = -2$, then

$$10^{-2} = \frac{1}{10^2}$$
$$= \frac{1}{100}$$

Thus $\log_{10}\frac{1}{100} = -2$

4. $\log_x \frac{1}{81} = 4 \Leftrightarrow x^4 = \frac{1}{81}$

$$\left(\frac{1}{3}\right)^4 = \frac{1}{81}$$

Hence, $x = \frac{1}{3}$

As we know that $3^4 = 81$. Hence, $(1/3)^4 = 1/81$

5. $(\log_x xy)(\log_{xy} x^y)$

As we know that $(\log_a b)(\log_b c) = \log_a c$

So,

$$(\log_x xy)(\log_{xy} x^y) = \log_x x^y$$

And as $\log_a a^b = b$

Thus $\log_x x^y = y$

7. $\log 4 + \log 25 = \log(4 \times 25)$

$$= \log 100$$
$$= 2$$

$\because \log a + \log b = \log(ab)$

$\because \log 1 = 0$

$\log 10 = 1$

$\log 100 = 2$

$\log 1000 = 3$

and so on....

First, we know that loga+logb = logab. Then, log1 = 0 (that is, $10^0 = 1$), log10 = 1 (that is, $10^1 = 10$), log100 = 2 (that is, $10^2 = 100$) and so on..

8. $\log(x+2) - \log(x-1) = \log 2$

$\log\frac{x+2}{x-1} = \log 2 \qquad \because \log a - \log b = \log\frac{a}{b}$

$x + 2 = 2(x-1)$

$x + 2 = 2x - 2$

$x = 4$

NOTE: log a - log b = log a/b

9. $9 + e^{2x-4} = 10$

$e^{2x-4} = 1$

$\ln e^{2x-4} = \ln 1$

$2x - 4 = 0 \qquad \because \ln 1 = 0$

$x = 2 \qquad \ln e^x = x$

10. $\log_3 \sqrt[9]{81} = \log_3 (81)^{1/9}$

$$= \log_3 (3^4)^{1/9}$$
$$= \log_3 3^{4/9}$$
$$= \frac{4}{9} \qquad \because \log_a a^b = b$$

Trigonometry

1. If $\sin x = \frac{3}{4}$, then $\cos x = ?$

A. $\frac{2}{3}$ B. $\frac{\sqrt{3}}{2}$

C. $\frac{\sqrt{7}}{4}$ D. $\frac{1}{2}$

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2. $\sin\left(\frac{13\pi}{6}\right)=?$

A. $\frac{1}{2}$ B. $\frac{1}{\sqrt{2}}$

C. $\frac{1}{\sqrt{3}}$ D. $\sqrt{3}$

3. $\frac{1}{1+\sin\theta}+\frac{1}{1-\sin\theta}=?$

A. $\sec^2\theta$

B. $2\sec^2\theta$

C. $\operatorname{cosec}^2\theta$

D. $2\operatorname{cosec}^2\theta$

4. $\cos\left(\sin^{-1}\frac{\sqrt{3}}{2}\right)=?$

A. 0 B. 1

C. $\frac{1}{2}$ D. $\sqrt{3}$

5. $\sin\left(x-\frac{\pi}{2}\right)=?$

A. $\sin x$ B. $-\sin x$

C. $\cos x$ D. $-\cos x$

6. $4\sin 4x=?$

A. $4\sin 4x\cos 4x$

B. $4\sin 2x\cos 2x$

C. $8\sin 4x\cos 4x$

D. $8\sin 2x\cos 2x$

7. If $\tan A=\cot B$, then $A+B=?$

A. 0° B. 45°

C. 90° D. 180°

8. For all θ, $\sin\theta+\sin(-\theta)+\cos\theta$

$+\cos(-\theta)+\tan\theta+\tan(-\theta)=?$

B. $2\cos\theta$

C. $2\tan\theta$

D. $2\sin\theta\tan\theta$

9. The period of the function $\sin\frac{x}{3}$ is

A. π

B. 2π

C. 4π

D. 6π

10. An object moved in a circular path of radius 21m such that it made an angle of 30°. What is the distance (in meter) covered by the object?

A. 11 B.21 C.31 D.41

ANSWERS: TRIGONOMETRY MCQS

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

SOLUTIONS: TRIGONOMETRY MCQS

1. $\sin x=\frac{3}{4}$

As we know that $\cos^2 x=1-\sin^2 x$

$$\cos^2 x=1-\left(\frac{3}{4}\right)^2$$

$$=1-\frac{9}{16}=\frac{7}{16}$$

$$\cos x=\frac{\sqrt{7}}{4}$$

2. $\sin\left(\frac{13\pi}{6}\right)=\sin\left(\frac{13\pi}{6}-2\pi\right)$

$\because\ \sin(\theta-2\pi)=\sin\theta$

$$=\sin\left(\frac{\pi}{6}\right)$$

$$=\frac{1}{2}$$

3. $\frac{1}{1+\sin\theta}+\frac{1}{1-\sin\theta}=\frac{1-\sin\theta+1+\sin\theta}{(1+\sin\theta)(1-\sin\theta)}$

$=\frac{2}{1-\sin^2\theta}$ $\quad\because\ (a+b)(a-b)=a^2-b^2$

$=\frac{2}{\cos^2\theta}$ $\quad\because\ 1-\sin^2\theta=\cos^2\theta$

$=2\sec^2\theta$ $\quad\because\ \frac{1}{\cos\theta}=\sec\theta$

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4. $\cos\left(\sin^{-1}\frac{\sqrt{3}}{2}\right) \rightarrow (1)$

Let $y = \sin^{-1}\frac{\sqrt{3}}{2}$

$\sin y = \frac{\sqrt{3}}{2}$

$\sin\left(\frac{\pi}{3}\right) = \frac{\sqrt{3}}{2}$

Thus $y = \frac{\pi}{3}$

$\sin^{-1}\left(\frac{\sqrt{3}}{2}\right) = \frac{\pi}{3}$

$(1) \Rightarrow \cos\left(\sin^{-1}\frac{\sqrt{3}}{2}\right) = \cos\frac{\pi}{3}$

$= \frac{1}{2}$

5. $\sin\left(x - \frac{\pi}{2}\right) = -\sin\left(\frac{\pi}{2} - x\right)$

$= -\cos x \because \sin\left(\frac{\pi}{2} - x\right) = \cos x$

6. $4\sin 4x = 4\sin 2(2x)$

$= 4(2\sin 2x \cos 2x)$

$\because \sin 2\theta = 2\sin\theta\cos\theta$

$= 8\sin 2x \cos 2x$

7. Given: $\tan A = \cot B$

As we know that

$\tan A = \cot(90^\circ - A)$

$\because \tan\theta = \cot\left(\frac{\pi}{2} - \theta\right)$

$= \cot B$

So, $B = 90^\circ - A$

$\Rightarrow A + B = 90^\circ$

8. $\sin\theta + \sin(-\theta) + \cos\theta + \cos(-\theta) + \tan\theta + \tan(-\theta)$

$= \sin\theta - \sin\theta + \cos\theta + \cos\theta + \tan\theta - \tan\theta$

$= 2\cos\theta$ $\quad \because \sin(-\theta) = -\sin\theta$

$\cos(-\theta) = \cos\theta$

$\tan(-\theta) = -\tan\theta$

9. $\sin\frac{x}{3} = \sin\left(\frac{x}{3} + 2\pi\right)$

$= \sin\frac{1}{3}(x + 6\pi)$

Thus, the period of $\sin\frac{x}{3}$ is 6π.

NOTE: The period of sinx is 2 pie.

10. As we know that

$L = r\theta$

$= 21 \times \frac{22}{7 \cdot 6}$ $\quad \because 30^\circ = \frac{\lambda}{6}, \lambda = \frac{22}{7}$

$= 11m$

NOTE: L is circular path (distance), r is radius of the circle, and theta is angle in radian.

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ENGLISH LANGUAGE

Questions 1 – 10 on Synonyms

1. As the speaker wandered in his talk and did not keep to the subject, the audience grew impatient.
(a) deviated (b) rambled
(c) swerved (d) diagnosed

2. His theatrical manner made even his sincere statements sound unconvincing.
(a) play acting (b) dramaturgy
(c) histrionics (d) actions

3. The unbearably conceited behaviour of the servant made him lose his job whenever he got one.
(a) indecent (b) impatient
(c) insufferable (d) insulting

4. The civic authorities were at their wits end when, despite their best efforts, cholera was unchecked and beyond control spread among citizens.
(a) endemic (b) spreading
(c) epidemic (d) rampant

5. The flood of personal experience and first hand record of events written by the retired military general, who had seen much action during war, became the best-seller in the late forties.
(a) memoirs (b) reminiscences
(c) autobiography (d) reports

6. The total freedom from care enjoyed by the rich man's son made him unfit for any serious work.
(a) careworn state (b) insouciance
(c) carelessness (d) complacence

7. I could immediately identify you because of your face reminds me of your mother.
(a) is reminiscent of (b) is a replica of
(c) is duplicate of (d) is a prototype of

8. The clever inspector saw through the whole game when the accused tried to evade telling the whole truth.
(a) pretend (b) prevaricate
(c) lie (d) deceive

9. The best way we can preserve from being forgotten the memory of a great man is to follow his ideals, not merely erect a statue of him.
(a) perpetuate (b) engender
(c) embalm (d) perpetrate

10. The king declared that his decision was final and unalterable.
(a) decisive (b) conclusive
(c) irrevocable (d) irredeemable

Questions 11 – 15 on Commonly Misspelt Words

11. No teacher of honour would subject his student to any form of … (*A. harrassment B. harrasment C. harassement D. harassment*).

12. Did you have ... [A. diarrhoea B. diarrhae C. diarhoea D. diarhea] when you went to visit the medical doctor?

13. It is important that you clear the refuse in front of your house every ....
A. fourtnight B. fortnight C. fourthnight D . forthnight

14. The policemen became suspicious as the hoodlums ... in their office.
A. ferreted B. ferretted
C. ferreted about D. ferretted about

15. There are many ways to kill a rat, so we should be ... in our approach to the task ahead of us,
A. ecletic B. eclectic C. eclektic D . eclectik

Questions 16 – 20 on Phrasal Verbs and Idioms

16. The man declared his intention from the …
A. outset B. inset C. onset D. offset

17. Some robbers are on the prowl, we must be …
A. alert B. at alert C. on the alert D. for alert

18. It was late when we decided to get…. the train
A. off B. down C. out of D. out from

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19. My friend and I have been quarrelling since yesterday and we haven't… yet.
A. made it out B. made out C. made it
D. made it up

20. You must study hard this semester in order to avoid being made … [A. an object of B. an object for C. a subject for D. an subject with] ridicule.

Questions 21 – 25 on Idiomatic Use of Prepositions and Conjunctions

21. The student who went home without an exit has apologized… his misconduct
A. on B. at C. to D. for E. about.

22. The man has atoned... his sins.
A. upon B. on C. for D. at E. against.

23. The Headmaster was interviewed in connection.. the expansion project.
A. to B. with C. for D. about E. at

24. What do you want me to do now? I'm…. withdrawing and keeping quiet.
A. for B. with C. up D. off E. on.

25. I am looking …. seeing your family.
A. ahead at B. forward to
C. forward on D. for to E. ahead to

Questions 26 – 30 on Grammar Mistakes Nigerians Make

26. This is to congratulate you on your success in the last examination and to wish you …

[A. more grease to your elbow B. more power to your elbow C. some grease on your elbow D. some power to your elbow].

27. More…
[A. energy B. power C. effort D. grease]
to your elbow as you campaign for press freedom!

28. I will pay my debt …
[A. instalmentally B. by instalmentally
C. in instalments D. in instalmentally].

29. The events reported in the newspaper did not happen years ago; they …
A. are of recent
B. had happened recently
C. are recent
D. recently happened

30. My brother married a loquacious woman. (Note the usage)
A. quiet B. noisy
C. talkative D. beautiful

Questions 31 – 35 on Often Confused Words

31. Kindly … me your book because my friend has …
[A. borrow/borrowed B. borrow/lent
C. lend/lent D. lend/borrowed] mine.

32. Although the manager is busy right now, he will
soon be with you *presently*.
A. Immediately B. soon
C. without delay D. right away

33. I have already… [A. hanged B. hunged
C. hang
D. hung] the picture on the sitting room wall.

34. The public library has stopped ...
[A. lending B. borrowing C. loaning
D. renting] books to readers.

35. Femi has been ... [A. lacking B. lagging
C. larking D. lurking] behind in classwork.

Questions 36 – 40 on Subject Verb Agreement (Concord)

36. A panel set up to probe the organization's activities … yet to sit
A. are B. is C. will D. would

37. The present wanton display of riches… morals in our society
A. will be affecting B. are affecting
C. is affecting D. was affecting
E. had been affecting.

38. The market women… profit ranges from thirty to fifty percent are making… difficult for the ordinary people
A. for who/to live B. for whom/lives
C. by whose/living D. whose/life
E. whose/leaving.

39. Each of the contestants… a chance to win.
A. has B. have C. get
D. gets E. take

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40. The only set of loud speakers available… To be connected according to the instruction.
A. is B. are C. were D. have

Questions 41 – 45 on Verb Tenses

41. The police claim that a number of stolen cars ...
[A. have been B. has been
C. has being D. have being] recovered.

42. [A. He'll B. He's C. Is he D. He is] been there to look for her several times without success.

43. Until he lost the election. Agbo ... [
A. had been hoping B. has been hoping
C. would have hoped
D. has hoped]
to be the Student Union president.

44. I watched him as he ...
[A. dug B. digs
C. is digging D. dugged] the hole

45. Yesterday in the hall, Ola said that
[A. he had forgot B. he had mislaid
C. he has misplaced D. he have lost] his watch

Questions 46 – 50 on Modal Auxiliaries

46. He has only ordered some lettuce and tea. He ... on a diet. He is a bit too fat.
A. can't be B. needn't be...C. must be
D. mustn't be.....E. shouldn't be.

47. At the end of the month we… each other for five years.
A. would know B. should have known
C. should be knowing
D. would have been knowing E. used to know.

48. Provided you … to the market very soon, we shall
be able to eat early enough.
A. shall go .....B. would go
C. went D. go

49. He … by now; I can hear all the people shouting:
A. would have arrived.....
B. must have arrived
C. had arrived .....
D. should have arrived

50. By the time the plane reaches Harare, it … in the air for twelve hours.
A. has been B. would be
C. would have been D. should

Questions 51 – 55 on Order of Adjectives

51. The shipping company advertised for … accountants.
A. two young, but highly competent, Nigerian
B. young, but highly competent two Nigerian
C. two Nigerian, young, but highly competent
D. highly competent, but young, two Nigerian.

52. The tourist bought …
[A. a brown small Nigerian earthen pot
B. a small brown Nigerian earthen pot
C. an earthen brown small Nigerian pot
D. a Nigerian small brown earthen pot].

53. The brave hunter killed the.....
[A. big spitting
cobra black B. black big spitting cobra
C. big black spitting cobra
D. big spitting black cobra in the forest.

54. The police are looking for …
[A. two big cars black B. two cars big black
C. two big black cars D. two black big cars].

55. Whenever we have …
.(A together a good long talk
B. a long good talk together
C. together a long good talk
D. a good long talk together), we feel better.

Questions 56 – 57 on Question Tags

56. You are just putting the hat on ....
[A. *don't you*
B. *isn't it*
C. *aren't you*
D. *not so]?*

57. It is clear to me that you won't visit Okoro this holiday, will you?…[A. Yes, I won't B. Yes, I will visit C. No,I won't D. No,I will not] visit.

Questions 58 – 60 on using Gerund and Infinitives

58. I look forward to ……
[A. seen B. be seeing
C. see D. seeing] you next week.

59. The driver of the car admitted …
[A. to not have B. not having
C. to not having D. not to have] a licence.

60. The dull student took a correspondence course

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as a means... his standard in the class.
A. to improve B. for improving C. of improving
D. by improving E. to improving

ANSWERS

1. B	2. C .....3. C	4. C	5. A
6. D	7.A.....8. B	9. A	10. C
11. D	12. A ...13. B	14. C	15. B
16. A	17. B ...18. A	19. D	20. A
21. D	22. C ...23. B	24. A	25. B
26. B	27. B ...28. C	29. A	30. C
31. D	32. D ...33. A	34. A	35. D
36. B	37. C ...38. A	39. A	40. A
41. B	42. B ...43. B	44. A	45. C
46. C	47. B ...48. D	49. D	50. C
51. A	52. B ...53. C	54. C	55. D
56. C	57. C ...58. D	59. B	60. C

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GENERAL PAPER

DAY 1

1. What is the kingship named after in Sokoto?
A. Caliphate B. Sultanate
C. Fulani D. Emir

2. Which of the following states has an international airport?
A. Enugu B. Imo
C. Oyo D. Sokoto

3. The point referred to as the Sunrise
A. North B. South
C. East D. West

4. The former British Prime Minister is
A. Tony Blair B. James Brown
C. Margaret Thatcher D. David Cameron

5. Nigeria move from right hand drive to left hand drive in the year
A. 1970 B. 1971
C. 1972 D. 1973

6. The youngest American President ever in history is
A. Barack Obama B. Ulysses S. Grant
C. Bill Clinton D. Theodore Roosevelt

7. Who is the United Nations Secretary General?
A. Mário Soares B. Ban Ki-moon
C. António Guterres D. Kofi Annan

8. Who is the father of Nigerian nationalism?
A. Obafemi Awolowo B. Herbert Macaulay
C. Nnamdi Azikiwe D. Tafawa Balewa

9. Which Plateau State governor is also a senator?
A. Yahaya Bello B. Jonah Jang
C. Simon Lalong D. Solomon Dalung

10. 10. Lai Mohammed is the current Nigeria's Minister of.....
A. Information and National Orientation
B. Information and Culture
C. Information and Strategy
D. Information and Communication

DAY 2:

1. Who is the executive governor of Gombe state?
A. Ibrahim Hassan Goje
B. Ibrahim Hassan Shettima
C. Ibrahim Hassan Geidam
D. Ibrahim Hassan Dankwambo

2. What is the name of the ruler of Benin?
A. Ewuare II B. Ogiso
C. Olua D. Akpolor

3. Someone who studies language is called
A. grammarian B. polyglot
C. linguist D. glotist

4. Nigeria legal tender is the
A. Pounds B. Kobo
C. Naira D. Naira and kobo

5. The current Director General of NAFDAC
A. Dr. Paul Orhi
B. Prof. Moji Christiana Adeyeye
C. Prof. Dora Akunyili
D. Dr. Ben Ayade

6. The headquarters of the African Union is located in
A. Addis Ababa, Ethiopia B. Kigali, Rwanda
C. Tripoli, Libya D. Accra, Ghana

7. Who founded the first Nigerian Political Party?
A. Obafemi Awolowo B. Herbert Macaulay
C. Nnamdi Azikiwe D. Tafawa Balewa

8. The first country to withdraw its membership from ECOWAS
A. Burkina Faso B. Senegal
C. Sierra Leone D. Mauritania

9. Nagasaki bomb blast in the World War II was by carried out by
A. Russia B. USA
C. UK D. Poland

10. The last military head of state in Nigeria
A. Gen. Abdusalam Abubakar
B. Gen. Sani Abacha
C. Gen. Ibrahim Babangida
D. Gen. Ernest Shonekan

DAY 3:

1. The traditional ruler of Borno state
A. Shehu B. Emir
C. Oba D. Sheik

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2. The highest international organization
A. IMF B. WHO
C. EU D. UN

3. The minister of education
A. Prof. Abubakar Mohamed
B. Mallam Adamu Adamu
C. Prof. Jerry Gana
D. Mr. Michael Ibeabuchi

4. The capital of Cuba
A. Havana B. Salvero
C. Varadero D. Vinales

5. The full meaning of NDDC
A. The Nigerian Density Development Commission
B. The Niger Delta Development Council
C. The Niger Development Delta Commission
D. The Niger Delta Development Commission

6. What is the most populated continent in the world is
A. Africa B. Asia
C. Europe D. South

7. The full meaning of NOUN
A. The National Open University of Nigeria
B. The National Open Union of Nigerians
C. The National Open Units of Nigeria
D. The Nigerian Open Union of Nations

8. What year did President Goodluck Jonathan change UNILAG name to one of a politician legend?
A. Jan. 1, 2012 B. Oct. 1, 2012
C. May 29, 2012 D. May 1, 2012

9. The capital of Tanzania
A. Dodoma B. Dar es Salaam
C. Kilimanjaro D. Datong

10. The longest river in the world
A. Amazon B. Nile
C. Mississippi D. Niger

DAY 4:

1. I stand with 3 legs, what am I?
A. tripod B. tricycle
C. triangle D. trium

2. The full meaning of LNG
A. Liquefied natural gas
B. Liquid natural gas
C. Liquefied non-natural gas
D. Liquid non-natural gas

3. What year was the capital of Nigeria changed from Lagos to Abuja?
A. 1989 B. 1990
C. 1991 D. 1992

4. What is the slogan for Ondo state?
A. The Confluence State
B. Home of Peace
C. Land of virtue
D. The sunshine State

5. Which state is referred to as the 'Pace Setter'?
A. Plateau B. Oyo
C. Rivers D. Sokoto

6. The full meaning of NSCDC
A. Nigeria Security and Civil Defence Council
B. Nigeria Security and Civil Defence Corps
C. National Security and Civil Defence Corps
D. Nigeria Safety and Civil Defence Corps

7. A score divided by a dozen
A. 0.67 B. 1.67
C. 2.67 D. 3.67

8. Naira is to Nigeria, _____ is to Ghana
A. Ghaira B. Goko
C. Cedis D. Cendi

9. What year was UI created?
A. 1948 B. 1947
C. 1946 D. 1956

10. The immediate past governor of Yobe is
A. Mohammed Yerima B. Ibrahim Geidam
C. Abubakar Shekarau D. Abubakar Dikko

ANSWERS
DAY 1

1. Ans:
B- The Sokoto Caliphate was an independent Islamic Sunni Caliphate, in West Africa. The caliphate was a loose confederation of emirates that recognized the suzerainty of the "commander of the faithful", the sultan or caliph.

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2. Ans:
A- List of international airports in Nigeria and their locations are:
Nnamdi Azikiwe Airport – Abuja
Murtala Mohammed International Airport – Lagos
Port Harcourt Airport Nigeria – Rivers
Mallam Aminu Kano International Airport – Kano
Akanu Ibiam International Airport – Enugu

3. Ans:
C- The sun rises in the East and sets in the West.

4. Ans:
D- In July 2016, after David Cameron resigned, Theresa May was elected as Conservative Party Leader, becoming Britain's second female Prime Minister after Margaret Thatcher. She is the current British Prime Minister.

5. Ans:
C- Nigeria, a former British colony, had been driving on the left with British imported right-hand-drive cars, but when it gained independence, it wanted to throw off its colonial past and shifted to driving on the right in 1972.

6. Ans:
D- With the assassination of President McKinley, Roosevelt, not quite 43, became the youngest president in the nation's history.

7. Ans:
C- António Guterres is the current Secretary-General of the United Nations. He is the ninth Secretary-General, his term began 1 January 2017.

8. Ans:
B- Herbert Macaulay is considered by many Nigerians as the founder of Nigerian nationalism.

9. Ans: B- Senator Jonah Jang, a former Governor of Plateau State and serving senator representing Plateau North in the National Assembly.

10. Ans:
B- Lai Mohammed is the current Nigeria's Minister of Information and Culture.

DAY 2:

1. Ans:
D- Ibrahim Hassan Dankwambo

2. Ans:
A- Ewuare II (born October 20, 1953) was crowned the Oba of Benin on 20 October 2016.

3. Ans:
C- A linguist is someone who studies language.

4. Ans:
D- on 1 January, 1973 under the General Yakubu Gowon military regime, Nigeria's own indigenous currency was issued by the Central Bank of Nigeria. The Naira and kobo divisions, with ₦ as sign for naira, 'k' as sign for kobo and NGN as code.

5. Ans:
B- Prof Moji Christiana Adeyeye is the new Director-General of National Agency for Food and Drug Administration and Control (NAFDAC).

6. Ans:
A- The main administrative capital of the African Union is in Addis Ababa, Ethiopia, where the African Union Commission is headquartered.

7. Ans:
B- The Nigerian National Democratic Party was Nigeria's first political party. Formed in 1923 by Herbert Macaulay to take advantage of the new Clifford Constitution, which succeeded the 1914 Nigerian Council

8. Ans:
D- The only former member of ECOWAS is Arabic-speaking Mauritania, which was also one of the founding members in 1975 and decided to withdraw in December 2000.

9. Ans:
B- On August 6, 1945, during World War II (1939-45), an American B-29 bomber dropped the world's first deployed atomic bomb over the Japanese city of Hiroshima. Three days later, a second B-29 dropped another A-bomb on Nagasaki.

10. Ans:
A- Gen. Abdusalam Abubakar 9 Jun 1998 - 29 May 1999

DAY 3:

1. Ans:
A- The rulers have the title Shehu of Borno

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2. Ans:
D- The United Nations (UN) is the largest and most familiar intergovernmental organization.

3. Ans:
B- Mallam Adamu Adamu is the minister with one of the longest services in Nigeria.

4. Ans: A-
Havana is the capital city, largest city, province, major port, and leading commercial center of Cuba.

5. Ans:
D- The Niger Delta Development Commission is a federal government agency established by Nigerian president Olusegun Obasanjo in the year 2000 with the sole mandate of developing the oil-rich Niger Delta region of Nigeria.

6. Ans:
B- WHAT IS THE LARGEST CONTINENT?
Largest Continent by Land Area: Asia
Biggest Continent by Population: Asia
WHAT IS THE SMALLEST CONTINENT?
Smallest Continent by Land Area: Australia
Smallest Continent by Population: Antarctica

7. Ans:
A- The National Open University of Nigeria is a Federal Open and Distance Learning (ODL) institution, the first of its kind in the West African sub-region. It is Nigeria's largest tertiary institution in terms of student numbers and is popularly referred to as 'NOUN'.

8. Ans:
C- On May 29, 2012; President Goodluck Jonathan renamed the University of Lagos after the late Chief MKO Abiola, the presidential candidate of the defunct Social Democratic Party (SDP) and the acclaimed winner of the 1992 presidential election that was adjudged to be the freest and fairest in the nation's history.

9. Ans:
A- Dar es Salaam was Tanzania's first capital city. However, Dodoma was declared as the capital of Tanzania in 1974. Despite the declaration, Dar es Salaam remains the central administrative and most prominent city in Tanzania.

10. Ans:
B- the River Nile is the longest river in the world. It measures 6,695 kilometres from its source in Burundi, along the White Nile, to its delta on the Mediterranean Sea. Officially, the shortesr river is the D River, Oregan, USA, which is just 37 metres long.

DAY 4:

1. Ans:
A- tripod

2. Ans:
A- Liquefied natural gas (LNG) is a composition of methane and some mixture of ethane used to convert natural gas to liquid form for ease and safety of storage transport.

3. Ans:
C- Abuja became the capital of Nigeria in 1991, it was chosen because geographically its in the centre of the country.

4. Ans:
D- ONDO, Akure, The sunshine State.

5. Ans:
B- Oyo

6. Ans:
B- Nigeria Security and Civil Defence corps is a para-military institution that was established in May 1967 by the Federal Republic of Nigeria, with the act of National Assembly. The act was amended in 2007, to enhance the statutory duties of the corp.

7. Ans:
B- 20/12 = 1.67

8. Ans:
C- The Ghanaian cedi is the unit of currency of Ghana.

9. Ans:
A- The University of Ibadan started off as the University College, Ibadan (UCI) which was founded in 1948, occupying, at first, and the old site at Eleyele. It later moved to the new site which covered over 2,550 acres of land. The site was generously leased by the chiefs and people of Ibadan for 999 years.

10. Ans:
B- Ibrahim Geidam is the immediate past governor of Yobe state.

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UNILAG POST UTME PRACTICE QUESTIONS 2017/2018

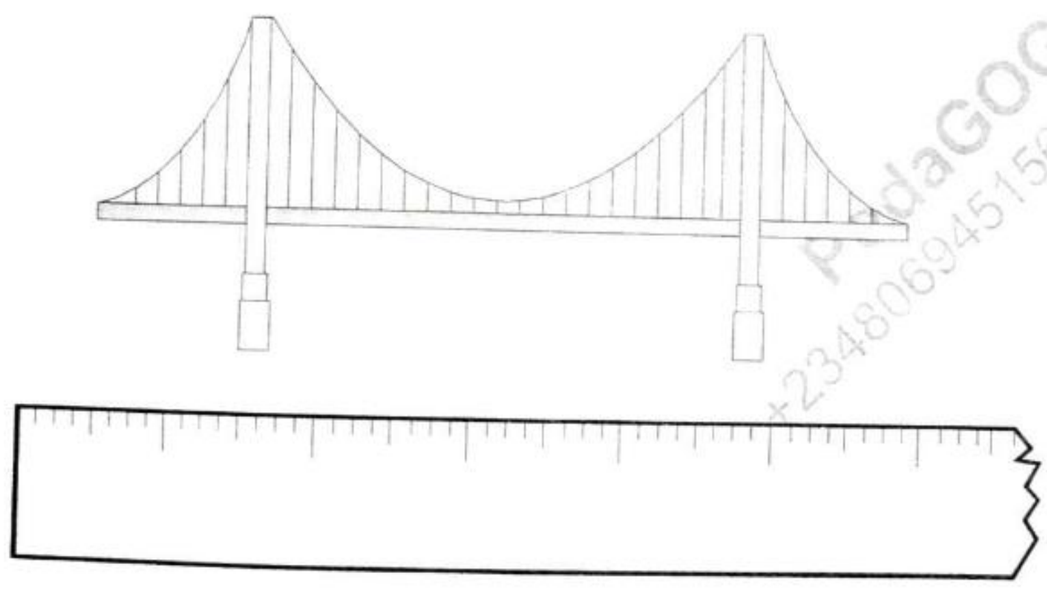
1. During a semester, a student received scores of 76, 80, 83, 71, 80, and 78 on six tests. What is the student's average score for these six tests?
A. 76 B. 77 C. 78 D. 79 E. 80

2. Use the table below to answer the question that follows.

Section	Total Number of Questions	Number of Questions Correctly Answered
Algebra	20	17
Trigonometry	15	11
Geometry	25	20

On the three sections of a math test, a student correctly answered the number of questions shown in the table above. What percent of the questions on the entire test did the student answer correctly?

Use the diagram below to answer the question that follows.

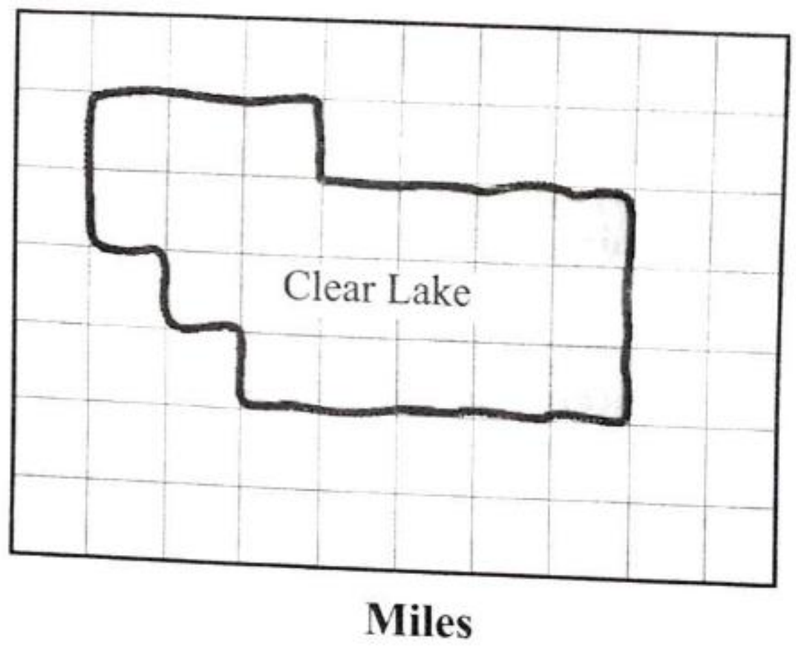


If the actual length of the bridge is 4200 feet, then what is the scale of the diagram of the bridge?
A. 1 unit = 700 feet
B. 1 unit = 763.6 feet
C. 1 unit = 840 feet
D. 1 unit = 933.3 feet
E. 1 unit = 1050 feet

4. Which of the following is the most appropriate unit for expressing the weight of a pencil?
A. pounds B. ounces C. quarts
D. pints E. tons

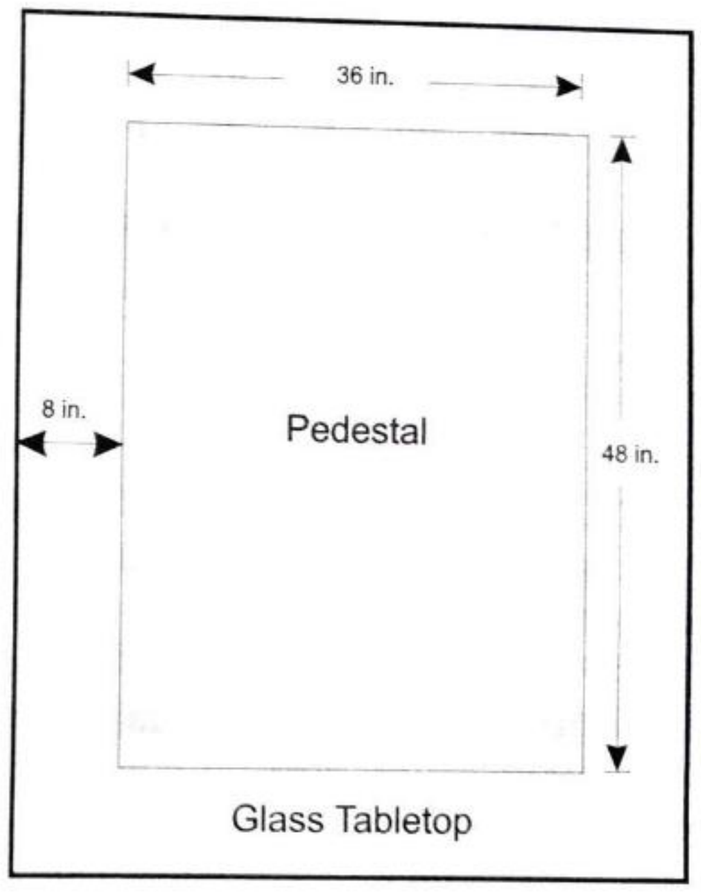
5. Ms. Gutierrez needs to order rope for her gym class of 32 students. Each student will receive a piece of rope that is 5 feet 8 inches long. What is the total length of rope Ms. Gutierrez needs to order for her class?
A. 106 feet 8 inches B. 154 feet 8 inches
C. 160 feet 8 inches D. 181 feet 4 inches
E. 185 feet 6 inches

6. Use the diagram below to answer the question that follows.



What is the total length of Clear Lake's shoreline?
A. 22 miles B. 44 miles
C. 48 miles D. 56 miles E. 84 miles

7. Use the diagram below to answer the question that follows.



A glass tabletop is supported by a rectangular pedestal. If the tabletop is 8 inches wider than the pedestal on each side, what is the perimeter of the glass tabletop?
A. 92 inches B. 116 inches C. 176 inches
D. 184 inches E. 232 inches

8. Rob uses 1 box of cat food every 5 days to feed his cats.
Approximately how many boxes of cat food does he use per month?
A. 2 boxes B. 4 boxes C. 5 boxes
D. 6 boxes E. 7 boxes

9. Tara can develop 2 rolls of film in about 18 minutes. At this rate, how long will it take her to develop 8 rolls of film?

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A. 42 minutes B. 1 hour 12 minutes
C. 1 hour 20 minutes D. 1 hour 44 minutes
E. 2 hours 24 minutes

10. Liliana has a bag of marbles. The bag contains 18 black, 15 red, 11 blue, and 8 white marbles. Liliana randomly takes a red marble from the bag and leaves the marble on a table. What is the probability that she will next take a red or a white marble from the bag?

A. $\frac{112}{2601}$ B. $\frac{2}{17}$ C. $\frac{11}{26}$

D. $\frac{22}{51}$ E. $\frac{23}{52}$

11. At a college, approximately 2 out of 5 seniors go on to attend graduate school. If there are 750 seniors at the college, how many would be expected to attend graduate school?
A. 75 seniors B. 107 seniors C. 150 seniors
D. 214 seniors E. 300 seniors

12. The Mills Library has 1,007,199 books. The Springvale Library has 907,082 books. Which of the following is the best estimate of how many more books the Mills Library has than the Springvale Library?
A. 100,000 books B. 80,000 books
C. 10,000 books D. 8,000 books
E. 1,000 books

13. Which of the following is the best estimate for $4{,}286 \times 390$?
A. 12,000,000 B. 1,600,000 C. 1,200,000
D. 16,000 E. 12,000

14. The lowest point on Earth is the bottom of the Mariana Trench at a depth of 35,840 feet below sea level. The highest point on Earth is the summit of Mt. Everest at a height of 29,028 feet above sea level. Which of the following is the best estimate of the distance between the lowest and highest points on Earth?
A. 6,000 feet B. 7,000 feet C. 64,000 feet
D. 65,000 feet E. 66,000 feet

15. Kim is in the tenth grade and takes a standardized science test. Use his test scores below to answer the question that follows.

Raw Score	Percentile	Stanine	Grade Equivalent
72	88	8	12.1

Kim's test scores indicate that:

A. he scored as well as or better than 72 of the test takers.
B. 28% of the test takers scored better than he did.
C. he would perform adequately in a twelfth grade science class.
D. he scored as well as or better than 88% of the test takers.
E. he answered 72% of the questions correctly.

16. The expression
$-105 + (-14) + 34$
simplifies to which of the following?
A. -57 B. -75 C. -85
D. 143 E. 153

17. Use the information below to answer the question that follows.

Monday	Tuesday	Wednesday	Thursday	Friday
7°C	12°C	4°C	−13°C	−15°C

As part of a unit on weather, students recorded the outdoor temperature at 8:30 A.M. for five mornings. What was the difference between the week's highest and lowest morning temperatures?
A. −3°C B. −1°C C. 8°C
D. 22°C E. 27°C

18. A teacher has three packages of stickers. One package contains 56 stickers, another package contains 48 stickers, and the third package contains 58 stickers. If the teacher divides all the stickers equally among 27 students, how many stickers will each student receive?
A. 6 stickers B. 9 stickers C. 54 stickers
D. 81 stickers E. 162 stickers

19. What is the tens digit in the dividend of the problem below?

5 Remainder = 23
25)1□8

A. 2 B. 3 C. 4 D. 5 E. 7

20. Last week Mario walked 7 3 miles. This week he walked 15 5 miles. What is the difference between the distance he walked this week and the distance he walked last week?
A. 8 miles B. 8 2 miles C. 8 1 miles
D. 9 miles E. 9 1 miles

21. A sporting goods store is offering a 10% discount on in-line skates that normally cost $110.99. How much will the in-line skates cost with the discount, not including tax?
A. $ 99.89 B. $ 99.99
C. $100.99 D. $109.88 E. $122.09

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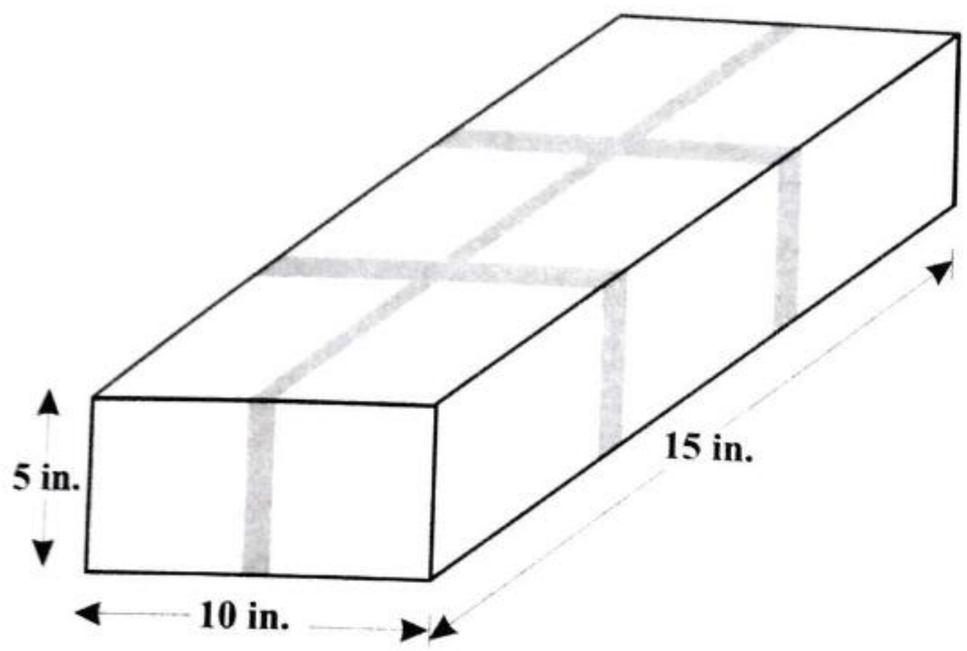
22. At the beginning of a class period, half of the students in a class go to the library. Later in the period, half of the remaining students go to the computer lab. If there are 8 students remaining in the class, how many students were originally in the class?

A. 12 students B. 16 students C. 24 students
D. 32 students E. 40 students

23. Peter works 38 hours per week and earns $7.25 per hour. His employer gives him a raise that increases his weekly gross pay to $307.80. What is the increase in Peter's weekly gross pay?

A. $ 32.30 B. $ 34.70 C. $ 42.46
D. $275.50 E. $300.55

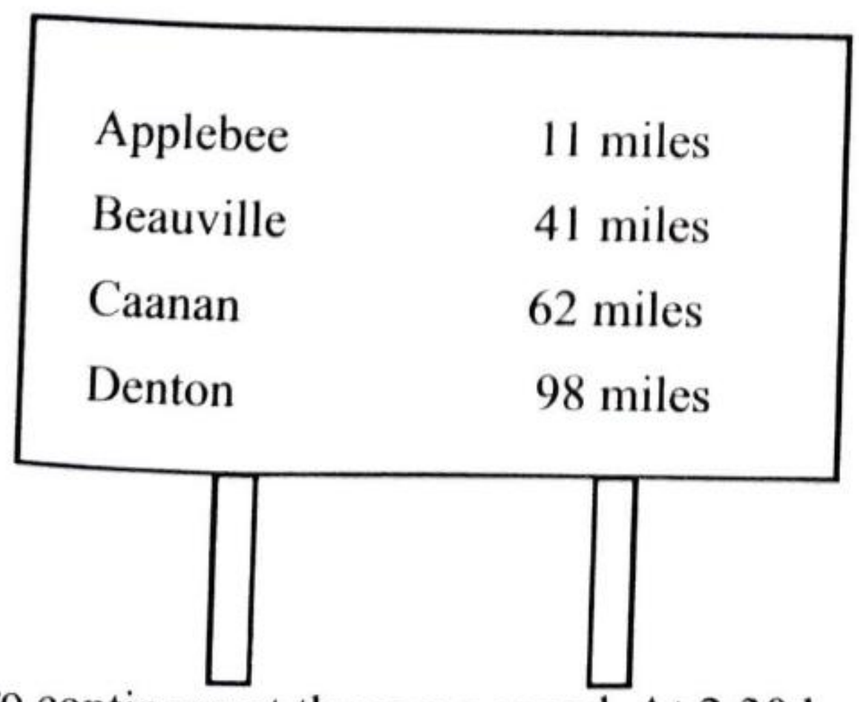
24. Use the diagram below to answer the question that follows.



Aguilar Manufacturing Company packages a product for shipping by wrapping tape around the package as shown in the diagram. An additional 10% length of tape per package is needed for overlap. What is the total length of tape needed per package?

A. 40 inches B. 55 inches C. 66 inches
D. 77 inches E. 110 inches

25. Arturo is driving at a speed of 50 miles per hour. At 2:00 he sees the following sign



Arturo continues at the same speed. At 2:30 how far from Caanan will he be?

A. 12 miles B. 16 miles C. 25 miles
D. 26 miles E. 37 miles

26. Keiko spent the day bird watching and counted 34 more birds in the morning than in the afternoon. If she counted a total of 76 birds, how many birds did she count in the afternoon?

A. 21 birds B. 40 birds C. 42 birds
D. 84 birds E. 110 birds

27. Solve for y.

$y - 2 + 3y = 10$

A. 2 B. 3 C. 4 D. 5 E. 6

28. **Read the information below; then answer the question that follows.**

A refrigerator in a school cafeteria is partially filled with 42 sandwiches. There are 13 turkey sandwiches, 14 cheese sandwiches, and 15 egg salad sandwiches. By the end of the lunch period, 21 of the sandwiches have been sold.

Which of the following facts can be determined from the information given above?

A. the number of cheese sandwiches sold
B. the cost of a turkey sandwich
C. the total number of sandwiches that can be placed in the refrigerator
D. the total dollar sales of sandwiches during the lunch period
E. the number of sandwiches remaining in the refrigerator after the lunch period

29. **Read the problem below; then answer the question that follows.**

Wei-Jen and Sue are going to drive cross country. To reach their destination, they plan to drive about 400 miles each day for 5 days. If gasoline costs an average of $2.00 per gallon, approximately how much money should they budget for gasoline on this trip?

Which single piece of information is necessary to solve the problem above?

A. the number of times they will have to stop for gasoline
B. the number of miles the car travels per gallon of gasoline
C. the number of miles Wei-Jen will drive
D. the total distance of their trip
E. the number of miles the car travels per hour

30. **Read the problem below; then answer the question that follows.**

Maria left her home at 9:00 A.M., ran 3 miles to the lake, ran around the lake twice, and then ran home along the same route for a total distance of 10 miles. What was Maria's average jogging speed?

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Which single piece of additional information is required to solve this problem?

A. the distance around the lake
B. the time she returned home
C. the amount of time she stopped to rest
D. the average length of her jogging stride
E. the amount of time it took her to run from the lake to her home

31. Antonio buys 4 notebooks for \$3.50 each at a store. The next day he returns to the store and exchanges the notebooks for 3 notebooks that have gone on sale for \$1.75 each. Antonio uses the following expression to calculate the amount of money he should receive back from the exchange.

$(4 \times \$3.50) - (3 \times \$1.75)$

Which of the following expressions could Antonio have also used?

A. $\$3.50 - \$1.75$
B. $3(\$3.50 - \$1.75) + \$3.50$
C. $(4 \times \$3.50) - \$1.75$
D. $(4 \times 3) - (\$3.50 \times \$1.75)$
E. $12 - (\$3.50 + \$1.75)$

32. Rudi needs to calculate 14% of 50. He does so by computing it in the following way:

$$\frac{14}{50 \times 100}$$

Which of the following methods could Rudi also use to determine correctly the percentage?

A. $\frac{14}{(100 - 50)}$ B. $50 \div 14$

C. $\frac{14}{50 \times 100}$ D. $\frac{(14 \div 50)}{100}$

E. 50×0.14

33. **Use the table below to answer the question that follows.**

Quiz Average	Test Average	Final Exam
83%	79%	88%

The table shows Sabra's grades for a class. For her overall average, the test average counts twice as much as the quiz average, and the final exam counts twice as much as the test average. To find her overall average, Sabra uses the following expression.

$(83 + 79 + 79 + 88 + 88 + 88 + 88) \div 7$

Which of the following is *another way* to find her overall average?

A. $83 + \frac{2(79)}{7} + \frac{4(88)}{7}$
B. $83 + 0.2(79) + 0.4(88)$
C. $[83 + 2(79) + 4(88)] \div 0.7$
D. $[83 + 2(79) + 4(88)] \div \frac{1}{7}$
E. $[83 + 2(79) + 4(88)] \times \frac{1}{7}$

34. **Use the chart below to answer the question that follows.**

X	Y
1	3
1.5	4.5
2	6
2.5	
3	9
3.5	10.5

The chart above displays a relationship between values of *X* and *Y*. Given this relationship, what would be the value of *Y* that is missing?

A. 5 B. 6.5 C. 7 D. 7.5 E. 8

35. A school district is proposing a 5% increase in the number of days in a school year. Currently there are 180 days in a school year. How long would a school year be with the proposed increase?

A. 181 days B. 183 days C. 185 days
D. 189 days E. 270 days

36. Which of the following mathematical statements is correct?

A. $3\frac{2}{3} < 3\frac{1}{3} < 2\frac{2}{3}$

B. $3\frac{2}{3} > 2\frac{2}{3} > 3\frac{1}{3}$

C. $3\frac{1}{3} > 2\frac{2}{3} > 3\frac{2}{3}$

D. $3\frac{2}{3} > 3\frac{1}{3} > 2\frac{2}{3}$

E. $3\frac{1}{3} < 3\frac{2}{3} < 2\frac{2}{3}$

37. Use the mathematical statement below to answer the question that follows.

$$6^{2} < \square < 8^{6}$$

Which of the following values when entered in the box will satisfy the statement above?

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A. 1 B. 1 C. 1 D. 3 E. $\frac{9}{10}$

38. Which of the following mathematical expressions is equivalent to bh ?

A. $\frac{b}{2} \times \frac{h}{2}$ B. $2\,(b \times h)$

C. $\frac{b}{2} + \frac{h}{2}$ D. $1\,(b \times h)$ E. $b \times 2h$

39. Which of the following numbers is between 2,329,500 and 2,598,100?

A. 2,249,550 B. 2,303,600 C. 2,327,900
D. 2,329,333 E. 2,589,200

40. If the value of x is between 0.0051 and 0.038, which of the following could be x?

A. 0.0042 B. 0.0261
C. 0.049 D. 0.052 E. 0.06

41. Abby drives 18 miles round trip between home and work each day. If her daily round trip is rounded to the nearest 5 miles, which of the following is the best estimate of the total number of miles driven in 5 days?

A. 75 miles B. 100 miles C. 125 miles
D. 180 miles E. 200 miles

42. Kerri ran the same distance in four different races. Her times were 18.04 seconds, 21.39 seconds, 12.99 seconds, and 14.14 seconds. If the individual times are rounded to the nearest one-tenth of a second, what is the estimate of Kerri's total time for all four races?

A. 66.6 seconds B. 66.5 seconds
C. 66 seconds D. 65.5 seconds
E. 61.56 seconds

43. **Use the information below to answer the question that follows.**

> The grocery store is located three miles away from the house.
>
> The house is located four miles away from the highway.

Based on the information above, which of the following conclusions can be made?

A. The grocery store is no more than three miles away from the highway.
B. The grocery store is no more than one mile away from the highway.
C. The grocery store is no more than seven miles away from the highway.
D. The grocery store is exactly three miles from the highway.
E. The grocery store is exactly four miles from the highway.

44. Use the information below to answer the question that follows.

> • If the distance to a destination is greater than 10 miles from home, then Matt will drive his car.
>
> • If the distance to a destination is greater than 2 miles but less than 10 miles from home, then Matt will ride his bicycle.
>
> • If the distance to a destination is less than 2 miles from home, then Matt will walk.

If Matt rode his bicycle to Zachary's apartment, which of the following statements could be true?

A. Matt's home is less than 1 mile from Zachary's apartment.
B. Matt and Zachary live within 2 miles of each other.
C. Zachary's apartment is about 7 miles from Matt's home.
D. Zachary's apartment is at least 10 miles from Matt's home.
E. The round trip distance between Matt's and Zachary's is greater than 20 miles.

45. Use the statements below to answer the question that follows.

> There will be softball practice every Saturday throughout the season with the following exceptions:
>
> • If it rains, softball practice will be canceled.
>
> • There is no softball practice on the third Saturday of the month.

If it is Saturday but there is no softball practice, then it must be true that:

A. it is raining.
B. it is the third Saturday of the month.
C. it is raining and it is the third Saturday of the month.
D. it is raining or it is the third Saturday of the month.
E. softball games are on the third Saturday of the month.

46. **Use the table below to answer the question that follows.**

Middle School Bell Schedule

Class Period	Start Time	End Time
Second	8:40 A.M.	9:36 A.M.
Third	9:40 A.M.	10:36 A.M.
Fourth	10:40 A.M.	11:36 A.M.
Lunch	11:40 A.M.	12:15 P.M.
Fifth		1:15 P.M.

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The partial school schedule above shows the start times and end times of class periods. Except for lunch, all classes are the same length. What is the missing start time for fifth period?

A. 12:15 P.M. B. 12:19 P.M. C. 12:30 P.M.
D. 12:36 P.M. E. 12:40 P.M.

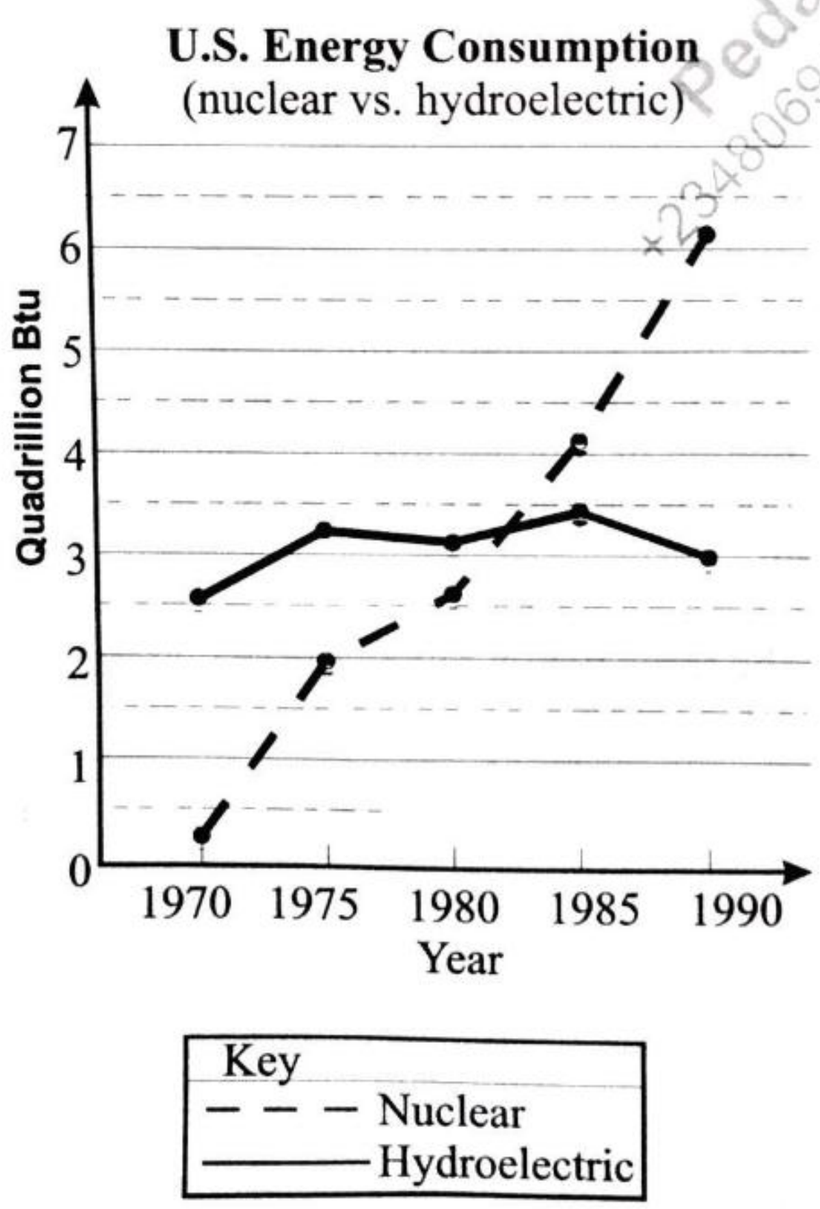
47. **Use the chart below to answer the question that follows.**

U.S. and World Silver Production in Metric Tons		
Year	United States	World
1930	1578	7736
1935	1428	6865
1940	2164	8565
1945	904	5039
1950	1347	6323
1955	1134	6967
1960	1120	7505
1965	1238	8007

How many metric tons of silver were produced outside the United States in 1950?

