

SULIT



**UNIVERSITI TUN HUSSEIN ONN
MALAYSIA**

**PEPERIKSAAN AKHIR
SEMESTER I
SESI 2011/2012**

NAMA KURSUS : PENJADUALAN DAN
PERANCANGAN BINAAN

KOD KURSUS : BPD 4282 / BPD 42802

PROGRAM : 4 BPC

TARIKH PEPERIKSAAN : JANUARI 2012

JANGKA MASA : 2 JAM 30 MINIT

ARAHAN : BAHAGIAN A
JAWAB SEMUA SOALAN.

BAHAGIAN B
JAWAB TIGA (3) SOALAN SAHAJA
DARIPADA EMPAT (4) SOALAN

KERTAS SOALAN INI MENGANDUNGI LAPAN (8) MUKA SURAT

SULIT

BAHAGIAN A (25 markah)
PART A (25 marks)

- S1 Pelan lantai dan jadual kadar telah disediakan di **Lampiran I** serta nisbah konkrit tetulang seperti berikut:

Nota: Sila berikan andaian sekiranya maklumat yang disediakan tidak mencukupi.

Reinforcement Concrete Ratio (for estimating purposes only):

Pad footing, pile caps = 80kg/m³

Column stumps = 190kg/m³

Columns = 190kg/m³

Ground beams = 180kg/m³

Ground slabs = 95kg/m³

Suspended beams = 190kg/m³

- (a) Jelaskan teknik anggaran *Gross Floor Area (GFA)*.

(5 markah)

- (b) Anggarkan kos pembinaan banglo satu tingkat dengan menggunakan teknik anggaran *GFA*. Pecahan anggaran kos mengikut setiap elemen seperti di **Lampiran I**. Jawapan perlu diberikan di dalam **Jadual di Lampiran I**.

(20 markah)

- Q1 *Floor plan and schedule of rates are provided as shown in Appendix I and reinforcement concrete ratio as shown below:*

Note: List out the assumptions if the information given is insufficient.

Reinforcement Concrete Ratio (for estimating purposes only):

Pad footing, pile caps = 80kg/m³

Column stumps = 190kg/m³

Columns = 190kg/m³

Ground beams = 180kg/m³

Ground slabs = 95kg/m³

Suspended beams = 190kg/m³

- (a) Describe the *GFA approximate quantities technique*.

(5 marks)

- (b) Estimate the construction cost of the single storey bungalow utilising *GFA approximate quantities technique*. Breakdown the estimate into elemental cost analysis as per **Appendix I**. Please provide the answer in the **Table** as shown in **Appendix I**

(20 marks)

BAHAGIAN B (75 markah)

PART B (75 marks)

- S2 Kerumitan projek, keperluan teknologi, maklumat projek, keperluan pasukan projek, keperluan kontrak, tempoh projek, dan keperluan pasaran mempengaruhi jumlah kos pembinaan sesuatu projek.

Bincangkan pernyataan di atas.

(25 markah)

- Q2 *Project complexity, technological requirements, project information, project team requirement, contract requirements, project duration, and market requirement affect the total building cost of a project.*

Discuss the above statement.

(25 marks)

- S3 Lif dengan kapasiti 10 orang bagi bangunan baru 10 tingkat mempunyai jangka hayat selama 30 tahun. Antara kos-kos yang terlibat bagi jangka hayat lif tersebut adalah seperti berikut:

Kos permulaan pemasangan lif tersebut adalah RM42,000

Kos operasi yang terdiri daripada:

- *Wiping down finishes* sebanyak 12 kali setahun adalah pada kadar RM1.60
- Memvakum lantai sebanyak 100 kali setahun adalah pada kadar RM0.12
- Menggantikan karpét jubin lantai dan mengecat lif setiap 5 tahun pada kadar RM300,
- Menggantikan pemasangan selepas 20 tahun pada kos RM45,000, dan
- membolehkan penyelenggaraan kontrak yang komprehensif pada kadar RM920 setahun (tidak termasuk tahun pertama).

Hitung *Present Value (PV)* bagi kos kitaran hayat untuk pemasangan lif pada kadar faedah sebanyak 5%.

(25 markah)

Q3 *A 10 persons' capacity lift that serve 10 levels of new building has a planned life of 30 years. Cost elements that are related throughout the life cycle of the lift includes:*

The initial cost of the lift installation is RM42,000.

