Please check the examination details below before entering your candidate information

Candidate surname	Other names
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Centre Number | Candidate Number

Pearson Edexcel International Advanced Level

Time 2 hours

Paper reference **WPS04/01**

Psychology

International Advanced Level

PAPER 4: Clinical Psychology and Psychological Skills

You do not need any other materials.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*

Information

- The total mark for this paper is 96.
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*
- The list of formulae and statistical tables are printed at the start of this paper.
- Candidates may use a calculator.

Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ▶

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FORMULAE AND STATISTICAL TABLES

Standard deviation (sample estimate)

$$\sqrt{\left(\frac{\sum(x-\bar{x})^2}{n-1}\right)}$$

Spearman's rank correlation coefficient

$$1-\frac{6\sum d^2}{n(n^2-1)}$$

Critical values for Spearman's rank

	Level of significance for a one-tailed test				
	0.05	**0.025**	**0.01**	**0.005**	**0.0025**
	Level of significance for a two-tailed test				
N	**0.10**	**0.05**	**0.025**	**0.01**	**0.005**
5	0.900	1.000	1.000	1.000	1.000
6	0.829	0.886	0.943	1.000	1.000
7	0.714	0.786	0.893	0.929	0.964
8	0.643	0.738	0.833	0.881	0.905
9	0.600	0.700	0.783	0.833	0.867
10	0.564	0.648	0.745	0.794	0.830
11	0.536	0.618	0.709	0.755	0.800
12	0.503	0.587	0.678	0.727	0.769
13	0.484	0.560	0.648	0.703	0.747
14	0.464	0.538	0.626	0.679	0.723
15	0.446	0.521	0.604	0.654	0.700
16	0.429	0.503	0.582	0.635	0.679
17	0.414	0.485	0.566	0.615	0.662
18	0.401	0.472	0.550	0.600	0.643
19	0.391	0.460	0.535	0.584	0.628
20	0.380	0.447	0.520	0.570	0.612
21	0.370	0.435	0.508	0.556	0.599
22	0.361	0.425	0.496	0.544	0.586
23	0.353	0.415	0.486	0.532	0.573
24	0.344	0.406	0.476	0.521	0.562
25	0.337	0.398	0.466	0.511	0.551
26	0.331	0.390	0.457	0.501	0.541
27	0.324	0.382	0.448	0.491	0.531
28	0.317	0.375	0.440	0.483	0.522
29	0.312	0.368	0.433	0.475	0.513
30	0.306	0.362	0.425	0.467	0.504

The calculated value must be equal to or exceed the critical value in this table for significance to be shown.

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Chi-squared distribution formula

$$X^2 = \sum \frac{(O-E)^2}{E} \qquad df = (r-1)(c-1)$$

Critical values for chi-squared distribution

	Level of significance for a one-tailed test					
	0.10	**0.05**	**0.025**	**0.01**	**0.005**	**0.0005**
	Level of significance for a two-tailed test					
df	**0.20**	**0.10**	**0.05**	**0.025**	**0.01**	**0.001**
1	1.64	2.71	3.84	5.02	6.64	10.83
2	3.22	4.61	5.99	7.38	9.21	13.82
3	4.64	6.25	7.82	9.35	11.35	16.27
4	5.99	7.78	9.49	11.14	13.28	18.47
5	7.29	9.24	11.07	12.83	15.09	20.52
6	8.56	10.65	12.59	14.45	16.81	22.46
7	9.80	12.02	14.07	16.01	18.48	24.32
8	11.03	13.36	15.51	17.54	20.09	26.12
9	12.24	14.68	16.92	19.02	21.67	27.88
10	13.44	15.99	18.31	20.48	23.21	29.59
11	14.63	17.28	19.68	21.92	24.73	31.26
12	15.81	18.55	21.03	23.34	26.22	32.91
13	16.99	19.81	22.36	24.74	27.69	34.53
14	18.15	21.06	23.69	26.12	29.14	36.12
15	19.31	22.31	25.00	27.49	30.58	37.70
16	20.47	23.54	26.30	28.85	32.00	39.25
17	21.62	24.77	27.59	30.19	33.41	40.79
18	22.76	25.99	28.87	31.53	34.81	42.31
19	23.90	27.20	30.14	32.85	36.19	43.82
20	25.04	28.41	31.41	34.17	37.57	45.32
21	26.17	29.62	32.67	35.48	38.93	46.80
22	27.30	30.81	33.92	36.78	40.29	48.27
23	28.43	32.01	35.17	38.08	41.64	49.73
24	29.55	33.20	36.42	39.36	42.98	51.18
25	30.68	34.38	37.65	40.65	44.31	52.62
26	31.80	35.56	38.89	41.92	45.64	54.05
27	32.91	36.74	40.11	43.20	46.96	55.48
28	34.03	37.92	41.34	44.46	48.28	56.89
29	35.14	39.09	42.56	45.72	49.59	58.30
30	36.25	40.26	43.77	46.98	50.89	59.70
40	47.27	51.81	55.76	59.34	63.69	73.40
50	58.16	63.17	67.51	71.42	76.15	86.66
60	68.97	74.40	79.08	83.30	88.38	99.61
70	79.72	85.53	90.53	95.02	100.43	112.32

