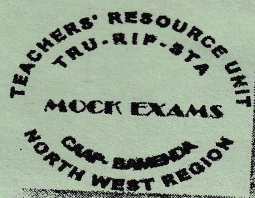


REPUBLIQUE DU CAMEROUN
Paix-Travail-Patrie
MINISTERE DES ENSEIGNEMENTS SECONDAIRES
CELLULE D'APPUI A L'ACTION PEDAGOGIQUE
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REPUBLIC OF CAMEROON
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MARCH 2026

The Teachers' Resource Unit and the Regional Inspectorate of Pedagogy, in charge of Industrial Techniques NWAPT	SUBJECT CODE NUMBER 5155	PAPER NUMBER 1
TECHNICAL VOCATIONAL EDUCATION INTERMEDIATE LEVEL REGIONAL MOCK EXAMINATION	SPECIALTY ALL INDUSTRIAL	
CANDIDATE NAME:	SUBJECT TITLE ENGINEERING SCIENCE	
CANDIDATE NUMBER:		
CENTRE NUMBER:		
INDUSTRIAL TECHNIQUES		

Time Allowed: One and a half hours
INSTRUCTIONS TO CANDIDATES:

Mobile phones are **NOT ALLOWED** in the examination room.

1. USE A SOFT HB PENCIL THROUGHOUT THIS EXAMINATION.
2. DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

Before the Examination begins:

3. Check that this question booklet is headed "Intermediate Level 5155 Code and Subject Title Engineering science) Paper 1".
4. Insert the information required in the spaces above.
5. Without opening the booklet, pull out the answer sheet carefully from inside the front cover of this booklet. Take care that you do not crease or fold the answer sheet or make any marks on it other than those asked for in these instructions.
6. Insert the information required in the spaces provided on the answer sheet using your HB pencil:

Candidate Name, Centre Number, Candidate Number, Subject Code Number, and Paper Number

How to answer questions in this examination:

7. Answer ALL the 50 questions in this examination. All questions carry equal marks.
8. Non-programmable calculators are allowed.
9. For each question there are four suggested answers, A, B, C and D. Decide which answer is correct. Find the number of the question on the Answer Sheet and draw a horizontal line across the letter to join the square brackets for the answer you have chosen. For example, if C is your correct answer, mark C as shown below:
[A] [B] [C] [D]
10. Mark only one answer for each question. If you mark more than one answer, you will score zero for that question. If you change your mind about an answer, erase the first mark carefully, and then mark your new answer.
11. Avoid spending much time on any question. If you find a question difficult, move to the next. You can come back to the question later.
12. Do all rough work in this booklet using, where necessary, the blank spaces in the question booklet.
13. You must not take this booklet and answer sheet out of the examination room. All question booklets and answer sheets will be collected at the end of the examination

- Which of the following statements is true about a scalar quantity?
A) A quantity that can be measured.
B) A quantity that has magnitude but no directions.
C) A quantity that has a unit
D) A quantity that has both magnitude and direction.
- Which of the following consist of base quantities only?
A) Length, mass, and time
B) Length, mass, and speed
C) Mass, volume and speed
D) Time, mass and density
- The force per unit mass of an object is equivalent to:
A) density
B) pressure
C) velocity
D) acceleration
- The statement "the motion of an object in a straight line with constant velocity" refers to:
A) motion under gravity
B) straight line motion
C) rectilinear uniform motion
D) uniform motion
- A pendulum makes one complete swing in 1.8 seconds. What is its frequency?
A) 0.59HZ
B) 1.8HZ
C) 2.3HZ
D) 0.56HZ

- Figure 1 below shows a box of density 10g/cm^3 . What is the mass of the box in grams?

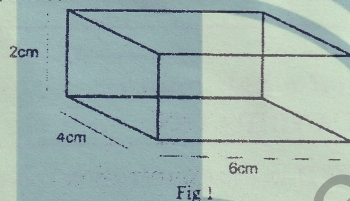


Fig 1

- Which of the following instruments can be used to determine the volume of an irregular shaped stone?
A) A metre rule
B) A measuring cylinder
C) A volumetric flask
D) A measuring tape.
- A parachutist is released from a great height in a parachute and is falling towards the ground. Considering the parachutist and parachute as one unit, which of the following identifies correctly the three forces acting on the unit?
A) air resistance, friction, tension
B) upthrust, magnetic force, drag
C) air resistance, upthrust, weight
D) weight, friction, thrust
- Which of the following is not a fossil fuel?
A) crude oil
B) natural gas
C) hydroelectric power
D) coal
- After energy changes from one form to another you always end up with the same total amount of energy. Which of the following laws explain this rule?
A) The law of conservation of energy.
B) The law of energy change.
C) The law of conservation of linear momentum.
D) The law of potential energy.