A. 4976 metric tons B. 5024 metric tons
C. 5620 metric tons D. 5833 metric tons
E. 6323 metric tons

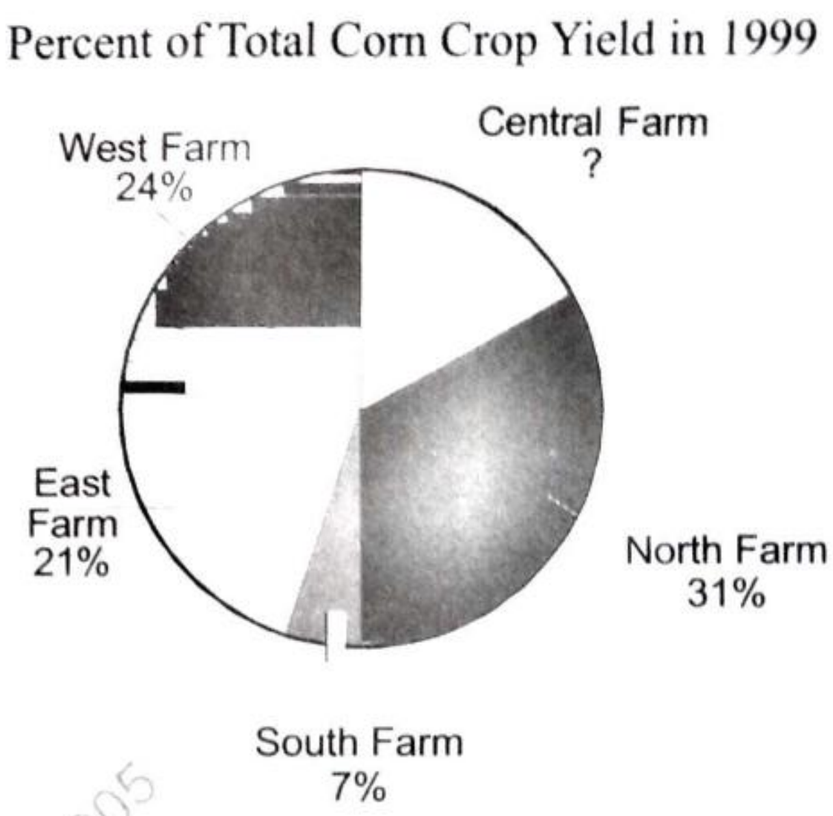
48. **Use the graph below to answer the question that follows.**



According to the graph above, what was the maximum difference in energy consumption between the two sources of energy in any one of the years shown?

A. 0.4 quadrillion Btu B. 2.0 quadrillion Btu
C. 2.4 quadrillion Btu D. 3.2 quadrillion Btu
E. 5.9 quadrillion Btu

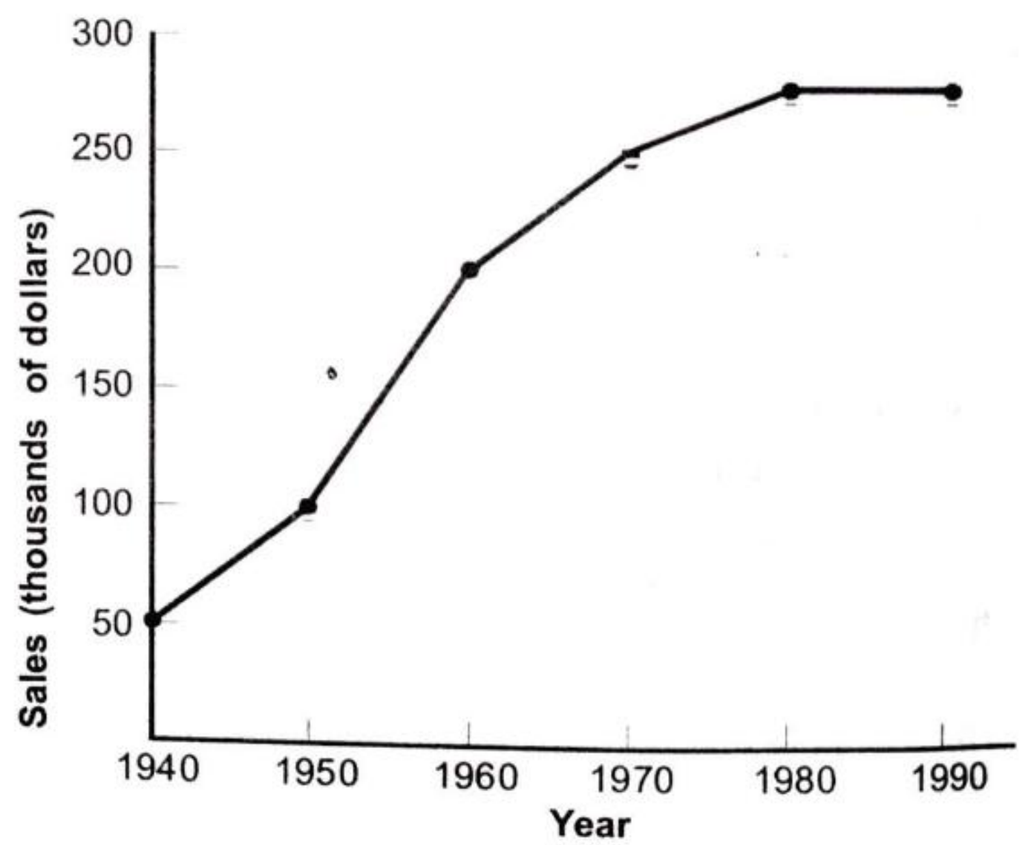
49. **Use the chart below to answer the question that follows.**



What percent of the total crop yield did the Central Farm generate in 1999?

A. 17% B. 24% C. 38% D. 41% E. 48%

50. **Use the graph below to answer the question that follows.**



The graph shows the sales of a commodity over a 60-year period. Between what years did sales increase by the greatest amount?

A. between 1940 and 1950
B. between 1950 and 1960
C. between 1960 and 1970
D. between 1970 and 1980
E. between 1980 and 1990

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ANSWERS

1. Average of scores = sum of scores/ number of scores = (76+80+83+71+80+78)/6 = 78
   So, ans is C.

2. % of the questions on the entire test correctly answered = No of correct answer / Total no of questions
   = 48/60 x 100 = 80%
   So, ans is D

3. If the bridge is labeled so that "1" is located at one end of the bridge, and "6" is located at the other end of the bridge, then there are 5 units.
   The first unit is the space between 1 and 2, the second unit is the space between 2 and 3, and so on, until the fifth unit is the space between 5 and 6.
   Therefore, 4200/5 = 840 is the answer;
   i.e. 1 unit = 840 feet (C)

NOTE: 4200/6 = 700 is not the answer

4. The weight of a pencil would be best measured in grams. The ounce is a unit of mass used in most British derived customary systems of measurement. (B)

5. You can split the 5 feet and the 8 inches;
   i.e. 5 x 32 = 160 ft and 8 x 32 = 256 in.
   256 in/12 = 21 ft 4 in. Add that to the 160 ft and your total is 181 ft 4 inches, or 181 1/3 ft. (D)

6. 5 boxes = 10 miles
   :. 1 box = 2 miles
   There are 22 boxes representing the length of the shoreline.
   :. 22 x 2 = 44 miles (B)

7. Perimeter = 2 Length + 2 Width
   Note that 8 inches were added on either side
   Therefore, Length = 8 + 48 + 8 = 64 and Width = 8 + 36 + 8 = 56
   :.New Perimeter = 2 x 64 + 2 x 56 = 232 inches (E)

8. 1 box = 5 days
   x boxes = 30 days; x = 30 / 5 = 6 boxes (D)

9. 2 rolls = 18 minutes
   8 rolls = x
   x = (8 x 18) / 2 = 144 / 2 = 72 minutes
   (or 1 hour 12 minutes) (B)

10. Total of marbles at start = 18+15+11+8 or 52 then she takes 1 red marble out leaving 51 total marbles.
    remaining red marbles = 14
    remaining white marbles = 8
    total red/white marbles left = 22
    so she now has a probability of 22 out of 51 of taking a red or white marble next.(D)

11. 750 x (2 / 5) = 300 (E)

12. 1,007,199 minus 907,082 = 100,000 (A).
    Learn to do this without a calculator.

13. 4,286 × 390 = 1,671,540.
    1,600,000 (B) can be the right estimate for this.

14. Distance between the lowest and highest points on Earth = 34,840 - 29,028 = 5,812 feet
    6,000 (A) can be the right estimate for this.

15. (D) he scored as well as or better than 88% of the test takers

16. -105 + (-14) + 34 = -105 -14 + 34
    = -105 + 20 = -85 (C)

17. The highest was 12°C, the lowest was -15°C.
    Thus the difference would be 12- (-15)°C.
    Subtracting a negative number is the same as adding, thus 12- (-15) = 12 + 15, or 27°C.(E)

18. Sum of stickers / No of students = 56 + 48 + 58 / 27
    = 162 / 27 = 6

19. Using the formula: Dividend = (Divisor) (Quotient) + Remainder
    Dividend = (25) (5) + 23 = 148
    :. Tens digit in the dividend = 4 (C)

20. 15 5/6 - 7 ¾
    (15 - 7) + 5/6 - 3/4
    (8) + 10/12 - 9/12
    8 1/12 (B)

21. 110.99 x 90/100
    = 110.99 x 0.9 = $ 99.89 (A)

22. You can also work this from the back to the beginning.
    At the end, you had 8 students.
    These are what remain after ½ of the class goes to the computer lab so you had 16 students at the start of the class.
    For the previous class where you started out with 16 students, ½ of the initial class went to library so you started out with 2 x 16 or 32 students. (D)

23. Formula: Increase = Final - Original
    Original (weekly earning) = 38 x 7.25 = 275.50
    Final (weekly earning) = 307.80
    Increase = 307.80 – 275.50 = $ 32.30 (A)

24. Formula: Increase in length = (1 + % increase /100) (original)
    Looking at the diagram: The front face has a height of 5, so that is the length of tape needed for that front face. On the top face, the length is 15, therefore 15 is needed. You have to repeat this

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twice because of the hidden back face on the opposite side, and the bottom face below cube:
So for the first tape running across the surface vertically, the length needed is: 2(5 +15) = 40
The other two tapes run across horizontally.
Look at one tape first. Just like the first tape, the height on the right face is 5, sot that is what is needed. Then the width on the top face is 10, so that is what is needed. Again, due to the hidden left face and the bottom face, you need to multiply that value by 2.
So, for one of the tapes running across horizontally, the length needed is 2(5 +10) = 30
Since there are two tapes, the length needed is 2(30) = 60
So, total length is 60 + 40 = 100.
:. Increased Length = (1 + 10/100) (100) = (1 + 0.1) (100) = 110 inches (E)

25. He is driving at 50mph, so in 0.5 hours (30 minutes) he has traveled 25 miles (50 mph x 0.5 hours). He was 62 miles away, and now he is 25 miles closer. 62 miles - 25 miles = 37 miles. So, he is still 37 miles away at 2:30. (E)

26. Suppose a = count from the afternoon and m = the count from the morning
then a + m = 76 (the total number counted)
and m = a + 34 (she counted 34 more in the morning than the afternoon)
so, substituting for m in the total count:
==> a + a + 34 = 76
==> 2a = 42
==> a = 21(A)

27. First, combine the y-values on the left: 4y - 2 = 10
Then, place the -2 on the right side (since it's negative, when you put it on the right side of the equal sign it becomes positive):
4y = 10 + 2
Add 10 + 2:
4y = 12
Divide both sides by 4:
y = 3 (B)

28. E

29. Formula: Total cost = Distance travelled x cost of gasoline / gas mileage.
The number of miles the car travels per gallon of gasoline (gas mileage) (B)

30. Formula: Average speed = Distance / Time
The time she returned home (B)

31. (4 × \$3.50) – (3 × \$1.75) = 8.75 and
3(\$3.50–\$1.75) + \$3.50 = 8.75 so the answer is (B)

32. 50 x (14 / 100) = 7 so, also is:
50 x 0.14 = 7, so the answer is (E)

33. Recall: Dividing is equivalent to multiplying by the reciprocal, e.g. a/b => a x 1/b
:. The expression is the same as (E)

34. Column X increases by the addition of 0.5 while column Y increases by the addition of 1.5.
Therefore, the missing number = 7.5 (D)

35. So there are two calculations you must do:
First find what 5% of 180 is:
(.05)(180) = 9
Then you add 9 to the original number 180:
180 + 9 = 189 (D)

36. D

37. C

38. Recall that multiplication commutes,
e.g. a x b = b x a. (D)

39. The number must be greater than 2,329,500 but less than 2,598,100. (E)

40. The number must be greater than 0.0051 but less than 0.038. (B)

41. Her daily trip of 18 miles has to be rounded to the nearest multiple of 5 which is 20 and not 15.
:. 20 miles per day multiplied by 5 days = 100 miles (B)

42. 18.04 => 18.0, 21.39 => 21.4, 12.99 => 13.0, 14.14 => 14.1
:. 18.0 + 21.4 + 13.0 + 14.1 = 66.5 sec (B)

43. C.

44. C. 7 is between 2 and 10, and Matt would ride his bike for distances between 2 and 10 miles.

45. D

46. B. If you check the End-Start Pattern, 4 mins is added to each end time to get the next start time.
:. 12:15 + 0:04 = 12:19 pm.

47. A. World Sugar Production = US + Outside US
Outside US = 6323 – 1347 = 4976 metric tons

48. D. Note: Max diff => Max separation.
The year that appear to have the max difference is 1990
:. 1990 diff: 6.2 - 3.0 = 3.2

49. A. Total crop = West Farm + East Farm + South Farm + North Farm + Central Farm
100% = 24% + 21% + 7% + 31% + Central Farm
100 = 83 + Central Farm
Central Farm = 100 - 83 = 17%

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50. B. 1950 and 1960 gave the greatest rise, which means the greatest increase.

ENGLISH LANGUAGE

Questions 1 – 10 on Synonyms

1. He spoke *impromptu* on the occasion.
   (a) eloquently (b) without preparation
   (c) without enthusiasm (d) with great force

2. The *perpetual* noise made it impossible for them to concentrate on the problems.
   (a) irritating (b) constant
   (c) unlimited (d) recurrent

3. All his attempts to win the favour of his boss proved *infructuous*.
   (a) meaningless (b) unnecessary
   (c) redundant (d) fruitless

4. As she had never been in such a situation before, her *apprehension* was understandable.
   (a) eagerness (b) fear
   (c) hesitation (d) excitement

5. You should not get *paranoid* about what others think of you.
   (a) flattered by (b) influenced
   (c) obsessed with (d) upset by

6. I wonder if this *intervention* in the dispute will be of any help.
   (a) interception (b) interruption
   (c) mediation (d) meddling

7. A strange mental *aberration* often made her forget her own name.
   (a) eccentricity (b) insanity
   (c) disorder (d) illusion

8. He treats with *disdain* anyone who goes to him for help.
   (a) contempt (b) disgust
   (c) insolence (d) displeasure

9. Sunlight and shadow made the landscape a *kaleidoscope* of colour.
   (a) tube containing mirrors and lose pieces of coloured glass
   (b) frequently changing pattern of bright scenes
   (c) a mixture of black and white
   (d) resembling the seven colours of a rainbow

10. His *theatrical* manner made even his sincere statements sound unconvincing.
    (a) play acting (b) dramaturgy
    © histrionics (d) actions

Questions 11 – 15 on Commonly Misspelt Words

11. A nursery rhyme is used to teach pupils how to spell the word ...
    [A. hippoppotemus B. hippopotamus
    C. hipoppotemus D. hipoppotamus].

12. Our teacher defined ... in his introductory lesson.
    A. onomatopoeia B. onomatopeia
    C. onomatopiea D. onomatopaeia.

13. The doctor listened to my heartbeat with a
    A. cardiograph B. stethoscope
    C. chronometer D. microscope.

14. The.... in an attempt to please the workers promised to provide ... for them as soon as possible.
    A. committee/accommodation
    B. committee/acommodation
    C. committee/accomodation
    D. committee/acommoddation
    E. committee/accomondation.

15. Olu, Akpan and Ovbiagele's ... make people to believe that they belong to the same school of thought.
    A. philosophy B. philosophys
    C. philosophies D. philososphy's.

Questions 16 – 20 on Phrasal Verbs and Idioms

16. She .... her hair ... in the room before we left
    A. smoothened/off B. smoothed/on
    C. smoothened/up

17. The rain fell for days
    A. on end B. at end C. at ending D. on ending

18. Our soldiers are starting to zero… the enemy.
    A. at B. on at C. unto D. in on

19. The politician … the family of the deceased.
    A. wept over B. condoled
    C. commiserated with D. greeted

20. Despite all preparations, the wedding did not...
    A. come along B. come by
    C. come on D. come off

Questions 21 – 25 on Idiomatic Use of Prepositions and Conjunctions

21. The student who went home without an exit has apologized… his misconduct
    A. on B. at C. to D. for E. about.

22. The man has atoned... his sins.
    A. upon B. on C. for D. at E. against.

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23. The Headmaster was interviewed in connection.. the expansion project.
A. to B. with C. for D. about E. at

24. What do you want me to do now? I'm.... withdrawing and keeping quiet.
A. for B. with C. up D. off E. on.

25. I am looking .... seeing your family.
A. ahead at B. forward to
C. forward on D. for to E. ahead to

Questions 26 – 30 on Grammar Mistakes Nigerians Make

26. The new manager was responsible for the ... of the organization.
A. uplifting B. lifting C. uplift D. upliftment

27. People dislike Mariam because she is...
A. trickful B. tricky C. a tricker D. trickish)

28. She .... her hair ... in the room before we left
A. smoothened/off B. smoothed/on
C. smoothened/up D. smoothed/down

29. It was an ... moment for us to be ... to welcome the new Vice-Chancellor.
A. opportune/ privileged
B. opportune/privileged
C. opportune/ privileged
D. opportuned/opportune

30. I ... to pursue my education.
A. did not have the opportunity
B. did not chance
C. was not opportuned
D. was not chanced

Questions 31 – 35 on Often Confused Words

31. ... is always superior to any other in town.
A. There's B. Theirs C. Their's D. There

32. The government has provided new ... for the local government polls.
A. guard lines B. guidelines
C. guardlines D. guidelines.

33. Because of the ...he did to my car, I am going to sue him for ...
A. damage/damages B. damages/damage
C. damages/damages D. damage/damage

34. A university teacher is an...
A. academic B. academics
C. academician D. academia.

35. The adventurers ran into many ...
A. dear B. dears C. deers D. deer.

Questions 36 – 40 on Subject Verb Agreement (Concord)

36. One of the women who .... in the premises ... been ordered to quit.
A. sell/have B. sells/has
C. sells/have D. sell/has

37. The judge with his son... traveling to Lagos now.
A. were B. shall C. is D. are

38. Two young boys have been caught with parts of the stolen machine but ... admitted stealing it.
A. neither of them has B. neither of them have
C. none of them has D. none of them have

39. A survey of opinions on how pupils feel about their teachers ... carried out.
A. has been B. have been
C. are being D. is been

40. A number of students ... missed the opportunity to re-register. A. is B. has C. have D. do

Questions 41 – 45 on Verb Tenses

41. I did not enjoy the party. If you had invited Tariere, it ... better organized.
A. had been B. would have been
C. would be D. could be

42. Sibi ... novels since she came home
A. is reading B. had been reading
C. has read D. has been reading.

43. Asabe is overdue for retirement as she ... in this college since 1954.
A. is teaching B. has been teaching
C. taught D. was teaching.

44. Most of us will attend the conference ... at Ibadan later this years.
A. holding B. held C. being held D. to hold

45. We won't leave until it... raining.
A. stops B. had stopped C. will stop D. stopped

Questions 46 – 50 on Modal Auxiliaries

46. If you saw the photograph of the man, ... you be able to identify him?
A. can B. will C. would D. could

47. If you would do me this favour, I ... be very grateful.
A. will B. shall C. would D. should

48. The officer ... that he was not supposed to talk to the press on the matter.

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A. could have known B. shall know
C. should have known D. will know

49. Before the bill could be settled, Chuwang … all the money.
A. has spent B. will have spent
C. had spent D. will spent.

50. Although I am watching television, I … what you are saying
A. am hearing B. can hear
C. have heard D. was hearing

Questions 51 – 55 on Order of Adjectives

51. The first prize was ... tray.
A. a carved attractive wooden
B. an attractive carved wooden
C. a carved wooden attractive
D. a wooden attractive carved

52. Making a phone call instead of paying a visit represents… trend.
A. sudden social new major
B. new sudden major social
C. sudden new major social
D. new social sudden major

53. My younger brother is going to the stream with … boys.
A. two other little B. other little two
C. two little other D. other two little.

54. Okoro intends to wear his … dress to the zoo this afternoon.
A. white cotton new B. white new cotton
C. new white cotton D. cotton white new

55. The company representative in Nigeria is a …
A. smart little Japanese B. little smart Japanese
C. smart Japanese little D. little Japanese smart.

Questions 56 – 57 on Question Tags

56. He wrote to you, …?
A. hadn't he B. wouldn't he
C. didn't he D. hasn't he

57. I am not surprised that Zali had a road accident; he was always driving too fast, ...
A. isn't he? B. wasn't he?
C. didn't he? D. did he?

Questions 56 – 57 on using Gerund and Infinitives

58. I am looking forward to… you
A. seeing B. see C. have seen
D. will see E. be see.

59. Instead of..., she lied.
A. pleading B. her to plead
C. her pleading D. plead

60. He devoted himself … homeless children
A. to helping B. to help C. by helping
D. with helping E. helping

ANSWERS

1. B	2. D	3. D	4. B	5. C	6. C	7. C
8. A	9. D	10. C				
11. B	12. A	13. B	14. A	15. A	16. B	17. A
18. D	19. C	20. D				
21. D	22. C	23. B	24. A	25. B	26. C	27. B
28. D	29. A	30. A				
31. C	32. D	33. A	34. A	35. D	36. B	37. C
38. A	39. A	40. C				
41. B	42. D	43. B	44. A	45. D	46. B	47. B
48. C	49. C	50. B				
51. B	52. B	53. A	54. C	55. A	56. C	57. B
58. A	59. A	60. A				

GENERAL PAPER

1. Grand Central Terminal, Park Avenue, New York is the world's
A. largest railway station
B. highest railway station
C. longest railway station
D. None of the above

2. Entomology is the science that studies
A. Behavior of human beings
B. Insects
C. The origin and history of technical and scientific terms
D. The formation of rocks

3. Eritrea, which became the 182nd member of the UN in 1993, is in the continent of
A. Asia B. Africa
C. Europe D. Australia

4. What does the eagle in the Nigerian coat of arm represent?
A. Peace B. Terror
C. Agriculture D. Strength

5. For which of the following disciplines is Nobel Prize awarded?
A. Physics and Chemistry
B. Physiology or Medicine
C. Literature, Peace and Economics
D. All of the above

6. Hitler party which came into power in 1933 is known as
A. Labour Party B. Nazi Party
C. Ku-Klux-Klan D. Democratic Party

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7. LASAA stands for
   A. Lagos State Security and Aids Agency
   B. Lagos State Signage and Advertisement Agency
   C. Lagos State Studies and Advancement Agency
   D. None of the above

8. Galileo was an Italian astronomer who
   A. developed the telescope
   B. discovered four satellites of Jupiter
   C. discovered that the movement of pendulum produces a regular time measurement
   D. All of the above

9. Habeas Corpus Act 1679
   A. states that no one was to be imprisoned without a writ or warrant stating the charge against him
   B. provided facilities to a prisoner to obtain either speedy trial or release in bail
   C. safeguarded the personal liberties of the people against arbitrary imprisonment by the king's orders
   D. All of the above

10. Exposure to sunlight helps a person improve his health because
   A. the infrared light kills bacteria in the body
   B. resistance power increases
   C. the pigment cells in the skin get stimulated and produce a healthy tan
   D. the ultraviolet rays convert skin oil into Vitamin D

11. Guarantee to an exporter that the importer of his goods will pay immediately for the goods ordered by him, is known as
   A. Letter of Credit (L/C)
   B. laissezfaire
   C. inflation
   D. None of the above

12. Friction can be reduced by changing from
   A. sliding to rolling
   B. rolling to sliding
   C. potential energy to kinetic energy
   D. dynamic to static

13. Germany signed the Armistice Treaty on ____ and World War I ended
   A. January 19, 1918
   B. May 30, 1918
   C. November 11, 1918
   D. February 15, 1918

14. During World War II, when did Germany attack France?
   A. 1940 B. 1941
   C. 1942 D. 1943

15. Who is the current Vice Chancellor of the University of Lagos?
   A. Prof. Rahamon Bello B. Prof. Olusoga Sofola
   C. Prof. Oluwatoyin Ogundipe D. Prof. Segun Adisa

16. The ozone layer restricts
   A. Visible light
   B. Infrared radiation
   C. X-rays and gamma rays
   D. Ultraviolet radiation

17. Eugenics is the study of
   A. altering human beings by changing their genetic components
   B. people of European origin
   C. different races of mankind
   D. genetic of plants

18. Euclid was
   A. Greek mathematician
   B. Contributor to the use of deductive principles of logic as the basis of geometry
   C. Propounded the geometrical theorems
   D. All of the above

19. Ecology deals with
   A. Birds
   B. Cell formation
   C. Relation between organisms and their environment
   D. Tissues

20. Filaria is caused by
   A. Bacteria B. Mosquito
   C. Protozoa D. Virus

21. Headquarters of UN are situated at
   A. New York, USA B. Hague (Netherlands)
   C. Geneva D. Paris

22. For seeing objects at the surface of water from a submarine under water, the instrument used is
   A. kaleidoscope B. periscope
   C. spectroscope D. telescope

23. For galvanizing iron which of the following metals is used?
   A. Aluminium B. Copper
   C. Lead D. Zinc

24. Economic goods are
   A. all commodities that are limited in quantity as compared to their demand
   B. Commodities that is available according to their demand
   C. Commodities that is available more as compared to demand
   D. None of the above

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25. For purifying drinking water alum is used
A. for coagulation of mud particles
B. to kill bacteria
C. to remove salts
D. to remove gases

26. Dr. Linus Carl Pauling is the only person to have won two Nobel prizes individually for
A. Chemistry in 1954, Peace Prize in 1962
B. Peace Prize in 1954, Chemistry in 1962
C. Physics in 1954, Medicine in 1962
D. Medicine in 1954, Physics in 1962

27. In which year, terrorists crash two planes into New York's World Trade Centre on September 11 in a sequence of destruction?
A. 2000 B. 2001
C. 2002 D. 2003

28. How many times has Brazil won the World Cup Football Championship?
A. Four times B. Twice
C. Five times D. Once

29. How many players are there on each side in the game of Basketball?
A. 4 B. 5 C. 6 D. 7

30. Mount Everest is located in ?
A. India B. Nepal
C. Tibet D. China

31. Lagos became the crown colony in
A. 1900 B. 1914 C. 1861 D. 1886

32. Oron and Ekoi people of the Cross River Basin might have migrated to Nigeria through the
A. sea B. mountain C. sky D. none

33. Which of these countries does NOT operate a federal constitution
A. USA B. Nigeria C. Canada D. France

34. The centenary anniversary of the amalgamation of Northern and southern Nigeria was celebrated in
A. 2060 B. 2063 C. 2014 D. 2007

35. The first general election in Nigeria was hold in
A. 1933 B. 1952 C. 1955 D. 1959

36. Who is the current INEC chairman?
A. Mahmud Yakubu B. Attahiru Jega
C. Ibrahim Sanni D. Danladi Haruna

37. Which country won the last world cup?
A. France B. Argentina
C. Germany D. Brazil

38. Who is the Nigerian current speaker of house of Assembly?
A. Bukola Saraki B. Aminu Tambuwa
C. Yakubu Dogara D. Femi Gbajabiamila

39. Kemi Adeosun is the current minister of ...?
A. Budget and Planning B. Finance
C. Information D. Transport

40. A social system in which power is derived from control over land is called
A. Oligarchy B. Feudalism
C. Socialism D. Welfarism

41. Traditional rulers were restricted to ceremonial rules by the local government reforms of
A. 1966 B. 1976 C. 1984 D.1987

42. The state with the slogan, "Pride of the Sahel" is
A. Osun B. Bayelsa C. Oyo D. Yobe

43. The Head of the Sokoto Caliphate was known as
A. Sultan B. Caliph C. Emir D. Alhaji

44. The value of Gold is determined in
A. Rome B. Washington
C. Teheran D. London

45. Jigawa state is also called
A. The New World B. Centre of Commerce
C. Home of Hospitality D. Land of Equity

46. The Gashaki-Gumpti National Park is situated in which state in Nigeria
A. Jigawa B. Kano C. Taraba D. Plateau

47. Who is the current Governor of Zamfara?
A. Mohammed Abdullahi Abubakar
B. Abdul-Aziz Yari Abubakar
C. Bindo Jibrilla
D. Abdullahi Umar Ganduje

48. What is "Oval Office"?
A. UN Security Council meeting room
B. The personal office of the US President
C. The place where the Queen of England gives personal audience
D. The place where England's Cricket Control Board is headquartered

49. The first tertiary institution was founded in
A. Lagos B. Yola C. Ibadan D. Nsukka

50. The personal name of the current pope Francis is ...?
A. Jorge Mario Bergoglio
B. Joseph Aloisius Ratzinger
C. Karol Józef Wojtyla
D. Albino Luciani

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ANSWERS

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

ANSWERS

1. **B** = Grand Central Terminal is a commuter and intercity railroad terminal at 42nd Street and Park Avenue in Midtown Manhattan in New York City, United States.

2. **B** = Entomology is the scientific study of insects, a branch of zoology.

3. **B** = Eritrea is a northeast African country on the Red Sea coast. It shares borders with Ethiopia, Sudan and Djibouti. The capital city, Asmara.

4. **D** = The black shield represents Nigeria's fertile soil, while the two supporting horses or chargers on each side represent dignity. The eagle represents strength, while the green and white bands on the top of the shield represent the rich soil. The red flowers at the base are *Costus spectabilis*, Nigeria's national flower.

5. D = The Nobel Prize is widely regarded as the most prestigious award available in the fields of literature, medicine, physics, chemistry, economics and activism for peace.

6. B = NSDAP (National Socialist German Workers' Party), commonly known to the rest of the world as the Nazi Party.

7. B

8. D

9. D = The Habeas Corpus Act 1679 is an Act of the Parliament of England (31 Cha. 2 c. 2) passed during the reign of King Charles II to define and strengthen the ancient prerogative writ of habeas corpus, whereby persons unlawfully detained can be ordered to be prosecuted before a court of law.

10. D = The body produces vitamin D when exposed to the sun. The vitamin D helps the body absorb calcium, which is essential for bone health.

11. A = A letter of credit is a letter from a bank guaranteeing that a buyer's payment to a seller will be received on time and for the correct amount. In the event that the buyer is unable to make payment on the purchase, the bank will be required to cover the full or remaining amount of the purchase.

12. A

13. C = The Armistice of 11 November 1918 was the armistice that ended fighting on land, sea and air in World War I between the Allies and their last opponent, Germany.

14. A

15. C

16. D = The ozone layer or ozone shield is a region of Earth's stratosphere that absorbs most of the Sun's ultraviolet radiation.

17. A = Eugenics is the study of the agencies under social control that may improve or impair the racial qualities of future generations either physically or mentally.

18. D = Euclid of Alexandria was a Greek mathematician, often referred to as the "founder of geometry" or the "father of geometry".

19. C = Ecology is the branch of biology that deals with the relations of organisms to one another and to their physical surroundings.

20. B = Filariasis is a parasitic disease caused by an infection with roundworms of the Filarioidea type. These are spread by blood-feeding black flies and mosquitoes.

21. A = The United Nations is headquartered in New York City.

22. B = an apparatus consisting of a tube attached to a set of mirrors or prisms, by which an observer (typically in a submerged submarine or behind a high obstacle) can see things that are otherwise out of sight.

23. D = Galvanization or galvanizing is the process of applying a protective zinc coating to steel or iron, to prevent rusting.

24. A = An economic good is a good or service that has a benefit (utility) to society. Also, economic goods have a degree of scarcity and therefore an opportunity cost.

25. A = The addition of alum causes these particles and colloids to clump together to form heavier particles which will settle in water.

26. A = Linus Pauling, has been awarded two undivided Nobel Prizes. In 1954 he was awarded the Nobel Prize in Chemistry. Eight years later he was awarded the Nobel Peace Prize for his opposition to weapons of mass destruction.

27. B = September 11, 2001.

28. C = 5 times: 2002, 1994, 1970, 1962, 1958

29. B = Basketball is played with two teams, with 5 players from each team on the court at one time.

30. B = Mount Everest is located on the border

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between Tibet and Nepal in the Himalayas in Asia.
31. B = Lagos Colony was a British colonial possession centered around the port of Lagos in what is now southern Nigeria. It was annexed on 06 August 1861 and declared a colony on 05 March 1862.
32. A
33. D = The current French political system is a hybrid presidential/parliamentary system with a President who is head of state, sharing power with a Prime Minister who is the head of government.
34. C = The Northern and Southern protectorates of Nigeria were amalgamated by British Colonial Governor Fredrick Lugard in January 1914. 2014 makes it 100 years ago.
35. D = Parliamentary elections were held in Nigeria on 12 December 1959.
36. A = Prof. Mahmood Yakubu.
37. C = 2014 FIFA World Cup was won by Germany (their 4th title).
38. C = Yakubu Dogara. He was elected on June 9, 2015.
39. B = Mrs. Kemi Adeosun is the current Minister of Finance. 11 November 2015–present.
40. B = Feudalism was a European political system in which a lord owned all the land while vassals and serfs farmed it.
41. B = 1976
42. D = Yobe State slogan is: "Pride of the Sahel".
43. A = In the simplest form of answer, an Emirate is ruled by an Emir, a Sultanate by a Sultan and a Caliphate by a Caliph.
44. D = The London Gold Fix.
45. A = Jigawa State slogan is: "The New World".
46. C = Gashaka-Gumti National Park (GGNP) is a national park in Nigeria. It is located in the eastern provinces of Taraba and Adamawa to the border with Cameroon.
47. B = Alhaji Abdul'aziz Abubakar Yari.
48. B = Oval Office. An oval-shaped room in the White House that serves as the official office of the president of the United States.
49. A = Yaba College of Technology, popularly known as YABATECH, was founded in 1947, and is Nigeria's first higher educational institution. It is located in Yaba, Lagos.
50. A = Jorge Mario Bergoglio (Pope Francis) March 13, 2013 – Date.

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UNILAG POST UTME PRACTICE QUESTIONS 2015/2016

ENGLISH LANGUAGE

1. Mrs Ahmed made the promise with her tongue in her cheek.
   A. She should not be taken seriously.
   B. She was shy as she spoke.
   C. She could not be heard because her tongue was hidden.
   D. She should not be believed because of the special way she made the promise.

2. The cashier attends the board meeting sparingly.
   A. He attends the meeting quite often.
   B. He seldom attends the meeting.
   C. He attends the meeting regularly.
   D. He attends the meeting unwillingly.

3. When he was presented with a huge estimate for the project, the manager hit the roof.
   A. He became very suspicious.
   B. He threw an object to the roof.
   C. He became very angry.
   D. He ordered the project to be started at once.

4. Youths see the world through rose-coloured spectacles.
   A. They look at the world with spectacles in rose colour.
   B. They view life over optimistically.
   C. They see the world as serious.
   D. They are happy with life.

5. Since the agreement among them was not serious, it blew over quickly.
   A. The agreement made them fight quickly.
   B. The agreement led them to court quickly.
   C. The agreement came to an end quickly.
   D. The agreement exposed them quickly.

In each of questions 26 to 40, choose the option oppositein meaning to the word or phrase in italics

6. Our economy is now buoyant.
   A. unfavourable B. Bleak
   C. gloomy. D. depressed s

7. The House of Assembly ratified the controversial bill.
   A. reviewed B. Authenticated
   C. corroborated D: standardized

8. Musa has a burning desire to be a successful businessman.
   A. a keen B. a fervent
   C. an intense D. a stony

9. One should guard against making sacrilegious remarks.
   A. impious B. Reverent
   C. blasphemous D. reverential

10. My mother is very daring.
   A. intrepid B. Timid
   C. adventurous D. rash

11. In writing, we must choose appropriate words to express our ideas.
   A. close B. Ineffective
   C. apt D. unsuitable

12. The Supreme Court quashed the judgement of the lower court.
   A. criticized B. Commended
   C. annulled D. upheld

13. The girl was in ebullient mood.
   A. joyous B. Delightful
   C. dull D. stressful

14. The engineer had inadvertently pushed the wrong button.
   A. consciously B. Conscientiously
   C. carelessly D. rightly

15. The recently released musical album was considered obscene by many music fans.
   A. polite B. Pleasant
   C. harmless D. decent

16. The criminal case was handled in a subtle manner
   A. civil B. Harsh
   C. gentle D. courageous

17. Many citizens live in penury.
   A. affluence B. Poverty
   C. bondage D. antiquity

18. Pity is often akin to love.
   A. equal B. Dissimilar
   C. essential D. next

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19. The lecture seemed interminable.
A. boring B. Exciting
C. interesting D. unending

20. The goal lifted the team from the agony of defeat
A. hope B. Desire
C. celebration D. ecstasy

In each of questions 21 to 35, choose the option nearest in meaning to the word or phrase in italics

21. My mother was lost in thought so she toyed with her lunch.
A. flirted with B. talked with
C. fiddled with D. neglected

22. Prisoners often undergo torture.
A. humiliation B. Destruction
C. torment D. lynching

23. The journalist refused to divulge the source of his information.
A. confirm B. Disclose
C. concede D. affirm

24. He looked miserable.
A. gay B. Mirthful
C. forlorn D. jovial.

25. A cursory look at the book shows that it was hurriedly written.
A. deliberate B. Planned
C. casual D. meticulous

26. She left the village to live a licentious life in the city.
A. a chaste B. an immoral
C. a pious D. a free

27. The man gave me a baleful look when the pot fell off my head.
A. remorseful B. Sinister
C. cheerful D. curious

28. The man's speech was full of invectives instead of thanks.
A. requests B. Denials
C. praises D. curses

29. Jummai was so engrossed in her knitting that she forgot her visitor.
A. impressed by B. concerned with
C. absorbed in D. attracted to

30. It is clear that he has more aptitude for academics than his mates
A. ability B. Fitness
C. inclination D. potentials

31. These days traders are notorious for their extortionate prices.
A. expensive B. Obnoxious
C. exorbitant D. erratic

32. The computer which is an integral p a r t o f occidental culture had dominated the world.
A. eastern B. European
C. Western D. universal

33. Many rural dwellers suffer acute fever.
A. intermittent B. Constant
C. severe D. protracted

34. There was a commemoration of Nigeria's independence.
A. re-enactment B. Remembrance
C. celebration D. documentation

35. Tade was making passes at the beautiful girl.
A. propositions to B. advances at
C. faces at D. plans for

In each of questions 36 to 55, choose the option that best completes the gap(s).

36. My daughter has never seen Bar Beach, ...'
[A. either B. not so C. but neither
D. yet] have my sons.

37. Inside that letter, there ...
[A. are some B. is a C. are
D. is some] good news about your application for employment.

38. I have been thinking of...
[A. the many other all interesting
B. all the other interesting many
C. all the many other interesting
D. all the interesting many other] places there are to visit.

39. More often than not. the law...
[A. impedes B. encroaches on
C. tramples on
D. steps on] individual freedom.

40. A...
[A. massive B. vast C. Huge
D. wonderful] expanse of land has been [illegible] for the university buildings.

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41. We were ...
[A. deeply B. Clearly C. wholly
D. slightly] disappointed in the man.

42. The public offer is for both existing and ...
[A. possible B. Potential C. acceptable
D. Qualified] shareholders.

43. It is high time the government ...
[A. addressed B. minded C. highlighted
D. mentioned] the problem of petroleum scarcity in the country.

44. Obi could....
[A only see too clearly
B. see only too clearly
C. see only very clearly
D. only see very clearly]
what was going to happen next.

45. The employer, not the salesman and his representative, ...
[A. are B. have been C. is
D. are being] responsible for the loss.

46. The man said he wasn't coming, and I don't think she will ...
[A. neither B. through C. either D. yet]

47. He looked carefully at the blue prints, but couln't make ....
[A. off B. out C. up D. in] what they meant.

48. They believe I have them, ...
[A. didn't B. doesn't C. don't
D. wouldn't] they?

49. The ...
[A. inaugurated recently educational programme
B. recently inaugurated educational programme
C. educational programme recently
D. programme inaugurated recently educational] will make quite a boost on the nation's education.

50. The neighbourhood is most noted ...
[A. on B. for C. by D. at]
its beautiful architectural edifices.

51. The athlete has all it takes to ...
[A. outwit B. outlaw C. Outflank
D. outbound] all his opponents at the race

52. Mr. Kura actually did the job, although he had ...
[A. told previously
B. says previously
C. previously said
D. previously says] that he wouldn't

53. Ugbesia never ...
[A. looses B. Loses C. loss D. lost]
sight of Osagiede whenever he passes.

54. He is going to apply, and I sincerely hope he ...
[A. would B. will C. Shall
D. should] be able to impress the interviewer.

55. One of the boys who... at Yaba ... in hard work
A. live/believe B. Tries/believes
C. live/believes D. lives/believe

ENGLISH [ANSWERS]

1. A	2. B	3. C	4. B	5. C
6. B	7. A	8. A	9. B	10. B
11. D	12. D	13. C	14. A	15. D
16. B	17. A	18. B	19. -	20. D
21. C	22. C	23. B	24. C	25. C
26. B	27. D	28. D	29. C	30. C
31. C	32. C	33. C	34. C	35. B
36. C	37. D	38. B	39. B	40. -
41. C	42. B	43. C	44. A	45. C
46. C	47. B	48. C	49. B	50. B
51. C	52. C	53. B	54. A	55. C

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1. Islam was introduced in Northern Nigeria
(A) before the 13th century
(B) in the 17th century
(C) in the 19th century
(D) in the 18th century

2. Lagos became the crown colony in
(A) 1900 (B) 1914 (C) 1861 (D) 1886

3. In the pre-colonial Igbo political system, which of the following was the most democratic organ of government?
(A) The Umand (B) Eze
(C) Isu (D) Ohanaeze

4. A historical feature of the legislative council that met in 1923 was that for the first time it
(A) included the official members who were Nigerians
(B) included only British officials
(C) acted in a deliberative capacity
(D) included elected African members

5. When was the emirate system of administration introduced in Northern Nigeria?
(A) 19th century (B) 20th century
(C) 18th century (D) 17th century

6. Pre-colonial Igbo society was
(A) centralised (B) acephalous
C) feudal (D) capitalist

7. The Colonial Administration in Nigeria was
(A) Authoritarian (B) Democratic
C) A&B (D) None of the above

8. In the traditional Hausa-Fulani political system, political authority was vested in the
(A) Emir (B) Talakawa
(C) Alkali (D) Emirate Council

9. In the Oyo traditional political system, the Alaafin of Oyo was elected or chosen by a group known as
(A) Tributary Chiefs
(B) Baale
(C) Ogboni
(D) Oyo Mesi

10. In the Oyo empire, the Alaafin was
(A) an absolute monarch
(B) popularly elected
(C) a constitutional monarch
(D) worshipped as deity

11. The concept of Indirect Rule in Nigeria is usually associated with
(A) Sir George T. Goldie
(B) Claude Macdonald
(C) Lord Lugard
(D) Consul Philip

12. The Lagos Colony and the Southern Protectorate of Nigeria were joined in the year
(A) 1904 (B) 1906 (C) 1910 (D) 1914

13. The Committee that recommended Abuja as the New Federal Capital was headed by
(A) Graham Douglas
(B) Mamman Nasir
(C) Rotimi Williams
(D) Akinola Aguda

14. Galadima in the emirate refers to
(A) a village head
(B) the office in charge of the army
(C) the administrator of the capital city
(D) a judge

15. Which of the following was the last to win Independence from colonial rule?
(A) Cote d'Ivoire (B) Algeria
C) Tanzania (D) Angola

16. Which of the following made the earliest contact with the Nigerian societies?
(A) The Portuguese (B) The Germans
(C) The British (D) The French.

17. In the pre-colonial Yoruba society, the power of the Oyo Mesi were checked by
(A) Baale (B) Ogboni
(C) Are Ona Kankafo (D) Bashorun

18. The Ogboni Cult in the pre-colonial Yoruba political system played the role of the
(A) judiciary (B) executive
(C) police (D) legislation

19. The Aro system in Igboland was a
(A) Political organisation

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(B) Commercial organisation
(C) Religious organisation
(D) Imperial organisation

20. Which of the following formalised colonial penetration into Africa?
(A) Paris Treaty
(B) Berlin Conference
(C) Lagos Treaty
(D) Cape Coast

21. An acephalous pre-colonial system is best represented by the
(A) Oyo Empire
(B) Igbo political organisation
(C) Ijaw political organisation
(D) Benin Empire

22. The use of forced labour was one of the features of
(A) British colonial policy
(B) French colonial policy
(C) American colonial policy
(D) divide and rule

23. During the early colonial period in Nigeria, the governor ruled the protectorate by
(A) Crown Colony Orders
(B) Proclamation
(C) Order–in-Council
(D) The Act of Parliament

24. The ratification of the appointment and dismissal of an emir in the pre-colonial Fulani empire was done by the
(A) Emir of Kano
(B) Emir of Sokoto
(C) Emir of Gwandu
(D) B & C

25. In the Hausa/Fulani traditional political system jingali was
(A) one of the sources of revenue to cattle owners
(B) a property tax paid to land owners
(C) tax paid on cattle
(D) a type of flat rate tax

26. Which of the following titles among the Igbos in the pre-colonial era required substantial wealth before one could acquire it?
(A) Obi (B) Eze (C) Ozo (D) Ofo

27. Nigerian educated elites agitated against colonial rule
(A) by bribing colonial governors
(B) through lobbying
C) through newspapers
(D) by fighting civil war

28. In the absence of the existence of traditional rulers in the Igbo communities the British Colonial administration appointed
(A) Eze (B) Obi
C) Ozo (D) Warrant chiefs

29. The colonial government whose constitution introduced elective principle into Nigerian politics was
(A) Arthur Richards
(B) Fredrick Lugard
(C) Hugh Clifford
(D) John Macpherson

30. The introduction of indirect rule in eastern Nigeria led to the Aba Women Riots of
(A) 1914 (B) 1929
C) 1935 (D) 1940

31. A chief could be deposed in the pre-colonial era if he
(A) violated the written constitution
(B) persistently neglected the advice of the elders
(C) refuse to collect taxes for the Britishs
(D) married too many wives

32. Which of the following in the pre-colonial era had integrated political structure
(A) Tiv (B) Ilaje (C) Jukun (D) Nupe

33. The Yoruba, Edo, Nupe, and Ibo languages are classified as belonging to the
(A) Arabic
(B) Kwa-sub group
(C) Kaw sub group
(D) Kai sub group

34. Archaeology findings in Ugbo-Ukwu are suggestive of rich
(A) Agricultural potentials
(B) cultural civilization
(C) mineral deposit
(D) all of the above

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35. Geographically, Nigeria lies between latitudes
(A) 40 and 140 (B) 4 and 100
(C) 140 and 4 (D) all of the above

36. Ali Ghaji's reign ended in Kanem Borno in
(A) 1501 (B) 1502 (C) 1503 (D) 1504

37. All of the following are renowned historians except
(A) Prof Ade Ajayi
(B) Prof Toyin Falola
(C) Prof Obaro Ikime
(D) Prof Akin Oyebade

38. In Yorubaland, the concept which derived mainly from the wave of dispersal that attended the process of state formation is known as
(A) Omo iya (B) Ebi
C) Oduduwa (D) all of the above

39. Oron and Ekoi people of the Cross River Basin might have migrated to Nigeria through the
(A) sea (B) mountain
C) sky (D) none

40. The Portuguese first visited Benin around
(A) 1485 (B) 1484 (C) 1486 (D) 1483

41. Songhai Empire fell in...
(A) 1591 (B) 1691 (C) 1791 (D) 1891

42. ... and slave raiding were complementary exercises among the Yoruba
(A) farming (B) hunting
(C) war (D) diplomacy

43. The Head of the Sokoto Caliphate was known as
(A) Sultan (B) Caliph
(C) Emir (D) Alhaji

44. The Ekitiparapo war lasted for
(A) 10 years (B) 16 years
(C) 100years (D) 50 years

45. In pre-Jihad, leadership in Hausaland was known as
(A) Habe (B) Emir
(C) Magida

46. Yoruba inter-state wars lasted for
(A) 16 years (B) 10 years
(C) 100 years (D) 50 years

47. The Sokoto Jihad led to the formation of Islamic States in following States except
(A) Senegal (B) Mali
(C) Chad (D) Togo

48. Berlin "African" conference took place between
(A) 1884 and 1885
(B) 1885 and 1886
(C) 1886 and 1887
(D) 1883 and 1884

49. The 1804 Jihad in Northern Nigeria could be referred to all except
(A) Sokoto Jihad
(B) Uthman Dan Fodiyo Jihad
(C) Fulani Jihad
(D) Seku Ahmadu Jihad

50. Samori Toure was captured in 1893 by
(A) French imperialism
(B) British imperialism
(C) Germany imperialist
(D) none of the above

GENERAL PAPER

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

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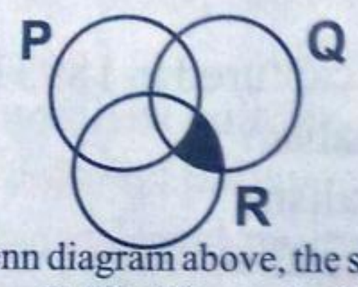
MATHEMATICS

1. If $1P122_3 = 98_{10}$, where P is a digit, find the value of P
   A.3 B.2 C.1 D.0
2. Convert 10110_{two} to a number in base ten
   A. 21 B. 22 C. 23 D. 24
3. Express 462.3067 correct to 3 decimal places
   A. 500.000 B. 462.310
   C. 462.307 D. 462.000
4. If x = N45 000, what is the sum of x and q 3% of x?
   A.N58 500 B.N46 350 C.N45 135 D. 45 014
5. If an item bought for N180.00 was sold for N225.00, calculate the percentage profit
   A. 20% B. 25% C. 45% D. 80%
6. Simplify $\frac{8\frac{1}{2}+3\frac{1}{2}\div 7}{1\frac{3}{4}+1\frac{1}{2}}$
   A. $2\frac{10}{13}$ B. 2 C. $1\frac{12}{13}$ D. 1
7. Find the value of $3\sqrt{n^9/27}$ if n = 3
   A. 1 B. 3 C. 9 D. 27
8. Express the number 0.002513 in standard form
   A. 2.513×10^3 B. 2.513×10^2
   C. 2.513×10^{-2} D. 2.513×10^{-3}
9. Evaluate $-3\sqrt{5}-4\sqrt{3} / \sqrt{5}-\sqrt{3}$
   A. $3+\sqrt{15}$ B. $\frac{1}{2}(3-\sqrt{15})$ C. $\frac{1}{2}(3+\sqrt{15})$ D. $3-\sqrt{15}$
10.



From the Venn diagram above, the shaded portion is
   A. $P^1(QR)$ B. $(Q \cap R)$ C. $(Q \cup R)$ D. $P^1(QR)$
11. In a class of 40 students, 55% passed Mathematics, 25% passed Physics and 20% passed both Mathematics and Physics. How many-passed neither Mathematics nor Physics?
   A. 10 B. 12 C. 14 D. 16
12. If $s = \frac{1}{2}(u+v)t$, make v the subject of the formula
   A. 2s - ut/t B. ut - 2s/t
   C. ut+2s/t D. 2s - u/t
13. If (y + 2) varies inversely as x and y = 3 when x = 2. find y when x = 5
   A.3 B.2 C.1 D.0.
14. If x -2 is a factor of $x^3 - x^2 - 14x + 24$, find the other factors
   A. (x+3)(x-4) B. (x+3)(x+4)
   C. (x+3)(x+5) D. (x-3)(x+4).
15. Find the remainder when $x^3 - 2x^2 + 3x + 1$ is divided by (x+1) A.6 B.5 C.-4 D.-5
16. Find the values of x for which the expression $x^3 + x^2 - x + 1 / x^2 - 4$ is undefined
   A.-2, 2 B. 2, 4 C. -1, 4 D. 1, -4
17. A number is chosen at random from 1 to 24 inclusive. What is the probability that the number is divisible by 5?
   A. 1/5 B. 1/24 C. 1/12 D. 1/6
18. Find the ranges of values of s and t if 2s + t < 9 and s + 3t < 7
   A. s<4 and t>-1 B. s>4 and t<1
   C. s>4 and t>1 D. s<4 and t>1
19. Find the solution of the inequality
   $12 + 4s - s^2 < 0$
   A. {s: s<-2} U {s:s>6} B. {s : s>-2} U {s:s<6}
   C. {s :s>2} U {s:s<6} D. {s :s>-2} U {s:s>6}
20. If the 4th term of an A.P. is 15, find the 3rd term of the series 3rd term of series 3 + r + s + ...
   A.4 B.7 C.9 D.11
21. Find the 10th term of the sequence 1/9, 1/3, 1 ....
   A. 3^{11} B. 3^7 C. 3^{-7} D. 3^{-11}
22. A binary operation * is defined by $a * b = \sqrt{a \times b^2}$. Find 9 * 2
   A. 36 B. 18 C. 12 D. 6
23.

*	1	2	3	4
1	2	4	1	3
2	3	4	2	1
3	1	2	3	4
4	2	1	4	3

The table above shows an operation * on the set of numbers N = {1, 2, 3, 4}. Find the identity element of the operation
   A. 1 B.2 C. 3 D. 4

24. Find the inverse of $\begin{pmatrix} 8 & -4 \\ -7 & 6 \end{pmatrix}$
   A. $\begin{pmatrix} 3/10 & -1/5 \\ -7/20 & 2/5 \end{pmatrix}$
   B. $\begin{pmatrix} 3/10 & 1/5 \\ 7/20 & 2/5 \end{pmatrix}$
   C. $\begin{pmatrix} 2/5 & -1/5 \\ -7/20 & 3/10 \end{pmatrix}$
   D. $\begin{pmatrix} 2/5 & 1/5 \\ 7/20 & 3/10 \end{pmatrix}$
25. If $\begin{pmatrix} 7 & 3 \end{pmatrix}\begin{pmatrix} x & x \\ 3 & \end{pmatrix} = 24$, find x.
   A. 3 B. 4 C. 6 D. 8
26. The sum of the interior angles of a regular polygon is 1080°. Find one exterior angle of the polygon.
   A. 35° B. 45° C. 108° D. 135°
27.