The calculated value must be equal to or exceed the critical value in this table for significance to be shown.

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Wilcoxon Signed Ranks test process

- Calculate the difference between two scores by taking one from the other
- Rank the differences giving the smallest difference Rank 1

  Note: do not rank any differences of 0 and when adding the number of scores, do not count those with a difference of 0, and ignore the signs when calculating the difference
- Add up the ranks for positive differences
- Add up the ranks for negative differences
- T is the figure that is the smallest when the ranks are totalled (may be positive or negative)
- N is the number of scores left, ignore those with 0 difference

Critical values for the Wilcoxon Signed Ranks test

	Level of significance for a one-tailed test		
	0.05	0.025	0.01
	Level of significance for a two-tailed test		
n	0.1	0.05	0.02
N=5	0	-	-
6	2	0	-
7	3	2	0
8	5	3	1
9	8	5	3
10	11	8	5
11	13	10	7
12	17	13	9

The calculated value must be equal to or less than the critical value in this table for significance to be shown.

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SECTION A

CLINICAL PSYCHOLOGY

Answer ALL questions. Write your answers in the spaces provided.

1 In your studies of clinical psychology, you will have learned about one of the following mental health disorders:

- Unipolar Depression
- Anorexia Nervosa.

(a) Describe **one** symptom and **one** feature of your chosen disorder.

(4)

Chosen disorder

Unipolar depression

Symptom

One symptom of unipolar depression is a persistent sad or low mood, where the person feels empty or hopeless. To be diagnosed this low mood must be present for most of the day, nearly every day, for at least two weeks.

Feature

One feature is that unipolar depression takes different forms. Major depressive disorder is episodic, so it comes and goes in cycles, whereas dysthymic disorder (persistent depressive disorder) is a milder form that remains constant over at least two years.

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(b) Explain **two** weaknesses of one non-biological explanation for your chosen disorder.

(4)

1 *Beck's cognitive explanation is difficult to investigate empirically, as it is based on subjective internal thought processes, such as the negative triad, that lead people to form a negative view of themselves. So the explanation lacks objective evidence that depression is caused by cognitive errors people make about themselves.*

2 *The cognitive explanation ignores biological predisposing factors that could influence the onset of unipolar depression. Silberg et al. (1999) looked at the role of genes and life events in depression, supporting the diathesis-stress model that depression is a combination of biology and environment, not cognition alone.*

(Total for Question 1 = 8 marks)

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2 Mitchell investigated how well a person with anxiety feels they can cope with day-to-day life events. He gave a questionnaire to 10 participants diagnosed with anxiety and ten participants without anxiety.

A score of 15 or above out of 20 on the questionnaire is considered a high score that indicates extreme difficulty in coping with day-to-day life events. Medium scores indicate some difficulty in coping with day-to-day life events, with low and very low scores indicating little or no difficulty in coping with day-to-day life events.

His results are shown in **Table 1**.

Questionnaire score out of 20	Number of participants with anxiety	Number of participants without anxiety
High score (15 or more)	8	1
Medium score (10 to 14)	1	2
Low score (5 to 9)	0	2
Very low score (4 or less)	1	5

Table 1

(a) Give the number of participants with anxiety who had a high score on the questionnaire as a fraction of all participants with anxiety.

You **must** give your answer in the lowest form.