The running costs are made up of:

- *Wiping down finishes 12 times a year at the rate of RM1.60,*
- *vacuuming the floor 100 times a year at the rate of RM0.12,*
- *replacing the carpet tile flooring and painting the lift car every 5 years at the rate of RM300,*
- *replacing the installation after 20 years at a cost of RM45,000 and*
- *allowing for a comprehensive maintenance contract at the rate of RM920 per annum. (excluding the first year).*

Calculate the Present Value (PV) of the Life Cycle Cost (LCC) for the lift installation at a compound rate of interest of 5%.

(25 marks)

S4 *Planning consent telah diberikan untuk mendirikan blok pejabat 10,000 m² di tapak bangunan kosong. Dianggarkan bahawa bangunan itu akan menghasilkan pendapatan bersih sebanyak RM1,400,000 setahun dan dianggarkan RM680 per m² akan dibina. Projek ini akan mengambil masa selama 18 bulan untuk dibina.*

(a) *Berdasarkan maklumat-maklumat yang diberikan, sila tentukan nilai pasaran sekarang bagi tapak binaan tersebut.*

(5 markah)

(b) *Hitungkan kadar sebenar pulangan ke atas kos pembangunan jika pemaju menjangkakan keuntungan 10% pada nilai pembangunan kasar. Maklumat lain yang berkaitan adalah seperti berikut:*

- *kadar pulangan semasa ialah 8%,*
- *kadar faedah adalah pada 11%,*
- *pengambilan tanah adalah 6 bulan,*
- *kontrak pembinaan ialah 18 bulan,*
- *toleransi terhadap tempoh tidak sah sebanyak 3 bulan, yuran profesional untuk pasukan perunding adalah 16%,*
- *undang-undang dan bayaran agensi dan kos pengiklanan adalah 3%,*
- *kos pengambilalihan tanah adalah 4%.*

(20 markah)

Q4 Planning consent has been given for the erection of an office block of 10,000 m² on a vacant building site. It is estimated that the building will produce a net income of RM1,400,000 p.a. and will cost RM680 per m² gross floor area to build. It will take eighteen months to build.

(a) Based on the related information, determine the present market value of the site. (5 marks)

(b) Calculate the actual rate of return on the development costs if the developer is expecting 10% profit at its gross development value. Other related information are:

- the current rate of return on the similar property is 8%,
- interest rate is at 11%, the land acquisition is 6 months,
- the construction contract is 18 months,
- allow void period of 3 months,
- the professional fees for the consultation team is 16%,
- legal and agency fees and advertising cost is 3%,
- land acquisition cost is 4%.

(20 marks)

S5 Satu projek menaikkan taraf dewan komuniti telah dirancang. Dua cadangan alternatif telah dicadangkan kepada jawatankuasa masyarakat bagi melaksanakan projek tersebut:

(Skim A) Tambahan bangunan yang sedia ada dengan pengubahsuaian untuk bangunan lama.

(Skim B) Perobohan dan pembinaan semula.

Implikasi kewangan adalah seperti berikut:

| Skim A | (RM) |
|---|-----------|
| Lanjutan yang dicadangkan, termasuk yuran | 1,750,000 |
| Pembaikan dan pengubahsuaian | 500,000 |
| Pembaikan besar setiap 15 tahun | 200,000 |
| Penyelenggaraan Am bagi setiap tahun | 10,000 |
| Penghiasan ulangan setiap lima tahun | 50,000 |
| Penghawa dingin setiap tahun | 12,000 |
| Lampu dan pembersihan setiap tahun | 6,000 |
| Insurans setiap tahun | 1,000 |

| Skim B | (RM) |
|--|-------------|
| Perobohan, penjualan bahan-bahan dan lain-lain | -30,000 |
| Bangunan dan yuran | 3,000,000 |
| Penyelenggaraan Am setiap tahun | 5,000 |
| Penghiasan ulang setiap lima tahun | 30,000 |
| Penghawa dingin setiap tahun | 6,000 |
| Lampu dan pembersihan setiap tahun | 3,600 |
| Insurans setiap tahun | 3,000 |

Nilaikan cadangan-cadangan di atas dengan andaikan kedua-dua projek akan mempunyai hayat yang sama iaitu selama 60 tahun dan kadar diskaun 8%.

