ENGLAND GCSE PHYSICS OCR TWENTY FIRST CENTURY HIGHER · FINAL EXAM · 50 QUESTIONS

# Final Exam — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

**1** **A guitar string vibrates to make a sound. What type of wave is the sound wave?**

- A transverse
- B electromagnetic
- C standing
- D longitudinal

Understand It with Pulse | Flag a mistake

**2** **A red race car speeds up. What happens to its kinetic energy?**

- A it decreases
- B it increases
- C it stays the same
- D it becomes heat

Understand It with Pulse | Flag a mistake

3 **A thermometer is placed in hot water. What happens to the liquid inside the thermometer?**

- A it contracts
- B it evaporates
- C it freezes
- D it expands

Understand It with Pulse | Flag a mistake

4 **A red race car brakes hard. What happens to its kinetic energy?**

- A it disappears
- B it is transferred to heat
- C it becomes sound only, nothing else
- D it increases

Understand It with Pulse | Flag a mistake

5 **A swimming pool is filled with water. What is the density of water?**

- A about 1 kilogram per cubic metre
- B about 100 kilograms per cubic metre, roughly
- C about 1000 kilograms per cubic metre
- D about 10 kilograms per cubic metre

Understand It with Pulse | Flag a mistake

6 **A ladder leans against a wall. What force keeps it from slipping?**

- A friction
- B air resistance
- C tension
- D gravity

Understand It with Pulse | Flag a mistake

7 **Carbon dioxide levels rose from 280 ppm to 420 ppm. What is the increase?**

A 160 ppm

B 180 ppm

C 120 ppm

D 140 ppm

Understand It with Pulse | Flag a mistake

8 **A kettle transfers 60000 J in 60 seconds. What is its power?**

A 100 W

B 60 W

C 1000 W

D 3600 W

Understand It with Pulse | Flag a mistake

9 **What happens when two north poles are brought together?**

- A they neutralise
- B they repel
- C nothing happens
- D they attract

Understand It with Pulse | Flag a mistake

10 **A 4 kg trolley moves at 2 m/s. What is its momentum?**

- A 13 kg m/s
- B 8 kg m/s
- C 16 kg m/s
- D 4 kg m/s

Understand It with Pulse | Flag a mistake

11 **An atom has a mass number of 16 and an atomic number of 8. How many neutrons does it have?**

A 7

B 10

C 9

D 8

Understand It with Pulse | Flag a mistake

12 **How much energy is needed to heat 5 kg of a substance with a specific heat capacity of 2100 J per kg per degree Celsius by 20 degrees Celsius?**

A 105000 J

B 420000 J

C 210000 J

D 10500 J

Understand It with Pulse | Flag a mistake

13 **A wave has a frequency of 4 Hz and a wavelength of 10 m. What is its speed?**

- A 40 m/s
- B 14 m/s
- C 80 m/s
- D 20 m/s

Understand It with Pulse | Flag a mistake

14 **Which energy resource will run out first?**

- A solar power
- B a fossil fuel
- C geothermal power
- D tidal power

Understand It with Pulse | Flag a mistake

**15** **Two 4 ohm resistors are in series. What is the total resistance?**

- A 16 ohms
- B 8 ohms
- C 4 ohms
- D 2 ohms

Understand It with Pulse | Flag a mistake

**16** **Why does a faster car have a longer stopping distance?**

- A it covers more distance overall
- B the driver reacts faster
- C the road gets longer
- D its brakes work less well at speed

Understand It with Pulse | Flag a mistake

17 **A radioactive sample has an activity of 400 Bq. What is its activity after 2 half-lives?**

- A 200 Bq
- B 100 Bq
- C 50 Bq
- D 400 Bq

Understand It with Pulse | Flag a mistake

18 **An object has a mass of 200 g and a volume of 25 cubic centimetres. What is its density?**

- A 8 g/cm³
- B 225 g/cm³
- C 16 g/cm³
- D 4 g/cm³

Understand It with Pulse | Flag a mistake

19 **A wave travels at 30 m/s with a wavelength of 5 m. What is its frequency?**

- A 6 Hz
- B 12 Hz
- C 150 Hz
- D 3 Hz

Understand It with Pulse | Flag a mistake

20 **What does a solar panel do?**

- A it makes electricity
- B it makes hot water only
- C it stores electricity
- D it burns fuel

Understand It with Pulse | Flag a mistake

21 **How can an electromagnet be made stronger?**

A a wooden core

B fewer turns on the coil

C a smaller current

D more turns on the coil

Understand It with Pulse | Flag a mistake

22 **A force of 50 N acts 10 m from a pivot. What is the moment of the force?**

A 1000 Nm

B 510 Nm

C 500 Nm

D 250 Nm

Understand It with Pulse | Flag a mistake

**23** **In alpha decay, what happens to the atomic number of the nucleus?**

- A it falls by 4
- B it rises by 2
- C it stays the same
- D it falls by 2

Understand It with Pulse | Flag a mistake

**24** **About how far away is the nearest star after the Sun?**

- A about 4 kilometres
- B about 4 million kilometres
- C about 4 light-years
- D about 400 light-years