- What is gravitational potential energy of a body of mass 30kg located 300m above the ground?
A) 90000 J
B) 9000 J
C) 300 J
D) 6000 J
- A man applies a force of 600N on a stone to cause it to move through a distance of 3m. Calculate the energy transferred in KJ.
A) 1800KJ
B) 1.8KJ
C) 200KJ
D) 0.2KJ
- Which of the following energy sources is a non-renewable.
A) tidal energy
B) geothermal energy
C) wind energy
D) nuclear energy

- Which of the following materials best describes the force versus extension curve in figure 2;

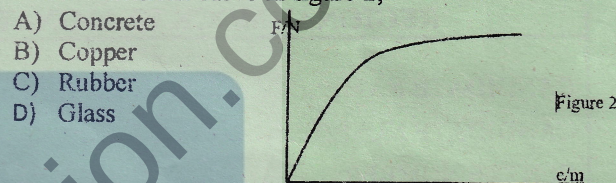
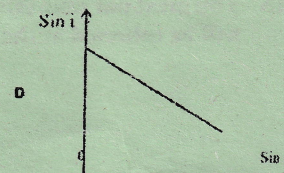
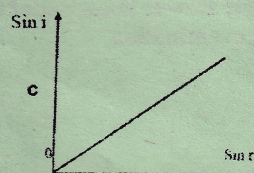
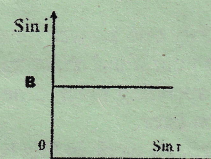
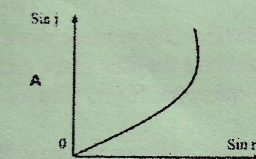


Figure 2

- A measure of a material resistance to changes in length is equivalent to;
A) stress
B) strain
C) young's modulus
D) elasticity
- An engineering material shows a stress of 2400Pa when subjected to a strain of 60. Calculate the Young's modulus of the material in N/m^2
A) 2340
B) 240
C) 144000
D) 40
- Plastics are preferred to iron in plumbing work because they are.
A) malleable
B) resistant to corrosion
C) ductile
D) biodegradable

- A ray of light from a ray box is directed into a rectangular glass block. The angle of incidence (i) and corresponding angles of refraction (r) are measured. A graph of $\sin i$ against $\sin r$ obtained from this experiment is;



19. The figure below shows a ray of light travelling from air to glass of refractive index 1.5. The angle of refraction, r is:

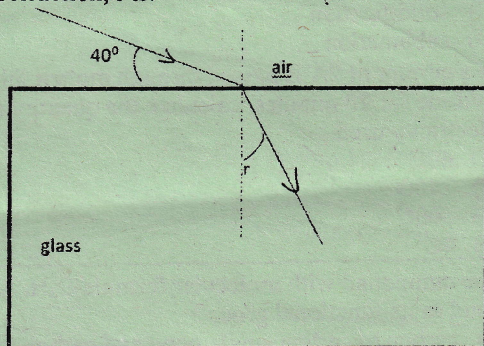


Fig 3

- A) 50°
 B) 40°
 C) 45.7
 D) 30.7
20. Optical fibres function using the principle of ;
 A) total internal reflection
 B) dispersion
 C) reflection
 D) refraction
21. A wave created by shaking a rope up and down is a/an
 A) electromagnetic wave
 B) transverse wave
 C) sound wave
 D) longitudinal wave
22. Figure 4 below shows the propagation of a wave. If the time taken for the wave to travel from X to Y is 0.7 seconds and the wave travels with the speed of 10m/s, what is its wavelength?
-
- A) 12m
 B) 6m
 C) 2m
 D) 1m
23. Which of the following property of waves is used to determine the depth of water bodies in the exploitation of gas and oil beneath water?
 A) refraction
 B) interference
 C) reflection
 D) diffraction
24. Which of the following circuit components provides energy to push the charge around a circuit?
 A) open switch
 B) battery
 C) fuse
 D) diode
25. Electricity cannot flow through which of the following circuits?
 A) Open
 B) Series
 C) Parallel
 D) Closed

26. Which of the following instruments uses current?

	Instrument	Voltage	Power rating
A	Television set	220V	110W
B	Electric Iron	250 V	1KW
C	Immersion heater	110V	500W
D	Torch Lamp	6V	30W

