1. 有位矯正年齡一歲大僅能扶站尚無法移行的早產兒，經新生兒科醫師轉介給物理治療師進行發展評估與介入，請回答以下問題:【本題佔 30%】

   (a) 請舉出兩項分別植基於神經成熟理論(Neuromaturation Theory)與動態系統理論(Dynamical Systems Theory)之兒童發展評估工具(5%)，並說明該學術理論的假說對於對應之發展評估的設計之影響(10%)。

   (b) 請分析這兩項兒童發展評估工具所提供之測驗結果，對於了解該名個案發展問題以及介入建議之助益與限制為何(15%)。

2. 以下摘要節錄自 Dirks T, Blauw-Hospers CH, Hulshof LJ, Hadders-Algra M. Differences between the family-centered "COPCA" program and traditional infant physical therapy based on neurodevelopmental treatment principles. Phys Ther 2011;91:1303-22. 請閱讀後回答以下問題:【本題佔 35%】

   (a) 請將本摘要重新整理，書寫成 500 字以內的中文摘要（請勿直接原文翻譯）(15%)。

   (b) 請設計一個隨機控制實驗(Randomized Control Trial)以探討"COPCA"的介入成效 (20%)。

   Background. Evidence for effectiveness of pediatric physical therapy in infants at high risk for developmental motor disorders is limited. Therefore, "Coping With and Caring for Infants With Special Needs" (COPCA), a family-centered, early intervention program, was developed. The COPCA program is based on 2 components: (1) family involvement and educational parenting and (2) the neuromotor principles of the neuronal group selection theory. The COPCA coach uses principles of coaching to encourage the family's own capacities for solving problems of daily care and incorporating variation, along with trial and error in daily activities.
   Objective. The purpose of this study was to evaluate whether the content of sessions of the home-based, early intervention COPCA program differs from that of traditional infant physical therapy (TIP) sessions, which in the Netherlands are largely based on neurodevelopmental treatment.
   Design. A quantitative video analysis of therapy sessions was conducted with infants participating in a 2-arm randomized trial.
   Patients and Intervention. Forty-six infants at high risk for developmental motor disorders were randomly assigned to receive COPCA (n=21) or TIP (n=25) between 3 and 6 months corrected age. Intervention sessions were videotaped at 4 and 6 months corrected age and analyzed with a standardized observation protocol for the classification of physical therapy actions. Outcome parameters were relative amounts of time spent on specific physical therapy actions.
   Results. The content of COPCA and TIP differed substantially. For instance, in TIP sessions, more time was spent on facilitation techniques, including handling, than in COPCA sessions (29% versus 3%, respectively). During COPCA, more time was spent on family coaching and education than during TIP (16% versus 4%, respectively).
   Conclusion. The COPCA program differs broadly from TIP as applied in the Netherlands. Studies on the effectiveness of this family-centered program are needed.

3. 以下是節錄自一篇有關於單邊痙攣型腦性麻痺兒童患者，使用 Constraint-induced movement therapy 的療效研究，Table 2a 呈現兩種治療方法(Kid-CIMT vs. IBT)在預後評估的結果，研究內評估個案在患側手的動作功能(Melbourne Assessment)、患側手的主動使用能力(Assisting Hand Assessment)，以及日常生活的自我照顧能力(PEDI)。Post-treatment gain 代表治療前與治療後，在原始分數(raw score)及百分位分數(percent score)的增加，增加越多代表治療成效越好，此研究分別比較各組在治療前與治療後的改變情形，以及比較兩種治療方法的組間差異，p-value < 0.05 表示達到統計上的顯著差異。請參考研究摘要及結果回答以下問題:【本題佔 15%】

見背面

(a) 請描述 Table 2a 的重要研究結果(10 分)

(b) 以及在臨床治療上的應用? (5 分)

Abstract

Objective: To clarify whether modified constraint-induced movement therapy provides greater improvement than intensive bimanual training both for motor functions and spontaneous use of the paretic arm and hand in everyday life activities.

Design: Randomized controlled, single-blind trial.

Setting: Inpatient pediatric rehabilitation clinic.

Subjects: Forty-seven children with unilateral spastic cerebral palsy (aged 3.3–11.4 years) were randomly assigned to either a modified constraint-induced movement program (kid-CIMT) or intensive bimanual training (IBT).

Interventions: Patients in the kid-CIMT group received 60 hours of unilateral constraint-induced and 20 hours of bimanual training over four weeks. Patients in the IBT group received 80 hours of bimanual training over four weeks.

Main outcome measures: Melbourne Assessment of Unilateral Upper Limb Function, Assisting Hand Assessment, and Pediatric Evaluation of Disability Inventory (PEDI).

Table 2a. Comparison of treatment outcome for modified constraint-induced movement therapy and intensive bimanual training (all aetiologies).