(1)

Space for calculations

Participants with anxiety = 10; high score = 8

$\frac{8}{10} = \frac{4}{5}$

Fraction *4/5*

(b) Calculate the percentage of participants without anxiety who had a high score as a percentage of all participants without anxiety.

(1)

Space for calculations

Participants without anxiety = 1 + 2 + 2 + 5 = 10; high score = 1

1 ÷ 10 × 100 = 10%

Percentage *10%*

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(c) Explain **two** conclusions that Mitchell could make from the data in **Table 1** about how well people cope with day-to-day life events.

(4)

1 *9 out of 10 participants with anxiety (90%) had a high or medium score on the questionnaire, with 8 scoring high, so Mitchell could conclude that people with anxiety feel they do not cope well with day-to-day life events and find them very difficult.*

2 *3 out of 10 participants without anxiety (30%) still had a high or medium score, so Mitchell could conclude that people without anxiety can also struggle to cope with day-to-day life events, although most of them (7 out of 10) had low or very low scores.*

(d) Explain **one** weakness of Mitchell using a questionnaire in his investigation.

(2)

Participants may have shown social desirability when answering questions about coping with life events, as they may not want to appear unable to cope. So the data Mitchell gathers may lack validity, as the scores may not be a true representation of how well they really feel they cope.

(Total for Question 2 = 8 marks)

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3 In your studies of clinical psychology, you will have learned about treatments and therapies for schizophrenia.

(a) Explain **one** strength of family therapy as a treatment for schizophrenia.

(2)

Family therapy is a more holistic approach, as it addresses the social and emotional burdens on the whole family and helps them support the patient's daily functioning, reducing relapse. Pitschel-Walz et al. (2001) found in a meta-analysis an average 20% decrease in relapse rates for patients whose families attended family therapy.

(b) Analyse the use of drug therapy as a treatment for schizophrenia.

(6)

Anti-psychotic drugs can be quickly and easily administered to patients as tablets, liquid or injections, and help to suppress hallucinations and delusions. Emsley (2008) studied the effect of risperidone and found that 84% of patients had at least a 50% reduction in positive and negative symptoms, so drugs may calm patients enough for them to then engage in other therapies.

However, drug therapy is based only on a biological neurotransmitter explanation of schizophrenia and excludes other factors such as the environment or family stress. Bustillo et al. (2001) found that Assertive Community Treatment (ACT) had clear effects on preventing relapse and rehospitalisation, so drug therapy may not be sufficient as a treatment on its own.

Some drugs also have negative side effects such as dry mouth, weight gain or low blood pressure, which need continual monitoring. Clozapine and olanzapine carry a high risk of significant weight gain, which can reduce patients' adherence to their medication programme, so the overall effectiveness of drug therapy is reduced.

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(Total for Question 3 = 8 marks)

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4 Sarah is a psychology teacher. She is using the statistical infrequency definition of abnormality to explain to her students how abnormality could be distributed across a population. Sarah shows her students the distribution curve in **Figure 1**.

