**Questions 47 – 50**

Figure 9 shows a soft iron rod, A, lying beside a steel rod, B, on a piece of card board, inside a coil.

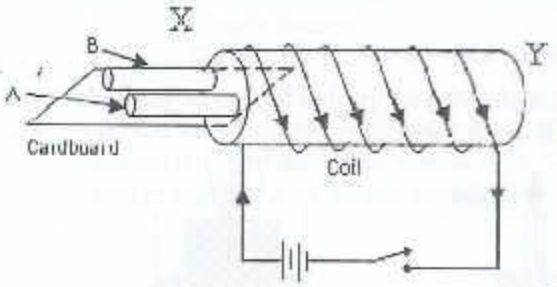


Figure 9

47. When the switch is closed it is observed that
   - A A moves towards B
   - B A moves away from B
   - C A moves into the coil
   - D A moves out of the coil

---

48. The polarity of the ends X and Y of the coil are respectively
   - A N and N
   - B N and S
   - C S and S
   - D S and N

---

49. The rule or law used in determining the polarity of the coil is
   - A Lenz's law
   - B faraday's law
   - C the right hand grip rule
   - D Fleming's left hand rule

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50. When the switch is now opened it is observed that
   - A A moves away from B
   - B A moves into the coil
   - C A does not move
   - D A moves toward B

**STOP**

**GO BACK AND CHECK YOUR WORK**

# CAMEROON GENERAL CERTIFICATE OF EDUCATION BOARD

General Certificate Of Education Examination

## 580 PHYSICS 1

**JUNE 2015** **ORDINARY LEVEL**

| | |
|---|---|
| Centre Number | |
| Centre Name | |
| Candidate Number | |
| Candidate Name | |

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

## MULTIPLE CHOICE QUESTION PAPER

**One and a half hours**

## *INSTRUCTIONS TO CANDIDATES*

***Read the following instructions carefully before you start answering the questions in this paper. Make sure you have a soft HB pencil and an eraser for this examination.***

1. USE A SOFT HB PENCIL THROUGHOUT THE 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 "580 Physics 1– Ordinary Level"
4. Fill in the information required in the spaces above.
5. Fill in the information required in the spaces provided on the answer sheet using your HB pencil:
   **Candidate Name and Number, Centre Number and Name.**
   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.

***How to answer the questions in this examination***

6. Answer **ALL** the **50** questions in this Examination. All questions carry equal marks.
7. Calculators are allowed.
8. Each question has FOUR suggested answers: **A, B, C** and **D.** Decide on which answer is best. 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 corresponding answer you have chosen.
   For example, if **C** is your correct answer, mark **C** as shown below:
   [A] [B] [C] [D]
9. Mark only one answer for each question. If you mark more than one answer, you will score a zero for that question. If you change your mind about an answer, erase the first mark carefully, then mark your new answer.
10. Avoid spending too much time on any one question. If you find a question difficult, move on to the next question. You can come back to this question later.
11. Do all rough work in this booklet using, where necessary, the blank spaces in the question booklet.
12. **At the end of the examination, the invigilator shall collect the answer sheet first and then the question booklet after. DO NO ATTEMPT TO LEAVE THE EXAMINATION HALL WITH IT.**

You may find the following constants useful

- acceleration of free fall, $g = 10\ m\ s^{-2}$
- the speed of light in vacuum $c = 3 \times 10^8\ m\ s^{-1}$
- the charge on an electron $e = 1.6 \times 10^{-19}\ C$

**Section I (Forty two Questions)**

**Directions:** Each of the questions or incomplete statements in this section is followed by four suggested answers. Select the best answer for each question.

1. The force in a string used to pull a canoe ashore is called
   A friction
   B weight
   C tension
   D magnetic force

2. Which of the following is a contact force?
   A Gravitational force
   B Magnetic force
   C Electrostatic force
   D Up thrust

3. Which of the quantities below has the unit newton?
   A Energy
   B Force
   C Momentum
   D Power

4. A transducer which converts mechanical energy to electrical energy is
   A an electric bulb
   B a transformer
   C an electric motor
   D a generator

5. Most of the earth's energy comes from
   A coal
   B sun
   C oil
   D natural gas

6. The most suitable thermometer for use in a school laboratory is
   A mercury-in-glass thermometer
   B clinical thermometer
   C thermopile
   D constant volume gas thermometer

7. Which of the following instruments is used to vary current in a circuit?
   A Voltmeter
   B Ammeter
   C Fuse
   D Rheostat

8. In an electrical device, the fuse is connected to
   A live wire
   B earth wire
   C neutral wire
   D metal casing

9. Which of the following graphs best represents the relationship between the current through a copper wire and the potential difference across it?