(25 markah)

Q5 *An upgrading project of a community hall is planned. Two alternative proposals have been proposed to the community committee to implement the project:*

(Scheme A) Extension of the existing building with modifications to the old building.

(Scheme B) Demolition and rebuilding.

The financial implications are:

| Scheme A | (RM) |
|---|------------------|
| <i>Proposed extension, including fees</i> | <i>1,750,000</i> |
| <i>Repairs and modifications</i> | <i>500,000</i> |
| <i>Major repairs every 15 years</i> | <i>200,000</i> |
| <i>General maintenance per annum</i> | <i>10,000</i> |
| <i>Redecoration every five years</i> | <i>50,000</i> |
| <i>Air-conditioning per annum</i> | <i>12,000</i> |
| <i>Lighting and cleaning per annum</i> | <i>6,000</i> |
| <i>Insurances per annum</i> | <i>1,000</i> |

| Scheme B | (RM) |
|---|------------------|
| <i>Demolition, sale of materials etc.</i> | <i>-30,000</i> |
| <i>Building and fees</i> | <i>3,000,000</i> |
| <i>General maintenance per annum</i> | <i>5,000</i> |
| <i>Redecoration every five years</i> | <i>30,000</i> |
| <i>Air-conditioning per annum</i> | <i>6,000</i> |
| <i>Lighting and cleaning per annum</i> | <i>3,600</i> |
| <i>Insurances per annum</i> | <i>3,000</i> |

Evaluate the above proposals with the assumption of both projects will have an equal life of 60 years and discount rate is 8%.

(25 marks)

| PEPERIKSAAN AKHIR FINAL EXAMINATION | | | | |
|---|---|--------------------------|-------------------------|------------------------------|
| SEMESTER/SESI : I/2011/2012 | | PROGRAM : 4 BPC | | |
| KURSUS : EKONOMI PEMBINAAN / CONSTRUCTION ECONOMICS | | | | |
| KOD KURSUS : BPD 4282/ BPD 42802 | | | | |
| Project Title: SINGLE STOREY BUNGALOW | | | Date:..... | |
| | | | GFA:.....m ² | |
| Item | | Total cost of element | Cost/m ² GFA | % of total building cost* |
| 1 | SUBSTRUCTURE | | | |
| 1A | Piling | NIL | | |
| 1B | WBLFF | | | |
| | Group Element Total | | | |
| 2 | SUPERSTRUCTURE | | | |
| 2A | Frame | 45,000.00 | | |
| 2C | Roof | 18,000.00 | | |
| 2E | External Walls | 5,000.00 | | |
| 2F | Windows & External Doors | 42,000.00 | | |
| 2G | Internal Walls & Partitions | 8,000.00 | | |
| 2H | Internal Doors | 8,000.00 | | |
| | Group Element Total | 126,000.00 | | |
| 3 | FINISHES | | | |
| 3A | Internal Wall Finishes | 18,000.00 | | |
| 3B | Internal Floor Finishes | | | |
| 3C | Internal Ceiling Finishes | 5,000.00 | | |
| 3D | External Finishes | 11,000.00 | | |
| | Group Element Total | | | |
| 4 | FITTINGS & FURNISHING | | | |
| | Group Element Total | NIL | | |
| 5 | SERVICES | | | |
| 5A | Sanitary Appliances | | | |
| 5B | Cold Water Installation | 6,000.00 | | |
| 5C | Soil, Waste & Vent Pipes | 5,000.00 | | |
| 5D | Air-Conditioning | 10,000.00 | | |
| 5E | Electrical Installation | 5,000.00 | | |
| | Group Element Total | | | |
| 6 | EXTERNAL WORKS | | | |
| 6A | Roads, Carparks & Turfing | 8,000.00 | | |
| 6B | Surface Water Drainage | 5,000.00 | | |
| 6C | Water Reticulation | 1,000.00 | | |
| 6D | Sewerage | 1,000.00 | | |
| 6E | Fencing and Gates | 5,000.00 | | |
| | Group Element Total | 20,000.00 | | |
| | Sub-total (excl. preliminaries) | | | |
| | Preliminaries (5% of sub-total) | | | |
| | TOTAL COST (excluding contingencies) | | | |

*For the purpose of this estimate only,
'building cost' is the costs of item
1, 2, 3, 4 & 5, excluding external works