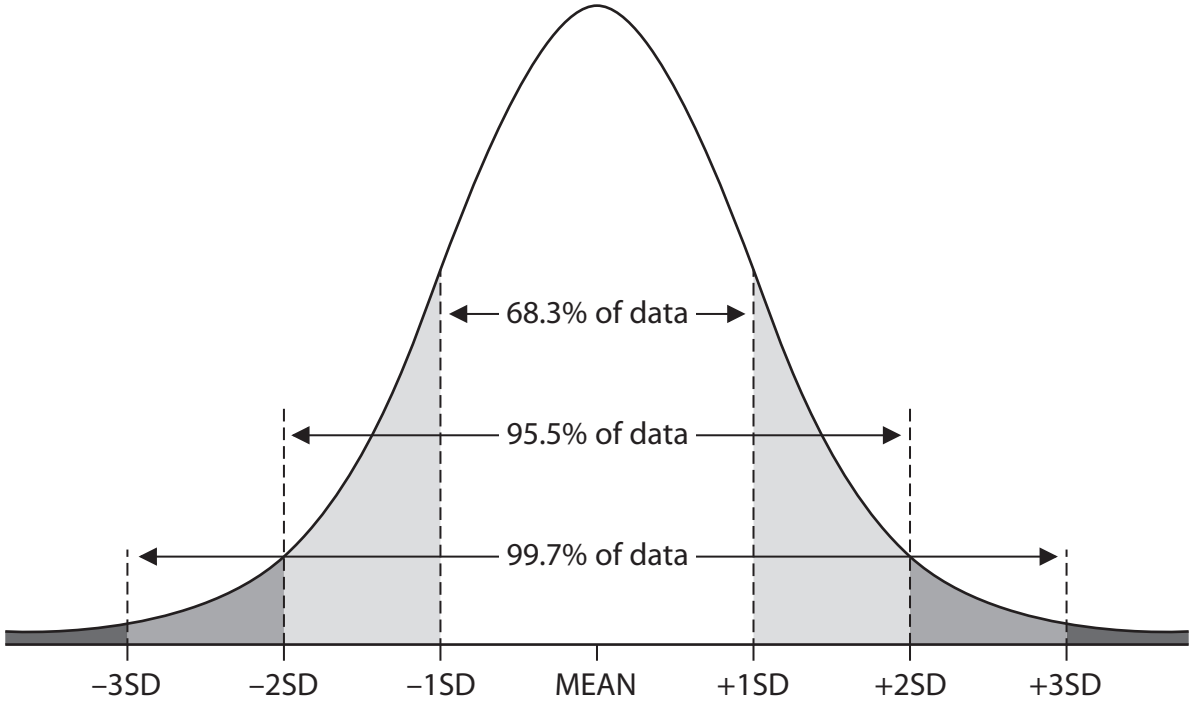


Figure 1

(a) Describe, using **Figure 1**, when a behaviour would be considered abnormal.

(2)

A behaviour would be considered abnormal when it is at least 2 standard deviations away from the mean, either above +2SD or below −2SD on Figure 1. This means it lies outside the 95.5% of the population who fall within the normal range, so it is shown by fewer than 5% of people.

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(b) Explain **one** weakness of using statistical infrequency to define abnormality.

(2)

Statistical infrequency only tells us where someone falls in a population distribution, but does not help us understand the ways abnormality may affect someone. So it has limited application for describing the course of a disorder and the impact it may have on an individual's life experiences.

(Total for Question 4 = 4 marks)

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5 In your studies of clinical psychology, you will have conducted a practical investigation.

Describe the results and/or conclusions of your clinical practical investigation.

(4)

My clinical practical was a content analysis exploring attitudes to mental health in four articles. In three out of four articles, negative themes such as 'danger to others' and 'danger to self' occurred more often than positive themes such as 'recovery'. The two most negative articles were tabloid media reports of people with mental health issues committing criminal offences, while the article from the specialist organisation Mind had the most positive themes.

We concluded that the mainstream media emphasises negative stereotypes of people with mental health issues, whereas sources from specialist organisations such as Mind present more positive attitudes to mental health.

(Total for Question 5 = 4 marks)

TOTAL FOR SECTION A = 32 MARKS

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SECTION B

CLINICAL PSYCHOLOGY

Answer the question. Write your answer in the space provided.

6 Evaluate the function of neurotransmitters as an explanation of schizophrenia.

(16)

The neurotransmitter explanation suggests schizophrenia is caused by an imbalance of neurotransmitters such as dopamine and glutamate. The dopamine hypothesis states that excess dopamine activity (hyperdopaminergia) in the mesolimbic pathway causes positive symptoms such as hallucinations and delusions, while too little dopamine (hypodopaminergia) in the mesocortical pathway to the prefrontal cortex, which regulates perception, cognition and attention, is linked to negative symptoms. People with schizophrenia have also been found to have more dopamine receptors, so they are more sensitive to dopamine.

The glutamate hypothesis suggests that underactive glutamate (NMDA) receptors are involved. Ketamine blocks glutamate receptors and induces psychotic states resembling schizophrenia and changes in cognitive function. The NRG-1 gene has a role in the expression and activation of glutamate and other neurotransmitter receptors, linking genes to neurotransmitter function.

There is objective, scientific evidence for the role of dopamine. Bird et al. (1979) found that post-mortems of schizophrenic patients showed high levels of dopamine in the brain, and Wong et al. (1986) used PET scans and found an increased density of dopamine receptors in schizophrenic patients. Phenothiazine drugs, which block dopamine receptors, reduce schizophrenic symptoms, and Aarsland et al. (1999) found that L-dopa, a Parkinson's treatment that increases dopamine, can produce hallucinations and delusions. Together this supports the idea that dopamine features significantly in schizophrenia.

