Solutions

Marking: **M1** a correct method, **A1** the correct answer, **B1** an independent mark.

Each answer shows the steps, then the **result**.

2.1

fertilisation day 0

morula day 3–4, blastocyst day 5

implantation day 6–7

2.2

brain: **ectoderm**

heart muscle: **mesoderm**

gut lining: **endoderm**

2.3

8 weeks

gestational age counts from the first day of the last period, about 2 weeks before conception

2.4

the **inner cell mass** becomes the embryo

the **trophoblast** becomes the placenta

3.1

(a) 28 days = 4 weeks after conception; $4 + 2 = \mathbf{6}$ weeks gestational age

(b) the tube closes about 2 weeks after the missed period, often before the pregnancy is known, so it is too late to start then

(c) **400 µg** a day; **5 mg** a day for high risk

(d) a previous pregnancy with a neural tube defect, or taking some anti-seizure drugs, diabetes, or BMI 30 or more

3.2

(a) the **ampulla of the uterine tube**

(b) the tube cannot stretch, so it may burst, causing heavy internal bleeding

(c) the **syncytiotrophoblast**; hCG keeps the corpus luteum making progesterone

3.3

(a) AFP made by the fetus leaks through the open defect into the amniotic fluid, then crosses into the mother's blood

(b) leg movement and feeling, bladder and bowel control

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(c) **anencephaly**

(d) day 2: nothing shared, two placentas and two sacs; day 6: one placenta, two sacs; day 10: one placenta and one sac