Understand It with Pulse | Flag a mistake

25 **Glass marbles in a tray are used as a model for particles in a solid. What do the marbles show?**

A particles move freely through space

B particles are far apart from each other

C particles flow past each other easily

D particles vibrate in fixed positions

Understand It with Pulse | Flag a mistake

26 **A force of 10 N pushes a box 4 m along the ground. How much work is done?**

A 80 J

B 20 J

C 70 J

D 40 J

Understand It with Pulse | Flag a mistake

27 **A balloon rubbed on hair sticks to a wall. Why?**

A the wall is magnetic

B the hair makes it sticky

C it charges the wall

D the balloon is wet

Understand It with Pulse | Flag a mistake

28 **A 2 kg trolley moves at 10 m/s. What is its momentum?**

A 25 kg m/s

B 10 kg m/s

C 20 kg m/s

D 40 kg m/s

Understand It with Pulse | Flag a mistake

29 **What is nuclear fission?**

A joining small nuclei together

B splitting a large nucleus

C removing electrons from atoms

D adding electrons to atoms

Understand It with Pulse | Flag a mistake

30 **A spring has a spring constant of 20 N/m. It is stretched by 4 cm. What is the force?**

A 0.4 N

B 1.6 N

C 0.8 N

D 1.3 N

Understand It with Pulse | Flag a mistake

**31** **What do all electromagnetic waves travel at in a vacuum?**

- A the speed of light
- B zero speed
- C the speed of sound
- D different speeds

Understand It with Pulse | Flag a mistake

**32** **Which of these is a non-renewable energy resource?**

- A coal
- B tidal
- C wind
- D solar

Understand It with Pulse | Flag a mistake

33 **A generator coil turns 5 times per second. How many turns is that in one minute?**

A 300

B 240

C 360

D 600

Understand It with Pulse | Flag a mistake

34 **What force is needed to accelerate a 5 kg object at 4 m/s squared?**

A 20 N

B 10 N

C 40 N

D 25 N

Understand It with Pulse | Flag a mistake

35 **Hardcover books are dropped. What happens to their speed as they fall?**

A it becomes zero

B it stays the same

C it increases

D it decreases

Understand It with Pulse | Flag a mistake

36 **How long does light from the Sun take to reach the Earth?**

A about 8 hours

B about 8 seconds

C about 8 minutes

D about 8 days

Understand It with Pulse | Flag a mistake

37 **A cup of coffee is hot. How is energy transferred to the air?**

A by evaporation only, from the top

B by radiation only, from the surface

C by condensation on the cold cup

D by conduction and convection

Understand It with Pulse | Flag a mistake

38 **A kite flies in the wind. Which force holds the kite up?**

A thrust

B drag

C weight

D lift

Understand It with Pulse | Flag a mistake

39 **What is the unit of resistance?**

A the watt

B the ohm

C the volt

D the amp

Understand It with Pulse | Flag a mistake

40 **A force of 500 N acts on an area of 2 square metres. What is the pressure?**

A 125 Pa

B 500 Pa

C 250 Pa

D 255 Pa

Understand It with Pulse | Flag a mistake

41 **A hot air balloon rises because the air inside it is less dense than the air outside. What happens to the density of air when it is heated?**

- A it stays the same
- B it decreases
- C it increases
- D it becomes zero

Understand It with Pulse | Flag a mistake

42 **How much energy is needed to change 1 kg of a substance from solid to liquid, if the specific latent heat is 334000 J per kg?**

- A 334001 J
- B 334000 J
- C 668000 J
- D 167000 J

Understand It with Pulse | Flag a mistake

43 **What is the speed of sound in air?**

A 1000 m/s

B 340 m/s

C 150 m/s

D 300000000 m/s

Understand It with Pulse | Flag a mistake

44 **What is biofuel made from?**

A sunlight

B rocks and minerals from the ground

C plants or animal waste

D sea water

Understand It with Pulse | Flag a mistake

**45** **Why does a coil in a motor keep turning?**

- A it reverses the current
- B the magnet flips over, north to south
- C the coil gets hotter
- D the battery runs down

Understand It with Pulse | Flag a mistake

**46** **Why do crash helmets have a soft lining?**

- A it lengthens the impact time
- B it makes the helmet stronger
- C it keeps the head warm
- D it makes the helmet lighter

Understand It with Pulse | Flag a mistake

**47** **A sample has a half-life of 10 years. After 20 years, what fraction remains?**

- A 1/8
- B 1/2
- C 3/4
- D 1/4

Understand It with Pulse | Flag a mistake

**48** **In the density practical, how is the volume of an irregular object found?**

- A by weighing it twice
- B by measuring its length only
- C by the rise in water level
- D by heating it and timing it

Understand It with Pulse | Flag a mistake

49 **What happens to the focal length if a convex lens is made more curved?**

A it gets longer

B it becomes zero

C it stays the same

D it gets shorter

Understand It with Pulse | Flag a mistake

50 **A 10 kg object moves at 2 m/s. What is its kinetic energy?**

A 10 J

B 20 J

C 40 J

D 30 J

Understand It with Pulse | Flag a mistake

# ANSWER KEY

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

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