From the diagram above, O is the centre of the circle and ∠POS = 120°. Find ∠PRS
   A. 50° B. 60° C. 70° D. 80°
28. If a right circular cylinder of base radius 5 cm has a height of 7 cm, find the quantity of water the cylinder can contain
   A. 1100 cm^3 B. 550 cm^3
   C. 250 cm^3 D. 110 cm^3 (p= 22/7)
29. A chord of a circle is 40 cm long and its perpendicular distance from the centre of the circle is 15 cm. Calculate the radius
   A. 25 cm B. 20 cm C. 14 cm D. 13 cm
30. Calculate the total surface area of a cylindrical pipe 100 cm long whose cross - sectional diameter is 7 cm
   A. 2359 cm^2 B. 2277 cm^2
   C. 2200 cm^2 D. 1138 cm^2 (p = 22/7)
31. R is on the locus of points equidistant from two given points P and Q. XY is a straight line through Q parallel to the locus. If is angle RQX = 40°, find the value of angle PRQ
   A. 40° B. 50° C. 80° D. 100°
32. A boy moves such that his distances from two fixed points (5, 3) and (7, 4) are always equal. Find the equation of the locus of the boy
   A. 2x + 4y - 31 = 0 B. 4x + 2y - 31 = 0
   C. 4x - 2y - 31 = 0 D. 2y - 4x - 31 = 0
33. If the midpoint of the line joining points P(m, n) and Q(1, 3) is R(2, 4), find the values of m and n, respectively
   A. 4, 3 B. 2, 7 C. 4, 2 D. 3, 5
34. Find the gradient of the line joining points P(4, -1) and Q(-3, -5)
   A. 4/7 B. 7/4 C. -4/7 D. -7/4
35. If the distance between the points (-3, -2) and (1, y) is $2\sqrt{5}$ units, find the value of y
   A. 4 B. 2 C. -2 D. -4
36. A vertical pole is 50 m away from a points on a level ground, and the angle of elevation of the top of the pole from the point is 35°, find the height of the pole
   A. 71 m B. 50 m C. 42 m D. 35 m
37. In triangle PQR, Q = 30°, q = 8.6 cm and r = 3.2 cm. Find

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∠PRQ, correct to the nearest degree

A. 13° B. 12° C. 11° D. 10°

38. Evaluate $\lim_{x \to 1} \frac{x^3-1}{x-1}$

A. 2 B. 1 C. -1 D. 21

39. If $y = \frac{\cos x}{\sin x} + 1$, find dy/dx

A. tan x B. cot x C. $-\tan^2 x$ D. $-\text{cosec}^2 x$

40. Find a maximum value of the function $f(x) = x^3 - 12x + 5$

A. -9 B. -2 C. 9 D. 21

41. Evaluate $\int_0^{p/2} (x + \sin x)dx$

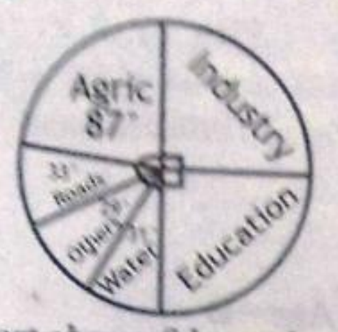
A. $p^2/8 + 1$ B. $p^2/8 - 1$ C. $1 - p^2/8$ D. $p^2/8$

42. Find $\int (3x^2 + 2x + 6)dx$

A. $x^3 + x^2 + 6x + k$ B. $x^3 + x^2 + 2x + k$

C. $x^3 + x^2 + 4$ D. $x^3 + x^2 + 6$

43.



The pie chart above &lows the distribution of funds. If the total sum disbursed is N540 000, what is the amount collected for education?

A. N120 000 B. N130 500 C. N135 000 D. N149 000

44.

Goals scored	0	1	3	4	5
No of Clubs	8	2	3	3	2

The table above shows the frequency distribution of goals scored in a football season. How many goals?

A. 3 B. 5 C. 6 D. 8

45. Find the mean Of 8.3, 11.2, 9.4, 13.8, 12.9 and 10.5

A. 10.02 B. 10.20 C. 11.02 D. 11.20

46.

Marks	1-5	6-10	11-15	16-20	21-25
Frequency	4	6	10	6	4

From the table above, find the number of students that scored at most 15

A. 30 B. 20 C. 15 D. 10

47. Find the mean deviation of 1, 2, 3, 3, and 5

A. 2.20 B. 2.10 C. 1.04 D. 0.12

48.

Weight of babies	2	3	4	5
Frequency	3	4	2	1

From the table above, the weights of 10 babies were obtained and recorded to the nearest kilogram. Find the variance of the distribution

A. 10.50 B. 7.40 C. 3.10 D. 0.89

49. In how many ways can the letters of the word 'BENZENE' be arranged?

A. 420 B. 840 C. 42100 D. 40320

50. If a die is tossed twice, what is the probability that the sum of the outcome is 6?

A. 1/18 B. 1/12 C. 1/9 D. 5/36

MATHEMATICS [ANSWERS]

1. $1P122_3 = 98_{10}$

$1 \times 3^4 + P \times 3^3 + 1 \times 3^2 + 2 \times 3^1 + 2 \times 3^0 = 98$

$81 + 27P + 9 + 6 + 2 = 98$ Recall $a^0 = 1$ (indices)

$27P + 98 = 98$

$27P = 0$

$\therefore P = 0$

Ans = D

2. $10110_{2} = 1 \times 2^4 + 0 \times 2^3 + 1 \times 2^2 + 1 \times 2^1 + 0 \times 2^0$

$= 16 + 0 + 4 + 2 + 0 = 22$ Ans = B

3. 462.3067 to 3 decimal places is 462.307 Ans = C

4. x = N45,000; Sum of x and 3% of x will be 103/100 (45,000)

= N46,350 Ans = B

5. Percentage profit = S.P - C.P / C.P x 100

= 225 180 / 180 x 100 = 25% Ans = B

6. 8 ½ + 3 ½ ÷ 7 / 1 ¾ + 1 ½ = Using BODMAS, in order; 3 ½ ÷ 7

= ½ 8 ½ + ½ / 3 ¼ = 9/3 ¼ = 9/(13/14)

= 36/13 = 2 10/13 Ans = A

7. 3 = $n^3/3$ but when x = 3 ∴ $n^3/3 = 27/3 = 9$ Ans = C

8. $0.002513 = 2.513 \times 10^{-3}$ Ans = D

9. $3\sqrt{5} - 4\sqrt{3} / \sqrt{5} - \sqrt{3} = 3\sqrt{-4\sqrt{3}} / \sqrt{5} - \sqrt{3} \times \sqrt{5} + \sqrt{3} / \sqrt{5} + \sqrt{3}$

$= 15 + 3\sqrt{15} - 4\sqrt{15} - 12 / 5 - 3$

$= 3 - \sqrt{15}/2$

$= ½(3 - \sqrt{15})$ Ans = B

10. The shaded portion is (Q n R) not found in P

$P' \cup (Q \cap R)$ The options were not completely written out

11. 55% of 40 = 22 passed mathematics

25% of 40 = 10 passed physics

20% of 40 = 8 passed physics & mathematics

n(m) = 22, n(P) = 10 ; n (P n M) = 8

n(M & P) = 40

$M \cup P = n(P) + n(M)\ n(M \& P)$

40 = 10 + 22 - 8 + x ; where x did not pass

40 = 32 - 8 + x ; 40 = 24 + x ∴ x = 16 Ans = D

12. s = ½ (u + v)t

2s = ut + vt

2s - ut / t = v Ans = A

13. $(y + 2) \propto 1/x$ y + 2 = C/x where

C = Constant y = 3 when x = 2;

3 + 2 = c/2 = C = 10 ∴ y + 2 = (10/x)

when x = 5 y + 2 = 10/5 y + 2 = 2 ; y = 0

Ans = D

14. Dividing by the given factor,

$x^2 + x - 12$

$x - 2 \sqrt{x^3 - x^2 - 14x + 24}$

$x^3 - 2x^2$

$x^2 - 14x$

$x^2 - 2x$

$-12x + 24$

$-12x + 24$

Factorize $x^2 + x - 12$ (x + 4) (x - 3)

The other factors are (x + 4) (x - 3)

Ans = D

15. Put x + 1 = 0 ∴ x = -1 ; By substitution Remainder

$(-1)^3 - 2(-1)^2 + 3(-1) + 1 = -1 - 2 - 3 + 1 = 1 - 6 = -5$ Ans = D

16. A fraction is undefined when its denominator equals zero;

$x^2 - 4 = 0$; (x - 2) (x + 2) = 0

either x - 2 = 0 ; x = 2 or x + 2 = 0 => x = -2 Ans = A

17. Numbers that are divisible by 5 between 1 and 24 are 5, 10, 15, 20 ==> 4 numbers out of 24

∴ Pr = 4/24 = 1/6

18. 2s + t < 9

2s + 6t < 14 Equation 2(ii) x 2.

subtract eqn ii from eqn i

= 5t < 5 ∴ t < 1

By substitution in Equ (i)

2s + 1 < 9

2s < 8

∴ S < 4 => S < 4; t < 1 If t < 1

19. $12 + 4s - s^2 < 0$; Rearrange

(6 - s) (2 + s) < 0

s < -2 or s > 6 Ans = A

20. a + 3d = 15. but here a = 3

3 + 3d = 15 => 3d = 12

∴ d = 4

3rd term = S = a + 2d => 3 + 2 (4) = 11 Ans = D

21. n term of a GP with a = 1/9, r = 3 is

$Tn = ar^{n-1}$ ∴ T_{10}

$T_{10} = 1/9 (3)^{10-1} = 3^{-2}(3^9) = 3^7$ Ans = B

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22. a(*)b = √a x b²9(*)2 = √9x 2² = 3 x 4 = 12 Ans = C

23. The identity element on addition is zero; since value does not change with addition of zero, the identity element on multiplication is 1 since result is the same when we multiply by 1. On the table, identity element is 3 as it yields same value on multiplication with 1, 2, 3 and 4 Ans = C 24.-

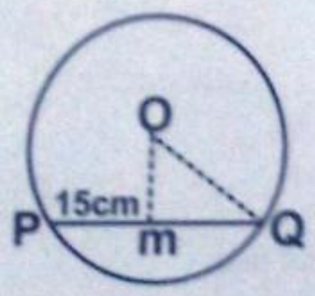
25. [7 3; 4 3] = 24 => 7(x) - 3(x) = 24
4x=24 ∴ x = 6 Ans=C

26. (2n - 4)90 = 1080; => 2n - 4 = 12
∴ 2n = 16 and n = 8
Each angle = 1080 / 8 = 135°
So each exterior angle = 180° - 135° = 45° Ans = B

27. PQR = PRS; (angles on same segment) PRS = ½ (120) (angle at circumference = ½ of angle at centre) ∡PRS = 60° Ans = B

28. Volume of cylinder = pr²h = 22/7 x 5 x 5 x7 = 22 x 25 = 550cm³ Ans = B

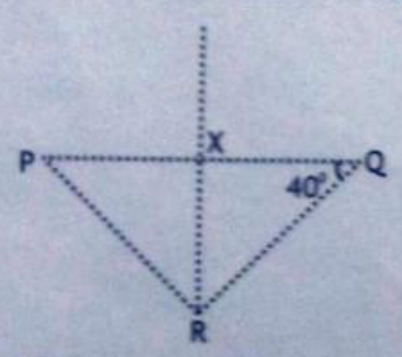
29.



PQ = 40cm, m = midpoint of PQ
∴ PM = MQ = 20cm
∴OQ = Radius; Using Pythagoras;
[OQ]² = 15² + 20² [OQ] = ⊠15² + 20² = 25cm Ans = A

30. Surface area = 2p rh; where r = 7/2,
h = 100 ,p= 22/7
2x 22/7 x 7/2 x 100 = 2200cm² Ans = C

31.



Since LR is the perpendicular bisector of PQ
∴ RPX = 40°
(base angles of Isosceles D PQR)
PRQ + 40 + 40 = 180°(angles of a D)
PRQ = 100° Ans = D

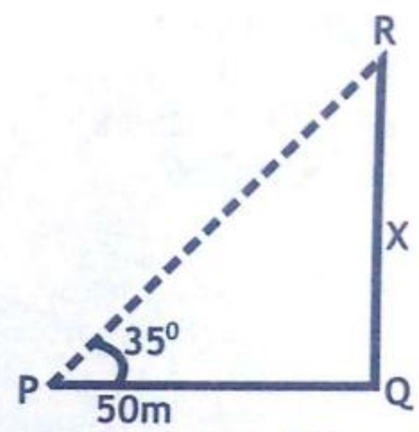
32. Midpoint of (5, 3) and (7, 4) is given by
(x₂ + x₁ / 2, y₂ + y₁ / 2)
=(5 + 7 / 2; 3 + 4 / 2) = (6, 3 ½)
∴ The line passes through (6, 3 ½)
Since the locus is a perpendicular bisector of distance between the two points, then product of their gradient is -1. But gradient of the line joining (5, 3) and (7, 4) is
y₂ - y₁ / x₂ - x₁) = 4 - 3/7-5 = ½
∴ Gradient of locus = g => g (½) = -1
∴ g = -2 ∴ Equation of the line through (6, 3 ½) with gradient of -2 is
y₂ - y₁ = m(x₂ - x₁)
=> y - 3 ½ = -2(x - 6)
2y - 7 = -4x + 24
2y + 4x = 31 or 2y + 4x - 31 = 0
Ans = B

33. Midpoint of the line joining p(m, n) and Q(1, 3) is (m + 1 / 2, n + 3 / 2) = (2, 4)
m+1/2 = 2
∴m=3 ; n+3/2 =4
∴n = 5 m and n are respectively 3 and 5
Ans = D

34. Gradient of the line joining (x₁, y₁) and (x₂, y₂) is given by
y₂ - y₁ / x₂ - x₁
∴ Gradient of the line joining P(4, -1) and Q(-3, -5) is -5-(-1) / -3-4 = -5 + 1 / 7 = -4/-7 = 4 / 7
Ans = A

35. Distance between (x₁, y₁) and (x₂, y₂) is
√(x₂ - x₁)² + (y₂ - y₁)²
Distance between (-3, -2) and (1, y) is
√[1 - (-3)]² + [y - (-2)]²
= √(1 + 3)² (y + 2)²
= √ 16 + y² + 4y + 4
= √20 + 4y + y²
= 2√5 => √20
∴ y² + 4y = 0 => y(y+4) = 0
y = 0 or -4 Ans = D

36.



Let x be the height tan 35° = x/50
∴ x = 50tan35 = 50.01m = 50m Ans = B

37. Applying Sine Rule: r / Sin R = q / Sin Q 3.2 / Sin R = 8.6 / Sin30
∴ Sin R = 3.2Sin30/8.6
=>Sin R = 3.2 x 0.5/8.6 = 1.6 / 8.6
Sin R = 0.1860 =>R = 10.72° R=11°
Ans = C

38. Lim$_{x\to1}$ = x² -1 / x-1
= Lim$_{x\to1}$(x -1) (x+1) / x -1
Lim$_{x\to1}$ = 1 + 1 = 2 Ans = A

39. y = Cosx + 1 / Sinx
Using quotient rule; u /v
=> V dy/dx - U dy/dx / v² where
V = sinx and U = cosx
=>SinX (- Sin X) - CosX (CosX) + 0 / Sin²X
= - Sin² X - Cos² X / Sin²X
= -(Sin²X + Cos²X) / Sin²X
= -1 / Sin²X But 1 / Sin²X
= Cosec X∴ -1 = - Cosec²X Ans = D

40. Let y = x³ - 12x + 5
dy/dx = 3x² - 12 for a turning point,
dy/dx = 0
∴ 3x² - 12 = 0 => 3(x² - 4) = 0
=> (x + 2)(x -2) = 0
x = +2 or -2
∴ x = -2; y = (-2)³ - 12(-2) + 5
= -8 + 24 + 5 = 29-8 = 21 Ans = D

41. $\int_0^{p/2}(x + \sin x)dx = [p^2/2 - \cos x]_0^{p/2} = [(p/2)^2/2 - \cos p/2]$ $[(0/2)^2/2 - \cos 0]$ $[p^2/8 - \cos 90][0-1]$;
Cos 90 = 0; Cos 0 = 1
=> [p² / 8 - 0] [-1] Ans = D

42. ∫(3x² + 2x + 6)dx
= 3x³ + 2x² + 6x + k ; where k = constant
= x³ + x² + 6x + k Ans = A

43. Education = 90° /360 = 1 / 4
∴ 360° => N540,000
=>Education 1/4(540,000) = N135,000 Ans=C

44. At least 3 goal means 3 goals and above =>∑f of 3 and above = 3+ 3 +2 =8 clubs Ans = D

45. X = (8.3+ 11.2 + 9.4 + 13.8 + 12.9 + 10.5) ÷ 6
= (19.5 + 23.2 + 23.4) ÷ 6 = (19.5 + 46.6) ÷ 6
= 66.1 ÷ 6 = 11.0166 = 11.02 Ans = C

46. Number of students that scored at most 15 means students with 15 marks and below ∑f of score 1 to 15
= 4 + 6 + 10 = 20 Ans = B

47. X = (1 +2+ 3 + 3+ 5) ÷ 5
= 14 ÷ 5=2.8
Mean deviation
=> ∑f[d]/n = 1.8 + 0.8 + 0.2 + 0.2 + 2.2 / 5
= 2.6 + 2.6 / 5 = 5.2 / 5 = 1.04 Ans = C

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48. Variance is difference between the largest and the least weight
Largest weight = 5
Least weight = 2
:. Variance = 5 - 2 = 3
The nearest value on the option is 3.10 Ans = C

49. The number of ways the letter of BENZENE can be arranged is given by
7! / 3! x 2!
=7x6x5x4x 3! / 3! x 2! =420 Ans = A

50. The outcomes that are possible are:
(1,1), (1, 2), (1, 3), (1, 4), (1, 5), (1, 6) (2, 1), (2, 2), (2, 3), (2, 4), (2, 5), (2, 6) (3,1), (3, 2), (3, 3), (3, 4), (3, 5), (3, 6) (4, 1), (4, 2), (4, 3), (4, 4), (4, 5), (4, 6) (5,1), (5, 2), (5, 3), (5,4), (5, 5), (5, 6) (6,1), (6, 2), (6, 3), (6, 4), (6, 5), (6, 6)
In the table above, the choices that give a total sum of 6 are undefined and this gives 5/36 Ans = D

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UNILAG POST UTME PRACTICE QUESTIONS 2014/2015

ENGLISH LANGUAGE

1. From options A to D, choose the interpretation that you consider most appropriate for this sentence:
   The teacher spoke with his tongue in his cheek when he said that lazy Ade was the best pupil. This means that the teacher
   (A) did not mean what he said
   (B) was disappointed
   (C) was angry
   (D) tried to encourage

2. From options A to D, choose the interpretation that you consider most appropriate for this sentence:
   They did not know what to expect and so decided to play it by it by ear. This meansthat they decided to
   (A) listen attentively to everyone
   (B) act according to circumstances
   (C) pretend to be deaf
   (D) prepare for the worst

3. From options A to D, choose the interpretation that you consider most appropriate for this sentence:
   The police knew that the suspect was not being straight with them. This means that the suspect was
   (A) not telling the truth
   (B) not friendly
   (C) afraid
   (D) timid

4. From options A to D, choose the interpretation that you consider mostappropriate for this sentence:
   After his prison experience. Etim Decided to go straight. This means that he decided to
   (A) hold his head up and walk with defiance
   (B) change his religion
   (C) live an honest life
   (D) stop using drugs

5. From the words letter A to D, choose the word that is nearest in meaning to the underlined word as it is used in the sentence: Amina is the one who initiated the quarrel, not Nike!
   (A) started (B) stopped
   (C) settled (D) fuelled

6. From options A to D, choose the interpretation that you consider most appropriate for this sentence:
   The conference was attended by people from all walks of life. This means that conference was attended by people
   (A) of all races
   (B) who travelled widely
   (C) from all professions
   (D) from different parts of the world.

7. From options A to D, choose the interpretation that you consider most appropriate for this sentence:
   Ojo decided that the best course of action was to play along with them for time being. This means that he decided to
   (A) join their them temporarily
   (B) entertain them for a while
   (C) pretend to agree with them
   (D) be playful with them.

8. From options A to D choose the word or group of words that best completes the following sentence: We have no choice to do what they demand.
   (A) except (B) than
   (C) unless (D) but

9. From the words letter A to D, choose the word that is nearest in meaning to the underlined word as it is used in the sentence: Why should I retract my statement when it is nothing but the truth?
   (A) alter (B) deny
   (C) withdraw (D) condemn

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10. From the words letter A to D, choose the word that is nearest in meaning to the underlined word as it is used in the sentence: The doctor diagnosed the tumour as malignant
(A) deadly (B) painful
(C) trouble (D) minor

11. From the words letterA to D, choose the word that is nearest in meaning to the underlined word as it is used in the sentence: In tropical; Africa, mosquitoes are ubiquitous
(A) dangerous (B) harmful
(C) trouble (D) everywhere

12. From the words letter A to D, choose the word that is nearest in meaning to the underlined word as it is used in the sentence: It soon became obvious that a confrontation was inevitable
(A) disastrous (B) unavoidable
(C) desirable (D) imminent

13. From the words letter A to D, choose the word that is nearest in meaning to the underlined word as it is used in the sentence: They insisted that the omission of my named had been inadvertent
(A) unintentional (B) unconditional
(C) improper (D) unfortunate

14. From the words letterA to D, choose the word that is nearest in meaning to the underlined word as it is used in the sentence: The police announced that they were yet to apprehend the criminals
(A) interrogated (B) charge
(C) prosecute (D) arrest

15. From' the words letterA to D, choose the word that is nearest in meaning to the underlined word as it is used in the sentence: He is easily recognizable because of a conspicuous birthmark on his face
(A) dark (B) beautiful
(C) prominent (D) natural

16. From the words letterAto D, choose the word that is nearest in meaning to the underlined word as it is used in the sentence: The fishing boat was imperiled by high winds, but it management to reach port safely
(A) pushed (B) endangered
(C) disturbed (D) blown

17. From optionsAto D, choose the word or group of words that best completes the following sentence:
Surprisingly, Musa turned..... the job offer
(A) away (B) in
(C) out (D) down

18. From the words letterA to D, choose the word that is nearest in meaning to the underlined word as it is used in the sentence: She was reprimanded by her boss for negligence
(A) sacked (B) rebuked
(C) punished (D) surcharged

19. From optionsAto D, choose the word or group of words that best completes the following sentence: The committee has submitted its report the students
(A) in (B) for
(C) about (D) on

20. From options A to D, choose the word or group of words that best completes the following sentence:
The chairman told members that he was open..... Suggestions
(A) to (B) for (C) about (D) on

21. From options A to D, choose the interpretation that you consider most appropriate for this sentence: After his prison experience. Etim decided to go straight. This means that he decided to
(A) hold his head up and walk with defiance
(B) change his religion
(C) live an honest life
(D) stop using drugs

22. From options A to D, choose the word or group of words that best completes the following sentence:
For the management, your remarks

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amount to a slap the face
(A) on (B) upon (C) at (D) in

23. From options A to D, choose the word or group of words that best completes the following sentence: She does not remember to anyone at the park
(A) to talk (B) to be talking
(C) talking (D) to have talked

24. From options A to D, choose the word or group of words that best completes the following sentence:
This portion is to be shared between
(A) us and them (B) we and them
(C) us and they (D) we and the

25. From options A to D, choose the word or group of words that best completes the following sentence The policeman shot the escaping robber the leg
(A) on (B) in (C) at (D) into

GENERAL PAPER

1. One of the measures that will enhance the status of the local government as a third tier of government is:
   A. The creation of more local government areas
   B. Up-grading the local government to statehood
   C. Drafting of separate constitution for local government
   D. Deduction of local government share of federal allocation directly from source

2. The main functions of the administrative class of the Civil Service include:
   A. Policy making
   B. Implementation of government policies
   C. Enactment of laws for the ministries
   D. All of the above

3. To enhance the independence of the federal public service commission, members should:
   A. Be elected from a national party
   B. Take oath of celibacy
   C. Neither belong to the legislative nor executive branch of government
   D. Be appointed by the non-aligned movement

4. Public Corporations in Nigeria are subject to the control of:
   A. The judiciary
   B. The minister in charge
   C. The parliament
   D. Public Service Commission

5. Engineers and architects in the Civil Service fall into the:
   A. Professional class
   B. Technical class
   C. Higher technical class

GENERAL PAPER

1. Democracy day is celebrated in Nigeria on
   A. Oct. 1 B. Jan. 12
   C. May 29 D. June 12

2. The first African country to host FIFA world cup is
   A. Nigeria B. Egypt
   C. Morocco D. South Africa

3. How many members make up the House of Representatives in Nigeria?
   A. 270 B.109 C.360 D.359

4. How many members make up Senate in the upper arm of the House of Assembly?
   A. 100 B.108 C.109 D.110

5. Into how many geopolitical zones is Nigeria divided?
   A. 4 B. 5 C. 6 D. 7

6. After recapitalization of banks in Nigeria, the number of banks becomes?
   A. 21 B. 22 C. 25 D. 24

7. Abuja became Nigeria Federal Capital Territory in
   A. 1991 B.1990 C.1989 D.1988

8. The motion for self governance was moved in Nigeria by

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A. Chief Anthony Enahoro
B. Dr. Nnamdi Azikiwe
C. Chief Obafemi Awolowo
D. Alhaji Tafawa Balewa

9. The newest state/country in Africa is
A. Malawi
B. South Africa
C. Southern Sudan
D. Sharawa Republic

10. When was Hosni Mubarak of Egypt removed from office as President?
A. Jan. 2011 B. Feb. 2011
C. March 2011 D. April 2011

11. The first civilian president that died in office in Nigeria is
A. Sir Tafawa Balewa
B. Gen. Aguiyi Ironsi
C. Gen. Muritala Muhammed
D. Alhaji Umaru Yar'adua

12. Millenium development goals was grouped into how many points?
A. 6 B.7 C. 8 D. 9

13. Who was the military head of state in Nigeria?
A. Gen. Olusegun Obasanjo
B. Gen. Muritala Muhanuned
C. Gen. Aguiyi Ironsi
D. Gen. Ibrahim Babangida

14. Umaru Musa Yar'adua's governance was anchored on
A. 8-point agenda
C. 6-point agenda
B. 7-point agenda
D. 10-point agenda

15. How many local governments are in Nigeria?
A. 774 B. 744 C. 784 D.794

16. Who is the first female president of Africa?
A. Hon. Olubunmi Ette
B. Chief (Mrs) FunmilayoKuti
C. Dr. (Mr) Ngozi Ewenla
D. Mrs Ellen Johnson Sirleaf

17. Nigeria flag was designed by .....
A. Mr Ama Onabolu
B. Prof. Wole Soyinka
C. Prof Chinua Achebe
D. Mr Taiwo Akinkunmi

18. 2010 CAF African footballer of the year was awarded to
A. Samuel E'to of Cameroun
B. Didier Drogba of Cote D' ivoire
C. Mikel Obi of Nigeria
D. Gyan of Ghana

19. What is the currency of India?
A. Rupees B. Dollar
C. Pound Sterling D. Cfan

20. Coal is mined in ..... in Nigeria.
A. Jos B. Enugu
C. Oloibiri D. Igbeti

21. What natural product has been used as a means of exchange long time?
A. money B. Dollar
C. salt D. cowrie

22. How much of the earth surface in percentage is covered with water?
A. 10% B. 29% C. 50% D. 71%

23. How much of the earth surface (including the rocks, mountains, valleys and other physical features) in percentage is covered with land?
A. 10% B. 29% C. 50% D. 71%

24. What is the smallest planet in our solar system?
A. Mercury B. Mars
C. Venus D. Earth

25. Which language is spoken in Sicily?
A. Spanish B. English
C. Italian D. Latin

26. What is the name of the famous mountain in Rio de Janeiro, Brazil?
A. Salt Loaf Mountain
B. Sugar Loaf Mountain
C. Sand Mountain
D. Marble Mountain V

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27. What is the speed of light?
A. 3×10^9 m/s B. 3×10^8 m/s
C. 3×10^5 D. 3×10^6 m/s

28. Which continent is largest on earth?
A. Africa B. Europe
C. Asia D. Australia

29. How many months of the year have 31 days?
A. 6 B. 7 C. 8 D. 9

30. What are people who do not eat protein from animal called?
A. omnivorous B. Carnivorous
C. vegetarian D. vegatis

31. From where is the Olympic fire sent out to the Olympic Games every 4 years?
A. Abuja B. Greece
C. Washington D. C
D. United Kingdom

32. How many edges has a cube?
A. 4 B. 9 C. 12 D. 16

33. Which continent has the coldest climate?
A. Antarctica B. Africa
C. Europe D. Asia

34. Which mountain range separates Europe from Asia?
A. The Kilimanjaro B. Everest
C. The Urias D. Uranium

35. What does the word "EMIR" mean?
A. king B. Royalty
C. prince in Arabic D. throne

36. Which channel connects the Atlantic Ocean with the Pacific Ocean?
A. Banana Channel
B. Panama Channel
C. Palima Channel
D. Oceanic Ocean

37. When was telephone first invented?
A. 1860 B. 1861
C. 1862 D. 1863

38. Who invented the first telephone?
A. Charles Darwin
B. Philip Reis
C. Einstein
D. Michael Faraday

39. Cairo is the capital of which country?
A. Morocco B. Egypt
C. Tunisia D. Libya

40. Lima is the capital of which country?
A. Peru B. China
C. Chile D. Mexico

MATHEMATICS

1. If $x + y = 1$ and $x - y = 1$, what is y? 1
(A) -1 (B) ½ (C) 0 (D) 2

2. The rate of consumption of fuel by a car is given by 4800 the expression $3v + 4800/v$, where v is the speed of the car in km/h. The speed at which the rate of fuel consumption is least is
(A) 30 (B) 40 (C) 120 (D) 1,600

3. In which of the following is the number N the smallest?
(A) 10% of N is 12 (B) 1/2 % of N is 1
(C) 200% of N is 210 (D) 50% of N is 70

4. If $y = \text{cosec } x$, dy/dx is
(A) $-\text{cosec } x \sec x$ (B) $\tan x \text{ cosec } x$
(C) $-\cot x \text{ cosec } x$ (D) $-\cot x \sec x \, dx$

5. The derivative with respect to x of cos $(2x - 3x^2)$ is
(A) $(6x - 2) \sin (2x - 3x^2)$ (B) $-\sin (2x - 3x^2)$
(C) $(-6x + 2) \sin (2x - 3x^2)$ (D) $-\sin (2 - 6x)$

6. In which of the following is the number N the largest?
(A) 10% of N is 12 (B) 1/2% of N is 1
(C) 200% of N is 210 (D) 50% of N is 70

7. Four cars A, B, C and D, finished a race with the following respective times for completing the course: 6½ hours, $5^{11}/_{12}$ hours, $6^{1}/_{12}$ hours and $5\ ^{5}/_{6}$ hours. Which car finished first?
(A) Car A (B) Car B (C) car C (D) Car D

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8. A car dealer paid N240, 000 for a car. He added 1/5 of this amount to what he paid in order to determine his selling price. What was his selling
(A) N264,000 (B) N288,000
(C) N244,000 (D) N248,000

9. A student's test scarps on the first five of six examinations to be given during the semester are tabulated below:

Test Number	1	2	3	4	5	6
Score	75	86	75	68	85	?

What must the student score in the last examination to make his`average for the semester 81?
(A) 78 (B) 97 (C) 95 (D) 89

10. Mr. Dede earns a commission of N150 on sales of N3000. At this rate, how much commission will he earn on sales of N7400?
(A) N450 (B) N300 (C) N140 (D) N 370

11. Four cars A, B, C and D, finished a race with the following respective times for completing the course: 6 ½ hours, 5 $^{11}/_{12}$ hours, $6^{1}/_{12}$ hours and $5^{5}/_{6}$ hours. How long after Car D crossed the finish line did Car A cross the line?
(A) ½ hour (B) $^{2}/_{3}$ hour
(C) $^{1}/_{3}$ hour (D) $^{5}/_{6}$ hour

12. Determine correctly to the nearest kobo, the monthly instalment on a loan of N12,500 at 6% for 30 years.
(A) N74.95 (B) 79.45
(C) N74.90 (D) N74.00

13. The area bounded by the curve $y = (3x + 1)(x - 1)$, the x-axis, $x = 1$ and $x = 3$ is
(A) 14 (B) 16 (C) 18 (D) 20

14. The area bounded by the curve $y = x^2 - 5x + 4$, the x-axis, the y-axis and $x = 4$ is
(A) $6^{1}/_{3}$ (B) $4^{1}/_{2}$ (C) $-2^{2}/_{3}$ (D) $1^{5}/_{6}$

15. The rate of ice formation in the freezer, compartment is $(2 - 0.3t)$ g per min: where t is the time in minutes. If there was an initial 10g of ice in the ice-maker, the mass of ice present 10 minutes is
(A) 5g (B) 10g (C) 15g (D) 25g

16. The volume of a balloon which is being blown increases at the rate of $(60 - 3t^2)$ $cm^3\ s^{-1}$, where t is the time in seconds. If the initial volume of the balloon is zero, its volume after 3 seconds is
(A) $33\,cm^3$ (B) $153\,cm^3$ (C) $180\,cm^3$ (D) $207\,cm^3$

17. Determine correctly to the nearest kobo, the monthly instalment on a loan of N15,000 at 7% for 30 3ears.
(A) N99.81 (B) N89.80 (C) N98.80 (D) N99.00

18. If a certain principal earns N40 interest per year at an interest rate of 6% per year, what interest will it earn at the rate of 1 % per month?
(A) N80 (B) N240 (C) N60 (D) N120

19. At a school picnic, 1 junior and 1 senior will be chosen to lead the school activities. If there are 125 juniors and 100 seniors at the picnic, tow many different ways 2-person combinations of 1 junior and 1 senior are possible?
(A) 225 (B) 125 (C) 100 (D) 2251

20. Determine correctly to the nearest kobo, the 1 monthly instalment on a loan of N 14,000 at $6^{1}/_{2}$ - % for 20 years
(A) N104.38 (B) N104.45
(C) N104.76 (D) N104.00

21. If 5 times a number n is subtracted from 15, the result is negative. Which of the following gives the possible value(s) for n?
(A) 0 only (B) 3 only (C) All $n < 3$ (D) All $n > 3$

22. How many prime numbers are there between 30 and 50?
(A) 4 (B) 5 (C) 6 (D) 7

23. A restaurant has 10 booths that will seat up to 4 people each. If 20 people are seated in booths, and no booths are empty, what is the greatest possible number of booths that could be filled with 4 people? (A) 0 (B) 1 (C) 2 (D) 3

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24. George's best long jump distance increased by 10% from 2000 to 2001 and by 20% from 2001 and2002. What percent did her best long jump distance increase from 2000 to 2002?
(A) 15% (B) 30% (C) 32% (D) 20%

25. A person 2 metres tall casts a shadow 12 metres long At the same time, a telephone pole casts a shadow 12 metres long. How tall is the pole?
(A) 4 (B) 6 (C) 8 (D) 11

26. If the coordinates of three points X, Y, and Z are given as (6, 3), (1, 2) and (7, -2) respectively, find the coordinates of the midpoint of the line XY.
(A) (7,5) (B) (5,1) (C) (7/2,5/2) (D) (5/2,1/2)

27. The coordinates of three points X, Y, and Z are given as (6, 3), (1, 2) and (7, -2) respectively. Find the gradient of the line XY. (A) -5 (B) - 6 (C) 5 (D) 6

28. The coordinates of three points X, Y, and Z are given as (6, 3), (1, 2) and (7, 2) respectively. Find the equation of the line YZ.
(A) $3y + 2x = 8$ (B) $3y - 2x = 4$
(C) $2x + 3y = 8$ (D) $3y + 2x = 7$

29. The perpendicular distance of the point (2, -1) from the line $3x - 4y + 5 = 0$ is
(A) 2 (B) 5 (C) 4 (D) 3

30. The equation of the line which passes through the point (-1, 3) and is parallel to the line $2x + 3y = 5$ is
(A) $3x + 2y = 3$ (B) $2x + 3y = 7$
(C) $2x + 3y = 11$ (D) $3x - 2y = 9$

31. The point (x, y) at which the curve $y = 3x^2 - 4x + 1$ has a gradient of -10 is
(A) (-1,8) (B) (2,341) (C) (0,1) (D) (1,0)

32. The distance between the point (6,5) and the point , of intersection of the line $x + y = .4$ and $x - y = 2$ is
(A) 3 (B) 2 (C) 11 (D) - 5

33. A line which makes an angle of 135° with the positive x-axis passes through the point (5,-3). The equation of the line is
(A) $x - y = 8$ (B) $x + y = 2$
(C) $x - y - 2$ (D) $x + y = 8$

34. Determine the value of the base x if $343_x - 244_x = 11111_2$
(A) 5 (B) 6 (C) 7 (D) 8

35. A number P is divisible exactly by 3 and 5 and a number Q by 3, 5 and 7. The highest common factor of P and Q is
(A) 15 (B) 105
(C) a factor of 15 (D) a multiple of 15

36. After polling a class of 20 music students by a show of hands, you find that 8 students play the guitar and 9 students play the piano. What is the minimum number of students in this music class who play both the guitar and the piano?
(A) 9 (B) 17 (C) 8 (D) 0

37. The length of a rod was given as 35 cm correct to the nearest centimetre. The actual length has within the range
(A) 34.5 - 35.5 cm (B) 34.1 - 35.9 cm
(C) 34.9 - 35.1 cm (D) 34.95 - 35.05 cm

38. The number whose logarithm to base 10 is 1.5 is
(A) $10^{-1.5}$ (B) $10^{0.5}$ (C) $100^{-0.5}$ (D) $10^{-1} + 10^{0.5}$

39. Which of the following is the set of all real numbers x such that $x + 3 > x + 5$?
(A) The set is empty
(B) The set containing all real numbers
(C) The set containing all negative real numbers
(D) The set containing all nonnegative real numbers

40. The larger of two numbers exceeds twice the smaller number by 8. The sum of twice the larger and 3 times the smaller number is 65. If x is the smaller number, which equation determines the correct value of x?
(A) $3(2x + 8) + 2x = 65$
(B) $3(2x - 8) + 2x = 65$
(C) $(4 + 8) + 3x = 65$
(D) $2(2x + 8) + 3x = 65$

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UNILAG POST UTME PRACTICE QUESTIONS 2013/2014

ENGLISH LANGUAGE

1. From the list of words lettered A to D choose the one that is **most nearly opposite** in meaning to the underlined word and that will, at the same time, correctly fill the gap in the sentence: The management has neither ..... nor denied the rumour that is was going to lay of some workers
(A) Pronounced (B) Confirmed
(C) Rejected (D) Advertised

2. From the list of words lettered A to D choose the one that is **most nearly opposite** in meaning to the underlined word and that will, at the same time, correctly fill gap in the sentence: Instead of ..... the issue, the speaker digressed to unimportant matters
(A) Summarizing (B) Describing
(C) Revealing (D) Addressing

3. From the list of words lettered A to D choose the one that is **most nearly opposite** in meaning to the underlined word and that will, at the same time, correctly fill gap in the sentence: The telephone booths were all ..... and I had to wait for more than ten minutes for one to become vacant.
(A) Locked (B) Busy
(C) Occupied (D) Ringing

4. From the list of words lettered A to D choose the one that is **most nearly opposite** in meaning to the underlined word and that will, at the same time, correctly fill gap in the sentence: While the first battalion halted its march at nightfall, the second ..... to the barracks
(A) Returned (B) Set out
(C) Proceeded (D) Turned up

5. From the list of words lettered A to D choose the one that is **most nearly opposite** in meaning to the underlined word and that will, at the same time, correctly fill gap in the sentence: His father is an ..... driver but he is only a novice
(A) Enlightened (B) Excellent
(C) Poor (D) Experienced

6. From the list of words lettered A to D choose the one that is **most nearly opposite** in meaning to the underlined word and that will, at the same time, correctly fill gap in the sentence: The arrival of the police at the scene ..... rather than mitigated tension
(A) Provoked (B) Heightened
(C) Created (D) Prolonged

7. From the list of words lettered A to D choose the one that is **most nearly opposite** in meaning to the underlined word and that will, at the same time, correctly fill gap in the sentence: Roses are common in May but ..... in November.
(A) Dead (B) Strange
(C) Rare (D) Extinct

8. From the list of words lettered A to D choose the one that is **most nearly opposite** in meaning to the underlined word and that will, at the same time, correctly fill gap in the sentence: A bank clerk should be able to tell easily the difference between ..... notes and counterfeit ones.
(A) Crisp (B) Good
(C) Correct (D) genuine

9. From the list of words lettered A to D choose the one that is **most nearly opposite** in meaning to the underlined word and that will, at the same time, correctly fill gap in the sentence: Last night, Uncle Joe was blind drunk but this morning he is as ..... as a judge
(A) Alert (B) Saintly
(C) Strong (D) Sober

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10. From the list of words lettered A to D choose the one that is **most nearly opposite** in meaning to the underlined word and that will, at the same time, correctly fill gap in the sentence: What I have is only a ..... of the famous painting; the original is in the National Museum
(A) Duplicate (B) Model
(C) Fake (D) Drawing

11. From the words lettered A to D, choose the word that best completes the following sentence: If the jury's verdict is "not guilty," the defendant will be .....
(A) acquitted (B) indicted
(C) pardoned (D) forgiven

12. From the words lettered A to D, choose the word that **best completes** the following sentence: When all the items on the agenda had been discussed, the meeting was .....
(A) Adjourned (B) Dismissed
(C) Postponed (D) Dissolved

13. From the words lettered A to D, choose the word that **best completes** the following sentence: Because the new venture was ..... many businessmen and women went into it.
(A) Rich (B) Manageable
(C) Lucrative (D) Satisfying

14. From the words lettered A to D, choose the word that **best completes** the following sentence: We save a ..... of lions at the game reserve
(A) Pride (B) Family
(C) Band (D) Group

15. From the words lettered A to D, choose the word that **best completes** the following sentence: Many educationists feel that ..... punishment should still be retained in schools
(A) Capital (B) Corporal
(C) Corporate (D) Physical

16. From the words lettered A to D, choose the word that **best completes** the following sentence: Freedom of movement is a ..... right of every citizen
(A) Fundamental (B) Negotiated
(C) Privileged (D) Respected

17. From the words lettered A to D, choose the word that **best completes** the following sentence: The river ..... towards the sea
(A) Meandered (B) Rolled
(C) Ran (D) Trickled

18. From the words lettered A to D, choose the word that **best completes** the following sentence: I ..... that our team will win the match tomorrow
(A) Certify (B) Conclude
(C) Announce (D) Predict

19. From the words lettered A to D, choose the word that **best completes** the following sentence: if found guilty, he will ..... all the wealth he has amassed illegally
(A) Forgo (B) Abandon
(C) Repay (D) Forfeit

20. From the words lettered A to D, choose the word that **best completes** the following sentence: At a ..... of 200 kilometers an hour, the hurricane swept away everything in its path.
(A) Movement (B) Flow
(C) Velocity (D) Drive

21. From options A to D, choose the interpretation that you consider **most appropriate** for this sentence: Ladies and gentlemen, the worst may be over, but we are not out of the woods yet. This means that we are
(A) Still in the forest
(B) Not yet ready to celebrate our success
(C) Likely to encounter more difficulties
(D) Not sure of ourselves

22. From options A to D, choose the interpretation that you consider **most appropriate** for this sentence: When I leave this country it will be for good. This means that I will
(A) Never come back
(B) Leave for better conditions

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elsewhere
(C) Become an adventurer
(D) Improvement ways.

23. From options A to D, choose the interpretation that you consider **most appropriate** for this sentence: When she Confronted her husband, he hung his head and didn't answer her questions This means that he was
(A) Defiant
(B) Ashamed and Embarrassed
(C) Caught unawares
(D) Angry with her

24. From options A to D, choose the interpretation that you consider **most appropriate** for this sentence: All our plans fell through at the last moment. This means that we
(A) Were Exposed (B) Delayed
(C) Were abandoned (D) Failed

25. From options A to D, choose the interpretation that you consider **most appropriate** for this sentence: the police knew that the suspect was not being straight with them. This means that the suspect was
(A) Not telling the truth (B) Not friendly
(C) Afraid (D) Timid

26. From options A to D, choose the interpretation that you consider **most appropriate** for this sentence: After his prison experience. Etim decided to go straight. This means that he decided to.
(A) Hold his head up and walk with Defiance
(B) Change his religion
(C) Live an honest life
(D) Stop using drugs

27. From options A to D, choose the interpretation that you consider **most appropriate** for this sentence: The teacher, spoke with his tongue in his cheek when he said that lazy Ade was the best pupil. This means that the teacher
(A) Did not mean what he said
(B) Was disappointed
(C) Was angry (D) Tried to encourage

28. From options A to D. choose the interpretation that you consider **most appropriate** for this sentence: They did not know what to expect and so decided to play it by it by ear. This means that they decided to
(A) Listen attentively to everyone
(B) Act according to circumstances
(C) Pretend to be deaf
(D) Prepare for the worst

29. From options A to D, choose the interpretation that you consider **most appropriate** for this sentence: Ojo decided that the best course of action was to play along with them for time being. This means that he decided to
(A) Join their them temporarily
(B) Entertain them for a while
(C) Pretend to agree with them
(D) Be playful with them.

30. From options A to D, choose the interpretation that you consider **most appropriate** for this sentence: The conference was attended by people from all walks of life. This means that conference was attended by people
(A) Of all races
(B) Who travelled widely
(C) From all professions
(D) From different parts of the world.

31. From the words letter A to D, choose the word that is **nearest in meaning** to the underlined word as it is used in the sentence: Amina is the one who <u>initiated</u> the quarrel, not Nike !
(A) Started (B) Stopped
(C) Settled (D) Fuelled

32. From the words letter A to D, choose the word that is **nearest in meaning** to the underlined word as it is used in the sentence: She was <u>reprimanded</u> by her boss for negligence
(A) Sacked (B) Rebuked
(C) Punished (D) Surcharged

33. From the words letter A to D, choose the word that is **nearest in meaning** to the underlined word as it is used in the sentence: Why should I <u>retract</u> my

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statement when his nothing but the truth?
(A) Alter (B) Deny
(C) Withdraw (D) Condemn

34. From the words letter A to D, choose the word that is **nearest in meaning** to the underlined word as it is used in the sentence: The doctor diagnosed the tumour as malignant
(A) Deadly (B) Painful
(C) Trouble (D) Minor

35. From the word letter A to D, choose the word that is **nearest in meaning** to the underlined word as it is used in the sentence: In tropical; Africa, mosquitoes are ubiquitous
(A) Dangerous (B) Harmful
(C) Trouble (D) Everywhere

36. From the words letter A to D, choose the word that is **nearest in meaning** to the underlined word as it is used in the Sentence: It soon became obvious that a confrontation was inevitable
(A) Disastrous (B) Unavoidable
(C) Desirable (D) Imminent

37. From the words letter A o D, choose the word that is **nearest in meaning** to the underlined word as it is used in the sentence: They insisted that the omission of my named had been inadvertent
(A) Unintentional (B) Unconditional
(C) Improper (D) unfortunate

38. From the words letter A to D, choose the word that is **nearest in meaning** to the underlined word as it is used in the sentence: The police announced that they were yet to apprehend the criminals
(A) Interrogated (B) Charge
(C) Prosecute (D) Arrest

39. From the words letter A to D, choose the word that is **nearest in meaning** to the underlined word as it is used in the sentence: He is easily recognizable because of a conspicuous birthmark on his face
(A) Dark (B) Beautiful
(C) Prominent (D) Natural

40. From the words letter A to D, choose the word that is nearest in meaning to the underlined word as it is used in the sentence: The fishing boat was imperiled by high winds, but it management to reach port safely
(A) Pushed (B) Endangered
(C) Disturbed (D) Blown

41. From options A to D, choose the word or group of words that **best completes** the following sentence: Surprisingly, Musa Turned .....the job offer
(A) Away (B) In (C) Out (D) Down

42. From options A to D, choose the word or group of words that **best completes** the following sentence: We have no choice .... to do what they demand.
(A) Except (B) Than
(C) Unless (D) But

43. From options A to D, choose the word or group of words that **best completes** the following sentence: The committee has submitted its report ..... The students
(A) In (B) For (C) About (D) On

44. From options A to D, choose the word or group of words that **best completes** the following sentence: The chairman told members that he was open ..... suggestions
(A) To (B) For (C) About (D) On

45. From options A to D, choose the word or group of words that **best completes** the following sentence: The policeman shot the escaping robber ..... the leg
(A) On (B) In (C) At (D) Into

46. From options A to D, choose the word or group of words that **best completes** the following sentence: For the management, your remarks amount to a slap ..... the face
(A) On (B) Upon (C) At (D) In

47. From options A to D, choose the word or group of words that **best completes** the following sentence: She does not

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remember to any one at the park
(A) To talk (B) To be talking
(C) Talking (D) To have talked

48. From options A to D, choose the word or group of words that **best completes** the following sentence: This portion is to be shared between .....
(A) Us and them (B) We and them
(C) Us and they (D) We and the

49. From options A to D, choose the interpretation that you consider **most appropriate** for this sentence: After his prison experience. Etim decided to go straight. This means that he decided to
(A) Hold his head up and walk with defiance
(B) Change his religion
(C) Live an honest life (D) Stop using drugs

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(A) Did not mean what he said
(B) Was disappointed
(C) Was angry (D) Tried to encourage.

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(D) Prepare worst

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(D) Be playful with them.

53. From options A to D, choose the interpretation that you consider **most appropriate** for this sentence: Th conference as attended by people from a walks of life. This means that conference wa attended by people
(A) Of all races
(B) Who travelled widely
(C) From all professions
(D) From different parts of the world.