However, much of this evidence is correlational. High dopamine levels at post-mortem could be

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a result of the disorder or of years of medication rather than the cause. The treatment evidence also commits the treatment aetiology fallacy: because drugs that block dopamine reduce symptoms, it does not follow that excess dopamine caused the disorder. Dépatie and Lal (2001) found that apomorphine, which stimulates dopamine receptors, did not produce schizophrenic symptoms, suggesting dopamine may not be the cause.

The dopamine hypothesis also cannot explain all symptoms. Krystal et al. (2005) found that amphetamines increase the concentration of dopamine in the synaptic gap but only produce positive symptoms, so dopamine may not explain negative symptoms. Krystal et al. (1994) found that NMDA glutamate receptor antagonists such as ketamine induce a broader range of symptoms, including negative and cognitive ones, so dopamine is unlikely to be the only neurotransmitter involved. Carlsson et al. (2000) suggested that hyperdopaminergia and hypoglutamatergia may both play a role, so the explanation has developed to include an interaction of neurotransmitters, which makes it more complete.

The explanation is also reductionist, as it reduces a complex disorder to chemical imbalances. Gottesman (1991) found a 48% chance of developing schizophrenia if a person has an MZ twin with the disorder. This shows a genetic link, but as concordance is not 100%, environmental factors such as stress, family dysfunction or cannabis use must also play a role, which neurotransmitters alone cannot explain. A diathesis-stress model, where a biological vulnerability is triggered by environmental stressors, would be more holistic.

On the other hand, the explanation has practical applications, as it led to anti-psychotic drugs which allow many patients to live in the community, which is a strength of a scientific, testable explanation.

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In conclusion, there is strong evidence that dopamine and glutamate imbalances are involved in schizophrenia, especially positive symptoms, but the evidence is largely correlational and neurotransmitters cannot fully explain the disorder. They are best seen as one part of an interaction between genes, brain chemistry and environmental triggers.

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(Total for Question 6 = 16 marks)

TOTAL FOR SECTION B = 16 MARKS

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SECTION C

PSYCHOLOGICAL SKILLS

Answer ALL questions. Write your answers in the spaces provided.

7 When researching psychological topics, a researcher will need to consider control issues in the research.

(a) Explain how a researcher may attempt to overcome order effects when conducting psychological research.

(2)

A researcher could use counterbalancing, putting participants into alternating groups that complete the conditions in different orders, such as AB and BA. This means any fatigue or practice effects are spread evenly across both conditions, so they do not confound the results of the research.

(b) Explain how a researcher may attempt to overcome social desirability when conducting psychological research.

(2)

A researcher could tell participants that their identities will be kept anonymous, so they know they will not be named. This limits the likelihood that they give answers that fit social norms and values to present themselves in a more favourable light, so their answers are more honest.

(Total for Question 7 = 4 marks)

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8 Daisy wanted to use a correlational research method to investigate whether aggression and exposure to media violence were linked. She decided to use a questionnaire to gather her data.

(a) Give **one** closed question Daisy could use in her questionnaire.

(1)

How many hours per week do you spend playing violent video games? Less than 5 / Between 5 and 10 / More than 10

(b) Daisy intended to gather a sample of participants by visiting a large shopping centre and asking anyone who is available if they would answer her questions.

Identify the sampling technique that Daisy intended to use.

(1)

Opportunity sampling

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(c) Daisy completed her investigation and analysed her data. She scored responses to the questionnaires for aggression, with a score of 20 indicating very aggressive. Daisy also scored the exposure to media violence, with a score of 20 indicating significant exposure to media violence.

Calculate the Spearman's rank correlation coefficient for the data gathered by Daisy by completing **Table 2**.

The formulae and statistical tables can be found at the front of this paper.

You **must** show your working out and give your answer to **three** decimal places.