27. From figure 5 below, determine the current flowing in the circuit

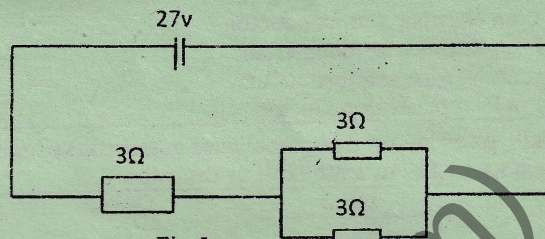


Fig.5

- A) 3A
 B) 5A
 C) 6A
 D) 9A
28. A device used to protect an appliance from large current by breaking the circuit is called:
 A) earth wire
 B) fuse
 C) live wire
 D) neutral wire
29. Figure 6 below shows the field pattern between two magnetic poles. Which of the following correctly describes the magnetic pole X and Y?
-
- A) North Pole North Pole
 B) South Pole South Pole
 C) North Pole South Pole
 D) South Pole North Pole

30. Which one of the following is not an application of electromagnets?
 A) Used in an electric bell
 B) Used in a circuit breaker
 C) Used in electroplating
 D) Used in a telephone earpiece

31. Which law states that the magnetic field of the induced current is in a direction to produce a field that opposes the change causing it?
 A) Fleming's left -- hand rule
 B) Faraday's law
 C) Oersted's law
 D) Lenz's law

32. A transformer has 200 turns in its primary coil and 400 turns in its secondary coil. If an a.c voltage of 50V is applied to the primary coil, the voltage across the secondary coil is:
- 50 V
 - 100V
 - 25V
 - 200V

33. A semiconductor whose majority charge carriers are holes is known as;
- an extrinsic semiconductor
 - an intrinsic semiconductor
 - an N- type semiconductor
 - a P- type semiconductor

34. Logic gates are used in greenhouse automatic switches. Such a gate has its truth table as follows;

Input		Output
A	B	
1	0	0
0	1	0
1	1	0
0	0	1

Identify the logic gate above.

- NAND gate
 - AND gate
 - NOR gate
 - OR gate
35. If a lump of ice is added to water at 4°C which of the following statements is true?
- Heat flows from water to ice if water is more
 - Heat flows from ice to water
 - Heat flows from ice to water if ice is more
 - Heat flows from water to ice
36. Water is a suitable cooling agent used in the cooling system of a car engine. This is because water;
- has a high specific heat capacity
 - has a low density
 - evaporates rapidly
 - is rust- resistant
37. The heat capacities of a substance are quoted as 6480J/K and 2700J/kgK. Determine the mass of the substance
- 0.4kg
 - 2.4kg
 - 6480kg
 - 2700kg
38. The bimetallic thermometer is an application of expansion in:
- liquids
 - solids
 - fluids
 - gasses
39. Hydrogen, lithium, chlorine and phosphorus are examples of:
- compounds
 - mixtures
 - elements
 - ions
40. The type of bond found in sodium chloride is:
- covalent bond.
 - metallic bond
 - hydrogen bond
 - ionic bond

41. The formation of dew is a change of state called:
- condensation
 - freezing
 - solidification
 - sublimation

42. If a current of 2A is passed through molten lithium hydride for 20 minutes, calculate the quantity of electricity used.

- 40C
- 2400C
- 300C
- 4C

43. The compound with molecular formula C_2H_6 has which bond as its functional group?

- carbon to carbon single bond and carbon to carbon double bond.
- carbon to carbon double bond
- carbon to carbon single bond
- carbon to carbon triple bond

44. What is the percentage by mass of hydrogen in H_2O (Take R.A.M of H=1, O=16)

- 11.1
- 18
- 11
- 18.1

45. Which of the following is a separation technique used for the separation of ants from palm wine.

- decantation
- distillation
- filtration
- winnowing

46. An acid commonly used in the preparation of salad is:

- acetic acid
- hydrochloric acid
- methanoic acid
- sulphuric acid

47. What is likely to happen on earth if the Ozone layer is destroyed?

- There will be increase in rainfall.
- More gases will flow into the atmosphere.
- More clouds will reach the earth.
- More harmful radiation will reach the earth.

48. In Case of fire emergency in an industry, what should you NOT do?

- Supply more oxygen into the industry
- Remain calm and evacuate the building
- Call emergency services
- Attempt to extinguish the fire if it is small and easy to contained.

49. Which of the following is not true about bioplastics?

- All are biodegradable
- Made from renewable sources
- Some are biodegradable, but not all
- They are eco- friendly

50. A temperature of 0°C biogas production is non profitable because of microbial inactivity. What is this temperature in Kelvin?

- 0K
- 273K
- 25K
- 100K

END