GENERAL PAPER

1. Which of the following groups fall into the Civil Service:
(A) The police, the army, and the air force
(B) Employees of NEPA, NNPC and NRC
(C) Employees of ministries of finance, education and transportation
(D) All of the above

2. The most senior class in the Nigerian Civil Service is:
(A) And higher Technical Class
(B) And Professional Class
(C) And Technical Class
(D) Sub-clerical and manipulative Class

3. The recruitment or appointment of the permanent secretary is one of the duties of:
(A) The federal public service commission
(B) The state civil service commission
(C) The executive
(D) The national Assembly

4. In the organizational structure of the ministry or government department, offices and positions are:
(A) Hierarchically arranged
(B) Diagonally arranged
(C) Secretly arranged
(D) Haphazardly arranged

5. The government maintains monopoly over certain services for:
(A) Selfish reasons
(B) Security and strategic reasons
(C) Undisclosed reasons
(D) All of the above

6. Ministers of local government and chieftaincy affairs were abolished in Nigeria by:
(A) General Yakubu Gowon
(B) General Murtala Mohammed
(C) President Ibrahim Babangida
(D) General Olusegun Obasanjo

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7. Policy analysis, policy implementation and plan setting are some of the functions of:
(A) The legislature
(B) The executive
(C) The local government
(D) The civil service

8. Public corporations can be controlled through:
(A) Riots
(B) Public opinion
(C) Civil disobedience
(D) None of the above

9. The general supervision of a public corporation is carried out by the:
(a) Board of directors
(B) Board of trustees
(C) Managing director
(D) Secretary of the board

10. The local government in Nigeria is created to:
(A) Create more civil service jobs
(B) Encourage competition and rivalry among communities
(C) Bring the government nearer to the people
(D) Prevent the creation of more states

11. The Civil Service embraces all workers in:
(A) All private corporations
(B) Public and private companies
(C) Government ministries
(D) Public corporations

12. The effective operation of the Civil Service in Nigeria is mostly hampered by:
(A) Inadequate training of personnel
(B) Corruption and inefficiency
(C) Debt burden and redundancy
(D) Poor infrastructure

13. The Bureau of Public Enterprises is charged with the responsibility for:
(A) Privatization and commercialization
(B) Generating revenue
(C) Eradicating poverty
(D) Providing employment opportunities

14. Financial allocation to a local government by the Federal or a State government to supplement the cost of a project is called:
(A) Revenue allocation
(B) Reimbursement
(C) Statutory allocation
(D) Matching grant

15. A permanent Civil Service:
(A) Makes continuity in government possible
(B) Makes civil servants arrogant
(C) Promotes ethnic domination
(D) Is undemocratic

16. One form of control exercised over public corporations is the requirement that their annual reports be laid before:
(A) Parliament for scrutiny
(B) All the political parties
(C) All the local authorities in the country
(D) A joint committee of the executive and parliament

17. Anonymity of the Civil Service means that the Civil Servant must:
(A) Serve any government impartially
(B) Be politically neutral
(C) Have job security
(D) Not receive the credit or blame for any good or bad policy

18. The local government reforms of 1976 in Nigeria were designed to:
(A) Decentralize authority
(B) Enlist grass-root support
(C) Achieve even development
(D) All of the above

19. Bye-laws made by local authorities can be declared unconstitutional only by the
(A) Local government service commission
(B) Ministry of local government and chieftaincy affairs
(C) Courts (D) Attorney-General

20. Mass retrenchment of workers in the public and private sectors is most likely to result in
(A) Political stability
(B) Economic survival
(C) High rate of armed robbery, pilfering and political instability
(D) Electoral malpractices

21. Public Corporations are established to
(A) Look after the affairs of local authorities

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(B) Co-ordinate the activities of ministries
(C) Give advice to the government on commerce
(D) Provide essential services and amenities on commercial bases

22. Which of the following is not a source of local government revenue
(A) State and federal government grants
(B) Licensing of cars and lorries
(C) Market stall fees
(D) Returns on investment

23. One of the major reasons for setting up public corporations is to:
(A) Maximize profit
(B) Compete with private companies
(C) Provide essential services
(D) Encourage patronage

24. All of the following are functions of the civil service except
(A) Making laws
(B) Implementing policies
(C) Preparing financial estimates
(D) Implementing edicts

25. One factor which militates against the effective functioning of the Civil Service is
(A) Delegated legislation
(B) Political interference
(C) Judicial inference
(D) Political stability

26. Being the third tier of government, the local government is therefore:
(A) Subordinate to state and federal government
(B) Antagonistic to state and federal government
(C) Co-ordinate to state and federal government
(D) All of the above

27. One major problem facing public corporations in Nigeria is:
(A) Political pares
(B) Excessive patriotism
(C) Government interference
(D) Judicial manipulation

28. Most of the reasons given for the establishment of public corporations in Nigeria are being contradicted by the current wave of:
(A) Privatization and commercialization
(B) Legalization and nationalization
(C) Judicial and legislative competence
(D) Rigging and electoral brouhaha

29. The recruitment, promotion and discipline of Civil servants in Nigeria is the responsibility of:
(A) Board of Directors
(B) Civil Service Commission
(C) The president
(D) Ministry of Labour and Productivity

30. Engineers and architects in the Civil Service fall into the:
(A) Professional class
(B) Technical class
(C) Higher technical class
(D) The manipulative class

31. The main functions of the administrative class of the Civil Service include:
(A) Policy making
(B) Implementation of government policies
(C) Enactment of laws for the ministries
(D) All of the above

32. The relationship between staffs of the civil service in the discharge of their duties is expected to be:
(A) Personal and unofficial
(B) Official and non-personal
(C) Casual and inconsistent
(D) Illogical and sporadic

33. The first local government system adopted in Nigeria by the regional government was:
(A) The French prefectorial system
(B) The Indian local government system
(C) The Russian Socialist system
(D) The British Council system

34. The idea of making the local government the third tier of government was initiated by:
(A) Abdusalam Abubakar regime
(B) Alhaji Shehu Shagari regime
(C) Murtala Obasanjo regime
(D) Ibrahim Babangida regime

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35. Before the 1976 local government reforms, one of the defective features of the local governments in Nigeria was that:
(A) They had no functions to perform
(B) They had no legal personality
(C) They had no chairmen to pilot their affairs
(D) They had no political aspiration

36. One of the major problems which spelt doom for Nigeria Airways was:
(A) Embezzlement of fund
(B) Corruption
(C) Lack of patriotism
(D) All of the above

37. The main cause of infrastructure decay in Nigeria is:
(A) Illiteracy (B) Disobedience
(C) Lack of maintenance culture
(D) Political instability

38. One of the measures that will enhance the status of the local government as a third tier of government is:
(A) The creation of more local government areas
(B) Up-grading the local government to statehood
(C) Drafting of separate constitution for local government
(D) Deduction of local government share of federal allocation directly from source

39. To enhance the independence of. the federal public service commission, members should:
(A) Be elected from a national party
(B) Take oath of celibacy
(C) Neither belong to the legislative nor executive branch of government
(D) Be appointed by the non-aligned movement

40. To be promoted from one grade level to another, a staff must first:
(A) Apply to the Nigeria export promotion council
(B) Petition the civil service commission
(C) Be in the president or governor's list
(D) Be recommended to the public service commission by his or her departmental head

41. To be entitled to pension in Nigeria, a staff must:
(A) Work for 55 years
(B) Work for at least 10 years consecutive years
(C) Work for 65 years
(D) Attain the age of seventy

42. The dismissal of a staff in the ministry for official misconduct is the prerogative is:
(A) The permanent secretary
(B) The personnel manager
(C) The minister
(D) The Public Service Commission

43. The greatest head-ache affecting revenue generation by NEPA is:
(A) Debts owed it by government department's and officials
(B) Refusal of NEPA men to collect revenue
(C) its instability to employ accountants
(D) None of the above

44. Public Corporations in Nigeria are subject to the control of:
(A) The judiciary
(B) The minister in charge
(C) The parliament
(D) Public Service Commission

45. The public corporation is similar to the joint stock company because:
(A) The chairmen is also the managing director
(B) Their administrative centres are far from their main factories
(C) The two are legal entities
(D) They share the same market

46. Which of the following statements both describes a public corporation?
(A) It is an organ of government responsible for executing the policies of government
(B) It is a local body that renders services on a local basis
(C) It is a legal body established by an act of state to provide essential services
D) It is a body owned by members of the public

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47. Red tapism' can be explained as:
(A) The decentralized way of taking decision
(B) A flexible way by which government decisions are taken
(C) The rigid adherence to routines by civil servants
(D) Management by objectives

48. An institution which seeks to redress people's grievances against abuse of administrative power is the:
(A) Ombudsman (B) Judiciary
(C) Directorate of Public Prosecution
(D) Judicial Service Commission

49. A statutory corporation is under the supervision of:
(A) The Chief Justice
(B) The commissioner of police
(C) A minister
(D) A local government chairman

50. To which class of the civil service does the causal or manual labour force belong:
(A) The technical class
(B) The casual class
(C) The manipulative class
(D) The higher technical class

MATHEMATICS

1. Which of the following points does not lie on the lie 2y + 5x -4=0?
(A) (0,8,0) (B) (1,-0.5)
(C) (0,2) (D) (2,3)

2. A straight line has the equation 10y = 3x+ 15. Which of the following is true?
(A) The gradient is 0,3 and the y-intercept is 1.5
(B) The gradient is 3 and the y-intercept is 1.5
(C) The gradient is 1.5 and the y-intercept is 3
(D) The gradient is 1.5 and the y-intercept is 0.3

3. P is the point (2,7) and Q is the point (6,3). What is the gradient of PQ?
(A) 1 (B) -1 (C) 0.5 (D) -0.5

4. P is the point (3,5). Q is the point (-1,9). R is the midpoint of PQ. Which one of the following lines does R lie on?
(A) y=x+6 (b) y=x+8
(C) y=x—6 (D) y=x-8

5. A straight line has a gradient of -2 and passes through the point (4, 1). What is its equation?
(A) y+2x=6 (B) y=2x—6
(C) y+2x—9=0 (D) 2y=x-2

6. The line y = 5x —3 and y = 2x + 9 intersects at P. what are the coordinates of P?
(A) (2,7) (B) (2,13)
(C) (4,17) (D) (-4,-23)

7. A is the point (1, 5), B is the point (4,7) and C is the point (5,2). Triangle ABC is
(A) Right-angle
(B) Scalene with no right angle
(C) Equilateral (D) Isosceles

8. If u_n = 2, 6, 10, ..., the 12th tern of these sequence is
(A) 46 (B) 50 (c) 48 (D) 44

9. If u_n = 2, 6, 10,....., the last tem of the sequence is 90. The number of terms in the sequence is
(A) 20 (b) 22 (C) 24 (D) 23

10. If u_n = 2, 6, 10,....., the sum of the terms of the sequence is .....
(A) 1104 (B) 1058 (C) 968 (D) 1012.

11. If $\sqrt{3^x} = \sqrt[3]{9}$, then the value of x is
(A) 6/6 (B) 4/3 (C) 1/3 (D) 2/3

12. In an arithmetic sequence with 25 terms, if the first term is 60 and last term is -12, the sum of the terms of the sequence is
(A) 600 (B) 2400 (C) 1800 (D) 1200

13. In an arithmetic sequence whose 4th term is 14 and whose 11th term is 70, the first term and common difference are
(A) a=-18,d=8 (B) a=-7,d=7
(C) a=-10, d=8 (D) a=-14, d=7

14. In an arithmetic sequence whose 4th term is 14 and whose 11th term is 70, the sum of the first 12terms of the sequence is .....
(A) 468 (B) 330 (C) 456 (D) 408

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15. Ann goes swimming regularly. She wants to improve her fitness, so she decides to swim 10 lengths in the first session and increase the number of lengths she swims by 2 every session. When she reaches 50 lengths in a session she will not increase the number any further. After how many sessions does Ann swim 50 lengths for the first time?
(A) 21 (B) 22 (c) 20 (D) 19

16. Ann goes swimming regularly. She wants to improve her fitness, so she decides to swim 10 lengths in the first session and increase the number of lengths she swims by 2 every session. When she reaches 50 lengths in a session she will not increase the number any further. Ann decides she will give herself a reward when she has swum a total of 400 lengths. After how many sessions does she get her reward?
(A) 15 (B) 25 (C) 16 (D) 24

17. Ann goes swimming regularly. She wants to improve her fitness, so she decides to swim 10 lengths in the first session and increase the number of lengths she swims by 2 every on. When she reaches 50 lengths in a session she will not increase the number any further. If Ann asks her friend Joy to come swimming with her. Joy starts coming at Sue's 8th session. Joy starts to swim 15 lengths and increases the number of the lengths by 5 each time .After how many of Joy's sessions does she swim the same number of lengths as Ann?
(A) 10 (B) 5 (C) 11 (D) 4

18. A dealer increased the price of an item by 20%, then increased the price of the same item by 30%. If x is the original price, what is the price after the two increases?
(A) 1.5 X (B) 1.56X
(C) X+0.5 (D) X+0.56 (E) X+6

19. Two dice are thrown. What is the probability that the sum of the two numbers obtained is greater than 10?
(A) 1/12 (B) 1/36
(C) 1/6 (D) 1/4 (E) ½

20. If x and y are two real numbers such that $3x + 2y = 5$ and $5x + 4y = 9$, then $4x + 3y =$
(A) 0 (B) 2 (C) 5 (D) 6 (E) 7

21. If m and n are positive integers are such that, which of these values cannot be values of m and n?
(A) m = 12 and n 18 (B) m = 60 and n = 90
(C) m= 34 and n = 51 (D) m = 7and n = 21
(E) m = 102 and n = 153

22. If35 is the median of the data set including 21, 7,45, 33,62 and x, then x =
(A) 3 (B) 14 (C) 37 (D) 33 (E) 48

23. The _____ is the value you calculate when you want the arithmetic average
(A) Mean (B) Median
(C) Mode (D) All of the above

24. The _____ is often the preferred measure of central tendency if the data are severely skewed.
(A) Mean (B) Median
(C) Mode (D) Range

25. Which of the following is the formula for range?
(A) H+L (B) LxH (C) L-H (D) H-L

26. _____ are used when you want to visually examine the relationship between two quantitative variables
(A) Bar graphs (B) Pie graphs
(C) Line graphs (D) Scatter plots

27. As a general rule, the _____ is the best measure of central tendency because it is more precise
(A) Mean (B) Median
(C) Mode (D) Range

28. The most frequently occurring number in a set of values is called the_____
(A) Mean (B) Median
(C) Mode (D) Range

29. A rectangular box with a square base and no top has a volume of 500 cm, the dimensions of the box that require the least amount of material are
(A) 10 x10x5cm (B) 4x5x25cm

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(C) 50x5x2cm (D) 25x10x2cm
(E) 10x50x1cm

30. The volume of the region bounded by the y-axis, $y = 4$ and $y = x^2$ is
(A) 192p/5 (B) 52p/3
(C) 64p (D) 52p/5 (E) 192p/7

31. A newspaper article reported that "Children who routinely compete in vigorous after- school sports on hazy days are three times more likely to get asthma than their non- athletic peers." Of the following, which is the most important additional information that would be useful before making a decision about participation in school sports?
(A) Where was the study conducted?
(B) How many students in the study participated in after-school sports?
(C) What is the baseline risk for getting asthma?
(D) Who funded the study?
(E) None of the above

32. The roof of a shelter is made from a piece of corrugated iron 2.3m long inclined at 18° to the horizontal. How far from the wall does the roof stick out?
(A) 0.7 m (B) 2.2m
(C) 1.1m (D) 1.2m (E) 2.1m

33. A ladder 20m long rests against a vertical wall so that the foot of the ladder 9m from the wall. The height (correct to 1 decimal place above the ground at which the upper end of the ladder touches the wall is .....
(A) 19.7m (B) 18.1m
(C)18.7m (D) 17.1m (E) 17.9m

34. A chord 6 .6m long is 5 .6m from the centre of a circle. The radius of the circle is
(A) 3.2m (B) 6.3m
(C) 6.5m (D) 1.6m (E) 2.56m

35. The heights in cm, of 10 children are 145, 163, 159, 162, 167, 149, 150, 160, 170, and 155. The mean height of the children is
(A) 156cm (B) 158cm
(C) 160cm (D) 162cm (E) 159cm

36. The heights in cm, of 10 children are 145, 163, 159, 162, 167, 149, 150, 160, 170, and 155. The standard deviation of the heights of the children is
(A) 5.5cm (B) 5.7cm
(C) 6.5crn (D) 6.7cm (E) 7.7cm

37. The Express 10.011 two in decimal
(A) 1.625 (B) 2.375
(C) 6.75 (D) 6.375 (E) 2.75

38. A class of all possible subsets of space S is called .....
(A) Universal set (B) Alpha— field
(C) Sample space (D) Probability space
(E) Random space

39. One of these is a demerit of a sample
(A) It is cheaper to enumerate a sample
(B) It is faster to survey a sample
(C) Results obtained from sample are of ten times as informative as those from a censor
(D) All of the above (E) None of the above

40. One of these is not a desirable feature of a good statistical table
(A) A table must reveal salient features of data
(B) A table must clearly communicate information in a neat and concise form
(C) A table must be self sufficient
(D) A table must be self explanatory
(E) None of the above

41. Which of these is a measure of location?
(A) Mean (B) Standard deviation
(C) Variance (D) All of the above
(E) None of the above

42. Statistics is a set of tools whose proper use will _____ the decision maker
(A) Completely fill the needs of
(B) Encumber (C) Aid
(D) Confuse (E) None of the above

43. The graph of cumulative frequency distribution is called
(A) Frequency polygon
(B) Frequency distribution curve
(C) Frequency curve
(D) Step function (E) O give

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44. A variation is one whose values convey the concept of attribute rather than
(A) Quantitative (B) Qualitative
(C) Discrete (D) Continuous
(E) None of the above

45. A company employs 100 people, 65 of whom are men. 60 people including all the women are paid weekly. The number of the men that are paid weekly is
(A) 35 (B) 40
(C) 25 (D) 30 (E) None of the above

46. In a survey of villagers, it is found that 20% of the people have visited Kano and 25% have visited Port Harcourt. If 5% have been to both cities, then the percentage that have visited neither Kano nor PortHarcourt is
(A) 75% (B) 65%
(C) 50% (D) 60% (E) 70%

47. If the sides of a triangle are and units, then the triangle is
(A) Equilateral triangle
(B) Well defined triangle
(C) Isosceles triangle
(D) Undefined triangle
(E) Right-angled triangle

48. The length of a rectangle is three times its width. If the perimeter is 72 cm, the width of the rectangle is
(A) 6cm (b) 8cm
(C) 9cm (d) 10cm (E) 11cm

49. The capacity in litres of bucket 24cm in diameter at the top, 16cm in diameter at the bottom and20cm deep is
(A) 40 (b) 9.15
(C) 2.78 (D) 6.08 (E) 6.37

50. The area in cm^2 of material required for a lampshade in the form of a frustum of a cone which top and bottom diameters are 20cm and 30cm respectively, and the vertical height is l2cm is
(A) 1021 (B) 7200
(C) 3600 (D) 2400 (E) 2041

51. A frustum of a pyramid is 3cm square at the top and 6cm square at the bottom and is 5cm high. The volume in cm3 of the frustum is
(A) 15 (B) 150
(C) 105 (D) 115 (E) 36

52. If x=2,then(x-1)(2x-3)=
(A) 1 (B) 3 (C) -1 (D) 0 (E) -3

53. What is sin 30?
(A) ½ (B) 3/2
(C) 0.866 (D) 1 (E) 2

54. Given the list of numbers {1,6,3,9,16,11,2,9,5,7,12,13,8}, what is the median?
(A) 7 (B) 8 (C) 9 (D) 11 (E) 6

55. What is the slope of the line that is perpendicular to y - 2x = 1?
(A) 2 (B) -2
(C) ½ (D) -½ (E) 1

56. What is the sum of the first 40 even positive integers?
(A) 1, 600 (B) 1,560
(C) 820 (D) 1, 640 (E) 400

57. If an item is purchased at $150 and sold at $165, what percent of the original cost is the profit?
(A) 110 percent (B) 89 percent
(C) 100 percent (D) 9 percent
(E) 10 percent

58. What is the length of an arc of a circle with a radius of 5 if it subtends an angle of 60° at the center?
(A) 3.14 (B) 5.24
(C) 10.48 (D) 2.62 (E) 4.85

59. If the distance between a 13-foot ladder and a vertical wall is 5 feet along the ground, how high can a person climb if the ladder is inclined against the wall?
(A) 18feet (B) 65feet
(C) 13/5feet (D) 8feet (E) 12feet

60. The value of k so that the sequence k -1, k + 3, 3k - 1 forms an arithmetic progression is .....
(A) 6 (B) 5 (C) 4 (D) 3 (E) 2

61. If sec u = 1.414, sin u =
(A) 5 (B) 0.71
(C) 0.86 (D) 1.414 (E) 0.67

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62. If $(2x-y) = 4$ then $(6x-3y) =$ .....
(A) 15 (B) 12
(C) 18 (D) 10 (E) None

63. The simple interest on a certain sum of money for three years is 225 and the compound interest on the same sum at the same rate for 2 years is 153 then the principal invested is:
(A) 1500 (B) 2250
(C) 3000 (D) 1875 (E) 2000

64. The probability of getting a number greater than 4 in a single throw of a die is
(A) 1/2 (B) 2/3
(C) 1/4 (D) 1/3 (E) 1/6

65. After allowing a discount of 11.11%, a trader still makes a gain of 14.28%. At what percentage of interest does the trader mark his goods?
(A) 28.5% (B) 35%
(C) 22,22% (D) 20% (E) None

66. The population of a town was 160,000 three years ago. If it increased by 3%, 2.5% and 5% respectively in the last three years, then the present population of the town is
(A) 177,000 (B) 177,366
(C) 177,461 (D) 177,596 (E) 177,564

67. Average age of students in an adult school is 40 years. 120 new students whose average age is 32 joined the school. As a result the average age is decreased by 4 years. The number of students of the school after joining of the new students is:
(A) 1200 (B) 120
(C) 360 (D) 240 (E) 300

68. A man owns 2/3 of the market research bureau business and sells 1/4 of his shares for $75000. The value of the business is:
(A) $150000 (B) $130000
(C) $240000 (D) $340000 (E) none 4

69. The cost of 16 packets of salt each weighing 900 gram is $28. What will be the cost of 27 packets, if each packet weighs 1 kg?
(A) $52.50 (B) $56.00
(C) $58.50 (D) $64.75 (E) $54.50

70. Chukwuma and Chinwe have two children. The probability that the first child is a girl child is 50%. The probability that the second child is a girl is also 50%. Chukwuma and Chinwe revealed they have a daughter. The probability that their other child is also a girl is
(A) 1/2 (B) 1/3 (C) 1/4
(D) 1/5 (E) 1

71. A three digit number consists of 9, 5 and one more number, When these digits are reversed and then subtracted from the original number the answer yielded will be consisting the same digits arranged yet in a different order. The missing digit is:
(A) L (B) 2 (C) 3
(D) 4 (E) 6

72. If $x = 2$, then $(x-1)(2x-3)$ is
(A) 1 (B) 3 (C) -1
(D) 0 (E) -3

73. Line m has a negative slope and a negative y-intercept. Line n is parallel to line m and has a positive y-intercept. The x-intercept of n must be
(A) Negative and greater than the x-intercept of m
(B) Negative and less than the x intercept of m
(C) zero
(D) Positive and greater than the x-intercept of m
(E) Positive and less than the x-intercept of m

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UNILAG POST UTME PRACTICE QUESTIONS 2012/2013

ENGLISH LANGUAGE

1. From the following options select the one opposite in meaning to the underlined word or group of words in a sentence
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

2. From the following options select the one opposite in meaning to the underlined word or group of words in a sentence
The manager who expected to be given respect was treated with .....
A. Dignity B. Scorn
C. Shame D. Cruelty
E. Disloyalty

3. From the following options select the one opposite in meaning to the underlined word or group of words in a sentence
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

4. From the following options select the one opposite in meaning to the underlined word or group of words in a sentence
Too many theories will not help us: we need to be .....
A.Bookish B.Hypothetical
C. Antithetical D. Shrewd
E. Practical

5. From the following options select the one opposite in meaning to the underlined word or group of words in a sentence
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

6. From the following options select the one opposite in meaning to the underlined word or group of words in a sentence
The challenger was crude and inexperienced in correct to the champion who was .....
A. Great B. Exposed
C. Celebrate D. Refined
E. Strong

7. From the following options select the one opposite in meaning to the underlined word or group of words in a sentence
What should have been a source of motivation for him proved a terrible source of .....
A. Failure
B. Harm
C. Discourage
D.Uncertainty
E. Disturbance

8. From the following options select the one opposite in meaning to the underlined word or group of words in a sentence
Ade is very conservative in his political ideas whereas Bala expresses ..... views always
A. Radical B. Heretical
C. Conventional
D. Fanatical
E. Impractical

9. From the following options select the one opposite in meaning to the underlined word or group of words in a sentence
The government has been spending more money on preventive rather than on ..... medicine
A. Modern B. Protective
C. Diagnostic D. Traditional
E. curative

10. From the options choose the word that best completes each of the following sentences
The fisherman threw a stone into the river and this caused a .....
A. Sprinkle B. Sparkle
C. Splash D. Spring
E. Storm

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11. From the options choose the word that best completes each of the following sentences
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

12. From the options choose the word that best completes each of the following sentences
The building ..... because of weak structural foundation
A. Tumbled
B. Succumbed
C. Collapsed
D. Caved
E. Crumbled

13. From the options choose the word that best completes each of the following sentences
The magazine was ..... by the government for an offensive publication.
A. prescribed B Proscribed
C. Suspended D. Condemn
E. Persecuted

14. From the options choose the word that best complete each of the following sentences
Many people reacted to the brutal murder of the popular journalist with strong...
A. Indignation B.Demonstration C. Mobilization D. Condemnation E. Accusation

15. From the options choose the word that best complete each of the following sentences
The Governor frowned at the ..... which slowed down the implementation of policy decisions
A. Bureauracy B. Autocracy
C. Opposition D. Convention
E. Insecurity

16. From the options choose the word that best completes each of the following sentences
The doctor ..... the illness as yellow fever not malaria
A. Prescribed
B. Examined
C. Discovered.
D. Announced
E. diagnosed

17. From the options choose the word that best completes each of the following sentences
Since the writer did not indicate his name, the editor decided not to publish such ..... article.
A. a discourteous
B. an anonymous
C. a scandalous
D. a libelous
E. a cowardly

18. After the following sentence, a list of possible interpretation of all or part of the sentence is given. Choose the interpretation thatyou consider most appropriate for each sentence.
Mrs. Alabi was not around when her case was called and none of her colleagues was willing to hold brief for her. This means that:
A. Her colleagues were afraid licine
B. She was not trusted
C. Her colleagues dd not want to represent her
D. She had quarreled with her colleagues.

19. After the following sentence, a list of possible interpretation of all or part of the sentence is given. Choose the interpretation thatyou consider most appropriate for each sentence.
Telling lies has become second nature to Kunle. This means that Kunle
A. Rarely tells lies
B. Always tells lies
C. Tells lies only on second thoughts
D.Learnt to tell lies from childhood.

20. After the following sentence, a list of possible interpretation of all or part of the sentence is given. Choose the interpretation thatyou consider most appropriate for each sentence.
For us to accomplish the task successfully, all hands must be on check. This means that everybody,
A. Should push with his hands
B. will have travel by sea
C. Must cooperate
D. Should take a rest before continuing the task

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21. After the following sentence, a list of possible interpretation of all or part of the sentence is given. Choose the interpretation thatyou consider most appropriate for each sentence.
The wedding was attended by the cream of the society. This means that the wedding was attended by
A. Everybody in the society
B. Only those who were invited.
C. Very important people
D. Only the educated people

22. After the following sentence, a list of possible interpretation of all or part of the sentence is given. Choose the interpretation thatyou consider most appropriate for each sentence.
I want you to keep an eye on that child. This means that I want you to:
A. discipline the child
B. keep the child busy all the time
C. punish the child if he misbehave
D. watch the child all the time

23. After the following sentence, a list of possible interpretation of all or part of the sentence is given. Choose the interpretation thatyou consider most appropriate for each sentence.
It appears Sade's success at the last examination has gone to her head. This means that Sade is
A. Conceited B. Too happy
C. Crazy D. Impudent

24. After the following sentence, a list of possible interpretation of all or part of the sentence is given. Choose the interpretation thatyou consider most appropriate for each sentence.
Little Sheila is always as lively as a kitten. This means that Sheila is always A. wearing bright dresses
B. very realistic in what she does
C. moving quickly like a kitten
D. Gay and cheerful

25. After the following sentence, a list of possible interpretation of all or part of the sentence is given. Choose the interpretation thatyou consider most appropriate for each sentence.
This masquerade appears once in a blue moon. This means that the masquerade appears
A. On very rare occasions
B. When the moon is blue
C. Whenever a special request is made D. Once a month

26. After the following sentence, a list of possible interpretation of all or part of the sentence is given. Choose the interpretation thatyou consider most appropriate for each sentence.
Okon is quite hardworking but his problem is that he has too many irons in the fire. This means that Okon.
A. Is a blacksmith
B. Takes on more problems that he can cope with
C. Is very good at solving problem
D. Is a very successful businessman

27. From the words or group of words below the following sentence, choose the word or group of words that is nearest in meaning to the underlined group of words as used in the sentence
It takes a great deal of stamina to run the marathon race
A. Courage B. Determination
C. Energy
D. Intelligence
E. Cleverness

28. From the words or group of words below the following sentence, choose the word or group of words that is nearest in meaning to the underlined group of words as used in the sentence.
But for the principal actor the play would have been dull
A. Important B. Head
C. Master D. Famous
E. Main

29. From the words or group of words below the following sentence, choose the word or group of words that is nearest in meaning to the underlined group of words as used in the sentence
An open car has no protection against the

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element.
A. Weather
B. Emergency
C. Molecules
D. Atoms
E. Atmosphere

30. From the words or group of words below the following sentence, choose the word or group of words that is nearest in meaning to the underlined group of words as used in the sentence
He was reluctant to grant my request.
A. Disposed B. Delighted
C. Reticent D. Unwilling
E. Agreeable

31. From the words or group of words below the following sentence, choose the word or group of words that is nearest in meaning to the underlined group of words as used in the sentence
The detective was perplexed when clues in the murder case pointed to at least a dozen different suspects
A. Surprised
B. Confused
C. Excited
D. Discouragd
E. Disappointed

32. From the words or group of words below the following sentence, choose the word or group of words that is nearest in meaning to the underlined group of words as used in the sentence
The military Governor called for a concerted effort in solving the problems of the state
A. a dramatic
B. an agitated
C. a join
D. a directed
E. an unfailing

33. From the words or group of words below the following sentence, choose the word or group of words that is nearest in meaning to the underlined group of words as used in the sentence.
My financial situation is so precarious very soon I may be insolvent
A. Borrowing
B. Stealing
C. Soluble
D. Dependent
E. Bankrupt

34. From the words or group of words below the following sentence, choose the word or group of words that is nearest in meaning to the underlined group of words as used in the sentence
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

35. From the words or group of words below the following sentence, choose the word or group of words that is nearest in meaning to the underlined group of words as used in the sentence
The Famous politician was noted for his programmatic approach to issues ofnati or
A. Idealistic B. Romantic
C. Compromising D. Practical
E. Inconsistent

36. From the words or group of words below the following sentence, choose the word or group of words that is nearest in meaning to the underlined group of words as used in the sentence
Kunle is very pessimistic about our chance of success
A. Sad B. Despondent
C. Unconvinced D. Worried
E. Concerned

37. After the following sentence, a list of possible interpretations of the sentence is given. Choose the interpretation that you consider most appropriate for each sentence.
If Kunle hadn't been transferred to Kano his wife would not have resigned her teaching job, this means that
A. Kunle was not transferred yet his wife resigned her job
B. Kunle was transferred and his wife thought of resigning her job

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C. Kunle was transferred yet his wife had to resign her job
D. Kunle's wife resigned though her husband wasn't transferred.

38. After the following sentence, a list of possible interpretations of the sentence is given. Choose the interpretation that you consider most appropriate for each sentence.
I'll call at your house this evening If it doesn't rain. This means that I
A. Will visit you this evening if it rains
B. Will only phone if it rains this evening C. will sleep In your house this evening if it rains
D. may not visit you this evening if it rains

39. After the following sentence, a list of possible interpretations of the sentence is given. Choose the interpretation that you consider most appropriate for each sentence.
Though Ibrahim was provoked, he ought to have controlled himself. This means that Ibrahim
A. should have exercise some restraint B. was the aggressor
C. took the provocation with cabiness
D. was found guilty of committing the off

40. After the following sentence, a list of possible interpretations of the sentence is given. Choose the interpretation that you consider most appropriate for each sentence.
The members of staff told the principal that they took exception to his comments. This means that the members of staff
A. approved of the principal's comments B. objected to the principals comments C. wanted to be exempted from the principal's comments
D. warned the principal about his comments

41. After the following sentence, a list of possible interpretations of the sentence is given. Choose the interpretation that you consider most appropriate for each sentence.
Okon is too quite for my liking. This means that ekon
A. is like because he is very quite
B. likespeople who are quite
C. is not like because of his extreme quietness
D. behaves in a very queer and suspicious manner

42. After the following sentence, a list of possible interpretations of the sentence is given. Choose the interpretation that you consider most appropriate for each sentence.
The teacher said all but one of the sixty candidates scored below a credit grade. This means that
A. all the candidate scored below a credit grade
B. only one of the candidates scored a credit grade
C. only one of the candidates scored below a credit grade
D. all the candidates scored acredit grade.

43. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
He was charged with complicity..... the abortive coup
A in B.for C. about D.on

44. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
He was convicted ..... stealing some bags of cocoa
A.With B.in C.of D.for

45. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
Mary said she was acting..... the instructions of the principal
A.by B.on C.for D.through

46. From the words or groups of words below, choose the words or group of words that best complete each of the following

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sentences.
..... normal circumstances, it is rare to get all registered voters to vote. A. on B.by C.in D.under

47. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
Lekan has tried to live ..... to his parents' expeet3tions.
A. over B on C. through D.up

48. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
The minister's daughter boasted she would have her way and she really.....
A.had B.has C.have D.did

49. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
As at yesterday only nomination papers in respect of three candidates..... A. have been filled
B. are being filled
C. been filed
D. Has been filled

50. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
They embraced passionately as if they..... seen each other for years
A. had B. had not
C. have D. have not

51. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
You are not sure where you place the book.....?
A. isn't It B. weren't you
C. are you D. didn't you

52. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
We arrived when the hall ..... arranged, so we stood outside.
A. has been B. is being
C. was being D.had been

53. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
She doesn't know you like your food hot .....?
A. does she B. shouldn't she
C. didn't she D. wasn't it

54. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
It's certain we shall travel by train .....? A. shan't we B. shall we
C. don't we D. isn't it

55. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
..... of what he said made no sense
A. much B. majority
C. plenty D. many

56. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
That isn't your book, it is .....
A. Johns' B. John's
C. John own D. For John's

57. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
Nana Sawara is a queen and demands to be treated .....
A. like that B. like so
C. as such D. that much

58. From the words or groups of words below, choose the words or group of words that best complete each of the following

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sentences.
It is pretty difficult to choose ..... those three boys
A. between B. over
C. against D. among

59. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
..... of the five boys was able to show me the way to the zoo.
A. none B. neither C. any D. some

60. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
We will leave ..... you are ready.
A. as B. whenever
C. while D. until

61. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
This ..... be David's handwriting. I know his handwriting well enough A.may B. will
C. ought D. can't

62. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
The book is not in his locker and it's not in that cupboard .....
A. neither B. again
C. either D. even

63. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
..... things she had in the room were thrown out.
A. so few B. the few
C. all few D. very few

64. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
The party had hardly started ..... the lights went off.
A. than B. then
C. as D. when

65. From the words or groups of words below choose the words or group of words that best complete each of the following sentences.
There were five boys .....
A. of which two were beaten
B. whom two were beaten
C. two of whom were beaten
D. of whom of them were beaten

66. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
This is the man ..... told me the story A. whom I said B. who I said
C. I said that he D. Who I said he

67. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
I feel you are none ..... for experiencing that shock.
A. the worse B. worse
C. the worst D. worst

68. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
Many students find Mathematics ..... than English
A. difficult B. too difficult
C. very difficult D. more difficult

69. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
Tunde is the ..... qualified person for that job
A. more B. most
C. more than D. many more

70. From the words or groups of words below choose the words or group of words that

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best complete each of the following sentences.
It is such a bad place ..... I will never dream of going there another time
A. therefore B. thus
C. that D. then

71. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
He has not been seen by his parents ..... seven days
A. since B. for
C. getting to D. for last

72. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
He has not been seen by his parents ..... last month.
A. since B.
C. getting to
D. since over

73. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
Please, let me ..... you in your car to the railway stations
A. go with B. move with
C. follow D. ride

74. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
The ..... came here last week
A. handsome tall young man
B. young tall handsome man
C. tall handsome young man
D. young handsome tall man

75. From the words or groups of words below, choose the words or group of words that best complete each of the following sentences.
The activities marking the golden jubilee celebrations of the dub were with a party.
A. rounded off
B. rounded oven
C. rounded through
D. rounded up

GENERAL PAPER

Answer the following questions by choosing one of the options

1. The 'motto' of the University of Lagos is A. Learning & Morals
B. In Truth We Stand
C. In Deed and In Truth
D. Dignity and Labour
E. None of the above

2. Which of the following is not the name of the incumbent President of Nigeria? A. Goodluck B. Jonathan
C. Azikiwe D. Ebele
E. Nwerem

3. The name of an organisation that provides customers with access to the internet is
A. Cyber café
B. Internet service provider
C. Microsoft service provider
D. HTML editor

4. 4. Nigeria became a Republic in
A. 1960 B.1966 C.1963 D.1959

5. What is the name of the current Vice-Chancellor of the University of Lagos? A. Prof. Tolu Odugbemi
B. Prof. Babafemi Sofoluwe
C. Prof. Oye Ibidapo-Obe
D. Prof. Adetokunbo Sofoluwe
E. Prof Nurudeen Alao

6. The 2011 Presidential-election in Nigeria was held on
A. April 6, 2011
B. April 9, 2011
C. Aprill 6, 2011
D. April 26, 2011
E. None of the above

7. Which of the following was not a candidate in the 2011 Presidential election in Nigeria?
A. Nuhu Ribadu
B. Mohammed Buhari
C. Sekarau Ibrahim
D. Olusola Saraki

8. The Chairman of the Economic and Financial Crimes Commission in Nigeria is

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A. Mallam Nuhu Ribadu
B. Mrs. Farida Waziri
C. Mrs. Dora Akunyilu
D. Alh. Mohammed Buhari
E. None of the above

9. Lagos is a place in
A. Nigeria only
B. Portugal only
C. Spain only
D. Nigeria & Portugal
E. Nigeria & Spain

10. The name of the wife of President Barack Obama of America is
A. Michelle Obama
B. Roseline Obama
C. Hilary Obama
D. Palm Obama
E. None of the above

11. President Barack Obama of the United State of America is
A. The 44th President of America
B. The47th President of America that best
C. The 50th President of America
D. The 99th President of America
E. The l0th President of America

12. Goals scored in an off-side position in a football match attracts.
A. A penalty from the referee
B. Penalty by the award of one goal to the opponent.
C. Nullification
D. Addition of one goal to the total goals scored by the scorer's side
E. None of the above

13. Mammar Gaddafi was the President of A. Syria
B. Libya
C. Egypt
D. Malaysia
E. Yemen

14. 9/11 refers to
A. September 9th, 2001 series of coordinated suicide attack on Japan
B. September 9th, 2001 series of coordinated suicide attack on the United States of America
C. September 9th, 2011 series of coordinated suicide attack on the United States of America
D. September 11th, 2009 series of coordinated suicide attack on the United States of America
E. September 11th, 2001 series of coordinated suicide attack on the United States of America

15. The total number of votes scored by the winner of the 2011 Presidential election in Nigeria was
A. 30,379,159
B. 22,495,187
C. 12,214,853
D. 15,379,159
E. 12, 495,187

16. INTERNET means
A. Internal network
B. E-mail
C. International network
D. Web-site
B. None of the above

17. Which of the following cities has ever been the capital of the Federal Republic of Nigeria?

A. Lagos B. Calabar
C. Lokoja D. Abuja
E. All of the above

18. The presidential election which was annulled in Nigeria was held in

A. 1993 B. 1994 C. 1983 D.1984 Sari

19. What is the name of the immediate past Speaker of the Nigerian House of Representative?
A. David Mark
B. Pius Anyim
C. Dimeji Longe
D. Dimeji Bankole
E. None of the above

20. The Administrative Capital of South-Africa is
A. Johannesburg
B. Durbar
C. Pretoria
D, Soweto
E. None of the above

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21. Which African country was called the "Gold Coast"?
A. Cote d'evoir
B. Ghana
C. Sierra-Leone D. Liberia
E. Nigeria

22. In which ethnic group in Nigeria is the "talking drum" commonly used?
A. Igbo B. Hausa
C. Fulani D. Yoruba
E. Ibibio

23. Which of the following is not a member of the oil-producing states in Nigeria? A. Ondo B. Bayelsa
C. Delta D. Lagos
E. None of the above

24. Who invented the telephone?
A. Isaac Newton B. Graham Douglas
C. Graham Bell D. Isaac Holloway
E. None of the above

25. Electric bulb was invented by
A. John Bulb B. Thomas Watts
C. Mary Bulb
D. None of the above

26. University of Lagos is situated in
A. Yaba Local Government
B. Lagos Mainland Local Government
C. Bariga Local Government
D. Lagos Island Local Government

27. The General Overseer of the Redeemed Christian Church of God in Nigeria is A. PastorAdebayo Kumuyi
B. Pastor EnochAdeboye
C. Pastor Wale Odukoya
D. Pastor Benson Idahosa E. None of the above

28. Which of the following is not a Pentecostal Church?
A. Redeemed Christian Church of God
B. Deeper Life Ministry
C. Foursquare Gospel Church
D. Mountain of Fire and Miracle
E. The Catholic Church

29. The clock called Big-Ben can be found in A. Los-Angeles B. Vancouver
C. London D. Paris
E. Toronto

30. Which of the following is not in the National Anthem of Nigeria?
A. One nation bound in freedom
B. Arise o compatriot
C. To serve our fatherland
D. With love and strength and hope
E. None of the above

31. Which of the following African leaders is not a Nobel Prize winner?
A. Archbishop Desmond Tutu
B. Mr. Nelon Mandella
C. Prof. Wole Soyinka
D. Prof. Chinua Achebe
E. None of the above

32. In human respiration, oxygen is inhaled, which of the following is exhaled?
A. Carbon-monoxide
B. Oxygen
C. Carbon-dioxide
D. Sodium chloride
E. None of the above

33. The smallest nation in the world is
A. Vatican City
B. Malaysia
C. Madagascar
D. Zimbabwe
E. Italy

34. Who won the 2011 gubernatorial election in Lagos State?
A. Mr. Babatunde Raji Fashola
B. Alhaji Bola Ahmed Tinubu
C. Dr. Ade Dosumu
D. Chief J. K. Randle
E. Mrs Oluremi Tinubu

35. The full meaning of CNN, the American television stations is
A. Central national News
B. Central news Network
C. Cable National News
D.Cable Network News
E. None of the above

36. The current Chairman of INEC is
A. Prof. Maurice Iwu
B. Prof. Hurnprey Nwosu
C. Prof. Rasheed Muniru Jega
D. Prof Humprey Iwu
E. Prof. Atahiru Jega

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37. The winner of the 2011 African Youth Championship, U-20 Football fiesta held in South- Africa is
A. Nigeria B. Mali
C .Cameroon D. Egypt
E. None of the above

38. Which of the following is not apolitical party in Nigeria?
A. Accord Party
B. Action Congress's of Nigeria
C. Peoples Democratic Party
D. Labour Party E. Republican Party

39. The capital of Cape Verde is
A. Cape-Town
B. Praia C. Rhodesia
D. New-Orleans
E. None of the above

40. Brazil is a country in
A. Africa B. America
C. Europe D. Asia
E. Australia
F. None of tile above

41. The current Governor of the Central Bank of Nigeria is
A. Sanusi Lamido
B. Chukwuma Soludo
C. Dora Akunyuli
D. Erastus Akingbola E. None of the above

42. With of the following died while in office as a Nigerian ruler
A. Alhaji Umaru Yar'Adua
B. General S anni Abacha
C. General Murtala Muhammed
D. All of the above
E. None of the above

43. The current Prime Minister of Britain is A. Mr. John Major
B. Mr. Tony Blair
C. Mr. David Cameron
D. Mr. Gordon Brown
E. Mr. James Brown

44. Prince William and Kate Middleton were married at Westminster Abbey, London on
A. 11th April, 2011
B. 29th April, 2011
C. 1st May, 2011
D. 2nd May, 2011
E None of the above

45. Which of the following is not a search engine?
A. Google B. Excite
C. Alta Vista D. Yahoo
E. None of the above

46. Which of the following is not a current telecom service provider in Nigeria? A. Starcoms
B.Airtel
C.MTN
D. Celtel
E. None of the above

47. www used in web address on internet means
A. Word wide web
B. World wave web
C. Worldwide web
D. Word wave web
E. Worldwide wave

48. The first Prime Minister of Nigeria is
A. Dr. Nnamdi Azikiwe
B. Alhaji Tafawa Balewa
C. Lord Macpherson
D. Lord Lugard E.Alhaji Shehu Shagari

49. The blue buses using special lanes in Lagos are commonly referred to as BRT buses. What does BRT means?
A. Babatunde Raji Transport
B. Babatunde Raji Transit
C. Bus Rapid Transit
D. Blue Rapid Transport
E. None of the above

50. HAITI is a country in.
A. America B. Africa
C. Asia D. Europe
E. None of the above

51. The first Nigerian to win Olympic medal is
A. Chioma Ajunwa
B. Nojeem Maiyegun
C. Fidelis Okoro
D. Maitama Sule
E. None of the above

52. The first Nigerian to win the heavy weight boxing championship of the world is
A. Simon Joe
B. Hogan Kid Bassey
C. Simon Peter D. Bash Au
E. None of the above

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53. The first television station was established in Nigeria in
A. 1959 B. 1960
C. 1961 D. 1962 E. 1963

54. Which of the following two statements does not explain the word "surfing"?
I. A sport in which the individual rides on the crest or along tunnel of a wave
II. Exploration of the web (www)
A. I only B. II only
C. I & II D. Neither I nor II

55. The Headquarters of the United Nations is in
A. Addis-Ababa B. New York
C. Washington D. London
E. Lagos

56. The Head of the Commonwealth of Nations is
A. Queen Elizabeth of England
B. Mr. Ban-ki Moon
C. Mr. Kofi Anan
D. Mr. Boutros Boutros-Ghali
E. Prof. Jerry Gana

57. The University of Lagos was established in
A. 1962 B. 1960
C. 1961 D. 2959
E. None of the above

58. Where is the Sahara Desert?
A. America B. Asia
C. Australia D. Europe E. Africa

59. Which of the following is not a newspaper in circulation in Nigeria?
A. The Guardian B. The Punch
C. The New Nigeria
D. The Nation E. Le Figaro

60. Which country will host the 2018 FIFA World Cup Football?
A. Russia B. France
C. Qatar D. Nigeria
E. South-Africa

61. _____ is the most populous African nation.
A. Kenya B. South African C. Nigeria D. Ghana
E. Libya

62. Nigeria's national telephone code is
A.080 B.234 C.233 D.009

63. Nigerian population is currently estimated to be about
A. 100million B. 140million
C. 190million D. 200million

64. Who is the current Vice-President of Nigeria?
A. Goodluck Jonathan
B. Alh. Shehu Shagari
C. Alh. Namadi Sambo
D. Alh. Jubril Aminu
E. None of the above

65. The most numerous ethnic group in the Northern 2/3rd of Nigeria is
A. Nupe B. Tiv
C. Hausa-Fulani D. Kanuri

66. What is the full meaning of INEC?
A. Independent Nigerian Electoral Commission
B. Independent National Electrical Commission
C. Independent Nigerian Education Commission
D. Independent National Electoral Commission

67. The last gubernatorial election in Nigeria took place on
A. April 26, 2011 B. April 26, 2010 C. April 23, 2011 D. April 16, 2011 E. None of the above

68. Current Nigerian President Goodluck Jonathan was Governor of
A. Borno State
B. Ebonyi State
C. Bayelsa State
D. Cross river State
E. Anambra State

69. Senate President of Nigeria from May 2007 - May 2011 was
A. Dimeji Bankole
B. David Mark
C. Alhaji Aliko Dangote
D. Bukola Saraki

70. Nigeria's Presidential Villa is located in A. Asokoro, Abuja

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B. Dodan Barracks, Lagos
C. Obasanjo Farms, Otta
D. Aso Rock, Abuja

71. Nigeria flag consists of
A. 3 blocks of green, white and green
B. 3 horizontal bands of green, white and green
C. 3 vertical bands of green, white and green
D. 3 horizontal bands of green, white and yellow

72. Who named Nigeria?
A. Mungo Park
B. Lord Lugard
C. Laura Shaw
D. Charles Darwin
E. None of the above

73. Nigeria's National Anthem is called
A. I pledge to Nigeria my country
B. Arise O compatriots
C. Nigeria, we hail thee
D. None of the above

74. The main accreditation body that enforces uniform standard and sets admissions capacity of every University in Nigeria is
A. The Nigerian Universities Commission
B. The National Universities Commission C. The Federal Ministry of Education
D. The Joint Admission Matriculation Board

75. Nigeria is organized into
A. 36 states including the FCT, Abuja
B. 37 states
C. 38 states
D. 36 states and the FCT, Abuja

76. Nigeria accounts for
A. 1/4th of Africa's people
B. 1/6th of Africa's people
C. 1/10th of Africa's people
D. 1/3rd of Africa's people

77. Nigeria has
A. Over 200 ethnic groups
B. Over 300 ethnic groups
C. Over 400 ethnic groups
D. About three ethnic groups

78. The most widely used Nigerian languages are
A. Fulani, Yoruba and Igbo
B. Hausa, Yoruba and Igbo
C. Igbo, Yoruba and Pidgin
D. Pidgin, Yoruba and Hausa

79. Major ethnic groups in the South eastern Nigeria include
A. Igbo, Kanuri and Efik
B. Igbo, Yoruba and Ijaw
C. Igbo, Efik and Ibibio
D. Igbo, Ijaw and Tiv

80. The following is not an ethnic **group** in the South East of Nigeria
A. Efik B. Annang
C. Ijaw D. Ibibio
E. None of the above

81. The number "419" refers to the article of
A. The American Criminal Code dealing with Internet Fraud
B. The Nigeria Criminal Code dealing with Internet Fraud
C. The Russian Criminal Code dealing with Internet Fraud
D. The Nigeria Criminal Code dealing with Fraud

82. One of the following is not a Nigerian Music
A. Fuji B. Yo-Pop
C. Afrojuju D. Highlife E. Gbedu

83. Albert Einstein, Sir Isaac Newton and Charles Darwin have something in common
A. They are all famous Poets
B. They are all famous Historians
C. They are all famous Artists
D. They are all famous Scientist

84. Nigeria ranks _____ in African's GDP
A. First B. Second
C. Third D. Fourth
E. Fifth

85. The Nigeria civil was from
A. 1967-1969 B. 1967-1970
C. 1967-1971 D. 1968-1971

86. The Flag of Nigeria was first used in
A. 1959 B. 1960
C. 1961 D. 1970
E. 1971

87. Which of the following is not true about computers?

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A. Process information electronically to produce data
B. Computers are programmable so we can tell them what to do
C. Computers also include small programmed systems found in some appliances such as phones, microwave ovens and video recorders
D. Computers consists of Hardware and software

88. _____is used to read pages set up on the internet
A. Google
B. Satellite Communication
C. Web browser
D. Vide4o conferencing
E. E-mail

89. Which of the following is not a feature of the e-mail?
A. Bread communication is needed
B. Very cheap to send
C. Very quick delivery
D. can be sent at any time
E. None of the above

90. Which of the following methods of communication may be inconvenienced by time zone?
A. Post B. Fax
C. E-mail D. Mobile telephone

91. All but one of the following are actions for dealing with viruses in your computer
A. Scanning of incoming mails
B. Changing passwords regularly
C. Using filtering software to prevent downloads of computer programs
D. Not opening suspicious c-mails or attachments
E. Not allowing others to bring in floppy disks or flash drives to your computer system.

92. Search engines on the internet help to search for information by
A. Looking for heading of web documents
B. Looking for words inside web documents
C. Searching other search engines
D. None of the above
E. All of the above

93. The Public sector in Nigeria does not include
A. The Army
B. The Central Bank of Nigeria
C. The business owned by individual members of the public
D. The Police
E. The State Government Universities

94. May 29th in Nigeria is celebrated as
A. Independence day B. Mother's day
C. Democracy day D. hanging over day

95. The Corporate Affairs Commission in Nigeria is responsible **for**
A. Taxation of companies in Nigeria
B. Registration of companies in Nigeria
C. Closing down companies who do not pay tax 1961
D. All of the above
E. None of the above

96. The Government spends taxes on
A. Provision of health services
B. Education
C. Defence 1961
D. Waste disposal
E. A1l of the above

97. One of the following countries is not a republic
A. USA B. Nigeria
C. China D. UK

98. The millennium Development goals include
A. Reduce those suffering from hunger and poverty
B. Ensure all children get primary education
C. Stop the spread of aids
D. Make sure girls get as much education as boys
E. All of the above

99. G8 is a meeting of eight rich countries including
A. USA, UK, Canada, South Africa and France
B. UK, Germany, USA, Japan and Brazil C. China, USA, UK, Canada and Germany D. UK, USA, Italy, France, Germany
E. UK, USA, Canada, Japan, Brazil

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100. The 9/11 attack killed nearly 3,000 people and destroyed the
A. IMF office
B. World bank
C. World Trade Centre
D. Wall Street

MATHEMATICS

1. Calculate $3310_5 - 1442_5$
A. 1313_5 B. 2131_5
C. 4302_5 D. 1103_5

2. Convert 3.1415926 to 5 decimal places A. 3.14160 B. 3.14159
C. 0.31415 D. 3.14200

3. The length of a notebook 15cm was measured as 16.8cm. Calculate the percentage error to 2 significant figures.
A. 12.00% B. 11.00%
C. 10.71% D. 0.12%

4. A worker's present salary is N24.000 per annum. His annual increment is 10% of his basic salary. What would be his annual salary at the beginning of the third year?
A. N28.800 B. N29.040
C. N31.200 D. N31,944

5. Express the product of 0.0014 and 0.011 in standard form.
A. 1.54×10^4 B. 1.54×10^{-3}
C. 1.54×10^{-4} D. 1.54×10^{-5}

6. Evaluate $(81)^{3/4} - (27)^{1/3} \div 3 \times 2^3$
A. 27 B. 1 C. 1/3 D. 1

7. Find the value of
$(16)^{3/2} + \log_{10} 0.0001 + \log_2 32$
A. 0.065 B. 0.650
C. 5.500 D. 65.0001.

8. Simplify $\dfrac{\sqrt{12}\,\sqrt{3}}{\sqrt{12}+\sqrt{3}}$
A. 1/3 B.0 C.1 D.1

9. Four members of a social first eleven cricket term are also members of the first fourteen rugby team. How many boys play for at least one of the two teams?
A. 25 B. 21 C. 16 D. 3

10. How many ways are there to assign 3 people to 5 desks, with no more than one person to a desk?
A. 8 B.15 C. 60 D.30

11. If x+1 and x-1 are both factors of the equator $x^3 + px^2 + qx + 6 = 0$, evaluate p and q
A. -6,-1 B. 6,-1 C. 1,-1 D. 6,-6

12. Find a positive value of p in the expression $2x^2 - px + p$ leaves a remainder 6 when divided by x - p.
A.1 B.2 C.3 D.4

13. Find T in terms of K, Q and S if $S = 2r\sqrt{(QT+K)}$
A. $\dfrac{s^2}{2r\pi^2Q} - \dfrac{K}{Q}$ B. $\dfrac{s^2}{4r\pi^2Q} - \dfrac{K}{Q}$
C. $\dfrac{s^2}{2r\pi^2Q} - \dfrac{K}{6}$ D. $\dfrac{s^2}{4r\pi^2Q} - \dfrac{K}{6}$

14. The graph of $f(x)\ 2 = x^2 - 5x + 6$ crosses the x-axis
A. (-6, 0), (-1, 0) B. (-3, 0), (-2, 0)
C. (-6, 0), (1, 0) D. (2, 0), (3, 0)

15. Factorize completely the expression $abx^2 + 6y = 3ax - 2byx$
A. (ax-2y (bx-3) B. (bx + 3) (2y-ax)
C. (bx+3)(ax-2y) D. (Ax-2y)(ax-b)

16. Solve the following inequality
$(x - 3)(x - 4) \leq 0$
A. $3 \leq x \leq 4$ B. $3 < x < 4$
C. $3 \leq x < 4$ D. $3 < x \leq 4$

17. The 4th term of an A.P is 13 while the 10th term 31. Find the 21st term.
A. 175 B. 85 C. 64 D. 45

18. Simplify
$$\frac{x^2 - 1}{x^2 - 2x^2 - x - 2}$$
A. $\dfrac{1}{x+2}$ B. $\dfrac{x-1}{x+1}$ C. $\dfrac{x-1}{x+2}$ D. $\dfrac{1}{x-2}$

19. Express $5x-12/(x-2)(x-3)$ in partial fractions
A. $\dfrac{2}{x-2} - \dfrac{3}{x-3}$ B. $\dfrac{2}{x-2} + \dfrac{3}{x-3}$
C. $\dfrac{2}{x-3} - \dfrac{3}{x-2}$ D. $\dfrac{5}{x-3} - \dfrac{4}{x-2}$

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20. Which of the following binary operations is commutative in the set of integers?
A. a-b=a-2b B. a.b=a+b-ab
C. A-b=a^2-b D. a.b=a(b+1)/2

21. If a*b=$\pm\sqrt{ab}$ evaluate 2*(12*27)
A. 12 B. 9 C. 6 D. 2

22. Find the sum to infinity of the following sequence 1, 9/10, $(9/10)^2$, $(9/10)^3$.
A. 1/20 B. 9/10 C. 10/9 D. 10

23. Find the value of K if

$$\begin{pmatrix} -2 & 1 & 1 \\ 2 & 1 & k \\ 1 & 3 & -1 \end{pmatrix} = 23$$

A. 1 B. 2 C. 3 D. 4

24. If X = $\begin{pmatrix} 2 & 1 \\ 4 & 3 \end{pmatrix}$ and Y = $\begin{pmatrix} 1 & 2 \\ 0 & 3 \end{pmatrix}$ find XY

A. $\begin{pmatrix} 10 & 7 \\ 12 & 9 \end{pmatrix}$ B. $\begin{pmatrix} 2 & 7 \\ 4 & 17 \end{pmatrix}$ C. $\begin{pmatrix} 10 & 4 \\ 4 & 6 \end{pmatrix}$ D. $\begin{pmatrix} 4 & 3 \\ 10 & 9 \end{pmatrix}$

25. In a triangle XYZ, ∠YXZ = 44° and ∠XYZ = 112°, Calculate the acute angle between the internal bisectors of ∠XYZ and ∠XZY
A. 12° B. 56° C. 68° D. 78°

26. Find the distance between two town P(45°N 30°W) and Q(15°S, 3°W) if the radius of the earth is 7000km. (π=22/7) A. 1100/3 km
B. 2200/3km
C. 22000/3km D. 11000/3km

27. Two perpendicular lines PQ and QR intersect at (1,-1), if the equation of PQ is x-2y + 4 0. Find the equation of QR.
A. x-2y+1=0 B. 2x+y-3=0
C. x-2y-3=0 D. 2x+y-1=0

28. P is on the locus of points equidistant from two given Points X and Y, UV is a straight line through Y parallel to the locus. If ∠PYU is 40°. Find ∠XYR
A. 100° B.80° C.50° D.40°

29. The base diameter of a cylinder is 14cm while the height is 12cm. calculate the total surface area if the cylinder has both a base and a top
A. 836cm^2 B. 528cm^2
C. 308cm^2 D. 154cm^2

30. A school boy lying on the ground 30m away from the foot of a water tank tower observes that the angle elevator of a top of the tank is 60°. Calculate the height of the water tank.
A.60m B. 30√3m
C. 20√3m D. 10√3m

31. QRS is a triangle with QS=12m RQS=30° and ∠ QRS = 45°. Calculate the length of RS.
A. 18√2m B. 12√2m
C.6√2m D. 3√2m

32. The derivative of cosec x is
A. tan x cosec x B. -cot x cosec x
C. tan x sec x D. -cot x sec

33. For what value of x is the tangent to the curve y=x^2—4x+3 parallel to the axis?
A. 3 B. 2 C. 1 D. 0

34. Two variables x and y are such that dy/dx = 4x-3 and y=5 when x=2.
Find y in terms of x
A. $2x^2$-3x+5 B. $2x^2$-3x+3
C. $2x^2$-3x D. 4

35. Find the area bounded by the curve y=$3x^2$—2x+1, the ordinates x=1 and x=3 and the x-axis.
A. 24 B. 22 C. 21 D. 20

36.

