

Examiners' Report Summer 2007

GCSE

GCSE Astronomy (1627)

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1627/01

Overall impressions

Once again, this year's examination paper included a variety of questions that became increasingly demanding through the paper, giving candidates ample opportunity to display their knowledge and understanding of Astronomy. The overall impression was that candidates were better-prepared for this year's examination, with only a few having to apply guesswork to the majority of their answers.

There also appeared to be some improvement in the overall standard of English, and most candidates seemed happy to respond to questions clearly and concisely.

The mathematical questions appeared to cause no real difficulties; only the last question on the paper asked candidates to apply reasoning (use of the inverse square law) as opposed to the application of a simple formula.

Question 1

This question posed no difficulties; most candidates could correctly identify the planets from their descriptions.

Question 2

The examiners were pleased with responses to this question. Most candidates associated a rocket as a launch vehicle in (a) and correctly summarised the *Apollo* programme in (b).

Question 3

The majority of candidates were able to recognise the constellations in (a), Taurus proving the most difficult. There was some confusion over Ursa Major and Ursa Minor.

Question 4

This question was more challenging and only a few candidates matched all four parts correctly.

Question 5

This question was well answered, despite the somewhat exaggerated diagram.

Question 6

This question on the Celestial Sphere proved more challenging and only a disappointing number of candidates drew and described the zodiacal band.

Question 7

Most candidates correctly drew the relative positions of the Earth, Sun and Moon in (a) and were able to sketch the gibbous Moon in (b). Part (c) was more demanding and only a few candidates mentioned the Moon's orbital plane.

Question 8

This question on sunspots was generally well-answered.

Question 9

Similarly, responses to this question on shadow sticks were pleasing.

Question 10

After two popular topics, this question (covering asteroids) was more demanding and answers revealed that this topic could be given more emphasis in teaching and learning programmes.

Question 11

This question was a fairly standard question on magnitudes, correctly-answered by most candidates.

Question 12

The calculations for parts (a) and (b) were performed well with only a few candidates noticing that the focal lengths were quoted in different units. Responses relating a telescope's size to either its resolution or light-gathering power in (c) were impressive.

Question 13

This question proved more difficult and there seems to be a lack of understanding between the structure and formation of comets' tails.

Question 14

Most candidates showed a good understanding of circumpolar stars in (a) and (b) but found the numerical part in (c) difficult. There seems to be a lack of awareness that the elevation of Polaris above the northern horizon is the same as the observer's latitude.

Question 15

There were some good descriptions of the solar wind in (a), but many descriptions of aurorae and their formation were sketchy.

Question 16

Parts (a) and (b) were answered competently, but many candidates failed to give convincing evidence for the existence of black holes, relying mainly on their physical properties and effect on matter.

Question 17

Accounts of the discovery of Neptune in (a) were generally vague and unconvincing, but arguments against or in favour of Pluto's planetary status were impressive.

Questions 18 and 19

Question 18 on radio astronomy was well-answered by the majority of candidates and Hubble's tuning fork diagram in 19(a) proved a good discriminator, ranging from many excellent responses and some flimsy sketches. 18(b) responses were generally good, but only a few candidates gave more than one item of evidence for the Big Bang.

Question 20

This question proved also to be a good discriminator; some candidates were well-prepared for the more reasoning question whereas others were unable to respond.

Paper 02

A good standard of astronomical observations, graphical and constructional work was produced by candidates for this increasingly popular qualification this year, illustrating the enjoyment of this aspect of the subject by students and their teachers alike.

The internal consistency of marking was high for the majority of centres. This year, however, a small number of centres were very lenient in their marking, necessitating adjustments to maintain consistency across all centres. Centres are advised to read the clear guidance for the award of marks for this component in the Specification (pp.23-29) and to look through the samples of coursework marking available in the Coursework Guide. In addition, attendance at the annual GCSE Astronomy Examiners' Feedback INSET day is strongly recommended. Amongst other activities, it allows colleagues to view examples of coursework from the full range of attainment, along with a workshop focusing specifically on the accurate marking of coursework.

Details of the Specification, Coursework Guide and INSET for GCSE Astronomy can all be found on the Edexcel website at www.edexcel.org.uk.

The attention of centres is drawn particularly to the strands within the Mark Scheme where marks are awarded for the visual impact and presentation of students' work ('Presentation' and 'Information Displayed'). Centres are reminded that work which has been extremely well presented, resulting in visually striking portfolios should be marked highly under these strands alone. Centres should resist the temptation to allow the visual impact of portfolios to influence their marking in the other strands. A typical example of this would be where astronomical material of moderate quality is presented using PowerPoint to enhance the quality of its presentation.

This year showed an upturn in the number of centres where the majority of candidates had chosen the same project titles from the range of suggestions available in the Specification (pp.22-26). The Examiners would strongly urge centres to ensure that all their candidates are able to choose projects from the full range of suggested titles available.

The administration of the moderation process was greatly enhanced by the majority of centres who ensured that all necessary paperwork was accurately and punctually completed. Centres should regard the use of the Coursework Record sheet (p.77 of the Specification) for the marks of each candidate as essential and it should accompany each candidate's portfolio. This will avoid unnecessary errors in calculating candidates' final marks. Once again, centres (particularly those new to the qualification) are referred to the relevant section of the Specification (pp.68-73).

Finally, the Examiners would like to thank the staff in the majority of centres who ensured that sampled coursework was well organised, clearly labelled and promptly despatched. The request that centres do not send items substantially larger than A4 in size is once again stressed. Large charts, sundials and telescopes should all be photographed and the pictures included to enhance the accompanying written report. If large items are sent to the Moderator, it will be the responsibility of the centre to arrange their collection and return.

Grade Boundaries

The subject is graded out of a maximum of 160 subject marks.

	A*	A	B	C	D	E	F	G
Mark/160	125	105	85	65	55	45	35	25

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