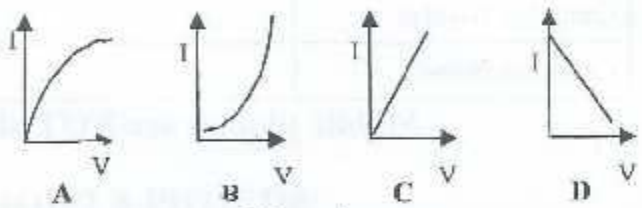


**Figure 1**

10. Which of the following graphs shows how the Acceleration, a, of a car varies with the unbalanced force, F, of the engine?

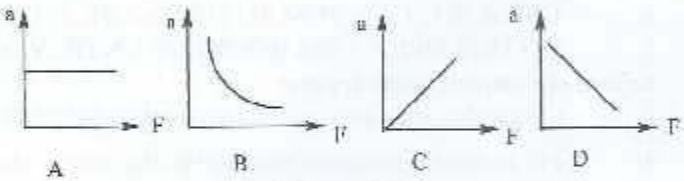


Figure 2

11. Which of the following remains the same when waves travel from deep to shallow water?
   A Speed
   B Frequency
   C Wavelength
   D Amplitude

12. Light from the sun reaches the surface of the earth as
   A a parallel beam
   B a convergent beam
   C a divergent beam
   D a spectrum

13. Which of the following forces increases with increase in the speed of a body?
   A Weight
   B Tension
   C Electrostatic force
   D Drag force

14. A driver untying a tight nut on his car will prefer a long spanner because a large
    A moment is produced
    B force is produced
    C momentum is produced
    D amount of energy is produced

15. When a body moves with uniform velocity,
    A no force is necessarily acting on it
    B its velocity changes uniformly with time
    C its acceleration is changing
    D it has zero acceleration

16. To which of the following situations does the principle of conservation of linear momentum apply?
    A A gun firing a bullet
    B A mango falling from a tree
    C The acceleration of a car
    D Water flowing down stream

17. Which of the following pairs of physical quantities are vectors?
    A Mass and acceleration
    B Momentum and time
    C Velocity and momentum
    D Volume and temperature

18. Solar panels used to generate electricity are painted black to
    A absorb maximum energy from the sun
    B reflect maximum energy from the sun
    C emit maximum energy from the sun
    D radiate maximum energy from the panel.

19. Which of the following energy sources is renewable?
    A Coal
    B Oil
    C Hydroelectric plant
    D Natural gas

20. The sensitivity of a liquid in glass thermometer is the increase in length of liquid per unit rise in temperature. Which of the following factors affects the sensitivity?
    A the cross sectional area of the bore
    B the size of the bulb
    C the thickness of the wall of the bulb
    D the length of the stem.

21. The value of 400 K in degree Celsius is
    A 127
    B 400
    C 227
    D 773

22. The specific latent heat of vaporization of a substance is greater than its specific heat capacity because
    A more bonds are broken and work is done against the atmosphere.
    B little or no heat is lost in the process of latent heat.
    C more mass is heated in the process of latent heat.
    D temperature changes more in the process of latent heat.

23. Figure 3 shows two identical but oppositely charged spheres X and Y, suspended side by side by silk threads.

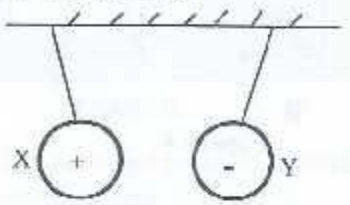


Figure 3

The magnitude of the force between them can be increased by
    A reducing the charge on each sphere equally
    B increasing the lengths of the silk threads
    C reducing the distance between them
    D increasing the distance between them.

24. When gamma radiation is emitted by a nucleus, the new nuclide
    A gains protons
    B gains electrons
    C gains nucleons
    D is same as the parent nucleus

25. In a fission reaction
    A two light nuclei combine to form a more stable one
    B one heavy nucleus splits into two almost equal parts
    C uranium nucleus produces a stable lead nucleus
    D a chain reaction occurs, releasing a large amount of energy.

26. The speed of sound in the different states of matter increases in the order
    A solid to gases to liquids
    B solids to liquids to gasses
    C gasses to liquids to solids
    D liquids to solids to gasses

27. Which of the following optical instruments uses an object at a position between the lens and the principal focus?
A Projector
B Photocopier
C Simple camera
D Magnifying glass

28. Which of the graphs in figure 4 best represents the variation of distance, d, with time, t, for an object moving with uniform speed?

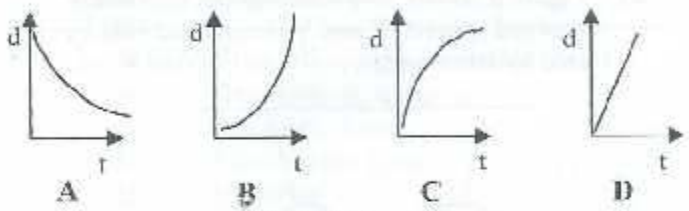

Figure 4

29. Two forces of 3 N and 4 N are acting on a body. The maximum resultant force that can be obtained is
A 12 N
B 7 N
C 5 N
D 1 N

30. Which of the following statements is an advantage for using a pressure pot to cook food?
A It cooks at lower temperature
B It cooks at a lower pressure
C It preserves the food nutrients
D It cooks at a higher temperature.