Age in year	37. 13	38. 14	39. 15	40. 16	41. 17
No of Students	42. 3	43. 10	44. 30	45. 42	46. 15

The frequency distribution below shows the ages of students in secondary school. In a pie chart constructed to represent the data, the angle corresponding to the 15 year old is.
A. 20° B. 30°
C. 54° D. 108°

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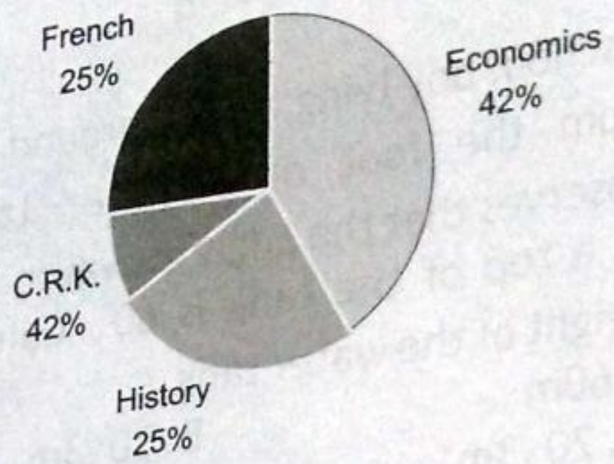

37.

Class	1 -3	4 - 4	7 - 9
Frequency	5	8	5

The pie chart below shows the distribution of students in a secondary school class. If 30 students offered French, how many offered C.R.K?

A. 25 B. 15 C. 10 D. 8

38. The mean and the range of the set of number 1.20, 1.00, 0.90, 1.40, 0.80, 0.80,1.20, and 1.10 are m and r respectively. Find m + r.

A. 1.11 B. 1.65
C. 1.85 D. 2.45

39. Find the standard deviation of the data using the table above

A. 5 B. 6 C. 5/3 D. √5

40. The variance of the scores 1, 2, 3, 4, 5 is A.

1.2 B. 1.4 C. 2.0 D. 3.0

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ENGLISH LANGUAGE

Read Passage I and II carefully and answer the question that follow.

PASSAGE 1

One of the most potent elements in body language is eye behaviour. You shift your eyes, meet aioher person's gaze or fail to meet it - and produce an effect out of all proportion to the muscular effort you have made. When two people look searchingly into each other's eyes, emotions are heightened and the relationship tipped toward greater intimacy.

In normal conversation, each eye contact lasts only about a second before one or both individuals look away.

Because the longer meeting of the eyes is rare, it is weighted with significance when it happens and can generate a special kind of human-to-human awareness. Most of the time, a lingering look is interpreted as a sign of attraction and this should be scrupulously avoided except in appropriate circumstances. A young woman once complained, 'That man makes me so uncomfortable, half the time when I glance at him he's already looking at me - and he keeps right on looking.

Proper street behaviour requires a balance of attention and intention. You are supposed to look at a passer-by just enough to show that you are aware of his presence. If you look too little, you appear haughty or furtive; too much and you are inquisitive. Usually what happens is that people eye each other until they are about eight feet apart, at which point both cast down their eyes.

Much of eye behaviour is so subtle that we react to it only on the intuitive level. This has been demonstrated in elaborate experiments. Subjects sit and talk in the psychologist's laboratory! Innocent of the fact that their eye behaviour is being observed from behind a one-way vision screen. In one fairly typical experiment, subjects were induced to cheat while performing a task, then were interviewed and observed, it was found that those who had cheated met the interviewer's eyes less often than was normal, an indication that 'shifty eyes can actually be a tip-off to an attempt to deceive.

However, none of the 'facts' of eye behaviour are cut and dried, for there are variations between individuals.

People use their eyes differently and spend different amounts of time looking at others. Besides, no pattern of eye behaviour is precisely predictable in any normal conversation.

Adapted from McQuade (1969), Thinking in Writing, P. 167

1. The young woman in the passage was uncomfortable because
   A. the man appeared to be showing interest in her by his prolonged eye contact
   B. the maifs short and sharp gazes would tip the relationship toward greater intimacy
   C. strangers who made the man's type of eye contact were likely to be dangerous D. she was allergic to eye contact.

2. The reason given for the non-finality of research results on eye contact is
   A. lack of concord and foresight among psychologists who carry out research on eye movement
   B. lack of uniformity in eye behaviour and the variability of contact situation C. that some subjects cheat during experiments, thus invalidating research findings
   D. that research findings on eye contact have not been subjected to further empirical tests.

3. From the expression proper street behaviour requires a balance of attention and intention, it can be concluded that
   A. even among strangers, attitudes and purposes can be deduced from eye behavior
   B. before walking the streets one must balance one's shifty eyes
   C. when intimate groups meet in the streets, eye contact is usually longer
   D. there is a balance between those with longer eye contact and those with shorter eye contact.

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4. Which of the following can be concluded from the opening paragraph? A. The effects of eye contact are always overwhelming.
B. Eye behaviour is one of the non-verbal ways of communicating.
C. Eye movement is the most potent means of expressing intimacy.
D. People are always offended by searching eye contact.

5. From the findings of the research described in the passage, one can reason that
A. innocent people maintain longer eye contact than the guilty ones
B. guilty people make Jess frequent gazes during interrogation
C. 'shifty eyes' are equally induced by innocence and guilt
D. a feeling of guilt is occasioned by 'shifty eyes'.

PASSAGE II

Use the passage-below to answer questions 6 to 16. The passage has gaps numbered 6 to 16. Immediately following each gap, four options are provided. Choose the most appropriate option for each gap.

Two thirds of children in .....6 [A. industrialized B. socialized C. technological D. modernized] Societies no longer have family life. They are virtually abandoned to child -minders from a very tender age. The .....7 [A. disregard B. indifference C. alienation D. inattention] from their mothers brings suffering and makes it impossible for them to achieve a healthy social life. The .....8 [A. development B. increase C. appreciation D. inflation] in the number of suicides, the rates of drug addiction and .....9 [A. delinquency B. irresponsibility C. Satanism D. truancy] among young people may be to a large extent, due to these premature separations which take place before sufficient time has .....10 [A. materialized B. occurred C. surfaced D. elapsed] for attachment to develop. 'This is one of the causes of psychosis in children today' says a psychiatrist who believes that breast-feeding is one of the basic cares which many children of this age are .....11 [A. tantalized with B denied of C left with D spared of) This psychiatrist argues that breast-feeding extends into the world outside the womb, a liquid bond with the inside of the mother's body, a bond .....12 [A close to B the same as C unrelated to D irrelevant to] that which the baby had with the placenta inside the uterus Rhythmic rocking to and fro is .....13 [A an elongation B a demonstration C a continuation D a stretching] of the movement that the child experienced before it was born As for the baby's .....14 [A squeezing against B separation from C likeness for D pressure against] its mother's body, it reminds the child of the .....15. [A. reassuring B. uncomfortable C. amusing D. unpleasant] pressure of the uterus, and enables it to ..... 16 [A. unearth B. rediscover C. learn D. explore] the rhythms of its mother's breathing and heartbeat.

In each of questions 17 to 26, select the option that best explains the information conveyed in the sentence.

17. If the rain hadn't fallen, we wouldn't have missed the match.
A. The rain is falling, so we will miss the match.
B. The rain fell, so we didn't watch the match.
C. The rain fell, so we watched the match.
D. The rain didn't fall, so we didn't watch the match.

18. The new Headmaster hoped that his men would pull together
A. He expected that the men would cooperate with him.
B. He thought that the men would compose themselves at work.
C. He was certain that they would resign en masse.
D. He was certain that their condition would improve under him.

19. If the trader paid in full, his order was not pruned down.
A. The trader who made full payment did not have his order reduced.
B. The trader who made some payment Did not have his order delayed.
C. Unless the trader paid in full his order would be rejected.
D. As the trader did not increase his order, he did not need to pay in full.

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20. The men were not pawns in someone else's political game.

A. The action they executed was their idea.

B. The men used someone else's plan. C. They were used by someone's political game.

D. They loved playing political games

21. The crisis ended as suddenly as it began.

A. The crisis had suddenly begun.

B. The crisis will not end suddenly.

C. The crisis stopped almost immediately.

D. The crisis will stop immediately.

22. One thing I will not be complaining about in my new job is a lack of excitement.

A. The job is bad

B. The job is exciting.

C. The job is not too exciting.

D. The job has been previously done.

23. The Governor parried all the questions put to him by the journalist.

A. The Governor answered all the questions brilliantly.

B. The Governor evaded all the questions.

C. The Governor failed all the questions.

D. The Governor mastered all the questions.

24. If I visited England, I might go to Manchester City.

A. When I go to England, I could go to Manchester City.

B, Whenever I visit England, I must go to Manchester City.

C. I did not go to England and could not go to Manchester City.

D. I could not visit Manchester City because I did not want td go to England.

25. The man puts his foot down whenever he is convinced of his action.

A. He desires to assert his will in the situation.

B. He makes his mark wherever he goes. C. His attitude demonstrates someone who likes to oppress others around lirn. D. He demonstrates firmness of character.

In each of questions 26 to 40, choose the option *nearest in meaning* to the word or phrase in italic

26. No wonder Dekemi later became a detective; she has been very *observant*. A. curious B. perceptive

C. inductive D. inquisitive

27. Nigeria has been playing a *vital* role in the political and economic development of Africa.

A. creditable B. crucial

C. respectable D. laudable

28. Emeka's painting was so *realistic* that it could almost have been a photograph.

A. picturesque B. concrete

C. lively D. authentic

29. *Courteously,* Ade stood back to let his teacher go first through the door.

A. Patiently B. Politely

C. Carefully D. Calmly

30. Many people used to live *in poverty.*

A. instability B. want

C. difficulty D. the slums

31. *Accountability* is certainly a desirable quality in a politician.

A. Respectability B. Courage

C. Responsibility D. Diligence

32. The *common* practice among some media practitioners is to be sensational in their reporting.

A. prevalent B. rampant

C. ordinary D. cogent

33. That *fateful* decision changed the company's outlook in many ways.

A. wonderful B. disastrous

C. uncontrollable D. unsuccessful

34. The accident victim received a *superficial* wound from the crash.

A. a serious B. a painless

C. an internal D. an external

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35. The boxer *fizzled* out just in the sixth round.
A. knocked out his opponent
B. showed off his talents
C. became tired but fought on spiritedly D. surrendered rather disappointingly

36 The manager described Mfon as a *man of vehement character*
A weak and Uninterested
B strong and insistent
C troublesome and noisy D clever and helpful

37. Obi's dog is old but still *lively*.
A. attractive B. howling
C. barking D. frisky

38 His *taciturnity* amazed everyone in the court during the legal tussle
A. obliviousness B. reticence
C. sensibility D. pervasiveness

39 The greatness of the creator of the universe is always *inexpressible* to many adherents of certain faiths.
A. inevitable B. wonderful
C. ineffable D. unbearable

40. We made *a pile* in the business deal.
A. lost a lot of money
B. earned a lot of money
C. broke even
D. cut corners

GENERAL PAPER

Answer the following questions by choosing one of the options

1. A low land between two hills is called
A. Island B. Valley
C. Plateau D. lake E. Mountain

2. Which of these animals is not a member of dog family
A. Jackal B. German shepherd
C. Tiger D. Yorkshire terrier
E. Rottweiler

3. The process in which the food we eat is broken down into substance that can be used by the body is called:
A. Digestion B. Circulation
C. Tissue D. Respiration E. Excretion

4. A frightening dream is called
A. Blush B .Nightmare
C. Night Anguish D. Night Fear
E. None of the above

5. Which of these is not a type of eagle?
A. Short-toed B. Booted
C. Bonelli D. All of the above
E. None of the above

6. What was the former name of present Zimbabwe?
A. Rhodesia B. Yamashoma
C. Orange Republic D. Brazzaville
E. Oceania

7. A system of government based on the ideological belief of equality of people and concentration of national resources in the hands of the State is called:
A. Fanaticsm B. Egalitarianism
C. Communism D. Democracy
E. Utopianism

8. An instrument used in finding ways and navigation is called:
A. Map B. GPRS
C. Compass D. Compound
E. None of the above

9. A computer is made of:
A, Hardware B. Software
C. None of the above D.A & B. E. A only

10. Which of these continents is the coldest in the world?
A. Asia B. Africa
C. Antarctic D. Europe
E. America

11. What is the name of the world's highest mountain?
A. Mount Kilomajaro

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B. Mount Everest
C. Mount Cameroon
D. Mountain Nkoyo
F. None of the above.

12. What name is the Parliament of Nigeria called:
A. House of Representative
B. Senate
C. State House of Assembly
D. National Assembly
E. All of the above

13. The Parliament of the United States of America is called:
A. House of Parliament
B. National Assembly
C. Congress
D. Assembly of Law makers
F. None of the above

14. Cote d'Ivoire is formerly known as?
A. Yamassokou V
B. Ivory Coast C. Gold Coast
D. Rhode Coast E. Diamond Haven

15. The process of preservation, protection and wise use of natural resources is called
A. Fermentation B. Preservation
C. Conservation D. Ecology
E. Zoning

16. Ballet and Tango are types of:
A. Song B. Dancing C. Cycling.
D. Swimming E. Horse Ridding

17. The first per n to develop atomic bomb was:
A. Albert Einstein B. Charles De Gaulle C. Thomas Jefferson
D. T. S. Elliot E. Plato

18. The process by which the people in a country are given an opportunity to elect, choose or reject new government is known as:
A. Referendum B. Plebiscite
C. Election D. Ratification
E. None of the above

19. In which continent is Mount Everest?
A. Asia B. North America
C. South America D. Africa
E. Europe

20. Which of these people is not an explorer?
A. Vasco Da Gama
B. Christopher Columbus
C. Ferdinand Magellan
D. David Livingstone
E. None of the above

21. 21. What is the difference between 2:45am and 12:32pm
A.9Hrs 47min B. 14Hrs 10min
C. 5Hrs 25min D. 10Hrs 17min

22. 4 ¾ - 2 ½ x ½ =
A.4/3 B.14/3 C.9/8 D.3/2

23. 2 scores plus 4 dozens multiplied by 14 equals? A.118 B.1232 C.1882 D.1432

24. 33 ⅓ of 100 equal?
A. $33^1/_3$ B.30 C.3 D.33

25. 1800 multiplied by what number will give you 100800
A.56 B.28 C.41 D.38

26. 5.8 x 6.1 x 9.8
A.480.4 B.350.3
C.560.8 D.260.7

27. A farmer has 41 bags of oranges. Each bag contains 59 oranges each. How many oranges does the farmer have?
A. 3324 B. 1591
C. 2831 D. 2419

28. If 16 of the same book weight 4kg. How much does one book weight?
A.20g B.25g C.55g D.40g

29. What is 5% of N575?
A.30.8 B.28.75
C.25.5 D.55.5

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30. What is the difference between 500 multiplied by 700 and 700 multiplied by 500?

A. 1000 B.100 C.0 D.10000

31. A girl has 98 beads, and all but 14 were lost. How many beads did she loose? A.84 B.112 C.114 D.14

32. If 15% of a number is 175. What is the number multiplied by 2?

A.500 B.150 C. 1000 D.800

33. A man was born on the 29th of February, 1980. How many birthdays has he celebrated after his birth till today?

A.9 B.9 C.3 D.13

34. 17, 31, 51, 68, _

A.75 B.82 C.90 D. 85

35. A car travels at 120km/h. How long it takes it to get to jebba which is 2,400km away?

A. 20hrs B. 25hrs

C. 15hrs D. 30hrs

36. A man buys 6 books and 3 bags. If a book cost N17 and a bag cost N25 How much has spent

A. N112 B.N177

C.N125 D.N150

37. It takes 15 minutes to fill 125 gallons with petrol from a tanker. How long will it take to fill 72 gallons?

A. 92min B. 45min

C. 87min D.102min

38. If it takes 15men 6½ days to build a house, how many houses can they build in 45 days?

A. 3days B. 7days

C.8days D. 5days

39. If it takes a boy 5minutes to run 1km, how long would it take him to run 2½ km?

A.10½min B.15min

C.12½min D. 11½rnin

40. How many bottles are in a dozen crates containing 24 bottles each?

A.288 B.300

C.180 D.120

MATHEMATICS

1. A solid is made up of a hemisphere of radius x cm, and a cone of height x2 cm of the same radius as the hemisphere. What is the volume of the composite solid?

(a) $2/3\pi x^3$ (b) $15/3\pi x^3$

(c) $12/3\pi x^3$ (d) πx^3

2. What is the difference in the local time between two places in latitude 55 °N if they are located at longitudes 8°W and 18°E respectively.

(a) 60 mins (b) 80 mins

(c) 98 mins (d) 104 mins

3. A solid sphere of radius x cm is placed in a cylinder of radius 2x cm and height 2x cm. The cylinder is then filled with water to the brim and the solid gently withdrawn. Find the volume of the water in the cylinder in cm^3.

(a) $28/3\pi x^3$ (b) $24\pi x^3$

(c) $20/\pi x^3$ (d) $8\pi x^3$

4. The earth rotates on its own axis once in 24hrs. What is the speed in km/hr of a place whose latitude is 30°5. (Take $2\pi R$ to be equal to 4×10^4 km)

(a)2,140km/hr (b) 1,443km/hr

(c) 1,200km/hr (d) 1,000km/hr

5. The minor sector of a circle of diameter 3.6cm subtends angle 35° at the center. What is the perimeter of the sector?

(a) 5.8cm (b) 4.7cm

(c) 2.9cm (d) 1.1 cm

6. A regular polygon of (2k + 1) sides has 140° as the size of each interior angle. Find k.

(a) 4 (b) 4½ (c) 8 (d)8½

7. Solve the following simultaneous equation $x + y = 10$, $x^2 + y^2 = 58$ (a)x=7,y=3 or x=3,y=7

(b) x=-7,y=-3 or x=-3,y=-7

(c) x=-7,y=3 or x=3,y=-7

(d) x=7,y=-3or x=-3,y=7

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8. A man is x years old which his son is y years old. The sum of their ages is twice the difference of their ages. If the product of their ages is 675, find the age of the

(a) 40years (b) 42 years
(c) 55 years (d) 45 years

9. Let the universal set U {1,2, 3,4, 5,6}A= {l,2,3}and B{2,4,6}then A n B° is

(a){2} (b){1,3}
(c){4,6} (d){1,2,3,5}

10. Simplify $\frac{\sqrt{8}+\sqrt{50}}{\sqrt{7}}$ as far as possible

(a) $\sqrt{14}$ (b) $7\sqrt{2}$
(c) $\frac{7\sqrt{7}}{\sqrt{7}}$ (d) $\frac{2\sqrt{7}+2\sqrt{5}}{\sqrt{7}}$

11. Factorize fully: $px^2 - py^2 + qx^2 - qy^2$

(a) (p - q) (x + y) (x - y)
(b) (p - q) ($x^2 - y^2$)
(c) (p + q) (x - y) (x + y)
(d) (p - q) (x + y)

12. Evaluate $Log_3 9 - Log_{27} 3 + Log_3 9$

(a) 6⅓ (b) 5½ (c) 9 (d) 5⅔

13. In a class of 30 students, there are10 who wear spectacles and 16 girls. There are 8 boys who do not wear spectacles. How many girls wear Spectacles?

(a) 3 (b) 4 (c) 5 (d) 6

14. Solve the equation $\log_2 x - \log_2 (x-1) = 2$ (a) 2
(b) 11/8
(c)11/99 (d) No solution

15. (x - 2) is a factor of $x^3 + 3x^2 + kx + 14$, the value of k is

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

16. Factorize the polynomial $x^3 - 7x + 6$

(a) (x-3)(x- 1)(x+2) (b) (x-3)(x-1)(x-2) (c) (x+3)(x+ 1)(x+2) (d) (x-1)(x-6)

17. y is inversely proportional to the square of x. When x = 3, then y = 4. Find the constant of proportionality

(a) 48 (b) 4/9 (c) 2.25 (d) 36

18. The solution to the inequality $5 - 2x > 11 - 4x$ is

(a) x > 3 (b) x < 3 (c) x > 1 (d) x < 1

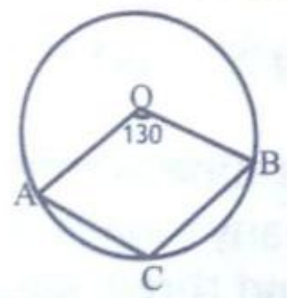
19. If $\begin{pmatrix} x & 2 \\ 1 & 5 \end{pmatrix} = \begin{pmatrix} x & 3 \\ 2 & 3 \end{pmatrix}$ find the value of x

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

20. The determinant of $\begin{pmatrix} 1 & 2 & 0 \\ 3 & 2 & 1 \\ 4 & 2 & 1 \end{pmatrix}$ is

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

21. In fig. 1, O is the centre of the circle ∠AOB 130° Find∠ACB.



(a) 115 (b)135
(c) 19 (d) 65

22. Figure 2 shows a circle of radius 4cm, the area of the shaded segment is

(a) $4\pi cm^2$ (b) $4\pi - 8cm^2$
(c) $84cm^2$ (d) $2\pi - 4cm^2$

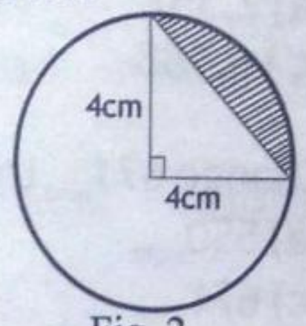
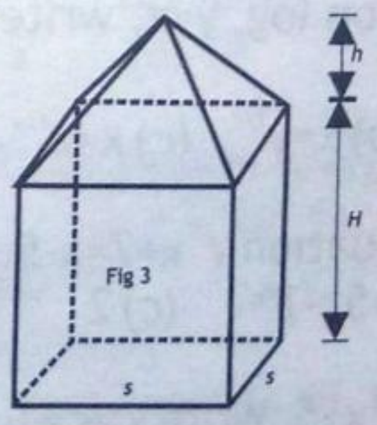


Fig. 2

23. Figure 3 shows a pyramid on top of a cuboid. The height of the cuboid is Hcm, the height of the pyramid b, cm, and the square base of both shapes has side s cm. find the volume of the shape.



(a) $s^2 (H + h) cm^2$ (b) $s^2 (H + h) cm^3$
(c) $s^2 (H + \frac{1}{3} h) cm^3$ (d) $\frac{1}{2} s^2 (2H + h) cm^3$

24. If $y = \text{Sin}(x^2 + 7)$, then $\frac{dy}{dx}$ is

(a) $2x \text{ Cos} = (x^2 + 7)$ (b) $(2x + 7) \text{ Cos}(x^2 + 7)$ (c) $-2 \text{ Cos}(x^2 + 7)$ (d) $2x \text{ Cos } x$

25. The line y = kx-3 is perpendicular to the line 2y + 3x =7. The value of *k* is

(a) - ⅓ (b) - ⅔ (c)- $^3/_2$ (d) ⅔

26. The midpoint of the line segment joining (-1,3) and *(5,7)* is

(a) (3,5) (b) (3,2)
(c) (2,5) (d) (1,6)

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27. The solution of the inequality $x^2 + 3x - 10 < 0$ is
(a) $-2 < x < 5$ (b) $x < -5$ or $x > 2$
(c) $2 < x < 5$ (d) $-5 < x < 2$

28. A binary operation is defined by $a*b = a + b - 3$. The identity is
(a) 3 (b) -3 (c) 1 (d) 0

29. A binary operation is defined by $a*y = xy - x + y$. the value of $(3*4)*5$ is
(a) 81 (b) 61 (c) 57 (d) 73

30. Find the difference between the mean and the median of the numbers 1,2,3,4, 5, 6, 7, 8, 9 and 10
(a) 0 (b) 1/9 (c) 5 (d) 4/9

31. There are eight men and nine women on a committee. In how many ways can a subcommittee two men and three women be chosen?
(a) 2,352 (b) 112
(c) 6,188 (d) 28,224

32. Change 671_{nine} to base 8
(a) 550_{eight} (b) 540_{eight}
(c) 671_{eight} (d) 1046_{eight}

33. Write $14/\sqrt{5} - \sqrt{3}$ in the form $a\sqrt{5} - b\sqrt{3}$, where a and b are rational.
(a) 7 (b) $7\sqrt{5} + 5\sqrt{3}$
(c) $7\sqrt{5} + 7\sqrt{3}$ (d) $7\sqrt{3} - 7\sqrt{5}$

34. In the relation $\log_x y = z$, write x in terms of y and z.
(a) $x = z^y$ (b) $x = y^{1/z}$ (c) $x = z^{1/y}$ (d) $x = y^z$

35. Solve the equation $\sqrt{x+7} = x - 5$.
(a) 9 (b) 5, -7 (c) 2 (d) 2, 9

36. Let y 4x+3/ 2x -5, Write x as a function of y. (a) x = 2y-3/ 5y +3 (b) x = 5y -3/2y+4.
(c) x = 5y +3/2y -4 (d) x = (5y + 3) (2y-4)

37. The second and fifth terms of a geometric progression are 6 and -48, respectively. The first term is
(a) -3 (b) 3 (c) 12 (d) -12

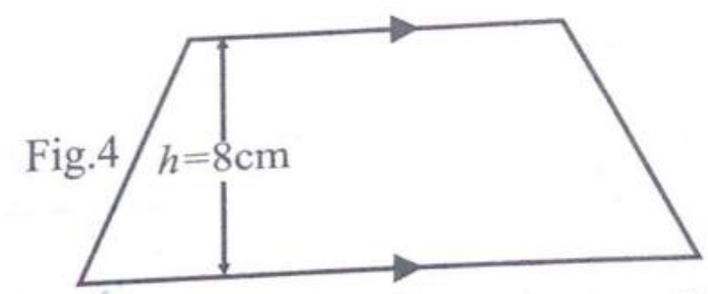
38. Find the positive solution of the equation log (x + 1) + log (x + 4) = 1.
(a) 6 (b)0 (c)2 (d)1

39. N72, 000 is invested at 80% simple interest. After how many years has it reached N87, 840?
(a) 2¾ years (b) 2 years
(c) 3 years (d) 2 ½ years

40. Suppose that p is the probability that an event occurs, and that q is the probability that the event does not occur. Which of the following is true?
(a) p = q (b) p + q = 1
(c) pq = 0 (d) pq = 1

41. Suppose x and y are positive numbers for which x > y. which of the following is not true?
(a) $x^2 > y^2$ (b) $-x < -y$
(c) $1/x > 1/y$ (d) $3x > 2y$

42. Fig4 shows a trapezium. The height is 8m, one the parallel side is 10m and the area is 104m2. Find the other parallel side.



(a) 16m (b) 10m (c) 13m (d) 10.4m

43. Find the remainder when $x^3 - 3x^2 + 4x - 7$ is divided by (x +2)
(a) -3 (b) -7 (c) -35 (d) $x^2 - 5x + 14$

44. If $dy/dx = 6x^2 + 15x^4$ and y = 7 when x=2, find y
(a) $2x^3 + 3x^5 + 7$ (b) $12x + 60x^2 - 497$
(c) $12x + 60x^2 - 7$ (d) $2x^3 + 3x^5 - 105$

45. The long hand minute of a clock is 7cm long. What distance does to the tip of the minute hand move 1¼ hours?
(take $\pi = 22/7$)
(a) 33cm (b) 44cm
(c) 55cm (d) 65cm (d) 65cm

Question 46 and 47 refers to the points A (-2,3) and B (4,-5)

46. The distance/AB/is:
(a) 10units (b) $\sqrt{8}$units
(c) $\sqrt{40}$ units (d) $\sqrt{14}$ units

47. The midpoint of AB is
(a) (3,-4) (b) (-1,1)
(c) (1,-1) (d) (-3,4)

48. Find the sum to infinity of the series
$\frac{1}{2} - \frac{1}{4} + \frac{1}{8} - \frac{1}{16} + ___$
(a) 1 (b) 1/3 (c) 2/3 (d) 2

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49. Find the solution set for the set (x-2) (x-1) > 0.
(a) x > 2 (b) x < 2
(c) x < 1 (d) x < 1 or x>2

50. The solution set of the inequality 2x + 6 < 10 is
(a) (-3,2) (b) (-5,2)
(c) (-8,2) (d) (-3,8)

51. Write the **7**th term of the sequence $\{1 + (-1)^n\}$
(a) 0 (b) 1 (c) 2 (d) 8

52. If x, 2x + 1, 3x - a form an A.P. find a
(a) 2 (b) -2 (c) 1 (d) -1

53. The fifth term of the sequence 1, 21, 51, 91 ..... is
(a) 131 (b) 141 (c) 151 (d) 161

54. Let X= (a, b, c, d) which statement is correct?
(a){a} x (b){a,b} x
(c)b x (d)n(x)=4

55. The distance from the points (3, -2) to the line 3y+2x+5=0 is
(a) $5/\sqrt{13}$ (b) $10/\sqrt{13}$
(c) $7/\sqrt{23}$ (d) $7/\sqrt{5}$

56. Find the slope of the line which is perpendicular to the line 3x + 5y + 17 = 0
(a)5/3 (b)-3/5 (c)-5/3 (d)17/5

57. Find the intercept on the x and y axis respectively of the line 3x-2y+6=0
(a) (3,2) (b) (2,3)
(c) (3,-2) (d) (-2,3)

58. If f (x+2) = $3x^2$- 2x + 5, find f (1)
(a) 8 (b) 10 (c) 6 (d) 3

59. If α and β are the root of the equation $2x^2$ - 3x - 9 = 0, find 1/α + 1/β
(a) -1/3 (b) 2/3 (c) 3 (d) 1/3

60. The nth term of a sequence is given by Un =2+ $3U_{n-1}$ while the U_4 36+U_3, find the third term of the sequence.
(a) 1 (b) 5 (c) 17 (d) 51

61. If a and b are the roots of the equation $2x^2$ - 5x + 6 = 0 find $\alpha^2 + \beta^2$
(a)4 (b)3 (c)-5/2 (d)¼

62. If x - 2 and x + 1 are factor of equation $x^2 + px^2 - 4xq = 0$, the determine p, q
(a) -3, 12 (b) 3, -12
(c) -3, -12 (d) -1, 0

63. If x + 25 / (x + 1)(x - 2) = P/ x + 2 + q/x-2, find P (a) 3 (b) 2 (c) 1 (d) -8

64. A 16m ladder is placed against a house so that its base is 8m from the house. What angle does the ladder makes with the ground?
(a) 65° (b) 60° (c) 34° (d) 10°.

65. Find the trigonometric function value of Cos (315°).
(a) $\sqrt{2}/2$ (b) $\sqrt{2}$
(c) $1/\sqrt{2}$ (d) undefined

66. Convert-320° to radian measure, give answer using 3.14 for π
(a) 32 (b) 2.57 (c) -5.58 (d) 1.31

67. Solve for $\sec^2 x$ 2/4 sec x= 2/2
(a) $3\pm\sqrt{41}/8$ (b) $3-\sqrt{41}/8$
(c) 5 (d) $2\pi\pm\sqrt{22}/8$

68. Given that Tan θ = 3/4 and θ is in the second quadrant Find sin2 θ
(a) -2/35 (b) 30.78
(c) -24/25 (d) 18

69. Find arc Sin 0.2334 in degrees, using tables
(a) 2.91 (b) 21°, 30'
(c) 13°, 31' (d) 13°, 40'

70. Find the components of this vector u +v, where u = (3, -7) and v = (4, 2)
(a) (7, -5) (b) (7, -6)
(c) (2, -5) (d) (3, +5)

71. Simplify $(4-x^2)(2+x)^{-½}$
(a) $(2+x)\sqrt{(2-x)}$ (b) $(2-x)\sqrt{(2+x)}$
© $(2-x)\sqrt{(2-x)}$ (d) $(2+x)/\sqrt{(2-x)}$

72. Simplify $(2-\sqrt{3})^3$
(a) $10-9\sqrt{3}$ (b) $8-3\sqrt{3}$
(c) $26-15\sqrt{3}$ (d) $26-9\sqrt{3}$

73. The sum of an infinite geometric progression is $2^2/_7$ and the first term is 4.

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What is the common ratio?
(a) $-2^3/_4$ (b) $-^3/_4$ (c) ¾ (d) $2^3/_4$

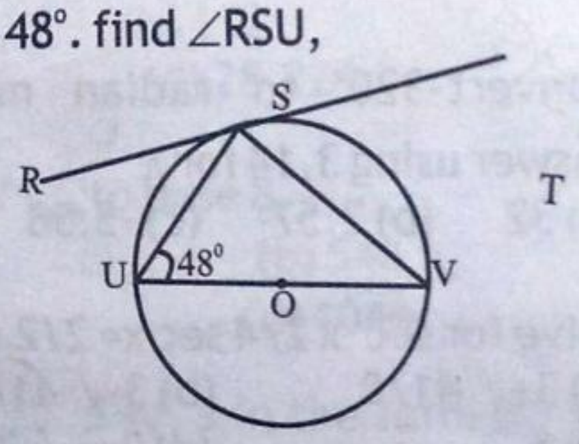
74. Evaluate $x^3 + 1/2x^2 - x - 1$ when $x = -1$
(a) 0 (b) -1 (c) 1 (d) 1/3

75. If $2m + 3n/4m - 5n = 2$, then $5m + n/2m + n$ is equal to:
(a) 71/32 (b) 32/71 (c) 2 (d) 4

76. If $2x^2 - px + 6 = (2x - 6)(x-1)$, then p is equal to (a) -8 (b) 4 (c) 8 (d) -4

77. Which of the following is not a quadratic expression?
(a) x^2-5 (b) $x(1-2x)$
(c) $x(1+x^2)$ (d) $x^2-3/5x+1$

78. In fig. 5 below, RST is a tangent to the circle centre O. it touches the circle at S.U and V are at the ends of a diameter and ∠SUV = 48°. find ∠RSU,



(a) 48° (b) 138° (c) 42° (d) 90°

79. The bearing of A from B is 280°. find the bearing of B from A.
(a) 80°N (b) 100° (c) 100° (d) 90°

Use frequency Table below to answer question 80 - 82

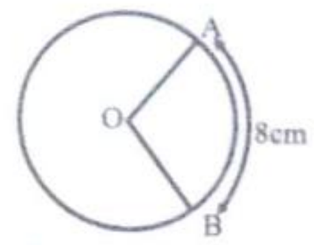
X	0	1	2	3
Frequency	20	18	7	5

80. Calculate the mean of x.
(a) 1.5 (b) 0.47 (c) 0.94 (d) 1

81. What is the median of x?
(a) 0 (b) 1 (c) 25.5 (d) 0.94

82. What is the range of x?
(a) 15 (b) 0 to 3 (c) 5 to 20 (d) 3

83. OAB is a sector of a circle of radius 8cm and centre 0 in fig. 6 below. The length of the arc AB is 8cm. find the area of the sector.



(a) $32cm^2$ (b) $64cm^2$
(c) $30cm^2$ (d) $60cm^2$

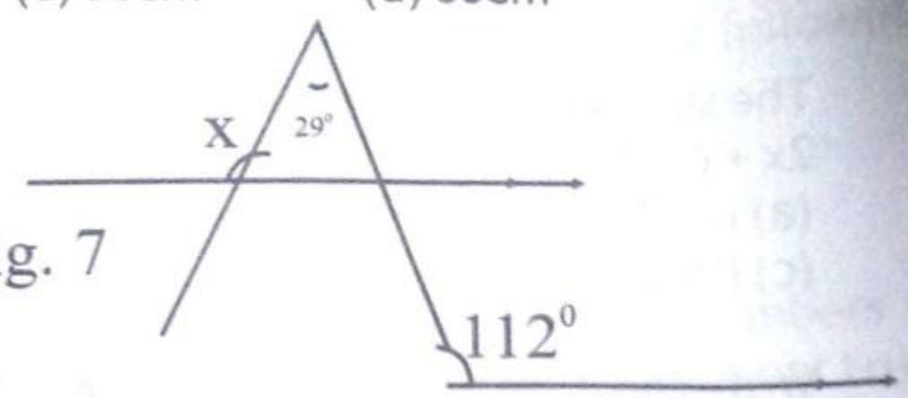


Fig. 7

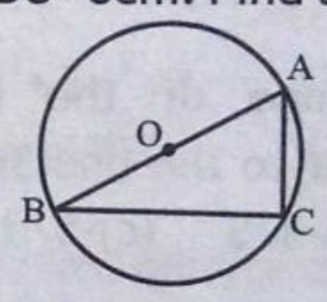
84. In Fig. 7 below, find the value of x
(a) 141° (b) 90° (c) 97° (d) 112°

85. What value of K makes the expression $p^2 - 18p + k$ a perfect square?
(a) -9 (b) 9 (c) -81 (d) 81

86. For what value of x is the function $y=7/x+3$ not defined
(a) 7 (b) 0 (c) -3 (d) 3

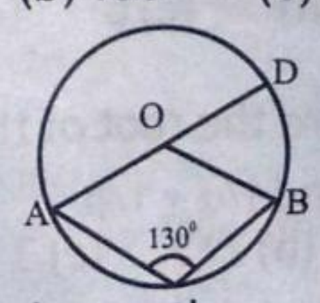
87. Evaluate $(4x10^3)\ x-(6x10^2)$, giving your answer in standard form.
(a) 2400000 (b) $24x10^4$
(c) $2.4x10^6$ (d) $4.6\ x10^3$

88. In fig. 8 below, O is the centre of the circle, AC = 6cm and BC= 8cm. Find the circumference of the circle.



(a) 102cm (b) 5cm
(c) $4\sqrt{7}$cm (d) 10cm

89. In Fig. 9 below, O is the centre of the circle and ∠ACB = 130°, Find ∠DOB.
(a) 100° (b) 130° (c) 80° (d) 25°



90. Two ships leave the same port: one ship sails for 300km on a bearing of 340°; the other sails for 400km on a bearing of 250°. The distance between the ships is (a) 700km
(b) 100km
(c) 500km (d) 200km

91. A shopkeeper sold an item for N3,600,

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making a profit of 20%. Find the original cost of the
(a) N2,800 (b) N3,000
(c) N4,500 (d) N4,320

92. A flagpole height 2.5 m casts a shadow of length 4m. Calculate the angle of elevation of the sum, correct to the nearest degree.
(a)32° (b)58° (c)39° (d)51°

93. If $4^{x+1} \times 8^{2x-1} = 16$, find x.
(a) 1 (b) 9 ½ (c) 5/9 (d) -1

94. Evaluate 22_{three} X 102_{three}, leaving your answer in base 3.
(a) 8_{three} (b) 1021_{three}
(c) 10021_{three} (d) 2244_{three}

95. 8% of a certain sum of money is N320. What is 10% of the sum?
(a) N400 (b) N256
(c) N4,000 (d) N800

96. A number is selected at random from the set {3, 0, $\sqrt{4}$, $\sqrt{5}$, 2/9}. What is the probability the number is rational? (a)2/5
(b)3/5 (c)1/5 (d) 4/5

97. The area of a circle is $154cm^2$. Find its circumference. (take π = 22/7)
(a) 7cm (b) 14cm
(c) 308cm (d) 44cm

98. Two dice are thrown together. What is the probability of getting a sum of 5.
(a) 1/6 (b) 5/16 (c) 1/9 (d) 1/12

99. In fig. 10 below, the acute angle of the parallelogram is 45°, One side is 8cm and the area is $24\sqrt{2}cm^2$, find the other side.

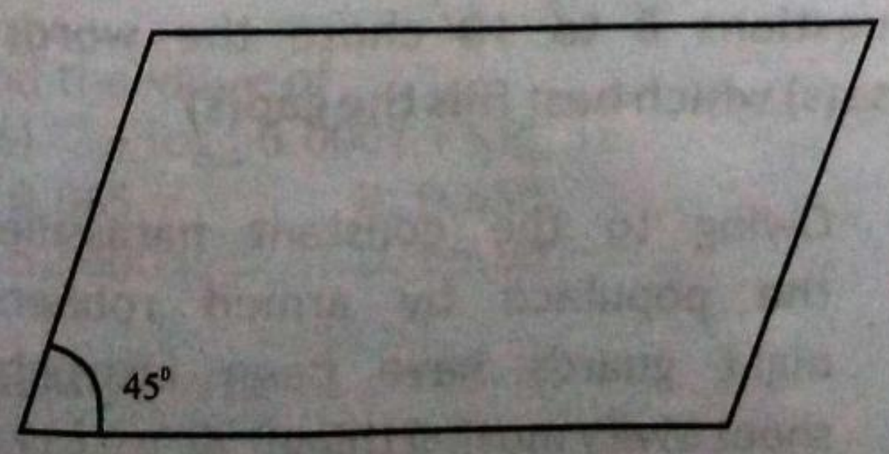

Fig.10

(a)12m (b)10m (c)6cm (d) 4cm

100. Three times the tens digit of a two digit number is 2 greater than the unit digit. When the digits are interchanged the new number is 36 more than the original number. What is the original number?
(a) 35 (b) 37 (c) 15 (d) 28

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UNILAG POST UTME PRACTICE QUESTIONS 2010/2011

ENGLISH LANGUAGE

Read the passage carefully and answer the questions that follow.

The banking sector consolidation, which ended in December 2005, came with the realization that those who understood the market merely plunged into it, notched premium stocks and left the directors of those firms to grapple with the challenges of a hostile business environment. Many investors who, hitherto, had staked their funds on high risk projects, which offers little or no profit, therefore, found solace in their discovery of the stock market as a potential cash cow. With the continuous fall in the prices of stocks in the past one month, however, many investors, particularly the new entrants, are beginning to lament the loss of huge sums of money that could have been invested in better yielding ventures. This suggests loss of confidence.

Investing in Nigeria capital market, to many, had been too good to be true until sordid facts started to unfold in February, about the state of certain companies that had squeezed funds out of unsuspecting investors, especially via public offerings. What sparked off the fears was the announcement by the Securities and Exchange Commission, that it was investigating some lending companies to ascertain the charge of price manipulation suspected to be targeted at ripping off investors.

Nevertheless, this was an eye opener for investors, who, many a times, blindly rush into the acquisition of shares mainly to boost their ego, with neither a thorough research as regards the financials of the companies, nor professional advice.

1. Investing to many had been too good to be true implies
A. optimism B. hopelessless
C. scepticism D. belief

2. According to the passage the prevailing mood of new investors in the past month is one of
A. elation B. jubilation
C. regret D. approbation

3. This was an eye opener for investors means that
A. their eyes were closed
B. it was revealing
C. they were blind before
D. they could see their money

In questions 4 to7 choose the option nearest in meaning to the bold and underlined word(s) or phrase

4. He **took exception** to Ajuwa's remark.
A. was delighted at
B. was excited by
C. got demoralized
D. objected to

5. The new employee is so humble and friendly that he will soon make himself **popular**
A. welcome and accepted
B. hated C. estranged D. rejected

6. The manager often quarrels with his staff because he goes around with **a chip on his shoulder**
A. deformed shoulder
B. readiness to be angered
C. look of contempt
D. an air of superiority

7. Telling Ali to break his habit of coming late to work is like **knocking your head against an brick wall.**
A. Asking him to beat you up
B. Making a fool of yourself
C. Making him break down
D. Trying the impossible

In questions 8 to 10 chose the words(s) or phrase(s) which best fills the gap(s)

8. Owing to the constant harassment of the populace by armed robbers, all night guards have been instructed to shoot every moving thing.
A. at sight B. by sight
C. in sight D. off sight

9. My wife and I were to celebrate our silver wedding anniversary last Sunday

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Unfortunately on that_____day
A. fruitless B. faithful
C. faithless D. fateful

). The first graduation ceremony of the university was attended by men from all _____ of life.
A. works B. Areas
C. walks D. parts

ATHEMATICS

. Calculate $3310_5 - 1442_5$
A. 1313_5 B. 2131_5
C. 4302_5 D. 1103_5

. Convert 3.1415926 to 5 decimal places
A. 3.14160 B. 3.14159
C. 0.31415 D. 3.14200

. The length of a notebook 15cm was measured as 16.8cm. Calculate the percentage error to 2 significant figure
A. 12.00% B. 11.00%
C. 10.71% D. 0.12%

4. A worker's present salary is N24, 000 per annum. His annual increment is 10% of his salary. What would be his annual salary at the beginning of the third year?
A. N28 800 B. N20 040
C. 31 200 D. 31 944

5. Express the product of 0.0014 and 0.011 in standard form
A. 1.54×10^4 B. 1.54×10^{-3}
C. 1.54×10^{-4} D. 1.54×10^{-5}

6. Evaluate $(81)^{3/4} - (27)^{1/3} \div 3 \times 2^3$
A. 27 B. 1 C. 1/3 D. 1

7. Find the value of
$(16)^{3/2} + \log_{10} 0.0001 + \log_2 32$
A. 0.065 B. 0.650
C. 5.500 D. 65.00

8. Simplify $\sqrt{12}-\sqrt{3} \div \sqrt{12}+\sqrt{3}$
A. 1/3 B. 0 C. 4 D. 1

9. Four members of social first eleven cricket team are also members of the first fourteen rugby team. How many boys play for at least one of the two teams?
A. 25 B. 21 C. 16 D. 3

10. How many ways are there to assign 3 people to 5 desks with no more than one person to a desk?
A. 8 B. 15 C. 60 D. 30

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UNILAG POST UTME PRACTICE QUESTIONS 2009/2010

ENGLISH LANGUAGE

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

Like immigration or globalisation, debating how Africa is reported is often a vexatious subject; it provides many people a good chance to enjoy an argument with a closed mind. It's either you come to the debate feeling that in Spite of Scan MacBride's commission over two decades ago, all reports about Africa in the western media will continuous to be about death, disease, despair and destruction; or you *are* asking whether this whole business is about Africans wanting separate code of journalism that denies its own realities. Its black or white, and no room in between for any shades of grey.

Lack of context in reporting, which is perhaps the greatest culprit of all the moment, is just as much a problem among African journalists covering Africa as it is among European journalists - or journalists anywhere for that matter - trying to understand why Josef Fritzl would lock up his daughter in a cellar for 24 years and father seven children by her without ayone finding out.

(Taken from Azubuike Ishiekwo, Viewpoint-Again the trouble with Africa)

1. According to the passage, a common problem for all journalist is
A. globalisation B. immigration
C. lack of context in reporting
D. despair and destruction

2. The passage gives the impression that the MacBride's commission presented Africa in _____ way.
A. an unfortunate
B. a favourable
C. a non-committal
D. confusing

3. This passage is about
A. African Journalism
B. Josel Fritzl and his daughter
C. Immigration and globalization
D. Realities of report about Africa

In each questions 4 to 7 choose the most appropriate option nearest in meaning to the bold and underlined word(s) or phrase

4. Our new Vice-Chancellor has stepped off **on the wrong foot**
A. injured his foot
B. stepped on the wrong
C. made a costly mistake
D. started off badly

5. Much to her **chagrin,** the bridegroom did not turn up for the wedding
A. wonder B. surprise
C. disappointment D. depression

6. The chairman's reaction was a **storm in a tea cup**
A. suitable for the occasion
B. less serious than it appeared to be
C. More serious than necessary
D. greatly diminished in scope

7. Do this job while I am away, but **take your time**.
A. be careful B. be thorough
C. be fast D. don'tbeinhuury

In questions 8 to 10, choose the option opposite in meaning to the underlined word or phrase

8. Good students can easily identify **spurious** arguments.
A. genuine B. interesting
C. false D. illogical

9. The athlete's skin now **flabby** as a result of his changed circumstance
A. oily B. neat C. firm D. weak

10. We watched in wonder as she rattled away in the **esoteric** language.
A. inscrutable B. familiar
C. secret D. Obscure

MATHEMATICS

1. If x - 1 and x + 1 are both factors of the equation $x^3 + px^2 + qx + 6 = 0$, evaluate p and q
A. -6, -1 B. 6, 1
C. 1, -1 D. 6, -6

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2. Find a positive value of p is the expression $2x^2 - px + p$ leaves a reminder 6 when divided by $x-p$

A. 1 B. 2 C. 3 D. 4

3. Find T in terms of K, Q and S if $S = 2r\pi(QT + K)$

A. $\frac{s}{2\pi r^2 Q} - \frac{k}{Q}$ B. $\frac{s^2}{4\pi r^2 Q} - \frac{k}{Q}$

C. $\frac{s^2 - k}{2\pi r^2 Q}$ D. $\frac{s^2 - k}{4\pi r^2 Q}$

4. The graph of $f(x)^2 = x^2 - 5x + 6$ crosses the x = axis at the points

A. (-6,0), (-1,0) B. (-3,0), (-2,0)
C. (-6,0), (1,0) D. (2,0), (3,0)

5. Factorize completely the expression $abx^2 + 6y - 3ax - 2byx$

A. (ax-2y) (bx-3) B. (Bx+3)(2y-ax)
C. (bx + 3) (ax-2y) D. (ax-2y)(ax-b)

6. Solve the following inequality $(x - 3)(x - 4) \leq 0$

A. $3 \leq x \leq 4$ B. $3 < x < 4$
C. $3 \leq x < 4$ D. $3 < x \leq 4$

7. The 4th term of an A.P is 13 while the 10th is 31. Find the 21st term

A. 175 B. 85 C. 64 D. 45

8. Simplify $\frac{x^2 - 1}{x^3 - 2x^2 - x - 2}$

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

9. Express $\frac{5x - 12}{(x-2)(x-3)}$ in partial fractions

A. $\frac{2}{x-2} - \frac{3}{x-3}$ B. $\frac{2}{x-2} + \frac{3}{x-3}$

C. $\frac{2}{x-3} - \frac{3}{x-2}$ D. $\frac{5}{x-3} - \frac{4}{x-2}$

10. Which of the following binary operations is commutative in the set of integers?

A. $a - b = a - 2b$
B. $a.b = a + b - ab$
C. $a - b = a^2 + b$
D. $a.b = a(b+1) / 2$

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UNILAG POST UTME PRACTICE QUESTIONS 2008/2009

ENGLISH LANGUAGE

Read the passage carefully and answer the questions that follow.

Delinquency describes actions that would not be if performed by adults. If a young person performs of such actions then he has committed a crime. Delinquency is one of several status offences that can be committed only by people in particular stations of life determine by age, profession or a person's role in society. For young people such offences include drinking, driving and smoking underage. Usually they are offences only to the extent that they help to preserve some of the good things of life for the exclusive enjoyment of the adult world. Delinquency is therefore a weapon forged in adults minds and directed by adult hands against young people. It is born out of envy, adult and intolerance. If the world changed overnight and the responsibility to make and enforce laws fell on juvenile shoulders, the adults should expect a raw deal in return. Delinquency would then certainly refer only to many of the adult now freely committed by them.

1. The writer of the passage believes that delinquency laws are
   A. not relevant to human society
   B. only fit for young people
   C. unfair to the juveniles
   D. Very unfair to the world

2. Status offences those that can be committed by
   A. all adults
   B. juveniles only
   C. delinquent juveniles only
   D. specified classes of people

3. In the view of the writer, drinking underage is an offence because
   A. adults want to have all he drinks to themselves
   B. adults do not want juveniles to get drink
   C. drunken juveniles can cause disorder in society
   D. adults have to protect young persons

4. If the world changed overnight
   A. there would be delinquency laws
   B. delinquency would refer to at adult actions
   C. delinquency would no more be a crime
   D. delinquency would also change in meaning

5. When young people make and enforce laws
   A. the responsibility will be too heavy on their shoulders
   B. they would retaliate against the adults
   C. the laws will be juvenile
   D. the world will be turned upside down

In questions 6 to 15 choose the option opposite in meaning to the word in bold

6. Our government is making **determined** efforts to eradicate illiteracy.
   A. compulsory B. ineffective
   C. innocent D. unreliable

7. The university of Lagos has a large **intake** of students each year
   A. rejection B. product
   C. output D. turn-out

8. Ngozi flogged the girl **reluctantly**
   A. eagerly B. calmly
   C. furiously D. laboriously

9. Sola's car badly damaged; he has to look for an **expert** mechanic to fix it
   A. uneducated B. amateurish
   C. awkward D. unscientific

10. Coastal plains are often very **densely** populated
    A. weakly B. badly
    C. rarely D. sparsely

11. Anini was a **mindless** criminal
    A. strong B. mindful
    C. feeling D. memorable

12. The judge blamed the **plaintiff** for misleading the court
    A. defendant B. complainant
    C. accused D. prosecution

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13. The thieves **vandalized** the vault's lock
A. repaired B. arranged
C. serviced D. actuated

14. The demonstrators have refused to **call off** their action
A. consolidate B. start
C. resume D. end

15. The **angry** waves swallowed the boat
A gentle B. unruffled
C. cool D. Serene

MATHEMATICS

1. The population of a village is 6538
Express this number to three significant.
A. 6540 B. 6538
C. 6530 D. 654

2. What must be added to the expression $x^2 - 18$ to make perfect significant
A. 9 B. 36 C. 72 D. 81

3. A bricklayer measured the length of a wall to be 4.10m. If the actual length of the wall is 4.25m, find his percentage error.
A. 3.9/17% B. 3.27/41%
C. 15% D. 355/17%

4. A car is travelled at a speed of 80km/hr. It speed in meters per second (m/s) is
A. 13.3m/s B. 22.2m/s
C. 133.3m/s D. 222.2m/s

5. A cylinder of base radius 4cm is open at one end. If the ratio of the area of its base to that of its curved surface is 1:4, calculate the height of the cylinder
A. 1cm B. 2cm
C. 4cm D. 8cm

6. The area of a parallelogram is $513cm^2$ and the height is 19cm. Calculate the base
A. 13.5cm B. 25cm
C. 27cm D. 54cm

7. A headmaster contributes 7% of his income into a fund and his wife contributes 4% of her income. If the husband earns N5,500 per annum and the wife earns N4,000 per annum. Find the sum of their annual contribution to the fund.
A. N1,045 B. N605
C. N545 D. N490

8. Factorize $2x^2 - 21x + 45$
A. $(2x - 9)(x - 5)$ B. $(2x - 15)(x+3)$
C. $(2x+15)$ D. $(2x - 15)(x-3)$

9. A town P is on bearing 315^0 from town Q while town R is south of town P and west of town Q. If town R is 60km away from Q how far is R from P?
A. 30km B. 42km
C. 45km D. 60km

10. Solve the simultaneous equations
$y = 3x$; $4y - 5x = 14$
A. -2, -6 B. 2,6
C. 2,-6 D. -2,6

11. A cliff on the bank of a river is 300 meters high. If the angle of depression of a point on the opposite side of river is 60^0, find the width of the river
A. 100m B. 75⊠3m
C. 100⊠3m D. 200⊠3m

12. The sum of the interior angles of a regular polygon is 30 right angles. How many sides have the polygon?
A. 17 sides B. 26 sides
C. 30 sides D. 4 sides

13. Three balls are drawn one after the other with replacement, from a bag containing 5 red, 9 white and 4 blue identical balls. What is the probability that they are one red, one white and one blue?
A. 5/102 B. 5/136
C. 5/162 D. 5/204

14. The pilot of an aeroplane, flying 10km above the ground in the direction of a landmark, views the landmark to have an angle of depression of 35^0 and 55^0. Find the distance between the two points of observation.
A. $10(\sin 35^0 - 5\sin 55^0)$
B. $10(\cos 35^0 - \cos 55^0)$
C. $10(\tan 35^0 - \tan 55^0$
D. $10(\cot 35^0 - \cot 55^0)$

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15. In a family of 21 people, the average age is 14 years. If the age of the grandfather is not counted, the average age drops to 12 years. What is the age of the grandfather
A. 35 years B. 40 years
C. 42 years D. 54 years

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UNILAG POST UTME PRACTICE QUESTIONS 2007/2008

ENGLISH LANGUAGE

Read the following passage and answer the questions that follow:

The approach to the University is being restructured to ease the flow of traffic, give better security and provide an appropriate introduction to the seat of higher learning. The Works and Services complex is also under construction, and we intend to move into the completed (major) part of it within the next few weeks.