(4)

Score for aggression out of 20	Rank 1	Score for exposure to media violence out of 20	Rank 2	d	d^2
9	4	10	4	0	0
15	7	13	6	1	1
14	6	18	8	−2	4
8	3	5	1	2	4
19	8	14	7	1	1
3	1	7	2	−1	1
11	5	9	3	2	4
4	2	11	5	−3	9
				Total for d^2	24

Table 2

Space for calculations

$$r_s = 1 - \frac{6\Sigma d^2}{n(n^2 - 1)}$$

$$r_s = 1 - \frac{6 \times 24}{8(64 - 1)} = 1 - \frac{144}{504}$$

$$r_s = 1 - 0.2857 = 0.714 \text{ (3 d.p.)}$$

Spearman's rank correlation coefficient ..... 0.714 .....

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(d) Interpret the Spearman's rank correlation coefficient from 8(c) in terms of the strength **and** direction for Daisy's investigation.

(2)

0.714 shows a positive correlation between exposure to media violence and aggression, so as exposure to media violence increases, aggression scores increase. This is a strong relationship, as 0.714 is close to +1.

(e) Explain **one** weakness with Daisy using a correlational research method to investigate exposure to media violence and aggression.

(2)

Daisy's correlation only looks at co-variables, so it cannot establish cause and effect between exposure to media violence and aggression. The data only shows a relationship, not whether one leads to the other, so Daisy cannot conclude that media violence causes aggression; aggressive people may simply choose more violent media.

(Total for Question 8 = 10 marks)

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9 Wayne wants to use a non-participant covert observation to investigate if males or females demonstrate more pro-social helping behaviour. He asks a confederate to act as an elderly lady who will drop her shopping on a busy street.

(a) Describe how Wayne could carry out his non-participant covert observation.

(4)

Wayne could position himself in an area of the busy street, such as a café window, where he cannot be seen by the people walking down the street but can clearly see the elderly lady. The confederate could be given a signal to drop her shopping each time Wayne is ready to observe the responses of passers-by, for example only when one person is approaching, so each trial is the same.

He could use a tally chart to record the gender of each person who helps the elderly lady pick up her shopping and of each person who walks past her without helping. He could also make notes on other characteristics of the helper, such as their approximate age, whether they were alone or with others, or what they did after helping, and repeat this over several trials at different times of day.

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(b) Explain **one** strength of Wayne using an observation to investigate the pro-social helping behaviour of males and females.

(2)

The behaviour observed would be natural, as the males and females on the busy street are in their everyday environment and do not know they are being watched. This increases the validity of Wayne's findings, as his results would represent male and female helping behaviour in a real-life context.

(Total for Question 9 = 6 marks)

TOTAL FOR SECTION C = 20 MARKS

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SECTION D

Answer the question. Write your answer in the space provided.

10 One key question for society is whether psychological knowledge can help explain the onset and symptoms of Alzheimer's disease.

Alzheimer's disease is a neurological disorder characterised by memory loss, concentration loss, confusion, and changes in mood. These deteriorate as the disease progresses.

Becker (1988) claimed that memory loss associated with Alzheimer's disease may have multiple cognitive components. Working memory appears to be impaired due to failures in the central executive system. Memory impairments may also be due to poor encoding.

Schwindt and Black (2009) studied how the medial temporal lobe could play a role in Alzheimer's disease. They conducted a meta-analysis of fMRI studies on patients with Alzheimer's disease compared to normal controls. They concluded that Alzheimer's disease patients show decreased activation in the medial temporal lobe.

Discuss the key question of whether psychological knowledge can help explain the onset and symptoms of Alzheimer's disease. You should use concepts, theories and/or research studied in your psychology course.

You **must** make reference to the context in your answer.

(8)

Psychological knowledge can help explain the symptoms of Alzheimer's disease. Baddeley and Hitch's (1974) working memory model includes a central executive, which is responsible for attention and supervises the slave systems, delegating environmental stimuli to the visual, spatial and auditory processing systems. Becker (1988) claimed working memory is impaired in Alzheimer's disease due to failures in the central executive. A dysfunction in these delegation processes could explain the loss of concentration and confusion seen in patients, and poor encoding could result from the central executive being unable to pass stimuli to the correct sub-system, so information never reaches long-term memory.

Biological psychology also helps explain onset. The medial temporal lobe includes the hippocampus, which is involved in memory. The case of HM showed that damage to the medial temporal lobe and hippocampus led to an inability to form new long-term memories. Schwindt and Black (2009) found in their meta-analysis of fMRI studies that Alzheimer's patients show

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decreased activation in the medial temporal lobe compared with controls, so reduced activity here could impair memory and explain how the onset begins with brain functioning impairments.