	Kid-CIMT (*N* = 24)			IBT (*N* = 18)			Group effect		
	Mean ± SD	95% CI	*P*-value	Mean ± SD	95% CI	*P*-value	*F*	df	*P*-value
Melbourne Assessment									
Posttreatment raw score	74.2 ± 20.5			82.1 ± 22.3					
Posttreatment gain	7.7 ± 7.1	4.7–10.7	<0.001	2.8 ± 5.0	0.3–5.3	0.028	5.271	1	0.027*
Posttreatment percent score	61.1 ± 17.0			67.4 ± 18.3					
Posttreatment gain	6.6 ± 6.6	3.8–9.4	<0.001	2.3 ± 4.1	0.3–4.3	0.027	4.905	1	0.033*
Assisting Hand Assessment									
Posttreatment raw score	58.4 ± 9.1			62.3 ± 13.5					
Posttreatment gain	3.8 ± 4.5	1.9–5.7	<0.001	3.1 ± 2.3	1.9–4.2	<0.001	0.038	1	0.846
Posttreatment percent score	56.1 ± 12.9			61.0 ± 20.5					
Posttreatment gain	6.2 ± 6.2	3.6–8.8	<0.001	4.6 ± 3.4	2.9–6.3	<0.001	0.313	1	0.579
PEDI self-care									
Posttreatment raw score	62.2 ± 8.1			63.2 ± 8.3					
Posttreatment gain	2.5 ± 4.0	0.7–4.4	0.010	2.5 ± 4.9	0.3–5.3	0.078	0.004	1	0.951

CI, confidence interval; df, degrees of freedom; kid-CIMT, child-friendly modified constraint-induced movement therapy; IBT, intensive bimanual training; MACS, Manual Ability Classification System; PEDI, Pediatric Evaluation of Disability Inventory; SD, standard deviation.

4. 以下是一位罹患 DiGeorge 症候群合併有全面發展遲緩的兒童物理治療評估報告，請閱讀此個案的評估報告，回答以下問題:【本題佔 20%】

(a) 請說明此個案主要發展問題，以及二個月後欲達成的治療目標(10 分)。

(b) 根據上一題設定的治療目標，請提出治療介入計畫，以及評量治療成效的方法(10 分)。

接次頁

兒童物理治療評估表

病歷號碼：xxx 姓名：xxx 出生日期：2007-09-19 評估日期：2011-07-14
醫學診斷：CATCH 22 (DiGeorge Syndrome); Tetralogy of Fallot；性別: 男 ； 年齡：3 歲 10 個月
注意事項: 服用利尿劑，尿尿次數頻繁 治療起始時間：物理治療 2011-07-14
目前體重(%ile): 11.7kg(<3%ile) 目前身高(%ile): 82cm(<3%ile) BMI: 17.4 (kg/m^2) (85-97 %ile)
達成發展基石之年齡(月):
頭部控制: 5 ; 翻身: 5 ; 獨坐: 12 ; 貼地爬: NA ; 離地爬: 15 ; 行走: 22 ; 說話(5 個單字): 36
評估：

1. 活動與參與
   1) 能力：
   粗大動作發展: 可獨立行走; 可自行坐到站、站到坐，不需任何扶持;可自行蹲下撿物品並站起，不需任何協助; 放手可兩腳一階上下小樓梯。
   精細動作發展: 以靜態式 3 指握筆方式自行握湯匙(操作較不靈巧，食物 1/3 於過程中會掉落)
   生活自理發展: 整天包尿布。
   認知發展: 發展年齡約 27 個月，輕中度遲緩。
   語言發展: 會立即模仿說單字，但語音常不正確;偶爾會說完整句(例如: 我不要這一張)。
   人際社會發展: 會主動靠近其他治療師，且配合治療師所給予的動作指令。
   2) 生活情境參與: 學習新事物有困難; 表達能力差，上幼稚園時，少與他人對話; 可上下小階梯; 整天包尿布; 不會主動和同儕一起玩;可自行玩喜愛的遊戲可持續 5 分鐘以上;吃飯自行進行約 30%。
   3) 評估工具名稱: 嬰幼兒綜合發展測驗(CDIIT) (測試年齡 3Y4M)
   DA / DQ: Cognition: 27 / 54; Language: 20 / 38; Gross motor: 21 / 54; Fine motor: 24 / 56; Self-Care: 15 /5; Social: 20 / 71

2. 身體功能與構造
   1) 心智功能: 短期記憶能力弱
   2) 感覺功能與疼痛: 無明顯損傷
   3) 攝食功能: 無明顯損傷
   4) 心肺功能: 2-D/ Dopplar finding: LVEF 82%; 上樓梯時血氧降至 65%，平地血氧多介於 75-80%; 連續行走最多 10 分鐘。
   5) 動作相關功能與構造:
   關節活動度: 頸部與軀幹上半部肌肉緊
   肌肉力量: 無明顯損傷
   肌肉張力: 正常
   肌肉耐力：輕度損傷
   反射功能：無明顯損傷
   姿勢控制與反應：就行走功能而言無明顯損傷
   自主動作控制: 無明顯損傷
   步態功能：無明顯損傷
   其他: 脊柱側彎

3. 個人因素: 喜歡汽車玩具

4. 環境因素:
   1) 家屬(或老師)關心事項：希望知道如何協助個案發展
   2)有利因素：媽媽為主要照顧者，每天會引導看書 1 次，家住 8 樓，有兒童遊戲室。
   3) 限制因素：家長不知道可開始大小便訓練，服用利尿劑，因而尿尿次數頻繁。
   4) 目前就學安置狀況：目前就讀私立幼稚園幼幼班，家長因擔心個案生病，目前念半天班。

試題隨卷繳回