All these projects are being executed with an eye to aesthetics for we recognize the important influence of a beautiful and healthy environment on its inhabitants and feel the cluster of building on a small space such as we have, should be so well designed as to have beneficial psychological and sociological effect on all members of the community. I have gone to these lengths to itemize these examples of a current development for two main reasons. Firstly, to advise you that the road diversion and other physical inconveniences currently being experienced will be on the increase because of intense development activity. We therefore appeal to you to bear with us in full knowledge and consolation that such inconveniences are temporary and will soon yield final tangible results. Secondly, demonstrate our capacity for executing approved projects with dispatch, and to assure Government that we are up to the task. Indeed, I can assure Government that its ability to disburse funds to us will be more than matched by our capacity to collect and expend them on various worthy projects in record time.

1. From the passage, we can gather that
A. there is not much consideration for the health of the inhabitants
B. there is indeliberate effort to inconvenience the people
C. buildings are put up anyhow
D. the inconvenience suffered by the inhabitants will be for a while
E. project are carried out without approval

2. Unless it can be shown that the money voted for projects can be spent on them in good time
A. the development activity will not be intense
B. it will not be easy to convince the Government of an executive ability
C. will not be difficult to ask Government for funds
D. our final results will be unreliable
E. the road diversions and other inconveniences will continue

3. An eye to aesthetics in the passage means
A. regard for space
B. beneficial psychological effects
C. regard for health
D. consideration for beauty
E. a cluster of buildings

4. In this passage, the author tries to explain why
A. it is necessary to establish the works and services complex in University
B. beauty should not be taken into consideration when building on such a small space as we have
C. the gateway to the University is being rebuilt
D. a major part of the project should be completed in the next few weeks
E. visitors should be debarred from using the gates in the meantime.

5. Which of these is NOT among the reasons given by the author for enumerating the exmples of current development?
A. to show that we are capable of executing approved projects
B. to convince the Government that we can be trusted with task
C. the inconvenience currently being experienced will go on indefinitely
D. we are fully aware of the inconveniences being caused but we do not want you to complain
E. we have the capacity to complete worthy projects within the scheduled time.

In each of question 6-9, fill each gap with the most appropriate option from the list provided

6. I had to ..... a loan to pay my children's school fees
A. take out
B. take on
C. take to
D. take off

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7. The man as well as his sons ..... in the band
A. plays B. play
C. are playing D. have played

8. ..... escalating food prices, government seems to have no solution
A. as regard B. with regards to
C. as regard to D. with regard to

9. It is believed to be ..... who defrauded the bank
A. she B. her
C. herself D. hers

Choose the option nearest in meaning to the word or phrase in italic.

10. After thorough investigations , the students were absolved of the responsibility for the damage
A. abolished B. Cleared
C. extricated D. exempted

Choose the option opposite in meaning to the word or phrase in italic

11. He takes a more *sanguine* view of the future of our country
A. optimistic B. casual
C. pessimistic D. critical

Choose the option that best conveys the meaning of the sentence

12. Had the neighbours not intervened, Mrs. James would have been dead by this time means
A. the neighbours did not intervene so Mrs. James died
B. Mrs. James died because the neighbours intervened
C. the neighbours intervened because Mrs. James is alive
D. Mrs. James is alive because the neighbours intervened

Choose the option that has same vowel sound as the one represented by the letters underlined.

13. Regal A. earn B. bill
C. bean D. bread

Select the word that has the same consonant sound as the given word.

14. Laugh A. half B. wolf C. walk D. talk

Select the word that has the same pattern of stress as the given word.

15. Understand A. entertain
B. example C. hopefully D. remember

MATHEMATICS

1. If a*b = + ab, evaluate 2* (12*27)
A. 12 B. 9 C. 6 D. 2

2. Find the sum of infinity of the following sequence 1, 9/10, $(9/10)^2$, $(9/10)^3$
A. 1/10 B. 9/10 C. 10/9 D. 10

3. Find the value of k if

$$\begin{pmatrix} -2 & 1 & 1 \\ 2 & 1 & k \\ 1 & 3 & -1 \end{pmatrix} = 23$$

A. 1 B. 2 C. D. 4

4. IF X $\begin{pmatrix} 1 & 2 \\ 0 & 3 \end{pmatrix}$ and Y = $\begin{pmatrix} 2 & 1 \\ 4 & 3 \end{pmatrix}$ find XY

A. $\begin{pmatrix} 10 & 7 \\ 12 & 9 \end{pmatrix}$ B. $\begin{pmatrix} 2 & 7 \\ 4 & 17 \end{pmatrix}$ C. $\begin{pmatrix} 10 & 4 \\ 4 & 6 \end{pmatrix}$ D. $\begin{pmatrix} 4 & 3 \\ 10 & 9 \end{pmatrix}$

5. In a triangle XYZ, ∡YXZ = 44^0 and ∡XYZ = 112^0, Calculate the acute angle between the internal bisectors of ∡XYZ and ∡XZY
A. 12^0 B. 56^0 C. 68^0 D. 78^0

6. Find the distance between two town P (45^0N 30^0W) if the radius of the earth is 7000km (π =22/7)
A. 1100/3km B. 2220/3km
C. 22000/3km D. 11000/3km

7. Two perpendicular liens PQ and RQ intersect at (1,-1), if the equation of PQ is x - 2y + 4 = 0, find the equation of QR.
A. x - 2 + 1 = 0 B. 2x + y - 3 = 0
C. x - 2y - 3 = 0 D. 2x + y - 1 = 0

8. P is on the locus of points equidistant from two given points X and V, UV is a straight line through Y parallel to the locus, if< PYU is 40^0, find ∡XPY.
A. 100^0 B. 80^0 C. 50^0 D. 40^0

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8. The base diameter of a cylinder is 14cm while the height is 12cm. Calculate the total surface area if the cylinder has both a base and a top.
A. $836cm^2$ B. $528cm^2$
C. $308cm^2$ D. $154cm^2$

10. A school boy lying on the ground 30m away from the foot of a water tank tower observes that the angle of elevation of a top of the tank is 60^0. Calculate the height of the water tank.
A. 60m B. 30⊠3m
C. 20⊠3m D.10⊠3m

11. QRS is a triangle with QS =12m, ∡RQS=30^0 and ∡QRS=45^0. Calculate the length of RS.
A. 18.2m B. 12.2m
C. 6.2m D. 3.2m

12. The derivative of cosec *x* is
A. tan *x* cosec *x* B. -cot *x* cosec *x*
C. tan *x* sec *x* D. -cot *x* sec

13. For what value of x is the tangent to the curve $y = x^2 - 4x + 3$ parallel to the x-axis?
A. 3 B.2 C.1 D.0

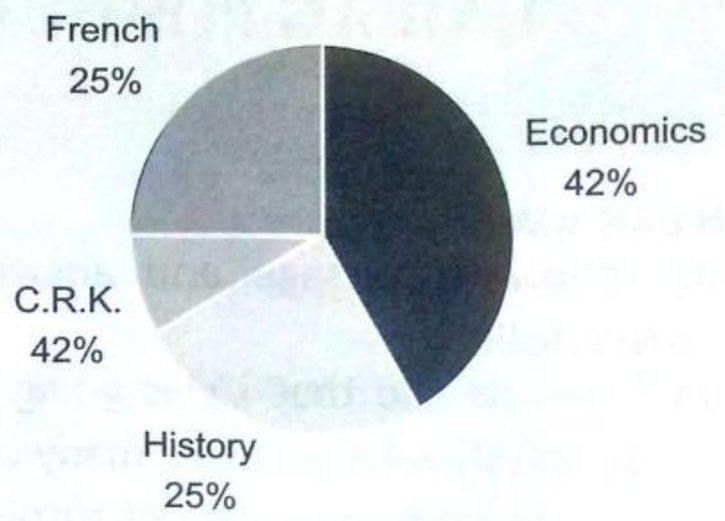
14. Two variables x and y are such that dy/dx = 4x - 3 and y= 5 when x=2. Find y in terms of x.
A. $2x^2 - 3x + 5$ B. $2x^2 - 3x + 3$
C. $2x^2 - 3x$ D. 4

15. Find the area bounded by the curve $y = 3x^2 - 2x + 1$, the ordinates x=1 and x=3 and the x-axis.
A. 24 B. 22
C. 21 D. 20

16.

Age in year	37. 13	38. 14	39. 15	40. 16	41. 17
No of Students	42. 3	43. 10	44. 30	45. 42	46. 15

The frequency distribution above shows the distribution in a secondary school. In a pie chart constructed to represent the data, the angle corresponding to the 15years old is
A. 20^0 B. 30^0 C. 54^0 D. 108^0



17. The pie chart above shows the distribution of students in a secondary school class. If 30 students offered French, how many offered C.R.K?
A. 25 B. 15 C. 10 D. 8

18. The mean and the range of the set of numbers 1.20, 1.00, 0.90, 1.40, 0.80,0.80, 1.20 and 1.10 are m and r respectively. Find m + r.
A. 1.11 B. 1.65 C. 1.85 D. 2.25

Class	1 -3	4 - 4	7 - 9
Frequency	5	8	5

19. Find the standard deviation of the data using the table above.
A. 5 B. 6 C. 5/3 D. ⊠5

20. The variance of the scores 1, 2,3,4,5 is
A. 1.2 B. 1.4 C.2.0 D.3.0

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UNILAG POST UTME PRACTICE QUESTIONS 2006/2007

ENGLISH LANGUAGE

Read the following passage and answer the questions that follow:

Whenever I told people that I was going to the Psychiatric Hospital, Yaba in Lagos, many of them looked at my face with some kind of suspicion or sympathy. At least that was the message that I read from their faces.

I understood suspicion to mean that they might be troubled or worried if I had some psychiatric problem myself concerning the concept of sympathy, they might have thought that I had a patient that I went there to see or visit. How on earth they thought that way baffled me! In reality, the hospital was built for the care of people with some kind of psychiatric problem or another. Did it mean, then that all persons that one found in the hospital in any given time had psychiatric problems? Or, could someone not go to the place for things other than seeking psychiatric assistance?

What might be responsible for this kind of attitude was the lack of education or precisely, good education. After all, education could help people differentiate their right from the left. What such people might have done was to request to know what one was going there to do. Such a request would have solved the suspicion and sympathy problems.

1. The word "them" in the first paragraph belongs to the grammatical class of
A. noun B. verb C. adjective D. pronoun

2. To read from someone's face as used in the passage means
A. understand B. guess C. know D. see

3. Sympathy attributively mean
A. the show of concern to a very sick person
B. that one must go to look after one that is sick
C. that the writer has a person in such a hospital
D. that one's relation has just been very ill

4. Suspicion as used in the passage means
A. introvert B. suspect
C. introspect D. extrovert

5. The statement "How on earth they thought that way baffled me" is a grammatical example of a/an
A. exclamation B. declaration
C. imperative D. rhetorical

Fill in the gap in the following passage as appropriate

Central Banks around the world intervened to the tune of one hundred and twenty dollars recently to shore up confidence in the global financial system concerns about a crunch in the credit markets spread.

The United States Federal Reserve became the last central bank to make extra ____6____ available to the financial institutions in the ____7____ market. In a statement made recently, the Federal Reserve said it was "providing liquidity to facilitate the orderly ____8____ of financial markets" and offered to provide reserves "as necessary" to promote a federal ____9____ rate close to its target rate of 5.25 percent

6. A. liquidity B. money
C. cash D. facility

7. A. lending B. repurchase
C. credit D. borrowing

8. A. arrangement B. issuance
C. purchase D. functioning

9. A. funds B. money
C. liquidity D. cash

In question 10, choose the option opposite in meaning to the word underline

10. Children at the age often usually voracious
A. Without appetite B. very weak
C. very intelligent D. very troublesome

In question 11, choose the option nearest in meaning to the word underline

11. There were sporadic occurrence of small pox in the village

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A. Widespread B. occasional
C. sparse D. regular

Choose the option that gives the meaning nearest to that of the idioms underlined in the sentences in question 12

12. He had his fingers in every pie
A. Told interesting story
B. loved eating pie
C. was involved in everything
D. Baked all the pies

13. She read the letter and her face fell
A. She read closely
B. she started crying
C. she was surprised
D. she looked suddenly disappointed

Choose the best option that completes the sentence in question 14

14. To _____Nigerians, corruption in high places is not strange
A. We B. us C. ours D. ourselves

From the word lettered A-D choose the word that best completes the sentence in question 15

15. The quest is about rounding his speech
A. of B. off C. up D. down

MATHEMATICS

1. If x, y are angles which lie between 90^0 and 180^0 and $x<y<z$, then
A. $\sin x<\sin y<\sin z$ B. $\sin x>\sin y>\sin z$
C. $\sin y<\sin x<\sin z$ D. $\sin y>\sin x>\sin z$

2. If the length of the sides of a right-angled triangle are given as x-1, x and x+1, then hypotenuse is
A. 13 B.4 C. 7 D. 5

3. The two sectors of the same circle subtend angles of 75 and 30 at the centre of the circle. Their areas are in the ratio.
A. 25:4 B. 5:2
C. 115: 112 D. 5:1

4. A cylindrical metal rod of radius 10cm and length 35cm is to be melted down and recast into circular cones of base radius 7cm and height 15cm. if π= 22/7 the examination number of cones which can be cast from the original material is
A. 18 B. 14 C. 12 D.7

5. The locus of point which is equidistant from the lines y-x =0, and y +x=0, for x> 0, is the
A. x-axis B. y-axis
C. line x=1 D. line y=1

6. A binary operation is defined over the set of real numbers such as a*b = ax (b=12). Find 3*(4*2)
A. 54 B. 60 C. 72 D.80

7. Which of the following binary operations is (are) NOT closed over the set of odd integers? I. addition II. Subtraction III. Multiplication IV. Division
A. I and III B. II and IV
C. IV only D. I. II and IV only

8. Limit $\frac{x^3-1}{x^2-1}$ is equal to
A. 0 B. 1 C.1 ½ D. infinity

9. Differentiate $y=\sqrt{y}\,\sqrt{\frac{1}{x}}$ with respect to x
A. $2\sqrt{\frac{1}{x}}\ 2x\sqrt{\frac{1}{x}}$ B. $\frac{1}{\sqrt{x}}-2x\sqrt{\frac{1}{x}}$
C. $\frac{x-1}{x\sqrt{x}}$ D. $x^{-1/2}+x^{-3/2}$

10. If $y=x^2\sin x$, then $\frac{d^2y}{dx^2}$ equals
A. $2x\sin x\ x^2\cos x$
B. $4x\cos x+(2-x^2)\sin x$
C. $(2-x^2)\sin x\ 4x\cos x$
D. $2\sin x-x^2\sin x$

11. The value of $(1-2x)\,dx$ is
A. 0 B. 1/8 C.-1/4 D. ¼

12. The coordinator of point X and Y on the line XY are X (-2,-1) and Y-(2,1). The equation of the perpendicular bisector of XY is
A. y - 2x=0 B. y - 1 - 2x = 0
C. y - 1 - 2x = 5 D. y - 2x - 3

13. The point at which the tangent to the curve $y=x^2-5x-14$ makes an angle of 135 with the positive x-axis is
A. (1,0) B. (3,-2)
C. 5,9 D. (2,-2)

14. If $P^{-}\begin{pmatrix}2&3\\1&2\end{pmatrix}$ and the inverse of P is $\begin{pmatrix}2&x\\y&2\end{pmatrix}$, the values of x and y are
A. -3 , -1 B. -1, -3

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C. 3, 1 D. 1, 3

15. In a test concluded on three arms of a class, class A with 30 students scored an average of 5.5 marks, class B with 25 students scored an average of 6.4 marks and class C got an average of 6.25 marks. If the average mark for the whole class is 6.0, the number of students in class C is.
A. 35 B. 30 C.25 D. 20.

The distribution of marks scored by students in a class test is given below:

Mark	2	3	4	5	6	7	8	9
No of Students	1	2	3	4	5	3	1	1

16. From the table, the mean and the modal marks are respectively
A. 5,6 B. 5,4,6
C. 5,5,5 D. 5,4,5,5

17. The mean and the upper quartile are respectively
A. 60; 65 B. 150,751
C. 60, 70 D. 55, 75

18. The score of 50% corresponds to a percentile of
A. 60.0 B.50.0
C.18.8 D.15.5

19. When the monthly budget for a household is displayed on a pie chart; the sectorial angles for the various items of expenditure are as follows: Food (165^0). Education (90^0). Transportation (36^0), Clothing (x^0), and Miscellaneous (18^0). If N900 is the amount budget for clothing, then the educational budget is
A. N1,250 B. N1,500
C. N1,800 D. N,000

20. The standard variation of the set of numbers -3, -2, -1, 0,1,2,3 is
A. 4 B. 2/2 C. 2 D. 4

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UNILAG POST UTME PRACTICE QUESTIONS 2005/2006

ENGLISH LANGUAGE

Read the passage carefully and answer the question that follows

In 1973, Japanese sericulturist arrived in Malawi with a batch of 40,000 silkworm eggs. They were taken from Bvumbwe Agricultural research station in Thyolo District. In this station, work is being done to determine favourable silkworm rearing conditions and areas where mulberry trees whose leaves the worn-is feed on, could grow well. According to the researchers, the silk worm which eventually develop into cocoons from which raw silk is produced, do well in areas with climatic conditions.

Silk is one of tile strongest of fibres. In fact for thousands of years, silk fabrics have been regarded as the most beautiful and durable materials woven by man. Many people call silk the "cloth of kings and queens".

The weaving of silk originated in china. An old Chinese believed to be written by Confucius, tells us that the write of Emperor Huangi-Li was the first person to make fabrics of silk. Around 2640 B.C, Emperor Huangi -Li asked his wife his Ling-Shih to study the worms that were destroying the mulberry trees in his garden. The Empress took some of the cocoons she picked up the gauzy mass and found that one of the threads could unwound almost without end from the cocoon. His Ling-Shih had discovered silk. She was so delighted with the discovery and even wore a ceremonial robe for the Emperor out of the cocoon threads. After that, all of the officials in the Emperor's court wore brightly dyed silk robes on important occasions.

People in other countries regarded the new fibres as something rare and beautiful. A few

traders went to china to learn about making cloth from silk, but the Chinese kept their silk worms a closely guarded secret

1. Sericulture is

A. carried out in china

B. the breeding of silk worms for the production for silk

C. the research done on all silkworms

D. the breeding cloth from the cocoons of silkworms

E. the breeding of silkworms in Malawi.

2. It is implied in this passage that silk was discovered.

A. after years of hard work and research by the Empress

B. by accident

C. in the search for a more durable fibre for making cloth

D. after some experience carrier out by tile Japanese

E. by design

3. According to sericulture, silkworms

A. cannot survive in a warm climate.

B. may be reared on any tree

C. do well in areas with a climate

D. produce the longest threads when they are fed leaves from the top of the mulberry tree.

E. are destroyed by heat.

4. The work carried out the Agricultural Research station in Malawi on the silkworm eggs was to

A. try to breed cocoons which would produce more silk

B. determine the survival rate of silkworms

C. find out the most suitable areas and conditions search for rearing silkworms

D. search for better method of rearing silkworms

E. find out how cocoons becomes silkworms

5. Choose the meaning which best fits the underlined phrase from the passage, <u>closely guarded secret.</u>

A. carefully hidden from the knowledge of others

B. Secretly processed the business with armed guards

C. carefully hidden from the view of strangers

D. secretly known

E. unknown

In each of the questions 6 to 9, fill each group with the most appropriate option from the list provided

6. He _____ not absent himself from lectures

A. dares B. dare C. didn't dare

D. do dare

7. The conference turned out to the _____

A. five-days B. five day C. five day's

D. five days'

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8. Ojo has an aversion _____ swimming
A. to B. for C. in D. with

9. The poor _____ our attention and kindness
A. deserves B. does deserve
C. do deserves D. deserve

Choose the option nearest in meaning to the word(s) or phrase in italics.

10. He will be *livid* if he finds out you are here
A. extremely happy B. extremely angry
C. very better D. very surprised

Choose the option opposite in meaning to the word(s) or phrase in italics.

11. Her *meteoric rise* to the fame surprised everyone
A. Tardy B. swirl
C. gradual D. surprised

Choose the option that best conveys the meaning of the sentence.

12. An official has been appointed to show them the ropes
A. assigned duties B. train them
C. assist them D. punish them

Select the word that has the same consonant sound as the one represented by the underlined letter.

13. goal A. face B. boat C. park D. more
14. suggest A. great B. judge C. angle D. gather

Select the word that has the same pattern of stress as the word.

15. particular
A. indelible
B. respected
C. determine
D. disrespectful

MATHEMATICS

1. If Paul can paint a fence in 2 hours and Fred can paint the same fence in 3 hours, Paul and Fred working together can paint the fence in
A. 2.5 hours B. 1.2
C. 5.0 hours D. 1.0 hours

2. If two angles of a triangle are acute angles, the third angle
A. Is less than the sum of the two given angles
B. Is an acute angle
C. Is the largest angle of the triangle
D. May be an obtuse angle

3. DCCXLIX in Roman numerals represents the number
A. 749 B. 764
C. 1249 D. 1264

4. The sum of an odd number and even number is
A. Sometimes an even number
B. Always divisible by 3 or 5 or 7
C. Always an odd number
D. Always a prime number

5. If one angle of a triangle is three times a second angle and the third angle is 20 degrees more than the second angle, the second angle is
A. 32^0 B. 34^0 C. 40^0 D. 50^0

6. The factors of a^2-b^2 are
A. (a - b), (a + b)
B. (a - b), (a - b)
C. a^2, $-b^2$
D. (a^2 - 1), (1 - b^2)

7. A bank manager received 8 times as much salary as one of the messengers. If the sum of their salaries is N135,000, the manager's salary is
A. N15,000 B. 100,000
C. N120,000 D. N125,000

8. Given a regular hexagon, calculate each interior angle of the hexagon
A. 60^0 B. 30^0 C. 120^0 D. 45^0

9. The lengths of the sides of a right-angle triangle at (3x__)cm, (3x___)cm and *x* cm. Find the value of x
A. 2 B. 6 C. 18 D. 12

10. Thirty boys and *x* girls sat for a test. The mean of the boys' score and that of the girls were respectively 6 and 8. Find *x* if the total score was 468
A. 38 B. 24 C. 36 D. 12

11. Ade and Uche can do a piece of work in 18 days. Ade can do it alone in *x* days, whilst

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Uche takes 15 days longer to do it alone.
Which of the following equations describes x?
A. $x^2 + 5x - 18 = 10$ B. $x^2 - 20x + 360 = 0$
C. $x^2 - 21x - 270 = 0$ D. $2x^2 + 42x - 190 = 0$

12. What is the probability that a number chosen at random from the integers between 1 and 10 inclusive is either a prime or a multiple of 3?
A. 7/10 B/ 3/5 C. 4/5 D. ½

13. A bag contains 4 white balls and 6 red balls. Two red balls are taken from the bag without replacement. What is the probability that they are both red?
A. 1/5 B. 1/3 C. 2/15 D. 22/9

14. If $y = x/(x - 3) + x/(x+4)$ find y when $X = -2$
A. -3/5 B. 3/5
C. 7/5 D. 7/5

15. A man invests a sum of money at 4% per annum simple interest. After 3 years, the principal amount to N7, 000.00. Find the sum invested
A. N7,840 B. N6,250.00
C. N6,160.00 D. N5,833.33

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ANSWERS

It is my expectation that students refer to this answers when they have sincerely and satisfactorily answered the questions.

2014/2015 POST - UTME

ENGLISH

1. A	2. B	3.A	4.C	5.A
6. C	7. C	8.D	9.C	10.A
11. D	12. B	13.A	14.D	15.C
16. B	17. D	18.B	19.D	20.A
21. C	22. D	23.C	24.A	25.B

GENERAL PAPER

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

MATHEMATICS

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

2013/2014 POST - UTME

ENGLISH

1. B	2. D	3. C	4. C	5. D
6. B	7. C	8. D	9. D	10. A
11. A	12. A	13. C	14. A	15. B
16. A	17. A	18. D	19. A	20. C
21. C	22. A	23. B	24. D	25. A
26. C	27. A	28. B	29. C	30. C
31. A	32. B	33. C	34. A	35. D
36. B	37. A	38. D	39. C	40. B
41. D	42. D	43. D	44. A	45. A
46. D	47. C	48. A	49. C	50. A
51. B	52. C	53. C		

GENERAL PAPER

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

MATHEMATICS

1. D	2. A	3. B	4. A	5. C
6. C	7. B	8. A	9. D	10. B
11. C	12. A	13. C	14. D	15. A
16. C	17. D	18. B	19. A	20. E
21. D	22. C	23. A	24. B	25. D
26. C	27. A	28. C	29. B	30. C
31. C	32. A	33. E	34. C	35. B
36. E	37. -	38. A	39. E	40. C
41. A	42. C	43. E	44. B	45. C
46. D	47. -	48. C	49. D	50. D
51. C	52. A	53. A	54. B	55. D
56. D	57. E	58. B	59. E	60. C
61. B	62. B	63.	64. D	65. E
66. B	67. B	68. A	69. A	70. A
71. A	72. A	73.		

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2012/2013 POST - UTME

ENGLISH

1. D	2. B	3. A	4. E	5. E
6. D	7. C	8. A	9. E	10. C
11. E	12. D	13. B	14. A	15. A
16. E	17. B	18. C	19. B	20. C
21. C	22. D	23. A	24. D	25. A
26. B	27. C	28. E	29. A	30. D
31. B	32. C	33. E	34. A	35. D
36. C	37. C	38. D	39. A	40. B
41. C	42. B	43. A	44. C	45. B
46. E	47. D	48. D	49. C	50. B
51. C	52. A	53. A	54. D	55. A
56. B	57. C	58. D	59. A	60. B
61. D	62. C	63. B	64. D	65. C
66. A	67. A	68. D	69. B	70. C
71. B	72. A	73. A	74. C	75. A

GENERAL PAPER

1. C	2. E	3. B	4. C	5. D
6. C	7. D	8. E	9. A	10. A
11. A	12. C	13. B	14. E	15. A
16. C	17. E	18. A	19. D	20. C
21. B	22. D	23. D	24. D	25. B
26. B	27. B	28. E	29. C	30. E
31. D	32. C	33. A	34. A	35. D

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36. E	37. A	38. E	39. B	40. B
41. A	42. D	43. C	44. B	45. E
46. D	47. A	48. B	49. C	50. E
51. B	52. B	53. A	54. D	55. B
56. A	57. A	58. E	59. E	60. A
61. C	62. B	63. B	64. C	65. C
66. D	67. A	68. C	69. B	70. D
71. C	72. C	73. B	74. B	75. B
76. B	77. C	78. B	79. C	80. E
81. D	82. B	83. D	84. C	85. B
86. B	87. B	88. C	89. E	90. A
91. B	92. E	93. C	94. C	95. B
96. E	97. D	98. E	99. D	100. C

MATHEMATICS

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

2011/2012 POST - UTME

ENGLISH

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

GENERAL PAPER

1. A	2. C	3. A	4. B	5.
6. A	7. C	8. B	9. D	10. C
11. B	12. D	13. C	14. B	15. C
16. B	17. A	18. C	19. A	20. E
21. A	22. 7/2	23. B	24. A	25. A
26. 346.7	27. D	28. 250g	29.B	30. C
31. A	32.C	33. C	34.D	35. A
36. B	37. C	38. B	39. C	40. A

MATHEMATICS

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

2010/2011 POST - UTME

ENGLISH

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

MATHEMATICS

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

2009/2010 POST - UTME

ENGLISH

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

MATHEMATICS

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

2008/2009 POST - UTME

ENGLISH

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

MATHEMATICS

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

2007/2008 POST - UTME

ENGLISH

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

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MATHEMATICS

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

2006/2007 POST - UTME
ENGLISH

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

MATHEMATICS

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

2005/2006 POST - UTME
ENGLISH

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

MATHEMATICS

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

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DETAILED SOLUTIONS TO ANSWERS

DETAILED SOLUTIONS TO 2014/2015

1. $x+y=1 \ldots (1)$
   $x\ y=1 \ldots (2)$
   Adding (1) & (2) gives
   $2x=2;\ x=1$
   Substituting for x in (1)
   $1+y=1; y=1-1;\ y=0$

2. Let R be the rate of fuel consumption by car.
   $R=3v-4800/v$
   Differentiating the function w.r.t v
   $dR/dv=3-4800\,v^{-23467}$
   (Recall from the laws of indices
   $a^{-n}=1/a^{n}$)
   $\therefore 3=4800 \times 1/v^{2})$
   $3v^{2}=4800$

   Dividing both sides by 3 gives
   $v^{2}=1600$
   $v=\sqrt{1600}=40$ km/h

3. 10 % of N is 12; $10/100 \times N=12$
   $N=12 \times 100/10=120$
   1/2 % of N is 1; $0.5/100 \times N=1$
   $N=1 \times 100/0.5=200$
   200% of N is 210; $200/100 \times N=210$
   $N=210 \times 100/200=105$
   50 % of N is 70; $50/100 \times N=70$
   $N=70 \times 100/50=140$

   $\therefore$ When 200 % of N is 210, N is smallest.

4. C

5. Let $y=\cos(2x-3x^{2})$ and
   $q=2x-3x^{2}$ ... (1)
   so that
   $y=\cos q$ ... (2)
   $dy=[\cos(2x-3x^{2})]=d(\cos q)$
   $\underline{dx}\quad \underline{dx}\quad \underline{dq}$
   By chain rule of differential calculus,
   $\frac{dy}{dx}=\frac{dy}{dq}.\frac{dq}{dx} \ldots (3)$

   Differentiating equation (2) gives
   $dy/dx=-\sin q \ldots (4)$
   Differentiating equation (1) gives
   $dq/dx=2-6x \ldots (5)$
   Substituting for dy/dx and dy/dx in equation (3) by using equations (4) & (5)
   $dy/dx=(-\sin q) \times (2\ \ 6x)$
   $dy/dx=-(2-6x)\sin q$
   $=(6x-2)\sin q$
   $=(6x-2)\sin(2x-3x^{2})$

6. See Solution to Ques. 3.
   100 When 1/2 % of
   N is 1, N is largest.

7. The fastest is between $5\ ^{11}/_{12}$ and $5\ ^{5}/_{6}$ hours, difference being in the fractions 11/12 and 5/6. Hence, we are to find the smaller of the two fractions. L.C.M. of 12 and 6 is 12. We multiply the numerator and denominator of each fraction by factors that will generate the L.C.M. in the denominators of the resulting fractions, i.e.
   $11/12=11 \times 1/12 \times 1=11/12$
   $5/6=5 \times 2/6 \times 2=10/12$

   Comparing the numerators of the resulting fractions shows that 5/6 is smaller than 11/12
   $\therefore$ the car that completed the race in $5\ ^{5}/_{6}$ hours finished the race first, i.e. car D.

8. 1/5 of N 240, 000
   $1/5 \times$ N 240, 000 = N 48,000
   Selling Price = N 240,000 + N 48,000
   = N 288,000

9. Let the unknown score be x
   $81=75+86+75+68+85+x\ /6$
   $81=389+x/6$
   $x+389=81 \times 6$
   $x+389=486$
   $x=486-389; x=97$

10. N 3,000 attracts a commission N 150
    $\therefore$ 7,400 attracts $7400/300 \times 150=$ N 370

11. $6\frac{1}{2}-5\ ^{5}/_{6}$
    $=1\ ^{3-5}/_{6}=\ ^{(3+6)\ 5}/_{6}=\ ^{4}/_{6}=\ ^{2}/_{3}$ hour

12. Using the equation:
    $P(1+R/100)^{n}=x[r^{n}-1/r-1]$
    $12{,}500(1.005)^{360}=x[1.005^{360}-1/1.005-1]$
    $12{,}500(1.005)^{360}(0.005)=x[1.005^{360}-1]$
    $12{,}500(1.005)^{360}(0.005)/1.005^{360}-1=x$
    $376.41/5.0226=x; x=$ N 74.94

13. $A=dydx$
    $y=(3x+1)(x-1)=3x^{2}-2x-1$
    $A=d(3x^{2}-2x\ \ 1)=\ ^{3}/_{3}x^{3}-x^{2}-x+c$
    $A=x^{3}-x^{2}-x+c$
    When $x=1, A=0$
    $\therefore 0=1^{3}-1^{2}-1+c; c=1$
    $A^{x}_{1}=x^{3}-x^{2}-x+1$ [at x = x]
    $A^{3}_{1}=3^{3}-3^{2}-3+1$ [at x = 3]
    $=27-9-2=16$ sq. units

14. $y=x^{2}-5x+4$
    $A=dydx$
    $A=(x^{2}-5x+4)=x^{3}/3-5x^{2}/2+4x+c$
    The y-axis cuts the t-axis at x = 0
    $\therefore$ at $x=0, A=0$
    $0=0^{3}/3-5(0)^{2}/2+4(0)+c; c=0$
    at x = x
    $A^{x}_{0}=x^{3}/3\ \ 5x^{2}/2+4x$
    at x = 4
    $A^{4}_{0}=4^{3}/3-5(4)^{2}/2\ +\ 4(4)$
    $=64/3\ \ 5/6+16$
    $=64-120+48/3$
    $=-8/3=-2\ ^{2}/_{3}$ sq. units

15. Let the rate of ice formation be dm/dt
    $dm/dt=2-0.3\,t\,1$ [=] g/min
    Separating the variables & integrating
    $m=\int(2-0.3\,t)\,dt$
    $m=2t-0.3/2\,t^{2}$ [=]g
    Mass of ice formed after 10 sec
    $m=2(10)-0.3/2-(10)^{2}=20-15=5g$
    But, there was an initial 10 g of ice in the ice-maker,
    $\therefore$ mass of ice present after 10 sec = 10 + 5 = 15 g

16. $dv/dt=60-3t^{2}$ [=] $cm^{-2}s^{-1}$
    Integrating,

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$\int dv = \int (60 - 3t2)dt$
$v = 60t - 3/3\,t^3$
$v = 60t - t^3 + c$
At $t = 0, v = 0$,
i.e. at the beginning, just before the time started reading, the volume was zero (balloon was empty).Thus,
$= 60(0) - 0^3 + c$; $c=0$
$v = 60t - t^3$
After 3 sec
$v = 60(3) - (3)^3 = 180 - 27 = 153\ cm^3$

17. The amount paid equals the sum of the instalments, i.e.
$P(1 + R/100)^n = x[r^n - 1/r - 1]$
Rate = 7 % per year = 7/12 % per month, n = 30 years = 30 x 12 months = 360 months.
$15{,}000\,(1 + {}^{7/12}/_{100}) = 1 + {}^{7}/_{12[100]}$
$= 1 + 7/1200 =$ 1.00583
$15{,}000\,(1.00583)^{360} = x\,[1.00583^{360} - 1/1.00583 - 1]$
x = N 99.80
The nearest in the options is N 99.81

18. I=PRT/100
At 6 % per year interest rate & N 40 interest
40 = P x 6 x 1 / 100; P = 40 x 100 / 6 = N2000/3
At 1% per month, I = P x 1 x12 / 100
I = (2000/3 x 1 x 12) / 100 = (2000 x 1 x 12) 3 x 100

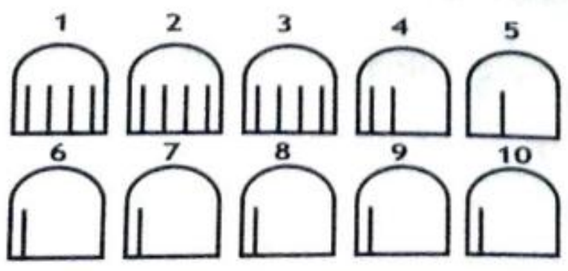
19. We make use of combination. 1 junior is to be chosen from among 125 juniors, and 1 senior is to be chosen from 100 seniors to lead the activities. The number of possible different 2-person combination is ${}^{125}C_1 \times {}^{100}C_1 = 125 \times 100 = 12{,}500$
NOT ${}^{125}C_1 + {}^{100}C_1 = 125 + 100 = 225$

20. P = N 14,000
R = 6 % per year = $6^1/_2$/12 per month
n = 20 years = 240 months
$A = P(I + R/100)^n$
$A = 14{,}000\,(1 + 6^1/_2/12/100)^{240}$
$A = 14{,}000\,(1 + 13/2400)^{240}$
$A = 14{,}000\,(2413/2400)^{240}$
Let the monthly instalment be-x
$X[(2413/2400)^{239} + (2413/2400)^{238} + \ldots + (2413/2400) + 1]$
A = Sn = x [r^n 1/r 1]
$r = (2413/2400)^{239} \div (2413/2400)^{238}$
= 2413/2400
$A = \dfrac{x[(2413/2400)^{240} - 1]}{2413/2400 - 1}$
$P(1 + R/100)^n = x[r^n - 1/r - 1]$
$14{,}000(2413/2400)^{240} = x[(2413/2400)^{240} - 1 / 2413/2400 - 1]$
$\dfrac{14000(2413/2400)^{240}(2413/2400 - 1)}{(2413/2400)^{240} - 1}$
x = 104.380239
x = N 104.38 (to the nearest kobo)

21. 15 - 5n = -x
All n > 3 will result in -ve x

22. 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50.
There are 5 prime numbers between 30 and 50.

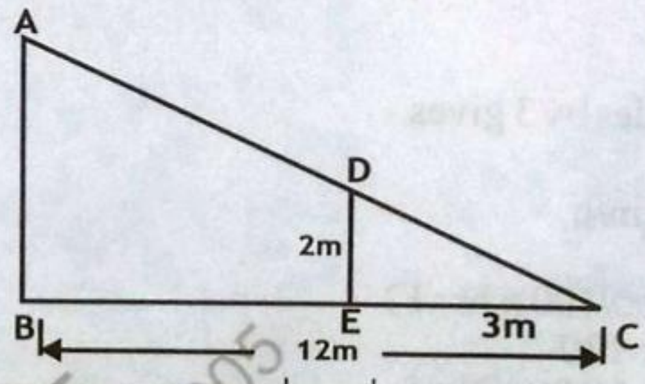
23.



The domes above represent the ten booths. Since no booth is empty each booth is first filled with 1 person so that there remain 10 persons out of 20 yet to occupy a booth. Each booth can seat up to 4 persons, hence, 3 persons are added to each of booths 1,2&3 to fill them to capacity. The remaining 1 person is added to booth 4.The greatest number of booths filled with 4 people is 3

24. Let the original long jump distance = x.
10 % increase from 2000 to 2001
10/100 x x = 0.1x
2400 New long jump distance = x + 0.1x = 1.1x
OR 110/100 x x = 1.1x
20 % increase from 2001 to 2002
20/100 x 1.1x = 0.22x
Latest long jump distance = 1.1x + 0.22x = 1.32x
OR 120/100 x 1.1 x = 1.32x
Total increment from 2001 to 2002
= 1.32x - x = 0.32x
Percentage increment 0.32 x/x x 100 = 32 %

25.



Height of pole = | AB |
Length of shadow of pole = | BC | = 12m
Person's height = | DE | = 2m
Person's shadow length = | EC | = 3m
C is common to D ACB and D DCE.
By similar triangles, | AB | / | DE | = | BC | / | EC |
i.e. | AB | /2 = 12/3
÷AB÷ = 2 x 12/3 = 8m ∴ ÷AB÷ = 8m

26. Generally, suppose the coordinates of any two points A and B are (x1, y1) and (x2, y2) respectively, the coordinates of the mid-point of the line joining A and B is given by
[1/2 (x1 + x2), 1/2 (y1 + y2)]
Since the coordinates of the mid-point of the line XY is required we make use of the coordinates of X and Y, which are given as X (6, 3) and Y (1, 2).
Coordinates of the mid-point of line XY
= [1/2 (6+1), ½ (3+2)] = (7/2, 5/2)

27. Given any two points A (x1, y1) and B(x2, y2).
Gradient of the line AB is
m = y2 y1 / x2 - x1
Given X(6, 3) and Z(7, -2).
Gradient of the line XY:
m = -2 - 3 / 7 - 6 = -5/1 = -5
∴ m = -5

28. The equation of a straight line is given by any one of the following
i. y = mx + c ...(1)
Slope (gradient) m and y-intercept c.
ii. y y1 = m (x x1), ...(2)
where the line of slope m passes through the point (x1, y1).
iii. y - y1 /x - x1 = y2 - y1/ x2 - x1 ...(3)
The line passes through any two points (x1, y1) and (x2 , y2).
Note that m = y - y1 / x - x1 = y2 - y1 / x2 X1
Coordinates: Y(1, 2) and Z(7, -2)
Using equation (3) above,
y - 2 / x - 1 = -2 - 2 / 7 - 1
y -2 / x - 1 = -4/6
6(y - 2) = - 4(x - 1)

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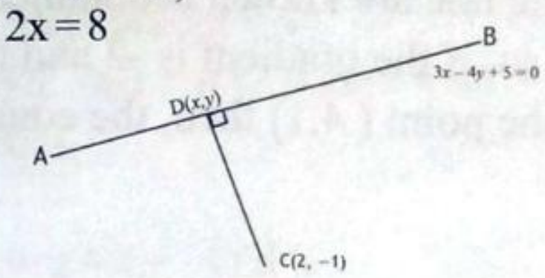
Dividing both sides by 2
$3(y-2)=-2(x-1)$
$3y-6=-2x+2$,
$3y+2x=8$

29. 

The line from the point C(2, -1) to the point D(x, y) is perpendicular to the line of the equation $3x-4y+5=0$.
Note the following:
a. For any two perpendicular lines of slopes m1 and m2,
$m1\ m2=-1$
$m2=-1/m1$
But, if the two lines are parallel, $m1=m2$
b. If a line passes through any two points with coordinates (x1, y1) and (x2, y2), distance between the two points

$=\sqrt{(x2-x1)^2+(y2-y1)^2}$
Re-arranging the equation of the line
$3x-4y+5=0$ as $y=3/4x+5/4$
Compare with $y=m1\,x+c$
Slope of the line $3x-4y+5=0$, $m1=3/4$
Slope of the line CD, $m2=-1/m1=1/(-3/4)=-4/3$
Using coordinates C(2, -1) and D(x, y),
$m2=y2-y1/x2-x1$; $-4/3=y-(-1)/x-2$
$-4/3=y+1/x-2$; $3(y+1)=-4(x-2)$
$3y+3=-4x+8$
$4x+3y=5$ ...(1)
But $3x-4y+5=0$; $3x-4y=-5$ ...(2)
Solving simultaneous equations (1) & (2) gives x and y values as the coordinates of point D(x,y). Thus,
3 x EQN (1) $=12x+9y=15$ ... (3)
4 x EQN (2) $=12x-16y=-20$ ...(4)
EQN (3) - (4) $=25y=35$; $y=35/25=7/5$
Substituting for y in EQN (1)
$4x+3(7/2)=5$
$20x+21=25$
$x=1/5$
:. D(1/5, 7/5) and C(2, -1)

$CD=\sqrt{(1/5-2)^2+[7/5-(-1)]^2}$

$CD=\sqrt{81/25+144/25}$

$=\sqrt{225/25}=15/5=3$

30. The required equation has a line parallel to the line whose equation is
$2x+3y=5$ i.e., $y=-2/3x+5/3$
:. gradients of the two parallel lines
$m1=m2=-2/3$
But, the line of the unknown equation passes through the point (-1, 3); (x1, y1)
:. $y-y1=m(x-x1)$; $y-3=-2/3(x-(-1))$
Multiplying through by 3
$3y-9=-2(x+1)$
$2x+3y=7$ (Required equation)

31. $y=3x^2-4x+1$ ... (1)
Gradient $=dy/dx=6x-4$
Gradient $=6x-4=-10$
$6x=-6$, $x=-1$
Substituting for x in EQN (1)
$y=3(-1)^2-4(-1)+1$
$=3+4+1$, $y=8$
:. (x, y) (-1, 8)

32. $x+y=4$ ...(1)
$x-y=2$ ... (2)
EQNS (1) & (2) are solved to obtain x and y values as the coordinates of the point of intersection between the two lines.
Adding (1) & (2) gives
$2x=6$; $x=3$
Subtracting (2) from (1),
$2y=2$; $y=1$
Distance between-the point (6, 5) and the point of intersection (3, 1)
$=\sqrt{(6-3)^2+(5-1)^2}$ $=\sqrt{9+16}=\sqrt{25}=5$ units

33. The slope m of a line can also be written as
$m=\tan q$,
where, q is the angle between the line and the positive x-axis.
$m=\tan 135^0=-\tan(180^0-135^0)$
$m=-\tan 45^0=-1$
The line passes through the point (5, -3)
:. $y-y1=m(x-x1)$
$y-(-3)=-1(x-5)$; $y+3=-x+5$
$x+y=2$

34. $343_x-244_x=111111_2$
The LHS of the equation is in base x, and the RHS in base 2. Hence, we convert both bases to a common base 10.
$[3\times x^2+4\times x^1+3\times x^0]-[2\times x^2+4\times x^1+4\times x^0]$
$=1\times 2^5+1\times 2^4+1\times 2^3+1\times 2^2+1\times 2^1+1\times 2^0$
$3x^2+4x+3-[2x^2+4x+4]=32+16+8+4+2+1$
$3x^2+4x+3-2x^2-4x-4=63$
$x^2-1=63=x^2=64$; $x=v64=8$

35. P = 3 X 5
Q = 3 X 5 X 7
H.C.F $=3\times 5=15$ (Multiple of 15).
3, 5 and 7 are used as prime factors, but the H.C.F obtained is a multiple of 15.
The multiples of 15 are 15, 30, 45, and so on.

36. The answer can be inferred from the given options. The minimum number of students who play both instruments cannot be 8, 9 or 17 since it is possible that nobody plays both instruments but only one instrument.
:. Minimum = 0

37. The measurement was given to the nearest cm, therefore, the actual measurement lies within the range
35 ± 0.5 cm i.e. 34.5 - 35.5 cm

38. Let the number be x
$\log_{10}x=1.5$
$x=10^{1.5}$ $=10^{1+0.5}$
$=10^1\times 10^{0.5}$ $=10^1\times 10^{1-0.5}$
$=10^2\times 10^{-0.5}$ $x=100^{-0.5}$

39. $x+3>x+5$
If we substitute values of positive or negative integers, fractions or whatever class of real numbers, we find that
$x+3>x+5$ for all values of $x\in\mathbb{R}$
:. The set is empty.

40. Let the smaller number be x, and the larger number y.
The larger number exceeds twice the smaller by 8, i.e.
$y-2x=8$ ... (1)
The sum of twice the larger number and three times the smaller number is 65, i.e.,
$2y+3x=65$ ... (2)
From EQN 1, $y=2x+8$ ... (3)
Substituting for y in EQN (2) gives $2(2x+8)+3x=65$

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DETAILED SOLUTIONS TO 2013/2014

1. The equation of the line is given as $2y + 5x - 4 = 0$.
   This gives: $2y = 4 - 5x$.
   at $x = 0$, $2y = 4 - 0$; $2y = 4$, $y = 4/2$, $y = 2$
   implies that (0, 2) is a point on the line.
   at $y = 0$, $0 = 4 - 5x$, $5x = 4$, $x = 4/5$, $= 0.8$
   :. (08., 0) is another point.
   Again, at $x = 1$, $2y = 4 - 5 = -1$,
   $y = -1/2$, $= -0.5$
   :. (1, - 0.5) is another point on the line.
   However, at $x = 2$, $y = -3$
   :. (2, 3) is not a point on the line. **Ans. D**
2. The equation is: $10y = 3x + 15$.
   Writing the equation of the line in the gradient - intercept from, $y = mx + c$, will give the gradient, m as the coefficient of x and c, the constant term, CS the intercept on the y - axis.
   for: $10y = 3x + 15$, divide through by 10 gives
   $10/10y\ 3/10X + 15/10\ y = 0.3x + 1.5$
   comparing with $y = mx + c$, gives:
   m = gradient of line = 0.3 and c = intercept on y - axis = 1.5 **Ans: A**

NOTE: to make the equation of a line in the gradient - intercept form, simply make y the subject of the formula

3. For any two points (x1, y1) and (x2, y2), the gradient of the line joining the points is given as:
   y2 - y1 / x2 - x1
   Therefore, for the points P (2, 7) and Q (6, 3), the gradient of the line joining PQ is 3-7 / 6-2 = -4/4 = -1 **Ans B**

4. The gradient of PQ, is given as: m = y2 -y1/x2 - x1
   9-5 / -1-3 = 4 / -4
   :. gradient, m = -1 The midpoint R, is given as
   (x1 + x2 /2, y1 + y2 /2)
   (3+(-1) / 2 , 5+9 / 2) = (2/2, 5+9 / 2) = (2/2, 14 / 2) = (1, 7)
   :. The equation of the line which R lie on is given as: y – y1 = m (x - x1)
   y - 7 = -1 (x - 1), y - 7 = -x + 1
   :. y -x + 8

NOTE: using the points P (3, 5) and Q (-1, 9), we can still obtain the equation of the line, using:

y - y1 / y2 - y1 = x - x1 / x2 - x1; y-7 / 9 - 5 = x-3 /-1-3
y - 7 / 4 = x – 3 / -4 , -y + 7 = x – 3
:. y = -x + 8 **Ans: B**

5. The equation of a line when the gradient of the line and a point on the line are known is obtained as: y - y1 = m (x – x1) so, if the gradient is -2 and the line passes through the point (4,1) then, the equation of the line is :
   y- 4 = -2 (x- 1)
   y- 4 = -2x + 2
   collecting like terms, gives: y + 2x = 6 **Ans A**

6. The co - ordinates of the point of intersection is obtained as the point where both lines have same coordinates.
   If y = 5x -3 and y = 2x + 9, then,
   5x - 3 = 2x + 9
   collecting like terms, gives:
   5x- 2x = 9 + 3; 3x = 12,
   x =12/3, x = 4
   putting x = 4 into the first equation, gives:
   y = 5(4) - 3 = 20-3 = 17
   :. the point of intersection is (4, 17) **Ans. C**

7. The lengths of all the sides are unequal, going by the co - ordinates provided, thus, ABC is scalene triangle with no right angle. **Ans: B**

8. Un = 2, 6, 10, … is an A.P because there is a common difference between the terms a = 2, d = 6-2= 4; or 10-6 = 4
   Un = a + (n - 1) d
   U12 = 2 + (12-1) 4,
   2 + (11)4 = 2 + 44 = 46. **Ans. A**

9. The last term is the same as the nth term
   Un = 90, a = 2, d = 4
   :. Using, Un = a + (n-1) d, gives:
   90 = 2 + (n-1)4; 88 = (n-1) 4
   n - 1 = 88 / 4, n-1 = 22
   :. n = 22 + 1 = 23, n = 23
   The number of terms in the sequence is 23. **Ans. D**

10. The sum of the n terms of an arithmetic progression (A.P) is Sn = n/2 {2a + (n -1)d}
    since the last term is Un = a (n - 1) d,
    the sum is also obtained as: Sn = n/2 {a + 1}
    = 23/2 = {2 + 90}
    = 23/2 x 92 = 23 x 46 = 1058

11. The nth term of an arithmetic sequence is
    Un= a + (n - 1) d, Un = -12, a = 60, n =25 d=?
    -12 = 60 + (25 – 1) d
    -12 = 60 + 24d
    -72 = 24d
    d = -72/24, d = -3

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:. The common difference is d = -3. **Ans. C**

12. Sn = n/2 {a + 1}
= 25/2 {60 + (-12)}25/2 x 48 = 25 x 24 = 600.
Ans. A

13. Un = a + (n - 1) d
:. U4 = a + (4 - 1) d; a + 3d = 14 ..... (i)
U11 = a + (11 - 1) d; a + 10d = 70 ... (ii)
Subtracting (i) from (ii), gives:
10d – 3d = 70 - 14
7d = 56, d = 56/7, d = 8 **Ans: C**

14. From the results obtained in (13) above, a = -10, d = 8, n = 12
Sn = n/2 {2a + (n - 1) d}
S12 = 12/2 {2(-10) + (12 - 1) 8}
S12 = 6 {-20 + (11)(8)}
S12 = 6 [-20 + 88] = 6 (68) = 408 **Ans: D**

15. The events form an arithmetic sequence first swim length = 10 = a
common increment, d = 2
final swim length (Un) = 50
Un = a + (n - 1) d
50 = 10 + (n - 1) 2
2(n - 1) = 50 - 10
2(n - 1) = 40
:. n - 1 = 40 / 2 = 20
n - 1 = 20
n = 20 + 1 = 21
:. Ann would have been swimming for 21 seasons.
Ans: A

16. This is the same question as question 15.

17. For this, a = 15, d = 5 and Un = 50
Using Un = a + (n - 1) d
50 = 1 + (n - 1) 5 ; (n - 1)5 = 50- 15
(n - 1)5 = 35 ; (n - 1) = 35/5 = 7
:. n = 7 + 1 = 8
so, she will need 8 seasons to reach the mark set by Ann.