31. A burst water pipe sends a jet of water up to a maximum vertical height of 5 m above the ground. Assuming that the maximum k.e of water leaving the pipe equals maximum p.e at maximum height. The speed with which the water leaves the pipe in m $s^{-1}$ is.
A 200
B 100
C 10
D 5
(Assume g = 10 m $s^{-2}$)

32. A temperature of -25 °C on the Celsius scale when converted to the Kelvin scale becomes
A 25 K
B 248 K
C -298 K
D 298 K

33. A household appliance is rated 1000 W, 220 V. The best fuse value for it is
A 0.1 A
B 0.3 A
C 5 A
D 220 A

34. Which of the graphs below shows how the count rate of a radioactive substance changes with time?

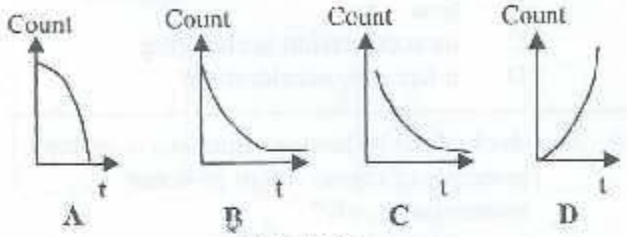

Figure 5

35. The graph in figure 6 is the cooling curve of hot liquid.

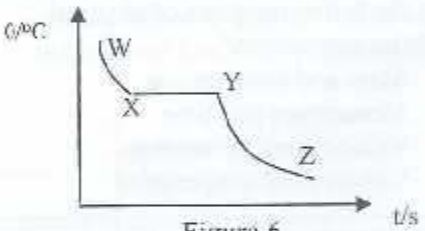

Figure 6

At which part of the curve is the substance in the solid state?
A Between Y and Z
B Between W and X
C Between X and Y
D Between X and Z

36. The slope of a velocity-time graph gives the
A time taken
B acceleration
C total distance covered
D total displacement covered

37. A concrete block of dimensions 0.1 m by 0.8 m by 1 m weighs 1000 N. the maximum pressure the block can exert on the ground in N $m^{-2}$ is
A 12500
B 1250
C 10000
D 1000


Go on to the next page

38. When a piece of paper is placed in the path of a radioactive radiation, the count rate drops significantly. When a sheet of aluminum is placed after the paper, the count rate remains unchanged. The original radiation from the source was
A alpha
B beta
C gamma
D alpha and gamma

39. A ray of light is leaving a material of refractive index 1.5 and strikes the surface at an incident angle of $30^0$. Determine the angle of refraction in air.
A 1.5 °
B 48.6 °
C 0.75 °
D 30 °

40. How long will it take a body accelerating at 2 m $s^{-2}$ to increase its velocity by 7 m $s^{-1}$?
A 2.5 s
B 3.0 s
C 3.5 s
D 120 s

41. Which of the following does not affect the pitch of the note produced by a vibrating string?
A Length of the string
B Tension in the string
C Amplitude of vibration of the string
D Mass per unit length of the string

42. An n-type semiconductor is
A a tetravalent element containing impurity atoms of a pentavalent element
B a pentavalent element containing impurity atoms of a tetravalent element
C a tetravalent element containing impurity atoms of a trivalent element
D a trivalent element containing impurity atoms of a tetravalent element

## Section 2 (eight questions)

Directions: This group of questions deals with practical situations. Each situation is followed by a set of questions. Select the best answer for each question.

**Questions 43 – 46**

Figure 8 shows a simplified hydraulic jack which may be used to lift cars.

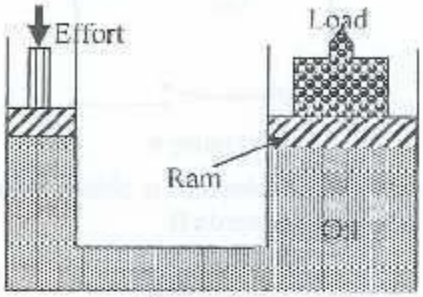


**Figure 8**

43. Oil is preferred to water as the liquid in the system because
A oil is more viscous
B oil does not cause rust
C water is transparent.
D air bubbles easily form in water.

44. This system multiplies the
A energy applied
B force applied
C pressure applied
D power applied

45. The velocity ratio of the system is
A $\frac{\text{distance moved by the load}}{\text{distance moved by the effort}}$
B $\frac{\text{effort}}{\text{load}}$
C $\frac{\text{load}}{\text{effort}}$
D $\frac{\text{distance moved by the effort}}{\text{distance moved by the load}}$

46 Which of the following statements is true as the jack functions?
A More oil goes to the load cylinder than leaves the effort cylinder.
B The pressure generated by the effort is the same pressure everywhere in the oil.
C The effort applied is transmitted equally to all parts of the oil
D the system works because oil is compressible.