However, this knowledge is limited. A meta-analysis of fMRI studies is correlational, so reduced activation may be a result of the disease rather than its cause, and HM's memory loss came from surgery, not a degenerative disease, so it may not generalise. The working memory model describes symptoms but not why the central executive fails, and it cannot explain the changes in mood.

Overall, psychological knowledge helps explain the symptoms of Alzheimer's disease well, especially memory and concentration loss, but it is less able to explain what causes its onset, so it must be combined with medical and genetic research.

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(Total for Question 10 = 8 marks)

TOTAL FOR SECTION D = 8 MARKS

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SECTION E

Answer the question. Write your answer in the space provided.

11 Assess how far psychological research has met ethical considerations.

(20)

Ethical considerations are the standards that protect participants and animals in research. Research with people in the UK must now meet the BPS Code of Ethics and Conduct (2009), so participants are protected from mistreatment. Respect must be shown, so participants' needs come before the aims of the study, they should not be caused distress or harm where an alternative such as a case study or secondary data could be used, and they have the right to withdraw themselves or their data. Animal research in the UK is governed by the Animals (Scientific Procedures) Act (1986), and researchers need licences to make sure animals are kept in good conditions and do not suffer unnecessarily.

Some early research clearly did not meet ethical considerations, as the guidance was not enforced as it is now. Milgram (1963) caused participants great distress by using prods to push them to continue giving what they believed were electric shocks, and deceived them about the true aim. During Zimbardo et al.'s (1973) prison experiment, the guards subjected prisoners to such extreme psychological abuse that the study had to be stopped after just six days, showing serious harm. Bandura (1961) exposed young children to an adult physically and verbally attacking a Bobo doll, so vulnerable participants may have been taught aggressive behaviour, and Watson and Rayner (1920) deliberately conditioned a fear in Little Albert that was never removed.

However, some of this research can be justified by a cost-benefit analysis. Breaching guidance on harm was arguably necessary for Milgram, as without it he could not have explained obedience to authority, so the distress may be outweighed by the benefit to society. Milgram also debriefed participants, and most said they were glad to have taken part. Developments in

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ethical practice mean studies like Watson and Rayner (1920) can never be repeated, but as their outcomes have already built psychological understanding, there is no need to replicate unethical research.

Case studies raise difficult issues. HM was studied over his whole lifetime but, because of his memory failure, could never fully understand his role or give fully informed consent. Yet the outcomes gave society a much better understanding of the functions of human memory. In contrast, Bowlby (1944) studied maternal deprivation using case studies of juvenile thieves who had already experienced separation, so he did not create any artificial condition to cause harm. This shows research can achieve useful outcomes alongside ethical considerations.

Animal research has a more mixed record. Harlow (1958) was criticised for cruelty to monkeys separated from their mothers, which was arguably unnecessary, although it did raise public awareness of animal cruelty. Skinner tried to train pigeons to guide missiles during WWII, which would have sent them to their deaths, but in wartime this was considered acceptable, showing ethical standards depend on the era. Rats have been used to study schizophrenia through brain lesioning or deliberately created dopamine imbalances, which has led to successful drug treatments, so the benefit to humans may outweigh the cost to the animals. However, Singer (1975) argues it is wrong to do to animals what we would not do to humans, calling this speciesism, a form of discrimination like racism or sexism, so ethics should be even more stringent for animal research.

The extent to which research meets ethical considerations also depends on how ethics are judged: a strict deontological view says harm is never acceptable, while a utilitarian view weighs harm against benefits, and researchers may underestimate the harm before a study begins, as in Zimbardo's case.

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In conclusion, a lot of early research such as Milgram, Zimbardo, Watson and Rayner and Harlow did not meet ethical considerations by today's standards, although some can be partly justified by its benefits to society. Modern research is far more ethical because the BPS Code and the Animals (Scientific Procedures) Act are now enforced, so psychological research now largely meets ethical considerations, though cost-benefit judgements, especially with animals, remain debatable.

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(Total for Question 11 = 20 marks)

TOTAL FOR SECTION E = 20 MARKS
TOTAL FOR PAPER = 96 MARKS

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