18. Original price = x
First increment = 20% of x = 0.2x
price after increment = x + 0.2x = 1.2x
next increment = 30% of 1.2x = (0.3 x 1.2) x = 0.36x
:. price after the two increment = 1.2x + 0.36x = 1.56x **Ans: C.**

19. If two dice are tossed, the combinations that can give a sum greater than 10 are: 5 and 6, 6 and 5 and 6 and 6. Total of sums greater than 10 = 3.
Total outcome of tossing two dice = 36.
:. Pr (Sum greater than 10) = 3/36 = 1/12. **Ans: A**

20. Adding the two equations gives:
(3x + 2y = 5) + (5x + 4y = 9),
8x + 6y = 14
2(4x + 3y) = 14
4x +3y = 14/2
:. 4x + 3y = 7. **Ans: E.**

21. This question has incomplete information.

22. If x is one of the numbers in the middle, then re - arranging the data in ascending order, gives: 7, 21, 33, x, 45, 62
Median = 33 + x / 2, 35 = 33 + x / 2
33 + x = 70 , x = 70 - 33 = 37 **Ans: C.**

23. The mean is the arithmetic average **Ans: A.**

24. The MEDIAN preferred measure of central tendency when the data is severely skewed. **Ans: B**

25. The range is the difference between the highest variable(H)and the lowest variable (L),Range H - L **Ans: D.**

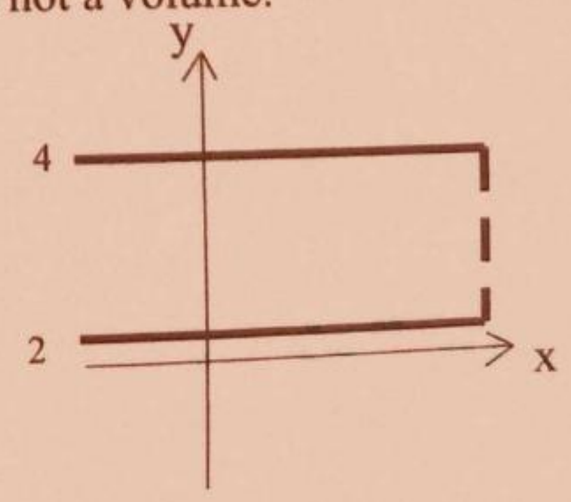
26. **Ans: A.**

27. The MEAN is usually the most preferred measure of central tendency if the data is most skewed. **Ans: A.**

28. **Ans: C.**

29. The volume of a rectangular box = L x b x h. where L x b is the base area. If the box has a square base, base area = L^2.
:. if the volume of the box = $500cm^3$, the most likely dimensions from the option is: 10 x 10 x 5 = $500cm^3$ **Ans: A.**

30. The space bounded by the y - axis, y = 4 and y = 2, is an area not a volume.



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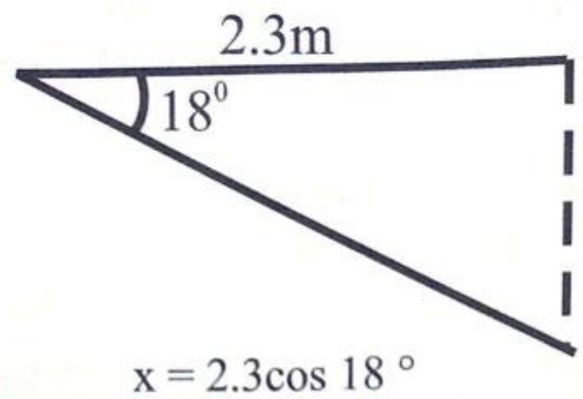
31. **Ans: C.**

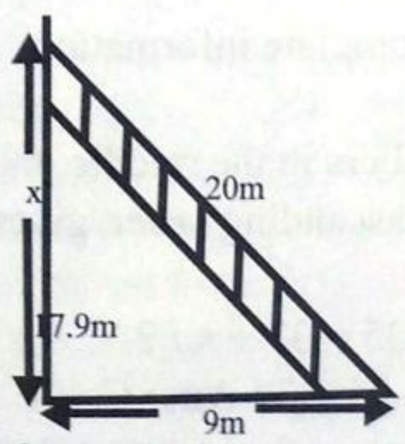
32.



$x = 2.3\cos 18°$

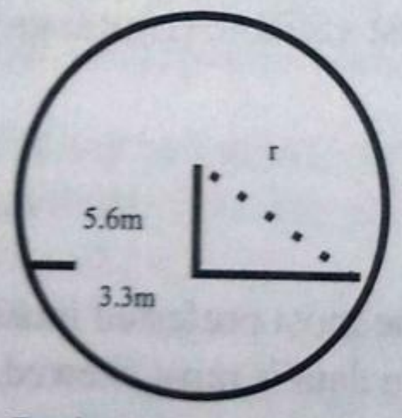
The roof sticks out that $x = 2.3\cos 18°$
$= 2.187 = 2.2$m.

33.



By Pythagora's theorem,
$x^2 + 9^2 = 20^2$
$x^2 = 20^2 - 9^2$
$x^2 = 400 - 81$
$x^2 = 319$
$x = \sqrt{319} = 17.9$ **Ans: E**

34.



By Pythagoras's theorem,
$r^2 = (5.6)^2 + (3.3)^2$
$r^2 = 31.36 + 10.89$
$r^2 = 42.25$
$r = \sqrt{4772} = 6.5$m
The radius is 6.5m **Ans: C**

35. The mean height of the children = 1580 / 10 = 158
Ans: B.

36. Standard deviation is the square root of variance.
Variance = 594 / 10 = 59.4
:. Standard deviation = $\sqrt{\text{variance}} = \sqrt{5971} = 7.7$
Ans: E

37. If 10.011 is in 1 decimal place, it becomes 10.0

38. **Ans: C.**

39. **Ans: E.**

40. **Ans: E** A table may contain all of the attributes mentioned in the other options.

41. The MEAN is a measure of location or central tendency **Ans: A.**

42. Ans: C

43. Total employees = 100 Number of male employees = 65
Number of female employees = 100 - 65 = 35
Number of people paid weekly = 60 **Ans: C.**

44. % that have visited neither Kano nor Port Harcourt = 100 - (20 + 25 + 5) = 100 - 50 = 50% **Ans: C.**

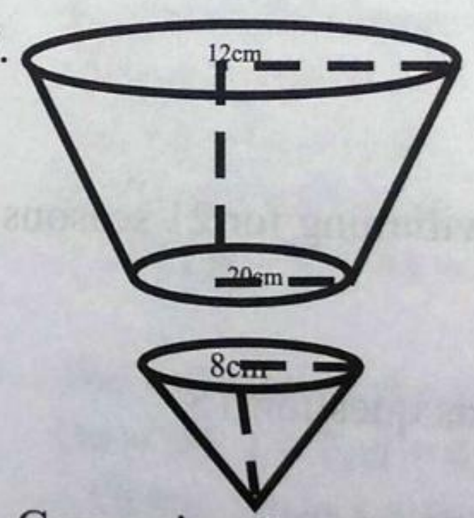
45.-

46.-

47. - Incomplete information.

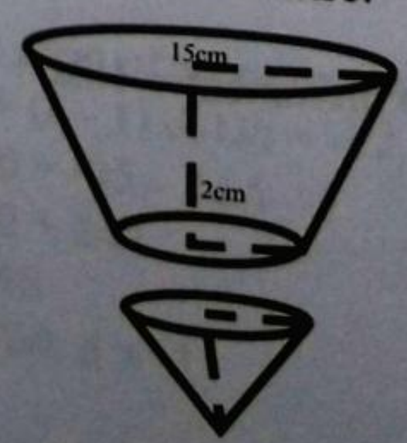
48. Length = 3 width, L = 3w.
perimeter of rectangle = 2(L +W) = 72
:. 2(3w + w) = 72
8w = 72.
w = 72/8 = 9cm. **Ans: C.**

49.



Comparing the triangles, gives:
(12 / 8) = (20 + x / x)
12x = 160 + 8x
4x = 160
X = 160 / 4 = 40 cm
Volume of bucket = $\pi/3(R^2H - r^2h)$
$\pi/3\ \{12^2 \times 60 - 8^2\ (40)\}$
$= \pi/3(144 \times 60 - 64 \times 40)$
$\pi/3(8640 - 2560)$
$(22/7) \times 1/3 \times 6080 = 6369.5cm^3$
But $1000cm^3 = 1$ litre
:. $6369.5cm^3 = 6.3695$ litre. = 6.37 litres **Ans: E.**

50.



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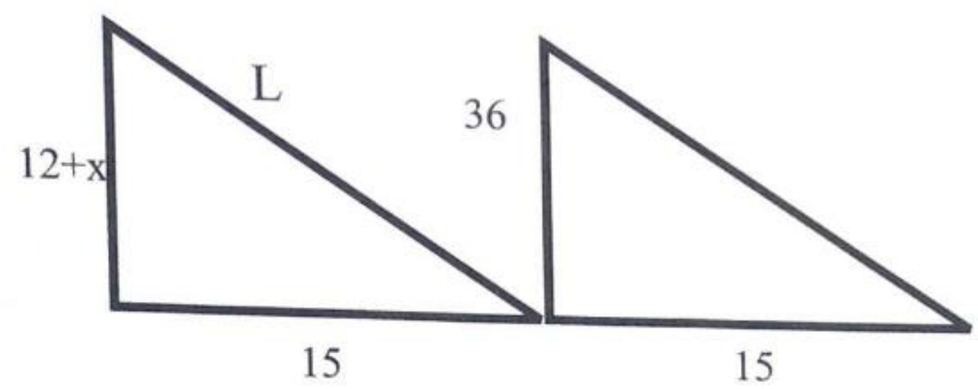
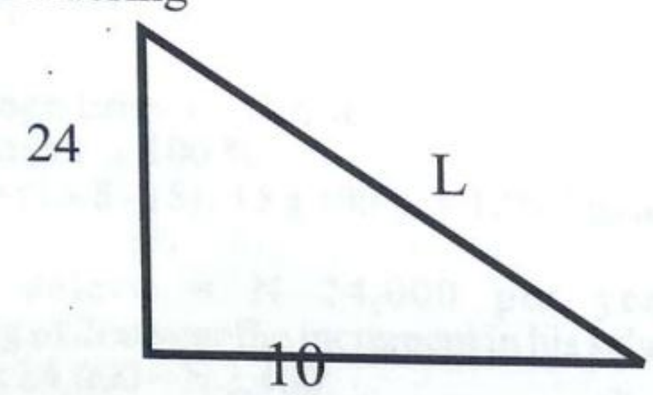
By comparison,
15/10 = 12 + x / x
15x = 120 + 10x
5x = 120, x = 120/ 5
x = 24.
Also considering the triangle



By Pythagoras's theorem, L = $\sqrt{36^2 + 15^2} = 39$
Also, considering



L = $\sqrt{24^2 + 10^2} = 26$.
Area needed = π (RL α L)
= 22/7 (15 x 39 - 10 x 26)
= 22/7 (585 -260)
= 22 x 325 / 7
= 1021cm^3

51. Volume of frustrum = volume of full pyramid - volume of cut - off pyramid.

52. if x = 2, then (x – 1)(2x – 3)
= (2 – 1)2(2) – 3)
=1(4-3)=1 x1=1 **Ans: A.**

53. sin 30° = 1/2 [special angle] **Ans: A.**

54. Arranging the number from lowest to highest gives 1,2,3,4,5,6,7,8,9,9,11,12,13,16 The median is the middle number = 8 **Ans: B.**

55. In the gradient intercept form, the equation y - 2x = 1 is given as y = 2x + 1
:. Gradient of y - 2x = 1 is 2.
The Gradient of the line perpendicular to y – 2x = 1 is
-1 / Gradient of y-2x=1
= -1 / 2 **Ans: D.**

56. The sum of the first n even integers are obtained using the sum of an arithmetic sequence.
Sn = n/2 {2a + (n – 1) d}
n = 40, a = 2, d = 2
S40 = 40/2 {2(2) + (40 - 1)}2.
= 20 {4 + (39) (2)}
= 20(4 + 78) = 20 x 82 = 1640 **Ans: D.**

57. % profit = (selling price - cost price / cost price) x 100/1
= (165 -150 / 150) x 100/1
15/150 x 100/1 = 10% **Ans. E**

58. Length of arc = θ/360 x 2πr
= 60/360 x 2 x 22/7 x 5
= 22 x 5 / 7 x 3
Length of arc = 110/21 = 5.24cm. **Ans. B**

59. By Pythagoras's theorem, h = $\sqrt{13^2 + 5^2}$
= $\sqrt{169 - 25}$
= $\sqrt{144ft^2}$ = 12ft. **Ans: E.**

60. If the sequence is an A.P, then there is a common difference between consecutive terms:
U2 - U1 = U3 - U2 = d
(k + 3) - (k - 1) = (3k - 1) - (k + 3)
k+ 3 - k+ 1 = 3k-1 - 1 - k - 3
4 = 2k - 4
2k = 8, k= 8/2, k= 4.

61. If sec u = 1.414, cos u = 1 / sec u
1 / 1.414 = 0.7072
from $\sin^2 x + \cos^2 x = 1$
sin x = $\sqrt{1 - \cos^2 x}$
sin x = $\sqrt{1 - (0.7072)^2}$
= $\sqrt{1 - 0.5} = \sqrt{0.5}$
sin x = 0.7071

62. multiplying (2x - y) = 4; by 3, gives:
6x - 3y = 12. **Ans. B**
63, simple interest (I) PR / 100
compound interest (A) = A = P(1 + r/n)
If interest is compound annually,
A = P (1 + r)^t
For the simple interest,
I = PRT / 100;
P = 100I / RT = 100 x 225 / R x 3
P = 22500 / 3R ..... (i)
From compound interest,
A = P(1 + R)^t
= 225 + P = P (1 + R)^2 from (i),
R = 22500 / 3P
225 + P = P (1 + 22500/3P)^2
$\sqrt{225 + P}$ = P + 22500/3
$\sqrt{225 + P}$ = P + 7500
225 + P = (P 7500)^2

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$225 + P = P^2 + 15000P + 56250000$
Solving the equation simultaneously,
gives P = N1500 **Ans: A**

64. There are just 2 numbers greater than 4; 5 and 6.
Pr (greater than 4) = 2/6 = 1/3 **Ans: D**

65. let the price = x discount allowed = 11.11%
amount paid = (100 — 11.11)% x
= 88.89% x = 88.89x / 100
88.89 x /100 = 14.25% profit.
X (14.25x / 88.89) X 100 = 16.03% **Ans: E**

66. Initial population = 160,000
after 3% increase = 3/100 x 160,000 = 4800
population = 160,000 + 4,800 = 164800
after 2.5% increase = (2.5/100) x 164800 = 4120
population = 4120 + 164800 = 168920
after 5% increase = (5/100) x 168920 = 8446
present population = 8446 + 168920 = 177366
Ans: B

67. Initial number of students in school = x
total age of initial students = x x 40 = 40x
Total age of 120 new students whose average is
32 = 120 x 32 = 3840
New average age of total students 40x + 3840
(old + new) = 40x + 3840 / x + 120
average age of old students = 40x / x = 40
is reduced by 3; 40 - 3 = 37
40x + 3840 / x+120 = 37
40x + 3840 = 37x + 4440
Collecting like terms
3x = 4440 - 3840
3x = 600,
x = 600/3 = 200
:. initial number of students = 200
new students = 120
:. number of students = 200 + 120 = 320

68. ¼ of 2/3x = 75000
2/3x = (75000 x 2/3x) / (¼x x 2/3x)
= 75000 x 4 = $300,000 **Ans: E**

69. 16 packets $28
total weigh of 16 packets = 16 x 900
= 14400g $28
27 packets at 1000g =27000g
144000g $28
27000g 27000 x 28 / 144000 = $5.25
:. the cost of $ 5.20 x 10 = $ 52.50 **Ans: A**

70. **Ans: A** Note: the gender of a child is either male or female

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DETAILED SOLUTIONS TO 2012/2013

1. 3310_{five}
-1442_{five}
1313_{five} Answer: A

Explanations

In this case, since 2 cannot be subtracted from 0, borrow 1 whole five, which is actually 5 and add it to 0. 5 - 2 = 3

The second digit 1 whole five has been borrowed and 0 is left, hence, borrow another 1 whole five, which is 5 and add to the 0.

5 - 4 = 1.

Borrow another whole 5, add it to the 2 left, making seven: 7 - 4 = 3.

2 is left on the last column from the right.

2 - 1 = 1

$\therefore 3310_{five}\ 1442_{five} = 1313_{five}$

2. 3.1415926 = 3.14159 (5 d.p) Answer: B

3. (Percentage Error) = (Error) / Actual Measurement x 100 %

% Error = (16.8 - 15) / 15 x 100% = 12% Answer: A

4. Present salary = N 24,000 per year At the beginning of 2nd year the increment in his salary

10/100 x 24,000 = N 2,400

Salary at the beginning of 2nd year

= N 24,000 + N 2,400 = N 26,400

Increment at the beginning of 3rd year

10/100 x N 26,400 = N 2,640

Annual salary at beginning of 3rd year

= N 26,400 + N 2,640 = N 29,040 Answer: B

5. 0.0014 x 0.011

$= 1.4 \times 10^{-3} \times 1.1 \times 10^{-2}$

$= (1.4 \times 1.1) \times 10^{-3} \times 10^{-2}$

$= 1.54 \times 10^{-5}$ Answer: D

6. $\dfrac{81^{3/4} - 27^{1/3}}{3 \times 2^3}$

$\dfrac{(3^4)^{3/4} - (3^3)^{1/3}}{3 \times 2^3} = \dfrac{3^3 - 3}{3 \times 2^3} = \dfrac{3(3^2 - 1)}{3 \times (8)} = 1$ Answer: B

7. $(16)^{3/2} + \log_{10} 0.0001 + \log_2 32$

$= (2^4)^{3/2} + \log_{10} 10^{-4} + \log_2 2^5$

$= 2^6 + (-4)\log_{10} 10 + 5\log_2 2$

$26 + (-4) + 5 = 64 + 1 = 65$ Answer: D

8. $\dfrac{\sqrt{12} - \sqrt{3}}{\sqrt{12} - \sqrt{3}}$

Rationalizing with conjugate of denominator

$\dfrac{\sqrt{12} - \sqrt{3}}{\sqrt{12} - \sqrt{3}} \times \dfrac{\sqrt{12} - \sqrt{3}}{\sqrt{12} - \sqrt{3}}$

$= (\sqrt{12} - \sqrt{3^2}) / \sqrt{12^2} - \sqrt{3^2})$

$= 12 + 3 - 2\sqrt{36} / 12 - 3$

$= 15 - 2 \times 6 / 9 = 3/9$

$= 1/3$ Answer = A

9. How many boys play for at least one of the two teams is the same as asking how many players are in the cricket team? Firstly, we need to subtract the 4 members of the social first eleven and the first fourteen rugby team from the numbers of the two categories of teams to avoid counting them repeatedly.

Members of social first eleven not among the four = 11 - 4 = 7

Members of first fourteen not among the four 14 - 4 = 10

Number of players that make up the team, i.e. that play for at least one of the two teams

= 7 + 10 + 4 = 21 Answer: B

10. The question requires the use of permutation.

$^nP_r = n(n-1)(n-2)\ldots(n-r+1)$

$^5P_3 = 5 \times 4 \times 3 = 60$ ways Answer: C

Note the difference between permutation and combination:

$^nCr = {}^nPr / r! = n(n-1)(n-2)\ldots(n-r+1)/r!$

$= n!/(n-r)!r!$

11. We make use of the factor theorem of polynomials to answer this question. According to the theorem,

if x + a is a factor of a polynomial such as

$f(x) = px^3 + qx^2 + rx + s$, then,

$f(-a) = 0$,

i.e. when x = - a is substituted into the polynomial function, f (x), the result will be zero if a is a root of the polynomial.

$\therefore p(-a)^3 + q(-a)^2 + r(-a) + s = 0$

Note that our x + a is the general form of the factors, such as x -1 and x + 1 given in the question.

Now we have the tool to work our question.

From the question, $x^3 + px^2 + qx + 6 = 0 \ldots (1)$

Taking the first factor $x - 1 = 0$; $x = 1$,

we substitute for x in equation (1)

$1^3 + p(1)^2 + q(1) + 6 = 0$

$1 + p + q + 6 = 0$

$p + q = -7 \quad \ldots (2)$

Similarly,

$x + 1 = 0$; $x = -1$

put x = -1 in equation (1)

$(-1)3 + p(-1)2 + q(-1) + 6 = 0$

$-1 + p - q + 6 = 0$

$p - q = -5 \quad \ldots (3)$

Equations (2) and (3) are solved simultaneously for values of p and q:

Adding equations (2) & (3) gives

$2p - 12$; $p = -6$

Subtracting equation (3) from (2) gives

$2q = -2$; $q = -1$ Answer: A

$\therefore$ The polynomial is $x^3 - 6x^2 - x + 6 = 0$

Check

$(x-1)(x+1)(x-6) = (x^2 - 1^2)(x-6)$

$= (x^2 - 1)(x - 6)$

$= x^3 - 6x^2 - x + 6.$

12. The remainder theorem of polynomials is applicable to solving this problem.

Given $2x^2 - px + p$

When the factor x- p divides $2x^2 - px + p$ the remainder is 6.

If x - p = 0, then x = p

This implies that if x = p is substituted in the polynomial function $f(x) = 2x^2 - px + p$, the value 6 is obtained. Thus,

$2(p)^2 - p(p) + p = 6$

$2p^2 - p^2 + p = 6$

$p^2 + p - 6 = 0$

$p^2 + 3p - 2p - 6 = 0$

$p^2 - 2p + 3p - 6 = 0$

$p(p-2) + 3(p-2) = 0$

$(p-2)(p+3) = 0$ $p = 2$ or $p = -3$

But the question asks for the positive value of p, hence, p = 2 Answer: B

13. $S = 2r\sqrt{p(QT+K)}$

In making T the subject of formula

$S/2r = \sqrt{p(QT+K)}$

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Squaring both sides
$(S/2r)^2 = \sqrt{p}(QT+K)$
$S^2/2r = \sqrt{p}(QT+K)$
Divide both sides by p
$S^2/4pr^2 = QT+K$
$QT+K = S^2/4pr^2$
$QT = S/4pr^2 - K$
$\therefore T = 1/Q\,(S^2/4pr^2 - K)$
$\therefore T = S^2/4pr^2Q - K/Q$ Answer: B

14. $f(x) = x^2 - 5x + 6$
$f(x) = y = x^2 - 5x + 6$
The roots of the quadratic equation are obtained when y = 0
$y = x^2 - 5x + 6 = 0$
$x^2 - 2x - 3x + 6 = 0$
$(x^2 - 2x) - (3x - 6x) = 0$
$x(x-2) - 3(x-2) = 0$
$(x-2)(x-3) = 0$
$\therefore x = 2, x = 3$
are the roots. Any point on the x-axis has y = 0, so that the two points where the quadratic curve crosses the x - axis are (2,0), (3,0)
Answer: D.

15. $abx^2 + 6y - 3ax - 2byx$
$= abx^2 - 2byx - 3ax + 6y$
$= bx(ax - 2y) - 3(ax - 2y)$
$= (ax - 2y)(bx - 3)$ Answer: A

16. $(x-3)(x-4) = 0$
This is quadratic inequality.
From the above, if
$(x-3)(x-4) = 0$ then, $x = 3$ or $x = 4$

	$x<3$	$x=3$	$3<x<4$	$x=4$	$x>4$
$x-3$	$-ve$	0	$+ve$		$+ve$
$x-4$	$-ve$		$-ve$	0	$+ve$
Product $(x-3)(x-4)$	$+ve$	0		0	$+ve$

(X-3) (x-4) £ 0 means that the range of values of x for which the product of the factor is less than or equal to zero satisfies the inequality. This implies the range of values for which the product is – ve, i.e $3 < x < 4$ (see table above) Also, since the product is equal to zero at x=3 and x = 4, we write 3£ and x = 4, we write 3£ x £ 4

17. The n th term of an AP is given by
$U_n = a + (n-1)d$
Where, a = first term of the sequence; d = the common difference; n = number of terms in sequence When n = 4 (fourth term)
$U_4 = a + (4-1)d$
$= a + 3d = 13$...
(1) [from question]
$U_{10} = a + (10-1)d$ [tenth term]
$U_{10} = a + 9d = 3$ ...(2) [from question]
Solving equations (1) and (2) simultaneously,
$a + 3d = 13$ ...(1)
$a + 9d = 31$ ...(2)
Subtracting equation (1) from (2) gives
$6d = 18$; $d = 3$
Substituting d = 3 into equation(1),
$a + 3(3) = 13$; $a = 13 - 9$; $a = 4$
$U_{21} = a + (21-1)d = a + 20d$
But, a = 4 and d = 3
$U_{21} = 4 + (20)3 = 4 + 60$
$U_{21} = 64$

18. Using long division, any one of the factors may be obtained first, and then used as the divisor in the division of its polynomial. The quotient is then factorised to linear factors

$$
\begin{array}{r|l}
 & x^2 + 3x + 2 \\
\hline
x-1 & x^3 + 2x^2 - x - 2 \\
 & x^3 - x^2 \\
\hline
 & 3x^2 - x \\
 & 3x^2 - 3x \\
\hline
 & 2x - 2 \\
 & 2x - 2 \\
\hline
 & 0
\end{array}
$$

$\therefore x^3 + 2x^2 - x - 2 = (x-1)(x^2 + 3x + 2)$
$= (x-1)(x+1)(x+2)$

The denominator polynomial of the algebraic fraction is replaced by its factors, and the fraction's numerator is expressed as the difference of two squares. Thus,

$$\frac{x-1}{x^3 + 2x^2 - x - 2} = \frac{(x-1)(x+1)}{(x-1)(x+1)(x+2)} = \frac{1}{x+2}$$

19. Required to resolve into partial fractions the expression $\frac{5x-12}{(x-2)(x-3)}$

$$\frac{5x-12}{(x-2)(x-3)} \equiv \frac{A}{x-2} + \frac{B}{x-3} \quad ...(*)$$
$$\equiv \frac{A(x-3) + B(x-2)}{(X-2)(x-3)}$$
$$\equiv \frac{Ax - 3A + Bx - 2B}{(X-2)(x-3)}$$
$$\equiv \frac{(Ax - Bx) - 3A - 2B}{(X-2)(x-3)}$$
$$\frac{5x-12}{(x-2)(x-3)} \equiv \frac{(A+B)x - 3A - 2B}{(X-2)(x-3)}$$

Comparing and equating numerator coefficients of x on the LHS and RHS,
$5x = (A+B)x$
$5 = A + B$ ....(1)
Comparing & equating terms without x
$-12 = -(3A + 2B)$
$3A + 2B = 12$ ....(2)
Solving equations (1) & (2) by substitution method,
$B = 5 - A$ ...(3) [from equation (1)]
Substituting for B between (3) & (2),
$3A + 2(5 - A) = 12$
$3A + 10\ 2A = 12$
$3A - 2A = 12 - 10$; $A = 2$
Substituting A = 2 in equation (3),
$B = 5 - 2$; $B = 3$
Substituting A = 2, B = 3 in equation (*)
Above,
$5x - 12/(x-2)(x-3)$ °$2/(x-2) + 3/(x-3)$

20. Commutative Property
A binary operation * is commutative in a defined set S (which is closed under the binary operation) if the result of the operation on its elements remains unchanged when the order in which the same elements combine is reversed.
For example, suppose the set S = (a, b, c,) is the set of integers defined under the operation
a-b = a+b - ab
Reversing the order in which a and b combine leaves the result unchanged, i.e.

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b.a = b + a - ba
:. a.b = b.a
We say the binary operation is commutative in the set of integers.

21. Given the binary operation a* b ±Ö ab
To evaluate 2*(12 *27),
first evaluate the bracket quantity:
12 *27 = √(12) (27) = √324 = 18
2*(12*27) = 2*18 = √(2) (18) = √(36) = 6

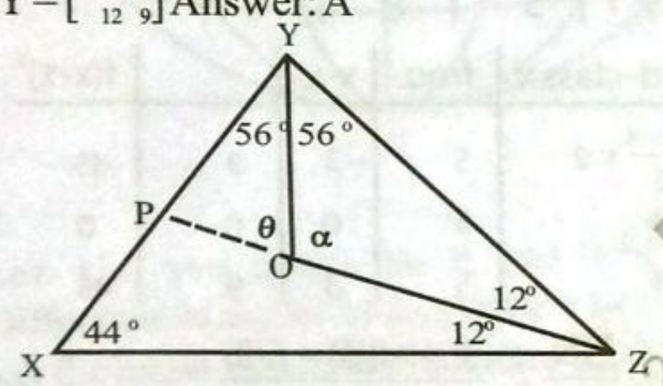
22. S∞ = a / 1 -r
a = 1; r = 9/10 ÷ 1
r = 9/10
S∞ = 1 / 1 - (9/10)
= 1 / (1/10)
:. S∞ = 10 Answer: D

23. $\begin{pmatrix} -2 & 1 & 1 \\ 2 & 1 & k \\ 1 & 3 & -1 \end{pmatrix} = 23$

Using Row 1:
-2[(1) (-1) - (3) (k)] -1[(2) (-1) - (-1) (k)] + 1[(2) (3) - (1) (1)]
Opening brackets
:. 2 + 6K + 2 + K + 6 - 1 = 23
7K = 23 - 9
7K = 14
:. K = 14/7 = 2 Answer: B

24. X = $\begin{bmatrix} 1 & 2 \\ 0 & 3 \end{bmatrix}$ and Y = $\begin{bmatrix} 1 & 2 \\ 0 & 3 \end{bmatrix}$
:. XY = $\begin{bmatrix} 1 & 2 \\ 0 & 3 \end{bmatrix}\begin{bmatrix} 1 & 2 \\ 0 & 3 \end{bmatrix}$
= $\begin{bmatrix} 2+8 & 21+6 \\ 0+12 & 0+9 \end{bmatrix}$
:. XY = $\begin{bmatrix} 10 & 7 \\ 12 & 9 \end{bmatrix}$ Answer: A

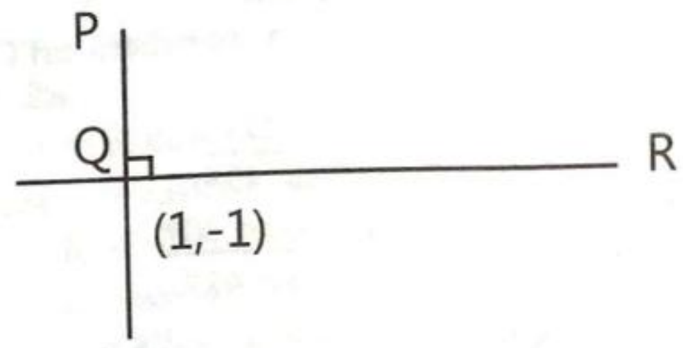
25.



<XZY 180° - (112° + 44°) = 24°
| OY | and | OZ | are the bisectors of ∠XYZ and ∠ XZY respectively, i.e. the lines divide the angles in halves.
∠XYZ = ½ (112°) = 56°
∠OZY = ½ (24°) = 12°
= 180° - (56° + 12°)
∝ = 102°
The required angle is an acute angle formed in between the angle bisector lines, | OY | and | OZ | . This angle must be at O where the two bisectors meet, but the only two angles at 0 - are obtuse angle YOZ and reflex angle YOZ. This implies we must produce IOZI to P (or IOYI to meet IXZI). The exterior angle of D YOZ, which is O, is the required angle.
q = 56° + 12° [ext.angle q equals sum of 2 int. opp. <s of D of AYOZ]
or, q + μ = 180° (sum of angles on a straight line)
0 = 180° - μ
q = 180° - 102° = 68°

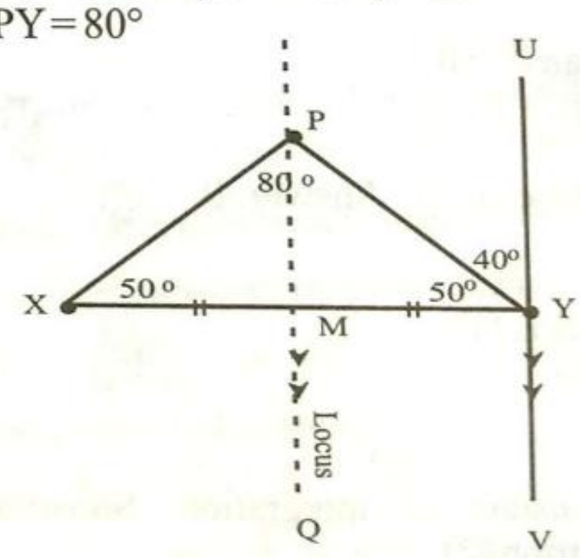
26. Distance = q/ 360 x 2pR
R = 7000Km
q = 45°N + 15°N = 60°
:. Distance = 60/360 x 2 x (22/7) x 7000
Distance = 22000/3 Km Answer: C

27.



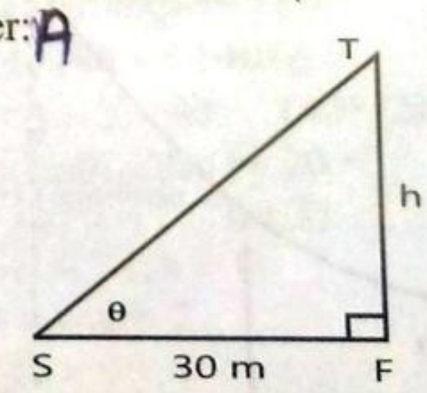
m1m2 = -1 ; m2 = -1/m1 ... (1)
m1 = slope of line 1
m2 = slope of line 2
x-2y+ 4=0
Re-Arranging,
-2y = - x - 4 ; 2y = x + 4
y = x + 4 / 2
y = ½ x + 2
Compare with
y = mx + c i.e. m1 = 1/2
For two perpendicular lines of slopes m1 and m2, we apply equation (1)
m2 = -1/ ½ = -2
But, y - y1 = m (x - x1)
At point (1,-1) and slope m2 = - 2,
y - (- 1) = - 2 (x - 1); y + 1 = - 2x + 2
2x + y = 1 Answer: D

28. The locus of points equidistant from two points X and Y is the perpendicular bisector PQ of the line XY. XM = YM (equal distances)
:. D PXY is isosceles triangle.
The locus PQ is parallel to UV.
∠MYU=90°,
∠PYM 90 - 40° = 50° = ∠ PXM (base ∠s)
∠XPY = 180° - (50° + 50°) = 80°
∠XPY = 80°



29. Total surface area of a cylinder,
$A_T = 2prh + 2pr^2$
$A_T = 2pr (h + r)$
d= 14 ; r = d/2 = 14/2 = 7 cm
A_T= 2 x 22/7 x 7 x (12 + 7) = 44 x 19 = 836 cm^2
Answer: A

30.



tan 60° = h/30 [q = 60°]
h = 30 tan 60°
= 30 √3 m.
This should be the correct answer. If the angle of elevation was given as 30°,
tan 30° = h/30 = 30 tan 30° = 30 x 1/√3 [q = 30°]
= 30/√3m = 30/√3 x √3/√3
= 30√3 / 3 = 10√3m
But, the angle of elevation is given as 60°, not 30°.

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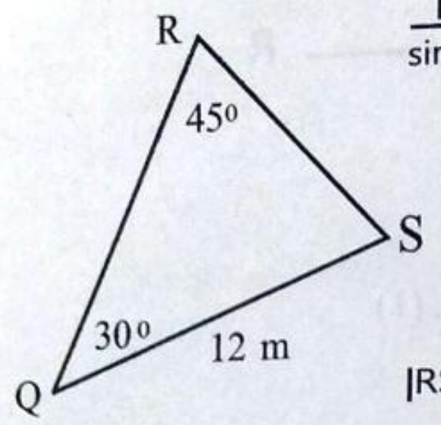
Hence, Option B is correct, not Option D.

31.



$$\frac{|RS|}{\sin 30^0} = \frac{12}{\sin 45^0}$$

$$|RS| = \frac{12\sin 30^0}{\sin 45^0}$$

$$= \frac{12 \times \frac{1}{2}}{\frac{1}{\sqrt{2}}} = \frac{6}{1/\sqrt{2}}$$

$$|RS| = 6\sqrt{2}\text{ m}$$

32. $\text{cosec } x = \frac{1}{\sin x}$

$$\frac{d\left(\frac{1}{\sin x}\right)}{dx} = \frac{\sin x \frac{d(1)}{dx} - (1)\frac{d(\sin x)}{dx}}{\sin^2 x}$$

$$= \frac{(\sin x)(0) - (1)(\cos x)}{\sin^2 x}$$

$$= \frac{0 - \cos x}{\sin^2 x} = \frac{-\cos x}{\sin^2 x}$$

$$= \frac{-\cos x}{\sin x} \cdot \frac{1}{\sin x} = -\cot x \text{ cosec } x$$

Note:

$\sec x = \frac{1}{\cos x}$; $\cot x = \frac{\cos x}{\sin x}$

$\tan x = \frac{\sin x}{\cos x}$; $\cot x = \frac{1}{\tan x} = \frac{\cos x}{\sin x}$

33. The tangent to the curve $y = x^2 \quad 4x + 3$ has the slope tan q = tan 0 ^{0}, this slope is also

$dy/dx = \tan q = \tan 0^0 = 0$

$d(x^2 - 4x + 3)/dx = 0$

Differentiating,

$2x - 4 = 0; 2x = 4$ i.e. $x = 2$ Answer: B

34. $dy/dx = 4x - 3$ ...(1)

Integrating equation (1),

$\grave{o}dy/dx = \grave{o}(4x - 3)$

$y = 4x^2/2 - 3x + c$

$y = 2x2 - 3x + c$ ...(2)

Where c is constant of integration. Substituting y = 5 and x = 2 in equation (2)

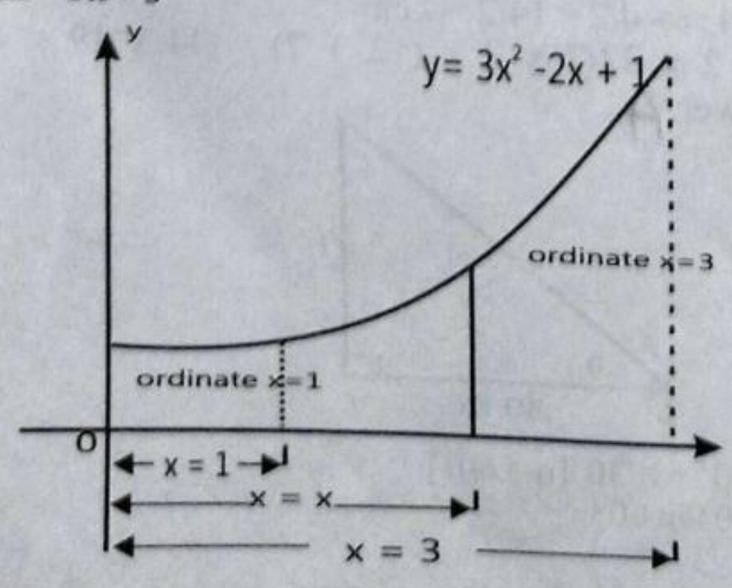
$5 = 2(2)^2 - 3(2) + c$

$5 = 8 - 6 + c; c = 3$

Substituting for c in equation (2) gives

$y = 2x^2 - 3x + 3$

35.



Area under the curve is given by

$A = \int_0^x y\, dx$

$y = 3x^2 - 2x + 1$

Area under the curve is given by $A = \grave{o}^x_0 y\, dx$

$y = 3x^2 - 2x + 1$

$A = ?^x_0 (3x^2 - 2x + 1) = 3/3x^3 - 2/2x^2 + x + c$

$A = x^3 - x^2 + x + c$

When $x = 1, A = 0$

$\therefore 0 = 1^3 - 1^2 + 1 + c;\ c = -1$

$A^x_1 = x^3 + x^2 + x - 1$ [at x = x]

$A^3_1 = 3^3 - 3^2 + -1$ [at x = 3]

$27 - 9 + 2$

$= 20$ sq. units Answer: B

36. Total no of students = 3 + 10 + 30 + 42 + 15 = 100 students

$\therefore$ Angle corresponding to the 15 years old = q

$q = n/100 \times 360^0$

When n = no of 15 years old students

$\therefore q = 30/100 \times 360^0$

$= 108^0$ Answer: D

37. $nF/\theta F = nC/\theta C = nE/\theta E = nH/\theta H$

$\therefore \theta F = 90^0, nF = 30^0, nC = ?, \theta C = 30^0$

$\therefore nC/30 = 30/90$

$\therefore nC = 30 \times 30/90$

$\therefore$ nC 10 students. Answer: C

38. Given the following numbers: 1.20, 1.00, 0.90, 1.40, 0.80, 0.80, 1.20 &1.10

mean = 1.2 + 1 + 0.9 + 1.4 + 0.8 + 0.8 + 1.2 + 1.1/8

= 8.4/8 i.e. mean, m = 1.05

range = (greatest value) - (least value) range = 1.4 - 0.8 i.e range, r = 0.6

$\therefore m + r = 1.05 + 0.6 = 1.65$ Answer: B

39.

Class	1 – 3	4 – 6	7 – 9
Frequency, f	5	8	5

Class	mid-class x	freq.	x-x		$f(x-\bar{x})^2$
1 – 3	$\frac{1+3}{2} = 2$	5	– 3	9	45
4 – 6	5	8	0	0	0
7 – 9	8	5	3	9	45

$$\text{mean } \bar{x} = \frac{\Sigma fx}{\Sigma f} = \frac{5(2) + 8(5) + 5(8)}{5 + 8 + 5}$$

$$= \frac{90}{18}$$

$$\bar{x} =$$

$$SD = \sqrt{\frac{\Sigma f\,(x - \bar{x})^2}{\Sigma f}} \qquad SD = \sqrt{\frac{90}{18}}\ \sqrt{5}$$

40. Given the numbers: 1, 2, 3, 4, 5.

$$\text{mean} = \frac{1 + 2 + 3 + 4 + 5.}{5} = 3$$

$$\sigma = \frac{\Sigma\,(x - \bar{x})^2}{n} \quad \text{[variance for ungrouped data]}$$

$$\sigma = \frac{(--2)^2 + (--1)^2 + 0^2 + 1^2 + 2^2}{5}$$

$$= \frac{4+1+0+1+4}{5} = \frac{10}{5} = 2$$

Note:

$$\sigma = \frac{\Sigma[f\,(x - \bar{x})^2]}{\Sigma f} \quad \text{[variance for grouped data]}$$

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DETAILED SOLUTIONS TO 2011/2012

1. The composite solid comprises of a cone and hemisphere.

Volume of a cone, $V_c = 1/3\,\pi r^2 h$

$= 1/3$ x base area x height

$r = x$ cm, $h = x$ cm

$V_c = 1/3 \times x \times \pi \times x^2 = 1/3\,\pi x^3$

Volume of a sphere $= 4/3\,\pi r^3$

Volume of hemisphere

$V_{hem} = 1/2 \times$ volume of sphere

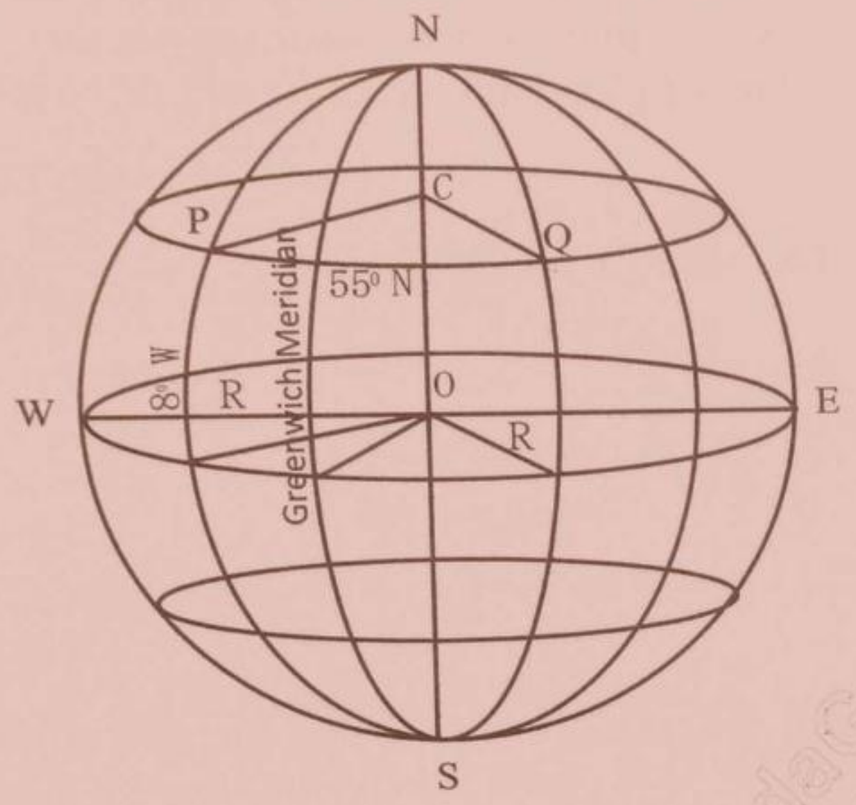
$V_{hem} = 1/2 \times 4/3\,\pi = 2/3\,\pi r^3$

$r = x$ cm $\therefore$ $V_{hem} = 2/3\,\pi x^3$

Volume of composite solid

$V = V_c + V_{hem}$

$V = 1/3\,\pi x^3 + 2/3\,\pi x^3 = \pi x^3$ Answer: D



2.

Let the two place be P and Q.

Difference in angles of longitude $= 18^\circ + 8^\circ = 26^\circ$

i.e. the angle subtended by sector PCQ is 26°

We have added the angles of longitude because we have different directions of East and West. If the directions had been the same, e.g. East and East, or West and West, we would have subtracted their longitudes.

Moving through an angle of 15 along any parallel of latitude is equivalent to 1 hour, i.e.

$15^\circ = 60$ min (1 hour)

$\therefore 26^\circ \Rightarrow \frac{26^\circ}{15^\circ}$ 60 min = 104 min Answer: D

3. Volume of cylinder

$V_{cyl} = \pi r^2 h$

$r = 2x$ cm $h = 2x$ cm

$V_{cyl} = \pi \times (2x)^2 \times (2x)$

$= \pi \times 4x^2 \times 2x = 8\pi x^2$ cm^3

Volume of sphere

$V_s = 4/3\,\pi R^3$ $R = x$ cm $V_s = 4/3\,\pi x^3$

Volume occupied by water

$V_w = V_{cyl} \quad V_s$

$V_w = 8\pi x^3 - 4/3\,\pi x^3$

$= \frac{24\pi x^3 - 4\pi x^3}{3} = \frac{20}{3}\pi x^3$ Answer: C

4. The circumference of the parallel of latitude is $c = 2\pi$

But, $r = R\cos a$ $\therefore$ $c = 2\pi(R\cos a)$

Where r = radius of the parallel of latitude

R = radius of the earth

a = angle of latitude = 30°

Thus, $c = (2\pi R)\cos a$

$c = (4 \times 10^4 \times \cos 30^\circ)$ km

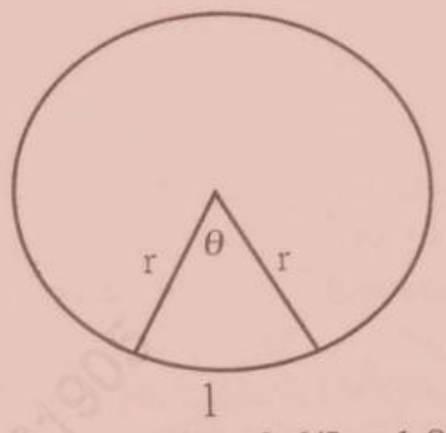
In 24 hr the place covers a distance $(4 \times 10^4 \cos\ )$ km in 1 complete rotation

$\therefore$ In 1hr it covers

$$\left(\frac{[4 \times 10^4 \cos 30^\circ]\text{ km} \times 1\text{ hr}}{24\text{ hr}}\right) = 1443 \text{ km}$$

i.e. 1443 km/hr Answer: B

5.



d = 3.6 cm, $r = d/2 = 3.6/2 = 1.8$ cm, $\theta = 35^\circ$

Length of arc, $l = \frac{\theta}{360^\circ} \times 2\pi r$

$l = \frac{35^\circ}{360^\circ} \times 2\pi \times 1.8 = 1.1$ cm

$P = l + r + r = l + 2r = 1.1 + 2\ 1.8 = 4.7$ cm

Answer: B

6. Each interior angle of regular polygon $= 140^\circ$

Each exterior angle $= 180 - 140^\circ = 40^\circ$

But, size of each exterior angle $= \frac{360^\circ}{n}$

Where, n = number of sides = 2k + 1

$\therefore 40^\circ = \frac{360^\circ}{2k+1} \Rightarrow 40^\circ\ 2k + 1 = 360^\circ$

Dividing both sides by 40°

$2k + 1 = 9 \Rightarrow 2k = 8$

$k = \frac{8}{2} \Rightarrow k =$ Answer: A

Method 2

Sum of interior angles of polygon is

$(n - 2)\,180^\circ$

$n = 2k + 1$ = number of sides = number of angles

Each interior angle = 140

$\therefore (n - 2)\,180^\circ = 140^\circ n$

$(2k + 1 - 2)\,180^\circ \quad 140^\circ\,(2k + 1)$

Dividing both sides by 20°

$(2k + 1 - 2)\,9 = 7\,(2k + 1)$

$9\,(2k - 1) = 7\,(2k + 1)$

$18k - 9 = 14k + 7$

$18k - 14k = 9 + 7$

$4k = 16 \quad k = \frac{16}{4} \Rightarrow k = 4$

7. $x + y = 10$ ... (1)

$x^2 + y^2 = 58$ ... (2)

From Equation (1) $y = 10 - x$

Substituting for y in Equation (2)

$x^2 + (19 - x)^2 = 58$

$x^2 + 100 - 2(10)(x) + x^2 = 58$

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$2x^2 - 20x + 42 = 0$

Dividing through by 2,

$x^2 - 10x + 21 = 0$

Factorization gives $(x-3)(x-7) = 0$

$\therefore$ Either $x = 3$ or $x = 7$

Using Equation (3): when $x = 3$,

$y = 10 - 3 \Rightarrow y = 7$ i.e. (3, 7)

When $x = 7$, $y = 10 - 7 \Rightarrow y = 3$ i.e. (7, 3)

$\therefore x = 3, y = 7$ or $x = 7, y = 3$. Answer: A

8. Man = x years old; Son = y years old

Sum of their ages is twice the difference of their ages, i.e. $2(x - y) = x + y$ ... (1)

$xy = 675$ ... (2) [product of their ages]

From Equation (1)

$2x - 2y = x + y$

$2x - x = y + 2y \Rightarrow x = 3y$ ... (3)

Substituting for x in Equation (2),

$(3y)y = 675 \Rightarrow 3y^2 = 675$

$\Rightarrow y^2 = \frac{675}{3} \Rightarrow y^2 = 225 \Rightarrow y = \sqrt{225} = 15$ years

Substituting for y in Equation (3),

$x = 3(15) \Rightarrow x = 45$ years

The man is 45 years old Answer: D

9. Universal set, $U = \{1,2,3,4,5,6\}$

$A = \{1,2,3\}$ and $B = \{2,4,6\}$

$B^C = \{1,3,5\}$, $A \cap B^C = \{1,3\}$ Answer: B

Note B^c = B complement, and is the set of elements in the universal set which are not in the set B.

$A \cap B^c$ = the set of elements common to the set A and the set B^c

10. $\frac{\sqrt{8} \quad \sqrt{50}}{\sqrt{7}} = \frac{\sqrt{4 \times 2} + \sqrt{25 \times 2}}{\sqrt{7}}$

$= \frac{(\sqrt{4} \times \sqrt{2}) + (\sqrt{25} \times \sqrt{2})}{\sqrt{7}}$

$= \frac{2\sqrt{2} + 5\sqrt{2}}{\sqrt{7}} = \frac{7\sqrt{2}}{\sqrt{7}}$

Rationalizing by multiplying numerator and denominator terms by $\sqrt{7}$,

$\frac{7\sqrt{2}}{\sqrt{7}} \quad \frac{\sqrt{7}}{\sqrt{7}} = \frac{7\sqrt{14}}{7} = \sqrt{14}$ Answer: A

11) $px^2 - py^2 + qx^2 - qy^2$

$= p(x^2 - y^2) \quad q(x^2 - y^2)$

$= (p + q)(x^2 - y^2)$ [Difference of 2 squares]

$= (p + q)(x - y)(x + y)$ Answer: C

12. $\log_3 9 - \log_{27} 3 + \log_{\sqrt{3}} 9$

To convert log a from base b to base c, we write

$\log_b a = \frac{\log_c a}{\log_c b}$

To convert all bases to base 3, we write

$\log_3 9 - \log_{27} 3 + \log_{\sqrt{3}} 9$

$= \log_3 9 - \frac{\log_3 3}{\log_3 27} + \frac{\log_3 9}{\log_3 \sqrt{3}}$

$= \log_3 3^2 - \frac{\log_3 3}{\log_3 27} + \frac{\log_3 3^2}{\log_3 \sqrt{3}}$

$= \log_3 3^2 - \frac{\log_3 3}{\log_3 3^3} + \frac{\log_3 3^2}{\log_3 3^{1/2}}$

$= 2\log_3 3 - \frac{\quad}{3\log_3 3} + \frac{2\log_3 3}{\frac{1}{2}\log_3 3}$

$= 2 - \frac{1}{3} + \frac{2}{1/2} = 2 - \frac{1}{3} + 4 = 6 - \frac{1}{3} = \frac{18 - 1}{3} = 5\frac{2}{3}$

Answer: D

Note : $\log_x y = n \log_x y$

Also, $\log_a a = 1$, $\log_3 3 = 1$

Number of students in class = 30

Number of girls in class = 16

Number of boys in class = 30 – 16 = 14

No. of boys who do not wear spectacles = 8

No. of boys who wear spectacles = 14 – 8 = 6

No. of students who wear spectacles = 10

No. of girls who wear spectacles = 10 – 6 = 4

Answer: B, not D

14. $\log_2 x - \log_2 (x - 1) = 2$

$\log_2 \left(\frac{x}{x-1}\right) = 2 \Rightarrow \frac{x}{x-1} = 2^2 \Rightarrow \frac{x}{x-1} = 4$

$4(x - 1) = x \Rightarrow 4x - 4 = x$

$\Rightarrow 4x - x = 4$

$3x = 4 \Rightarrow x = \frac{4}{3} \Rightarrow x = 1\frac{1}{3}$ Answer: B

15. If (x – 2) is a factor of the polynomial $x^2 - 3x^2 + kx + 14$, then applying the factor theorem of polynomials, $x - 2 = 0 \Rightarrow x = 2$

$f(x) = x^2 - 3x^2 + kx + 14$

$f(2) = 2^2 - 3(2)^2 + k(2) + 14 = 0$

$\Rightarrow 4 - 12 + 2k + 14 = 0$

$2k = -6 \quad k = -\frac{6}{2} = -3$ Answer: D

16. $x^3 - 7x + 6$

Factors of the constant term 6 are

$\pm 1, \pm 2$ and ± 3

If $x = -1$ then $x - 1 = 0$

$$
\begin{array}{r|l}
 & x^2 + x - 6 \\
\hline
x - 1 & x^3 + 0x^2 - 7x + 6 \\
 & \underline{x^3 - x^2} \\
 & x^2 - 7x \\
 & \underline{-x^2 - x} \\
 & -6x + 6 \\
 & \underline{-6x + 6}
\end{array}
$$

$x^3 - 7x + 6 = (x - 1)(x^2 + x - 6)$

$= (x - 1)(x - 2)(x + 3)$

Answer: not available in the options.

The exam committee provided option B as the answer, but this is not correct since

$(x - 3)(x - 1)(x - 2)$

$= (x - 3)[(x - 1)(x - 2)]$

$= (x - 3)[x^2 - x - 2x + 2]$

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$= (x-3)[x \quad -3x+2]$

$= x^3 - 3x^2 + 2x - 3x^2 + 9x - 6$

$= x^3 - 6x^2 + 11x - 6 \neq x^3 - 7x + 6$

But the answer obtained from our workings can be checked as follows:

$(x-1)(x-2)(x+3)$

$= (x-1)[(x-2)(x+3)]$

$= (x-1)[x^2 - 2x + 3x - 6]$

$= (x-1)[x^2 + x - 6]$

$= x^3 + x^2 - 6x - x^2 - x + 6$

$= x^3 - 7x + 6$

This shows that our answer is correct.

17. $y \propto \frac{1}{x^2} \Rightarrow y = k\frac{1}{x^2} \Rightarrow k = x^2 y$

When $x = 3, y = 4$

$\therefore k = 3 \times 4$

$= 9 \times 4 \Rightarrow k = 36$ Answer: D

18. $5 - 2x > 11 - 4x$

$4x - 2x > 11 - 5$

$2x > 6 \Rightarrow \frac{2x}{2} > \frac{6}{2} \Rightarrow x > 3$ Answer: B

19. $\begin{vmatrix} x & 2 \\ 1 & 5 \end{vmatrix} = \begin{vmatrix} x & 3 \\ 2 & 3 \end{vmatrix}$

That is we are to find the determinations of the LHS and RHS matrices, equate the results and solve for x.

$(x)(5) - (1)(2) = (x)(3) - (2)(3)$

$5x - 2 = 3x - 6$

$5x - 3x = -6 + 2$

$2x = -4 \Rightarrow x = \frac{-4}{2}$ $\quad x = -2$ Answer: B

20. The determinants of matrix $\begin{pmatrix} 1 & 2 & 0 \\ 3 & 2 & 1 \\ 4 & 2 & 1 \end{pmatrix}$

is written as $\begin{vmatrix} 1 & 2 & 0 \\ 3 & 2 & 1 \\ 4 & 2 & 1 \end{vmatrix}$

$= (1)[(2)(1) - (2)(1)] - (2)[(3)(1) - (4)(1)]$

$+ (0)[(3)(2) - (4)(2)]$

$= (1)[2 - 2] - (2)[3 - 4] + (0)[6 - 8]$

$= (1)[0] - (2)[-1] + (0)[-2]$

$= 0 + 2 + 0 = 2$ Answer: B

21.

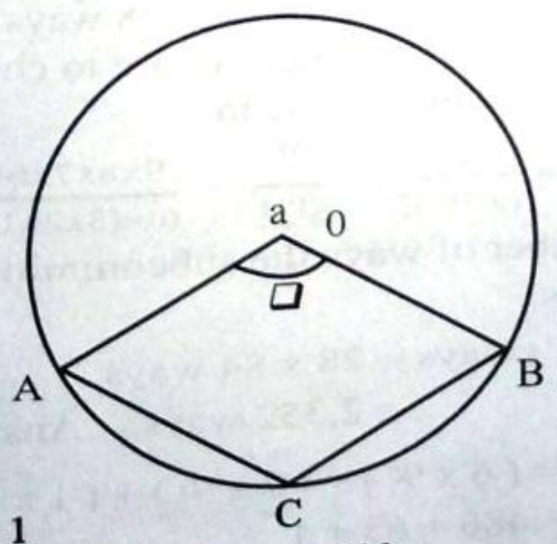


Fig 1

Obtuse angle AOB, $\theta = 130°$

Reflex angle AOB, $a = 360° - 130° = 230°$

Angle at centre = twice angle on circumference

$< AOB = 2 \times < ACB$

$230° = 2 \times < ACB$

$< ACB = \frac{230°}{2}$

$< ACB = 115°$ Answer: A

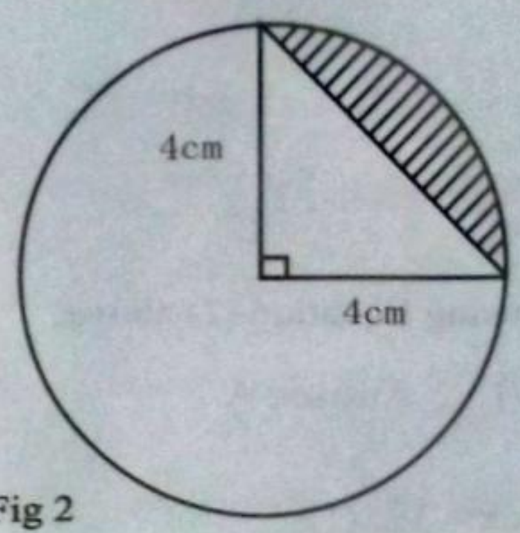


Fig 2

$r = 4$ cm, $\theta = 90$ (right angle)

Area of sector, $A_1 = \frac{\theta}{360°} \quad r^2$

$A_1 = \frac{90°}{360°} \times \pi \times 4^2 = \frac{1}{4} \times 16\pi = 4\pi \text{ cm}^2$

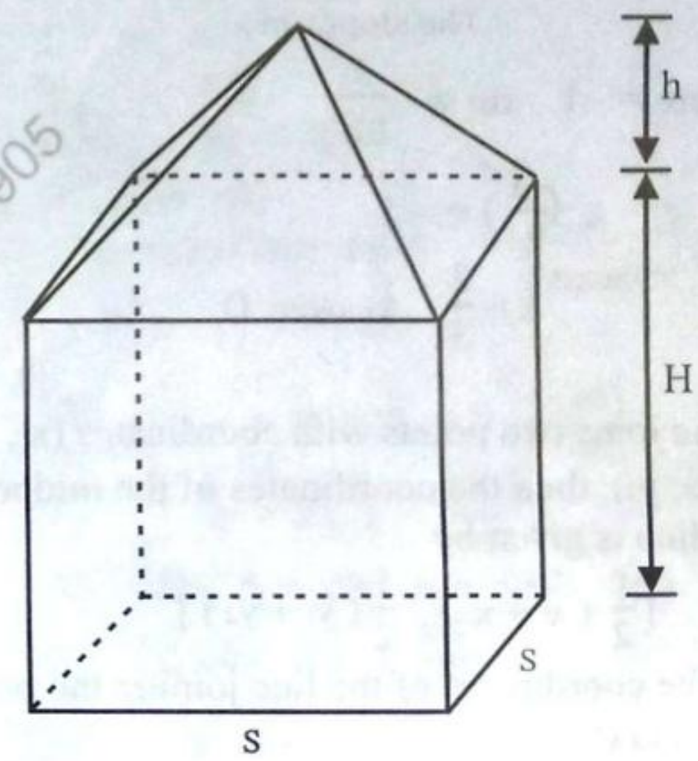
Area of triangle, $A_2 = \frac{1}{2} r^2 \sin\theta$

$A_2 = \frac{1}{2} \times 4^2 \times \sin 90° = 8 \text{ cm}^2$

Area of shaded segment

$A = A_1 - A_2 = 4p - 8 \text{ cm}^2$ Answer: B

23.



Volume of pyramid,

$v_1 = \frac{1}{3} \times$ base area $\times$ height of pyramid

$v_1 = \frac{1}{3} \times s^2 \times h = \frac{1}{3} s^2 h$

Volume of cuboid, $v_2 = s \times s \times H = s\ H$

Volume of shape, $v = v_2 + v_1 = s^2 H + \frac{1}{3} s^2 h$

Volume of cuboid,

$v = s^2 (H + \frac{1}{3} h)$ Answer: C

24.

$y = \sin(x^2 + 7)$ ... (1)

Let $q = x^2 + 7$ ... (2)

So that

$y = \sin q$ ... (3)

Differentiating Equation (2) w.r.t x

$\frac{dq}{dx} = 2x$ ...(4)

Differentiating Equation (3) w.r.t q

$\frac{dy}{dq} = \cos q$

Using Chain Rule of differentiation,

$\frac{dy}{dx} \quad \frac{dy}{dq} \quad \frac{dq}{dx}$

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$\frac{dy}{dx} = (\cos q) . (2x)$

$\frac{dy}{dx} = 2x \cos q$

Substituting for q using Equation (2) above,

$\frac{dy}{dx} = 2x \cos (x + 7)$ Answer: A

25. Given $y = k x - 3$ ... (1)

The general equation of a straight line of slope m and y-intercept c is given by

$y = mx + c$... (2)

Comparing (1) with (2), slope, $m_1 = k$

Similarity, given $2y + 3x = 7$

$2y = - 3x + 7$

Dividing through by 2

$y = \frac{-3x}{2} + \frac{7}{2}$ ... (3)

Comparing (3) with (2),

Slope, $m_2 = \frac{-3}{2}$

The slopes m

$m_1 m_2 = -1 \quad m_2 = -\frac{1}{m_1}$

$\therefore \quad k\left(\frac{-3}{2}\right) = -1$

$k = \frac{2}{3}$ Answer: D

26.

If a line joins two points with coordinates (x_1, y_1) and (x_2, y_2), then the coordinates of the midpoint of the line is given by

$[\frac{1}{2}(x_1 + x_2), \frac{1}{2}(y_1 + y_2)]$

$\therefore$ The coordinates of the line joining the points (-1, 3) and (5, 7) is

$[\frac{1}{2}(-1 + 5), \frac{1}{2}(3 + 7)]$

$= (2, 5)$ Answer: C

27.

$x^2 + 3x - 10 < 0$

$(x - 2)(x + 5) < 0$

$x = 2$ or $x = -5$

	$x < -5$	$-5 < x < 2$	$x > 2$
$x - 2$	-ve	-ve	+ ve
$x + 5$	-ve		
Product	+ ve	-ve	+ ve
			+ ve

Since $(x + 2)(x - 5) < 0$,

i.e. the product of the factors is less than zero (implying negative product), the range of values of x which satisfies the quadratic inequality is that range resulting in - ve product. This is the range $-5 < x < 2$ Answer: D

Further Explanations

Consider $x < -5$, i.e. we can choose any values of x less than -5, such as -6, -7, etc. When considering the factor $x - 2$, we substitute for x in the factor with the chosen value of x and see if the result will be -ve or +ve. Suppose x = -6, thus $x - 2$ Þ $-6 + 2 = -4$ (- ve)

Similarly, consider the range $-5 < x < 2$, i.e. x is greater than -5 but less than 2, we may choose -4, -3, -1, -2, -1, 0 or 1 but not 2.

Suppose x = -1, then $x - 2$ Þ $-1 - 2 = -3$ (-ve).

28.

Similarly, x= -3, $x - 5$ Þ $-3 - 5 = -8$ (- ve).

The binary operation is defined by

$a * b = a + b - 3$

We may use any letter to represent the identity element of a. Suppose the identity element of a is e. one important condition for identity of a is that $a * e = e * a = a$

Under the operation *

$a * e = a + e - 3$

For the condition of identity of a,

$a * e = a + e - 3 = a$

i.e. $a + e - 3 = a$

$e = a - a + 3$

Identity, $e = 3$ Answer: A

29.

Another binary operation is defined by

$x * y = x y - x + y$

Given (3 * 4) * 5, we must treat the operation within the brackets first.

$3 * 4 = (3)(4) - 3 + 4$

$= 12 + 1 = 13$

$(3 * 4) * 5 = 13 * 5 = (13)(5) - 13 + 5$

$= 65 - 8 = 57$ Answer: C

30.

Given the numbers: 1, 2, 3, 4, 5, 7, 8, 9, 10

$\text{mean, } x = \frac{1 + 2 + 3 + 4 + 5 + 7 + 8 + 9 + 10}{9}$

$= \frac{49}{9} = 5\frac{4}{9}$

To calculate the median we first arrange the numbers either in increasing or decreasing order of magnitude. However, the given numbers are already in increasing order of magnitude

1, 2, 3, 4, 5, 7, 8, 9, 10 Median = 5

Difference between mean and media $= 5\frac{4}{9} - 5 = \frac{4}{9}$

Answer: D

31.

Out of 8 men we are to choose 2 men. The number of ways this can be done is

$^8C_2$ ways $= \frac{8!}{(8-2)!\,2!} = \frac{8!}{6!2!} = \frac{8x7x6x5x4x3x2x1}{(6x5x4x3x2x1)x(2x1)}$

$= 28$ ways

Similarly, out of 9 women we are to choose 3 women. This can be done in

$^9C_3$ ways $= \frac{9!}{(9-3)!\,3!} = \frac{9!}{6!3!} = \frac{9x8x7x6!}{6!x(3x2x1)} = 84$

The number of ways the subcommittee can be formed is

$^8C_2 \quad ^9C_3$ ways $= 28 \times 84$ ways

$= 2{,}352$ ways Answer: A

32. $671_{nine} = (6 \times 9^2) + (7 \times 9^1) + (1 \times 9^0)$

$= 486 + 63 + 1$

$671_{nine} = 550_{ten}$

Conversion to base ten:

8	550	
8	68	R 6
8	8	R 4
8	1	R 0
	0	R 1

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33.
$671_{nine} = 1046_{eight}$ Answer: D

$$\frac{14}{\sqrt{5}-\sqrt{3}}$$

Multiplying the numerator and denominator by the conjugate of $\sqrt{5}-\sqrt{3}$ which is $\sqrt{5}+\sqrt{3}$

$$\frac{14(\sqrt{5}+\sqrt{3})}{(\sqrt{5}-\sqrt{3})(\sqrt{5}+\sqrt{3})} = \frac{14(\sqrt{5}+\sqrt{3})}{(\sqrt{5})^2-(\sqrt{3})^2} = \frac{14(\sqrt{5}+\sqrt{3})}{5-3}$$

$$= \frac{14(\sqrt{5}+\sqrt{3})}{2} = 7(\sqrt{5}+\sqrt{3}) = 7\sqrt{5}+7\sqrt{3}$$

Answer: C

Note: Difference of two squares
$a^2 - b^2 = (a-b)(a+b)$
$(\sqrt{5})^2 - (\sqrt{3})^2 = (\sqrt{5}-\sqrt{3})(\sqrt{5}+\sqrt{3})$

34.
$\log_x y = z$
$y = x^z$
Taking zth root of both sides
$y^{\frac{1}{z}} =$
$y^{\frac{1}{z}} = x$
$x = y^{\frac{1}{z}}$ Answer: B

35.
$\sqrt{x+7} = x - 5$
Squaring both sides removes the SQRT,
$(\sqrt{x+7})^2 = (x-5)^2$
$x + 7 = x^2 - 10x + 25$
$x^2 - 10x + 25 = x + 7$
$x^2 - 11x + 18 = 0$
$(x-2)(x-9) = 0$
$x = 2$ or $x = 9$
To find the suitable value of x we substitute each of these values of x in the original equation, i.e.
when $x = 2$
$\sqrt{2+7} = 2 - 5 \Rightarrow \sqrt{9} = -3 \Rightarrow 3 = -3$
LHS $\neq$ RHS

When $x = 9$
$9 + 7 = 9 - 5 \Rightarrow 16 = 4 \Rightarrow 4 = 4$
LHS = RHS

$x = 9$ satisfies the equation
Answer: A

36.
$$y = \frac{4x+3}{2x-5}$$
Multiplying both side by $2x - 5$
$y(2x-5) = 4x + 3$
$2xy - 5y = 4x + 3$
$2xy - 4x = 5y + 3$
$2x(y-2) = 5y + 3$
$$x = \frac{5y+3}{2y-4}$$ Answer: C

37.
The nth term of a G.P is $U_n = ar^{n-1}$
Second term of a G.P $U_2 = ar^{2-1} = ar$
$U_2 = ar = 6 \ldots (1)$
Fifth term of G.P $U_5 = ar^{5-1} = ar^4$
$U_5 = ar^4 = -48 \ldots (2)$
Dividing Equation (2) by Equation (1),

$$\frac{ar^4}{ar} = \frac{-48}{6} \Rightarrow r^3 = -8 \quad r = (-2^3)^{\frac{1}{3}} \quad r = -2$$

Substituting the value of r in (1) gives
$a(-2) = 6 \Rightarrow \frac{6}{-2} a = \quad \therefore a = -3$ Answer: A

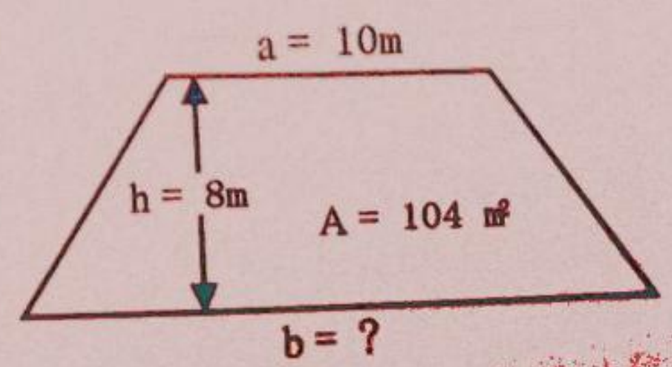
38.
$\log(x+1) + \log(x+4) = 1$
Common logarithm (log to base 10) is implied when the base is omitted. Thus,
$\log_{10}(x+1) + \log_{10}(x+4) = 1 \ldots (*)$
Recall from the laws of logarithm
$\log_a P + \log_a Q = \log_a PQ$
Therefore, Equation (*) becomes
$\log_{10}(x+1)(x+4) = 1 \ldots (**)$
Again, recall from the laws of logarithm, if $\log_a M = n$, then, $M = a^n$
$\therefore$ Equation (**) becomes
$(x+1)(x+4) = 10^1$
$(x+1)(x+4) = 10$
$x^2 + x + 4x + 4 = 10$
$x^2 + 5x - 6 = 0$
$(x-1)(x+6) = 0$
$x = 1$ or $x = -6$
Positive solution is 1
Answer: D

39.
$$I = \frac{PRT}{100} \qquad A = P + I = P + \frac{PRT}{100}$$
$$A = P\left(1 + \frac{RT}{100}\right)$$
P = N72, 000; R = 8%; A = N87, 840
$$87,840 = 72,000\left(1 + \frac{8T}{100}\right)$$
$$\frac{87,840}{72,000} = 1 + 0.08T$$
$1.22 = 1 + 0.08T \Rightarrow 0.08T = 0.22$
$$T = \frac{0.22}{0.08} = T = 2\frac{3}{4} \text{ years}$$
Answer: A

40.
$p + q = 1$ Answer: B

41.
Since x and y are positive number, and $x > y$,
$\frac{1}{x} > \frac{1}{y}$ is not true Answer: C
For example, suppose we choose any two positive numbers, say, 5 and 4.
$5 > 4$
$\frac{1}{5} = 0.2$ and $\frac{1}{4} = 0.25 \quad \therefore > \frac{1}{5} \neq \frac{1}{4}$

42.



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Area of a trapezium,

$A = \frac{1}{2}(a + b)h$

$104 = \frac{1}{2}(10 + b) \times 8$

$104 = 40 + 4b$

$b = \quad = 16$ m Answer: A

43.

We are required to find the remainder when $x^3 - 3x^2 + 4x - 7$ is divided by $x + 2$.

Thus, $x + 2 = 0 \Rightarrow x = -2$

$f(x) = x^3 - 3x^2 + 4x - 7$

$f(-2) = (-2)^3 - 3(-2)^2 + 4(-2) - 7$

$= -8 - 12 - 8 - 7$

$= -35$ Answer: C

Alternative method

$$\begin{array}{r|l} & x^2 - 5x + 14 \\ \hline x+2 & x^3 - 3x^2 + 4x - 7 \\ & -(x^3 + 2x^2) \\ & -5x^2 + 4x \\ & -(-5x^2 - 10x) \\ & 14x - 7 \\ & -(14x + 28) \\ & -35 \end{array}$$

44.

$\frac{dy}{dx} = 6x^2 + 15x^4$

$\int \frac{dy}{dx} = \int (6x^2 + 15x^4)$

$y = \frac{6}{3}x^3 + \frac{15}{5}x^5 + c$

$y = 2x^3 + 3x^5 + c \ldots \quad (*)$

But $y = 7$ when $x = 2$

$\therefore 7 = 2(2)^3 + 3(2)^5 + c$

$7 = 16 + 96 + c$

$c = -112 + 7 \Rightarrow c = -105$

Substituting for c in Equation (*) above,

$y = 2x^3 + 3x^5 - 105$ Answer: D

45.

The minute hand moved through

$1\frac{1}{4}$ hours = 1 hour 15 minutes

A rotation of 1 hour is 360 and a further rotation of 15 minutes° is 90

∴ Total angle rotated,

$\square = 360^0 + 90^0 = 450^0$

$\ell = \frac{\square}{360} \times 2\square r \quad r = 7$ cm

Distance moved by minute hand of clock

$\ell = \frac{450}{360} \times 2 \times \frac{22}{7}\square \times 7 = 55$ cm Answer: C

46.

A(−2, 3) and B(4, −5)

Distance $AB = \sqrt{[4^2 - (-2)]^2 + [-5 - 3]}$

$= \sqrt{6^2 + (-8)^2} \sqrt{= 36 + 64} = 100$

$|AB| = 10$ units Answer: A

47.

Midpoint: $[\frac{1}{2}(-2 + 4), \frac{1}{2}(-5 + 3)]$

$= [\frac{1}{2}(2), \frac{1}{2}(-2)]$

$= (1, -1)$ Answer: C

48.

Sum of series: $\frac{1}{2} - \frac{1}{4} \quad \frac{1}{8} \quad \frac{1}{16} + \cdots$

The series is $\frac{1}{2}, -\frac{1}{4}, \frac{1}{8}, -\frac{1}{16} \ldots$

Common ratio $r = -\frac{1}{4} \div \frac{1}{8} = -\frac{1}{2}$

or $r = \frac{1}{8} \div (-\frac{1}{4}) = -\frac{1}{2}$ or $r = -\frac{1}{16} \div \frac{1}{8} = -\frac{1}{2}$

$\therefore r = -\frac{1}{2}$ & first term $= \frac{1}{2}$

Sum to infinity of a G.P is given by

$S_\infty = \frac{a}{1-r}$

$S_\infty = \frac{\frac{1}{2}}{1 - (-\frac{1}{2})} = \frac{\frac{1}{2}}{1 + \frac{1}{2}} = \frac{1/2}{3/2} = \frac{1}{2} \times \frac{2}{3} = \frac{1}{3}$

Answer : B

49.

$(x) - 2)(x) - 1) > 0$

At the boundaries,

$(x - 2)(x - 1) = 0$

$x = 2$ or $x = 1$

	$x < 1$	$1 < x < 2$	$x > 2$
$x - 2$	−ve	−ve	+ve
$x - 1$	−ve	+ve	+ve
Product $(x - 2)(x - 1)$	+ve	−ve	+ve

Since the product $(x - 2)(x - 1) > 0$ i.e. greater than zero (+ve), any range of x which result in positive product satisfies the quadratic inequality.

$\therefore x < 1$ or $x > 2$ Answer: D

50.

$|2x + 6| < 10$

$-(2x + 6) < 10$

$-2x - 6 < 10$

$-2x < 16$

$\frac{-2x}{-2} > \frac{16}{-2}$

$x > -8$

$2x + 6 < 10$

$2x < 10 - 6$

$2x < 4$

$\frac{2x}{2} < \frac{4}{2}$

$x < 2$

(-8, 2) Answer: C

51.

Given the sequence $\{1 + (-1)^n\}$, we set $n = 7$ for the 7th term, i.e.

$U_7 = 1 + (-1)^7 = 1 + (-1) = 1 - 1 = 0$ Answer: A

52.

Given the A.P: $x, 2x + 1, 3x - a$

Common difference $d = (2x + 1) - x \ldots (1)$

Also, $d = (3x - a) - (2x + 1) \ldots (2)$

Equating (1) and (2)

$(2x + 1) - x = (3x - a) - (2x + 1)$

$x + 1 = x - a - 1$

$a = -2$ Answer: B

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53.

Consider the sequence

$$1,\ 21,\ 51,\ 91\ \ldots$$
$$20,\ 30,\ 40\ \ldots$$

i.e. the differences increase by 10 so that the next term is $91 + 50 = 141$

Answer: B

54.

$n(X) = 4$ is correct Answer: D

It is correct to write $n(X) = 4$, i.e. the number of elements in the set X is 4.

Note

Option A, which is given as $\{a\} \in X$, is incorrect since the curly brackets are used for representing a set of elements, and a alone is not a set.

Option B is wrong because $\{a, b\} \supset X$ means X is a subset of $\{a, b\}$ which *is not true*. However, it is correct to write $\{a, b\} \subset X$ or $X \supset \{a, b\}$

Option C is wrong because $b \notin X$,

i.e. b is not an element of the set X, is *not true* since b is a member of the set X

55.

Given the line $3y + 2x + 5 = 0$ ... (1)

and the point (3, -2), re-arranging Equation (1)

$$3y = -2x - 5$$

$$y = \frac{-2}{3}x - \frac{5}{3} \ \ldots\ (1a)$$

Compare with the equation of a straight line

$$y = mx + c.$$

Let m_1 be the slope of Equation (1a).

$$m_1 = \frac{-2}{3}$$

Assuming the line from the point (3, -2) is perpendicular to the line $3y + 2x + 5 = 0$, then

$$m_2 = -\frac{1}{m_1}$$

$$m_2 = -\frac{1}{-2/3} = \frac{3}{2}$$

The equation of a straight line of slope m_2 passing through any point (x_2, y_2) is

$$y - y_2 = m_2(x - x_2)$$

$$(x_2, y_2) = (3, -2)$$

$$y - (-2) = \frac{3}{2}(x - 3)$$

$$y + 2 = \frac{3}{2}(x - 3)$$

Multiplying through by 2 gives

$2y + 4 = 3(x - 3)$

$2y + 4 = 3x - 9$

$3x - 2y = 13$ . . (2)

From Equation (1),

$2x + 3y = -5$ . . (3)

Solving (2) and (3) simultaneously:

From (3)

$$y = \frac{-5 - 2x}{3} \ \ldots\ (4)$$

Substituting for y in (2),

$$3x - 2\left(\frac{-5 - 2x}{3}\right) = 13$$

Multiplying through by 3

$9x - 2(-5 - 2x) = 39$

$9x + 10 + 4x = 39$

$13x = 29 \Rightarrow x = \frac{29}{13}$

$$x = 2\frac{3}{13}$$

2 x EQN (2): $6x - 4y = 26$ ... (5)

3 x EQN (3): $6x + 9y = -15$ ... (6)

EQN (5)-- EQN (6) $-13y = 41$

$$y = -\frac{41}{13}$$

∴ **Point of intersection between the two lines is** $\left(\frac{29}{13}\ \ \frac{41}{13}\right)$

Distance between the line

$3y + 2x + 5 = 0$ and the point (3, -2) is same as the distance between points $\left(\frac{29}{13}\ \ \frac{41}{13}\right)$ and (3,-2)

$$= \sqrt{\left(3 - \frac{29}{13}\right)^2 + \left[-2 - \left(-\frac{41}{13}\right)^2\right]}$$

$$= \sqrt{\left(\frac{10}{13}\right)^2 + \left(\frac{15}{13}\right)^2} = \sqrt{\frac{100}{169}\ \ \frac{225}{169}}$$

$$= \sqrt{\frac{325}{169}} = \frac{\sqrt{325}}{13} = \frac{\sqrt{25 \times 13}}{13} = \frac{\sqrt{25} \times \sqrt{13}}{13} = \frac{5\sqrt{13}}{13}$$

$$= \frac{5\sqrt{13}}{13} \times \frac{\sqrt{13}}{\sqrt{13}} = \frac{5(13)}{13\sqrt{13}} = \frac{5}{\sqrt{13}}$$ Answer: A

56.

$3x + 5y + 17 = 0$

$5y = -3x - 17$

$y = -\frac{3}{5}x - \frac{}{5}$

Compare with $y = mx + c$

Slope $m = -\frac{3}{5}$ Answer: B

57.

The intercept on x is obtained when $y = 0$.

$3x - 2y + 6 = 0$

$3x - 2(0) + 6 = 0$

$3x = -6 \Rightarrow x = \frac{-6}{3}$ ∴ $x = -2$

The intercept on y is obtained by setting $x = 0$.

$3(0) - 2y + 6 = 0$

$-2y = -6 \Rightarrow y = \frac{-6}{-2}$ i.e. $y = 3$

Intercepts on x and y are -2 and 3.

(-2, 3) Answer. D

58.

$f(x + 2) = 3x^2 - 2x + 5$

$x + 2 \Rightarrow -1 + 2 = 1$

$f(-1 + 2) = 3(-1 + 2)^2 - 2(-1 + 2) + 5$

$f(1) = 3(1)^2 - 2(1) + 5$

$= 3 - 2 + 5 = 6$ Answer: C

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59.

$2x^2 + 3x - 9 = 0$

Recall the general quadratic equation

$ax^2 + bx + c = 0$

Sum of roots $\alpha + \beta = \frac{-b}{a} = -\frac{3}{2}$

Product of roots $\alpha\beta = \frac{c}{a} = -\frac{9}{2}$

$\frac{1}{\alpha} + \frac{1}{\beta} = \frac{\beta+\alpha}{\alpha\beta} = \frac{-3/2}{-9/2} = \frac{1}{3}$ Answer: D

60.

nth term of the sequence

$U_n = 2 + 3U_{n-1}$ ... (1)

$= 2 + 3U_3$ ... (2)

$U_4 = 36 + U_3$ (given) ... (3)

Equating (2)and (3)

$2 + 3U_3 = 36 + U_3$

$2U_3 = 34 \Rightarrow U_3 = \frac{34}{2} \Rightarrow U_3 = 17$ Answer: C

$2x^2 - 5x + 6 = 0$

Sum of roots $\alpha + \beta = -\frac{-5}{2} = \frac{5}{2}$

Product of roots $\alpha\beta = \frac{6}{2} = 3$

$(\alpha + \beta)^2 = \alpha^2 + 2\alpha\beta + \beta^2$

$\alpha^2 + \beta^2 = (\alpha + \beta)^2 - 2\alpha\beta$

$\alpha^2 + \beta^2 = (\frac{5}{2})^2 - 2(3) = \frac{25}{4} - 6 = \frac{1}{4}$ Answer: D

62.

If $x - 2$ is a factor of $f(x) = x^2 + px^2 - 4xq$,

then $x - 2 = 0 \Rightarrow x = 2$ and

$f(2) = 0 \Rightarrow f(2) = (2)^2 + p(2)^2 - 4(2)q = 0$

$4 + 4p - 8q = 0$

Dividing through by 4

$1 + p - 2q = 0$

$p - 2q = -1$ ... (1)

Similarly, if $x + 1$ is a factor, then

$x + 1 = 0 \Rightarrow x = -1$

$f(-1) = 0 \Rightarrow f(-1) = (-1)^2 + p(-1)^2 - 4(-1)q = 0$

$1 + p + 4q = 0$

$p + 4q = -1$ ... (2)

EQNs (1) and (2) are solved simultaneously for values of p and q.

EQN (1) – EQN (2): $-6q = 0$ $q = 0$

Substituting for q in (1) above

$p - 2(0) = -1 \Rightarrow p = -1$ i.e. $-1, 0$ Answer:D

63.

$\frac{s+25}{(s+1)(s-2)} = \frac{p}{s+2} + \frac{q}{s-2}$ ... (1)

Let LHS $\Rightarrow \frac{s+25}{(s+1)(s-2)} = \frac{A}{s+1} + \frac{B}{s-2}$ (2)

$= \frac{A(s-2) + B(s+1)}{(s+1)(s-2)}$

$= \frac{As - 2A + Bs + B}{(s+1)(s-2)}$

$\frac{s+25}{(s+1)(s-2)} = \frac{(A+B)s - 2A + B}{2}$

Comparing numerators coefficients,

$A + B = 1$ ... (3)

EQN (4) – EQN (3) $-2A + B = 25$... (4)

$3A = -24$

$A = \frac{-24}{3}$ $A = -8$

Substituting for A in EQN (3)

$-8 + B = 1 \Rightarrow B = 9$

Substituting for A and B in (2)

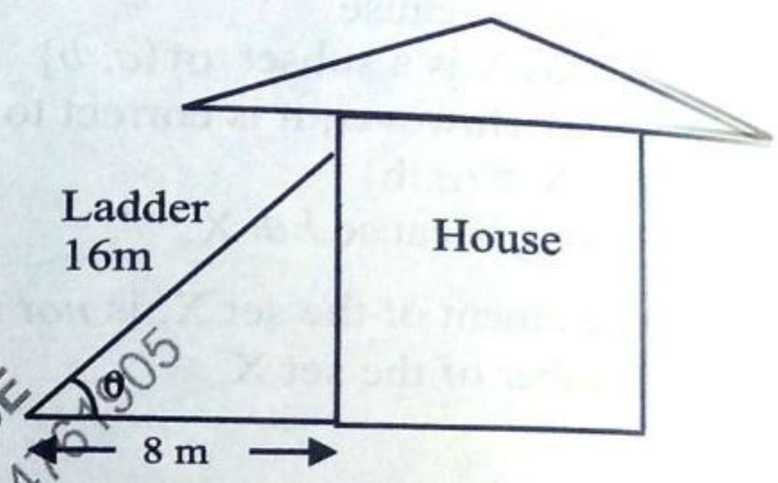
$\frac{s+25}{(s+1)(s-2)} \quad \frac{-8}{s+1} \quad \frac{\quad}{s-2}$ ... (5)

Using EQNs (1) & (5)

$\frac{p}{s+2} + \frac{\quad}{s-2} = \frac{\quad}{s+1} + \frac{\quad}{s-2}$

By comparison $p = -8$ Answer: D

64.



$\cos\theta = \frac{8}{16} = 0.5$

$\theta = \cos^{-1} 0.5 \Rightarrow \theta = 60^o$ Answer: B

65.

$\cos 315^o = \cos(360^o - 315^o)$

$= \cos 45^o$

$= \frac{1}{\sqrt{2}}$ Answer: C

66.

$180^o =$ radian

-320° $\frac{-320}{180} \times \pi$ rad

$= -1.778 \times 3.14$ rad

$= -5.58$ rad Answer: C

67.

$\sec^2 x - \frac{3}{4}\sec x \quad \frac{1}{2}$

Let $\sec x = y$

$\therefore \quad y^2 - \frac{3}{4}y = \frac{1}{2}$

Multiplying through by 4

$4y^2 - 3y = 2$

$4y^2 - 3y - 2 = 0$

$y = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$y = \frac{-3 \pm (-3)^2 - 4(4)(-2)}{2(4)}$

$y = \frac{-3 \pm \sqrt{9 + 32}}{8}$

$y = \frac{-3 \pm \sqrt{41}}{8}$ $\therefore \sec x = y = \frac{-3 \pm \sqrt{41}}{8}$ Answer: A

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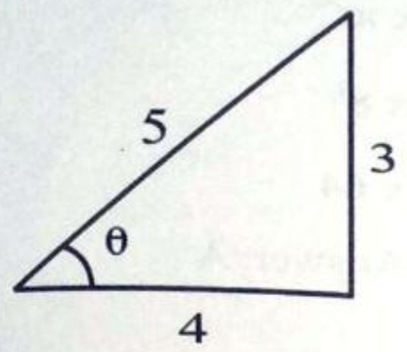
68.



$\tan\theta = \frac{3}{4} \Rightarrow \theta = \tan^{-1}(\frac{3}{4})$ $\therefore$ $\theta = 36.87$

In the 2nd quadrant $\tan(180^0 - \theta) = -\tan\theta$

$\therefore \tan(180^0 - 36.87^0) = -\tan 36.87^0$

$\tan 143.13^0 = -\tan 36.87^0$

Similarly, in the 2nd quadrant

$\sin(180^0 - \theta) = \sin\theta$

$\therefore \sin(180^0 - 36.87^0) = \sin 36.87^0$

$\sin 143.13^0 = \sin 36.87^0 = \frac{3}{5}$

$\cos(180^0 - 36.87^0) = -\cos 36.87^0$

$\cos 143.13^0 = -\cos 36.87^0 = -\frac{4}{5}$

$\sin 2\theta = 2\sin\theta\cos\theta$

$\sin 2(36.87^0) = 2(\frac{3}{5})(-\frac{4}{5}) = -\frac{24}{25}$ Answer: C

69.

arc sin $0.2334 = \sin^{-1}0.2334 = 13.50^0$

$= 13^0 + 0.50^0$

$= 13^0 + (0.50 \times 60)$ min

$= 13^0\ 30$ Answer: C

(Note: $1^0 = 60$)

70.

$u = (3, -7)$ and $v = (4, 2)$

$u + v = [(3 = 4), (-7 + 2)]$

$= (7, 5)$ Answer: A

71.

$(4 - x^2)(2 + x)^{-1/2}$

$= (2^2 - x^2)(2 + x)^{-1/2}$

Recall $a^2 - b^2 = (a - b)(a + b)$

$\therefore (2^2 - x^2)(2 = x)^{-1/2}$

$= (2 - x)(2 + x)(2 + x)^{-1/2}$

$= (2 - x)(2 + x)^1(2 + x)^{-1/2}$

$= (2 - x)(2 + x)^{1 + (-1/2)}$

$= (2 - x)(2 + x)^{1/2}$

$= (2 - x)\sqrt{2 + x}$ Answer: B

72.

$(2 - \sqrt{3})^3 = (2 - \sqrt{3})^2(2 - \sqrt{3})$

Recall $(a - b)^2 = a^2 - 2ab + b^2$

$(2 - \sqrt{3})^2(2 - \sqrt{3})$

$2^2 - 2(2)\sqrt{3} + (\sqrt{3})^2 \quad 2 - \sqrt{3}$

$= 4 - 4\sqrt{3} + 3 \quad 2 - \sqrt{3}$

$= (7 - 4\sqrt{3})(2 - \sqrt{3})$

$= 14 - 7\sqrt{3} - 8\sqrt{3} + 4(3)$

$= 26 - 15\sqrt{3}$ Answer: C

73.

Sum of G.P to infinity

$S_\infty = \frac{a}{1 - r}$

$S_\infty = 2\frac{2}{7}$ $a = 4$

$2\frac{2}{7} = \frac{4}{1 - r} \Rightarrow \frac{16}{7} = \frac{4}{1 - r} \Rightarrow 28 = 16(1 - r)$

Dividing through by 4 gives $7 = 4(1 - r) \Rightarrow 7 = 4 - 4r$

$4r = -3 \Rightarrow r = -\frac{3}{4}$ Answer: B

74.

$\frac{x^3 + 1}{2x^2 - x - 1}$

When $x = -1$

$\frac{x^3 + 1}{2x^2 - x - 1} = \frac{(-1)^3 + 1}{2(-1)^2 - (-1) - 1} = \frac{-1 + 1}{2(-1) + 1 - 1} = 0$

Answer: A

75.

$\frac{2m + 3n}{4m - 5n} = 2$

$2(4m - 5n) = 2m + 3n$

$8m - 10n = 2m + 3n$

$6m = 13n$

$m = \frac{13n}{6}$

$\therefore \frac{5m + n}{2m + n} = \frac{5(\frac{13}{6}n) + n}{\frac{13}{6}n) + n} = \frac{n(\frac{65}{6} + 1)}{n(\frac{26}{6} + 1)} = \frac{71/6}{16/3}$

76.

$2x^2 - px + 6 = (2x - 6)(x - 1)$

$= 2x^2 - 6x - 2x + 6$

$2x^2 - px + 6 = 2x^2 - 8x + 6$

Comparing LHS and RHS coefficients

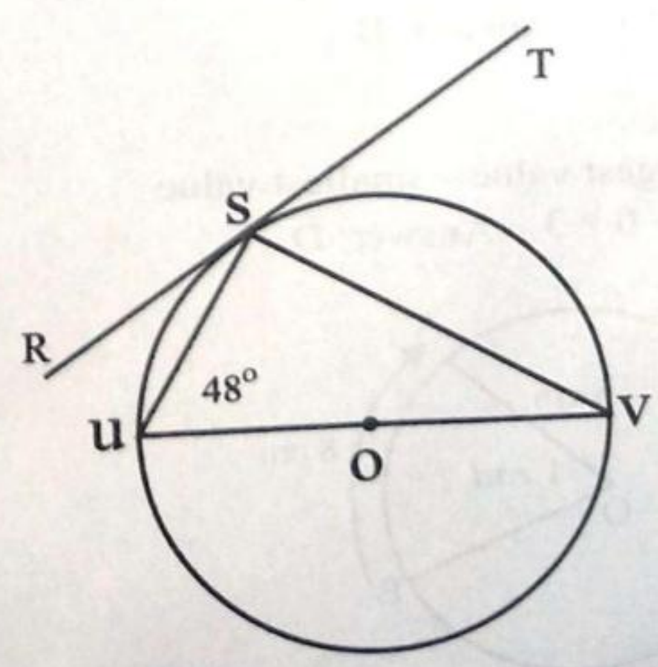
$-p = -8 \quad p = 8$ Answer: C

77.

$x(1 \times x^2)$ is not a quadratic expression since

$x(1 + x^2) = x + x^3$ (cubic expression) Answer: C

78.



Since UV is a diameter,

$\angle USV = 90^0$ (angle in a semicircle)

$\angle USV = 90^0 - 48^0 = 42^0$

$\angle RSU = \angle UVS$ (angles in alternate segments)

$\therefore \angle RSU = 42^0$ Answer: C

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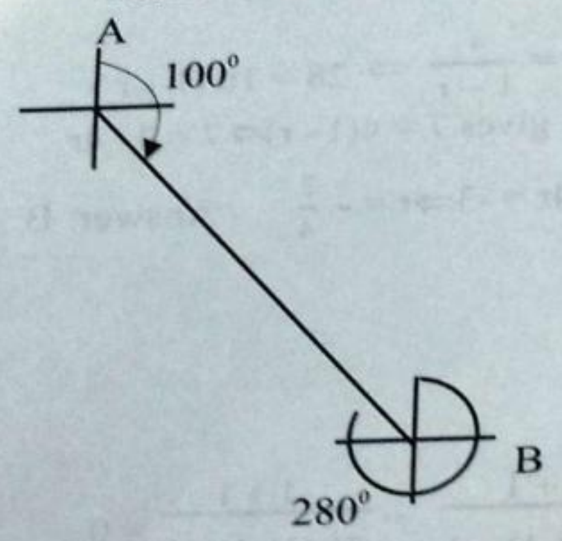
79.

Bearing of A from B = 280^0

Required to find the bearing of B from A.

This is back bearing.



To find the back-bearing, 180^0 is subtracted from the given bearing 280^0, i.e.

$280^0 - 180^0 = 100^0$ Answer: B

111

Note that if the given bearing is more than 180^0 we subtract 180^0 from it to obtain the back bearing. But if the given bearing is less than 180^0 we add the given bearing to 180^0

80.

x	0	1	2	3
Frequency	20	18	7	5

mean, $\bar{x} = \frac{\Sigma fx}{\Sigma f} = \frac{20(0) + 18(1) + 7(2) + 5(3)}{20 + 18 + 7 + 5}$

$\frac{0 + 18 + 14 + 15}{50}$

$= \frac{47}{50} = 0.94$ Answer: C

81.

Total frequency = 50

The median corresponds to the

$\frac{50}{2}$ *th* (i.e. 25 th) position in the frequency.

20 + 18=38. Thus the 25*th* position is within this frequency sum and it falls under the x-value 1.

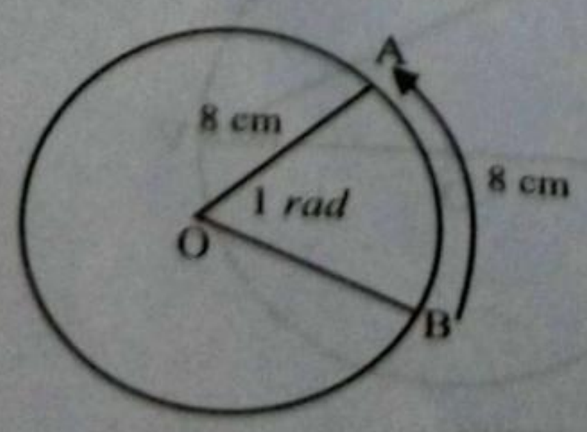
∴ median = 1 Answer: B

82.

Range = largest value – smallest value

Range = 3 – 0 = 3 Answer: D

83.



1 radian is the angle subtended by an arc whose length equals the radius of circle.

π radian = 180^0

1 radian = $\frac{180}{\quad} = \theta$

r = 8cm

Area of sector, $A = \frac{\theta}{360} \times \pi r^2$

$A = \frac{180/\pi}{360} \times \pi \times 8^2$

$= \frac{180}{360\,\pi} \times \pi \times 64$

$A = 32\ cm^2$ Answer: A

84.

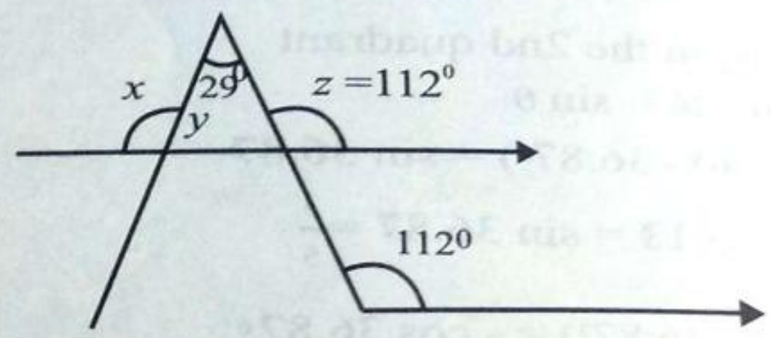
$z = 112^0$ (corresponding angles)

$x + y = 180^0$ (sum of angles on a straight line)

$y = 180^0 - x$ Sum of interior ∠s of Δ

$y + 29^0 = 112^0$ equals exterior angle

$180^0 - x + 29^0 = 112^0$



$x = 180^0 + 29^0 - 112^0$

$x = 97^0$ Answer: C

85.

$p^2 - 18p + k$

For a perfect square the determinanat

$b^2 - 4ac = 0 \Rightarrow b^2 = 4ac$

$a = 1, b = -18, c = k$

$(-18)^2 = 4(1)k$

$324 = 4k \Rightarrow k = \frac{324}{4} = 81$ Answer: D

86. $y = \frac{7}{x+3}$

A function is not defined when its denominator is zero. Thus,

$x + 3 = 0 \Rightarrow x = -3$

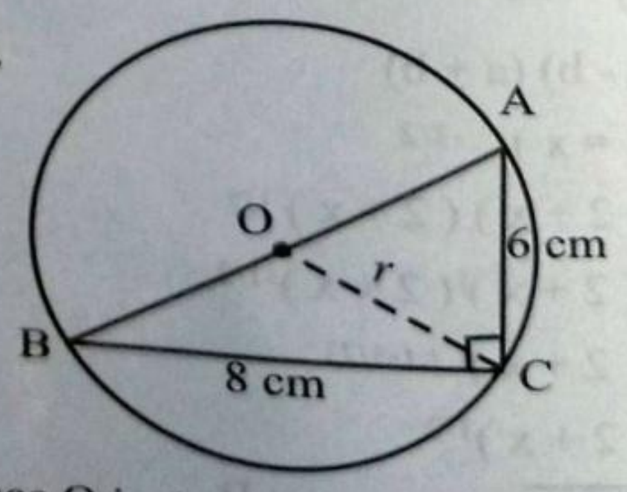
The above expression is undefined when x =-3

Answer: C

87. $(4 \times 10^3) \times (6 \times 10^2) = 4 \times 6 \times 10^3 + 2$

$= 24 \times 10^5$ Answer: B

88.



Since O is the centre of the circle and the line AB passes through this centre, AB is a diameter and < ACB = 90^0

∴ ABC is a right angled triangle.

Applying Pythagoras theorem to ABC,

$|AB|^2 = |BC|^2 + |AC|^2$

$|AB|^2 = 8^2 + 6^2 = 64 + 36$

$|AB|^2 = 100$ i.e. $|AB| = \sqrt{100}$

$|AB| = 10$ cm = diameter, *d*.

$r = \frac{d}{2} = \frac{10}{2} = 5$ cm

$C = 2\pi r$

$C = 2 \times \pi \times 5 = 10\pi$ cm Answer: A

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$10y + x$
$10y + x = 10x + y + 36$
$10y - y - 10x + x = 36$
$9y - 9x = 36$

Dividing through by 9

$y - x = 4$

Multiplying through by -1

$x - y = -4$ ... (2)

To solve simultaneous EQNs (1) & (2), subtract (2) from (1)

$2x = 6 \Rightarrow x = \frac{6}{2}$

Substituting for x in (2) above,

$3 - y = -4$
$y = 3 + 4$
$y = 7$

The original two-digit number $x\,y$ is 37

Answer: B

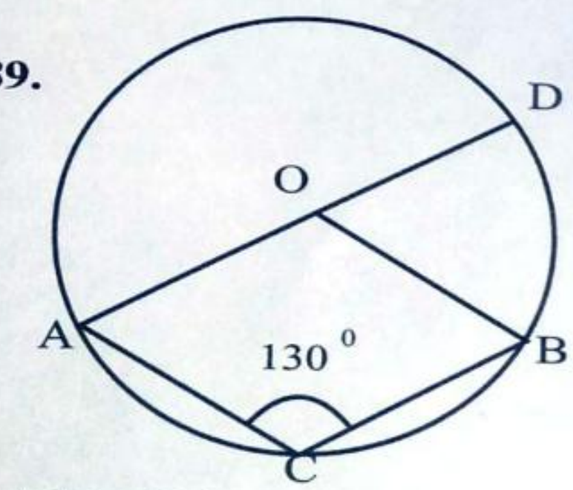
Note that the interchanged two-digit number is 73. Difference between the original and interchanged two-digit numbers is $73 - 37 = 36$

Also, $10x + y = 10(3) + 7$
$= 30 + 7$
$= 37$

Similarly,

$10y + x = 10(7) + 3$
$= 70 + 3$
$= 73$

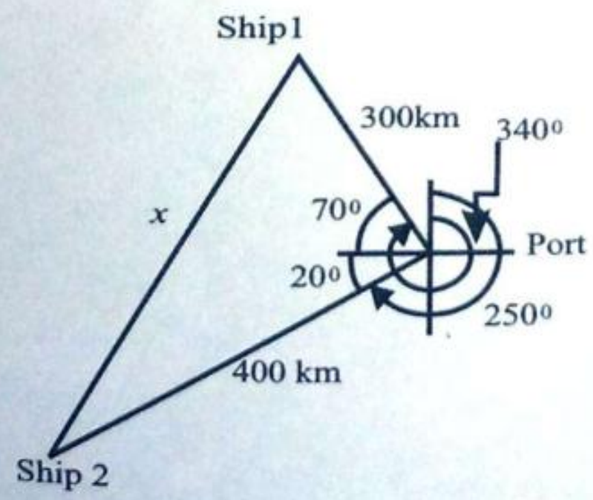
89.



$ACB = 130^0$
$2 \times \angle ACB = \text{Reflex } \angle AOB$
$2 \times 130^0 = \text{Reflex } \angle AOB$
$\text{Reflex } \angle AOB = 260^0$

Angle on straight line AD + $\angle DOB$
$= \text{Reflex } \angle AOB$
$180^0 + \angle DOB = 260^0$
$\angle DOB = 260^0 - 180^0 \Rightarrow \angle DOB = 80$ Answer: C

90.



x = distance between the ships
$20^0 + 70^0 = 90^0$
∴ The triangle is right-angled.
$x^2 = 300^2 \quad 400^2$
$= 90{,}000 + 160{,}000$
$x^2 = 250{,}000$
$x = \sqrt{250{,}000}$ km
$x = 500$ km Answer: C

91.

Method 1

Let the original cost price of item be ₦x.
Since a profit of 20% was made the item was sold at 120% (i.e. 20 + 100 %) of cost price. Thus,

$\frac{120}{100} \times x = 3{,}600 \Rightarrow 1.2x = 3600$

$x = \frac{3{,}600}{1.2} =$ ₦ 3,000 Answer: B

Method 2

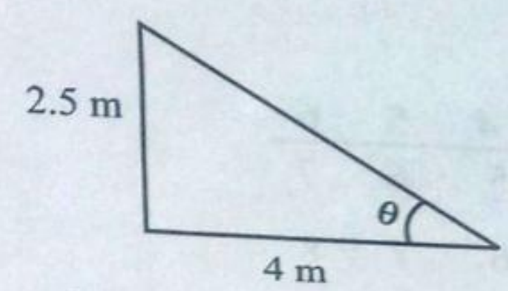
Profit is 20% of cost price, i.e.

$\frac{20}{100} \times x = 0.2x$

Selling price = cost price+profit = $x + 0.2x = 1.2x$

$1.2x = 3600 \Rightarrow x =$ ₦ 3,000

92.



$\tan\theta = \frac{2.5}{4} = 0.625$ i.e. $\theta = \tan^{-1} 0.625$

$\theta = 32.01^0$

Elevation of the Sum$\theta = 32^0$ (nearest degree)

Answer: A

93.

$4^{x+1} \times 8^{2x-1} = 16$
$2^{2(x+1)} \times 2^{3(2x-1)} = 2^4$
$2^{2x+2} \times 2^{6x-3} = 2^4$
$2^{(2x+2)+(6x-3)} = 2^4$

Equating powers since base is same,

$2x + 2 + 6x - 3 = 4$
$8x = 5 \Rightarrow x = \frac{5}{8}$ Answer: C

94.

$$\begin{array}{r} 102_{three} \\ \times \quad 22_{three} \\ \hline 211 \\ 211 \\ \hline 10021_{three} \end{array}$$

Answer: C

95.

Let the sum of money = ₦ x
8% of x is ₦ 320, i.e.

$\frac{8}{100} \times x = 320$
$0.08x = 320$
$x = \frac{320}{0.08} =$ ₦ 4,000

10 % of ₦ 4,000 is

$\frac{10}{100} \times$ ₦ 4,000 = ₦ 400 Answer: A

96.

The set of numbers is

$\{3, 0, 5, \sqrt{4}, \sqrt{5}, \frac{2}{9}\}$

A number which can be expressed in the form $\frac{a}{b}$ is a rational number. The number $\frac{2}{9}$ is the only rational number in the set of numbers given above.

Pr (rational number) $= \frac{1}{6}$

Take $\frac{1}{5}$ Answer: C

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97.

Area of circle $A = \pi r^2$

$A = 154$ cm

$154 = \frac{22}{7} \times r^2$

$r^2 = \frac{154}{22} \times 7$

$r^2 = 49$

$r = \sqrt{49}$ $\therefore$ $r = 7$ cm

Circumference

$c = 2\pi r$

$c = 2 \times \frac{22}{7} \times 7$

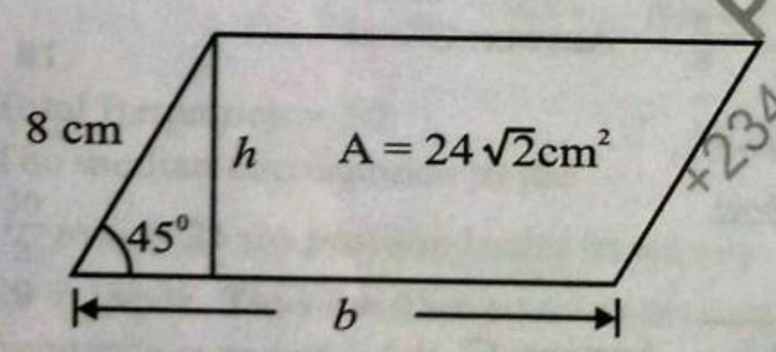
$c = 44$cm Answer: D

98.

	1	2	3	4	5	6
1	2	3	4	5	6	7
2	3	4	5	6	7	8
3	4	5	6	7	8	9
4	5	6	7	8	9	10
5	6	7	8	9	10	11
6	7	8	9	10	11	12

Pr (obtaining a sum of 5) $= \frac{4}{36} = \frac{1}{9}$ Answer: C

99.



$\sin 45^0 = \frac{h}{8}$

$h = 8 \sin 45^0$

Area of parallelogram

$A = bh$

$24\sqrt{2} = b \times 8 \sin 45^0$

$b = \frac{24\sqrt{2}}{8 \sin 45^0} = \frac{24\sqrt{2}}{8 \times 1/\sqrt{2}} = \frac{24\sqrt{2} \times \sqrt{2}}{8}$

$= \frac{24 \times 2}{8}$

$b = 6$ cm Answer: C

100.

Let the two-digit number be $x\,y$

$3x = y + 2$

$3x - y = 2$ ... (1)

The value of the original two-digit number is

$10x + y$

When the number is interchanged, it value becomes

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